NEW ENGLAND FISHERY MANAGEMENT COUNCIL

Multispecies (Groundfish) Committee

I. STATUS

A. Meetings: The Groundfish Plan Development Team met July 25, 2007 and held conference calls on June 28 and August 21, 2007. The Multispecies (Groundfish) Oversight Committee met August 1, 2007 and September 5, 2007. Meeting summaries are attached.

B. Amendment 16: The Amendment 16 scoping period ended December 31, 2006. Scoping hearings were held in Maine, New Hampshire, Massachusetts, Rhode Island, and New York. The Committee and Council reviewed scoping comments at the February 2007 and June 2007 Council meetings. The Gulf of Maine Research Institute and the Massachusetts Marine Fisheries Institute hosted meetings to help proponents of alternative management systems develop detailed proposals. In June 2007 the Council decided that Amendment 16 will modify the effort control system to in order to continue stock rebuilding, and will modify existing sectors and adopt new sectors. Since that meeting, the Committee has focused on resolving the policy issues necessary to facilitated adoption of seventeen additional sectors and modifications to two existing sectors.

C. GB Haddock Minimum Size: In response to a Council request to reduce the GB haddock minimum size, NMFS has reduced the minimum size of haddock (both stocks) for commercial vessels to eighteen inches. This change will be effective for 180 days beginning August 10, 2007.

D. TMGC: The Trans-Boundary Management Guidance Committee met September 11-12 to develop recommendations for the 2008 TACs for Eastern GB cod and haddock, and GB yellowtail flounder. The Council will review and approve these recommendations.

II. COUNCIL ACTION

A. Review and approval of FY 2008 TACs for Eastern GB cod and haddock, and GB yellowtail flounder.

III. INFORMATION

1. Multispecies (Groundfish) Committee Meeting Summary, August 1, 2007
2. Multispecies (Groundfish) Committee Meeting Summary, September 5, 2007(will be brought to the Council Meeting)
3. PDT conference call summary, June 28, 2007
4. PDT meeting summary, July 25, 2007
5. PDT conference summary, August 21, 2007
6. Amendment 16 pending issues summary
7. US/CA quota monitoring
8. Correspondence

#1

New England Fishery Management Council
Multispecies (Groundfish) Oversight Committee
Meeting Summary
August 1, 2007

The Multispecies (Groundfish) Oversight Committee met in Peabody, MA to continue development of Amendment 16 to the Northeast Multispecies Fishery Management Plan. The Committee also received a report on the 2007 Transboundary Assessment Committee (TRAC) assessments of eastern Georges Bank cod and haddock, and Georges Bank yellowtail flounder. Committee members present were Mr. Rip Cunningham (Chair), Mr. Mike Leary (Vice-Chair), Mr. Dave Preble, Ms. Sally McGee, Mr. Tom Hill, Ms. Susan Murphy, Mr. Jim Odlin, Mr. Rodney Avila, Mr. Jim Ruhle, and Mr. Terry Stockwell. Staff members supporting the meeting were Mr. Tom Nies (NEFMC), Mr. Tom Warren and Mr. Doug Christel (NERO), and Mr. Gene Martin (NOAA GC).

The meeting focused on sector management issues. The key document used to guide the discussion was a memorandum from the Groundfish Plan Development Team (PDT) dated July 27, 2007.

Sector Management Issues
Council staff provided an overview of the process used by the PDT to identify and prioritize sector management issues that should be addressed in order to implement sectors that applied for consideration. The PDT report discusses the issues in order of priority as viewed by the PDT; the Committee discussion followed the same order.

Sector Baseline Period
Council staff reviewed the PDT's discussion of the sector baseline period. Staff noted the PDT found it difficult to separate the baseline period (the years used to determine vessel history) with the method used to calculate history (e.g. landings history alone or in combination with other factors). As a result the PDT report discusses both issues. Staff noted that in some respects it was not accurate to characterize this discussion as an allocation discussion, since technically it was calculation of history for permits that does not become an allocation until the permit joins a sector, but the PDT often used this term to simplify the discussion. After a few brief questions on the report, the following motion was offered.

> **Motion**: The Committee recommends that we consider two baseline periods for analysis and consideration - FY 1996 through FY 2001 and FY 1996 through FY 2006 – using landings history data. (Mr. Odlin/Mr. Hill)

Two Committee members spoke against using landings history data alone to determine the history for each permit. They argued that because of regulatory restrictions and poor stock status, some fishermen did not have access to the resource and could not acquire history during the proposed time periods. They also argued that this approach rewarded fishermen who (legally) targeted weak stocks under the adopted regulatory regime. Other Committee members spoke in support of the motion. One noted that with the evidence that the resource is fully used by current participants it seems inappropriate to assign history to vessels that were not targeting the fish. Another argued that including other factors could lead to allocating stocks to fishermen who had no history and no interest in targeting those stocks; this would lead to a need for adjustments between sectors and could cause considerable chaos in the fishery. Public comment included:

- Mr. Vito Giacalone: Northeast Seafood Coalition (NESC). The Committee should consider that if there is an interest in promoting sector enrollment that can only be achieved if every permit is valuable to a sector. This is a way to encourage vessel with permits to stay in groundfish and not move into other fisheries, creating a problem with displaced effort. Using landings history alone will disenfranchise many permits that will not be valuable to a sector. Vessel owners that have multiple permits will take the permit with catch history into the sector and may either use the other permits in the common pool or sell these permits. These permits will either target groundfish in the common pool or increase effort in other fisheries. The Committee also needs to address the discrepancy between the allocation of DAS and the allocation of quota that was pointed out by the PDT. Considering other factors helps to mitigate this problem. More vessels will have a value to sectors and may join sectors. We represent twelve sector requests and every one of them is concerned about only using catch history for this decision.
- Mr. Chris Brown: Rhode Island Commercial Fishermen's Association. If you use the periods proposed, you are using the period when the ocean was the sickest it has been in our memory in order to allocate future access. As stocks rebuild, you will be encouraging massive amounts of discards as sectors without landings history during this period encounter rebuilt stocks. This year is a perfect example – I caught cod in southern New England in amounts I have not seen in decades. We have to preserve communities that we have left. Using only landings history will not accomplish that. We should also include some type of capacity criterion. We need to remember that we should be planning for when the oceans are healthy.
- Ms. Maggie Raymond: Associated Fishermen of Maine and the Sustainable Harvesting Sector. The sector policy seems to say shares will be allocated based on percentages of the annual catch entitlement. If the Committee decides to use something other than landings history, I hope they will lay out what they are trying to achieve by doing so. Otherwise we won't know if our approach addresses the problem or not. The most important thing- sectors need to know what the possibilities are. We have to begin work on our operating plans and EA's for the 2009 fishing year and we cannot do that without knowing how history will be calculated. I hope you consider as few options as possible.
- Mr. Peter Taylor: Cape Cod Commercial Hook Fisherman's Association. We support this motion and hope it goes forward as it stands.
- Mr. Frank Mirarchi: Commercial fisherman from Scituate, MA. I disagree with the motion on the floor. Fishermen in the southwestern Gulf of Maine have done many things to keep their businesses going in the face of seven month of rolling closures, 30 pound cod caps, etc. A simple landings based allocation is disadvantageous to those who diversified into other types of fishing. In addition we have seen changes in distribution for a whole host of reasons: fishing pressure, climate change, etc. I recommend inclusion of some type of capacity units in the formula, and as long a time period as possible.
- Mr. Glen Libby: Midcoast Fishermen's Association. I urge you to go with the longer time period. Some of our members bought permits with DAS but little landings history. They may not be as interested in sectors if the calculation does not include a period when those permits acquired history.
- Mr. Ed Barrett: President, Massachusetts Bay Groundfishermen. I represent forty boats. We do not support this motion for the same reasons as Frank Mirarchi. We think you should use a longer time period.

Motion to amend: to insert after "landings history data": "and DAS utilization". And to only consider one time period (FY 96-2006). (Mr. Ruhle/Mr. Avila)

Mr. Ruhle said this motion was an attempt to address the concern that only landings history was being considered while reducing complexity by considering only one timeline. This motion gives used DAS a value, and recognizes that some fishermen may have done the right thing for the resource but the wrong thing for their own pockets. How to weight each factor would need to be determined.

Several Committee members opposed considering only one option and questioned whether that would be consistent with NEPA requirements. Ms. Murphy opposed the motion because it would result in only one alternative. A Committee member cautioned that these types of decisions typically take months to resolve and it was not clear this discussion was a careful consideration of the complex issues that needed to be addressed. Another member spoke in favor of considering capacity in some form, but was uncertain whether this motion addressed this.

A motion **passed** to move the question (6-3). The motion to amend **failed** on a show of hands (2-7).

The Committee next discussed whether an option should be considered that incorporated capacity into the history calculation. Committee members were provided a strawman proposal that used vessel characteristics and DAS allocations as an element of the history calculation. A Committee member supported this concept as well as consideration of different weighting factors for the elements that were considered.

> **Motion**: That we request the PDT to evaluate the strawman history calculation submitted in a memo dated July 30, 2007 by Vito Giacalone in step 1 and 2. Weight catch history and capacity units at different levels to show how different weights impact allocations. (Mr. Hill/Mr. Ruhle)

This motion was offered to address the concern that as many boats as possible be eligible for opportunity based programs. If adopted, this approach would facilitate an industry driven rationalization of the capacity in the fishery. Some Committee members opposed the motion on the grounds it was a reallocation of the fishery. Public comment included:

- Mr. Vito Giacalone: To be clear, this is not a Northeast Seafood Coalition proposal. It is an attempt to incorporate capacity into the history calculation. There may be other approaches that the PDT can suggest. This is not a reallocation – the fishery has not yet been allocated, except for one stock allocated to the two existing sectors. Besides – the only way there won't be an allocation is if DAS are used.
- Ms. Maggie Raymond: The Committee should clearly identify the reason for using other factors in the calculation. If you want to compare this approach to the landings only approach, don't you need two time frames? For the sliding scale of weights – is it possible that landings history would be less than 50 percent? (Mr. Hill replied he did not envision landings history being less than 50 percent).
- Ms. Jackie Odell: NESC. This proposal should go forward to address the problem of redirection of effort into other fisheries, to improve the analysis for common pool and sector vessels, and to encourage sector enrollment so that consolidation can continue.
- Mr. Ted Platz:: Gillnetter, Rhode Island. I am opposed to the proposed weighting system because it is biased towards large boats. A better way to do this would be to use DAS used or allocated.
- Mr. Glen Delaney: Just as general comment on the process. I don't see why the Committee should be afraid of looking at this. I think from a NEPA standpoint we should be

looking at alternatives. Without this option, all the Committee is looking at are two different time periods. That does not seem to be a sufficient range of alternatives.

- Mr. Frank Mirarchi: I support the motion. Considering capacity could help mitigate impacts across broad sectors of the fleet. It is worthy to do the analysis.
- Mr. Phil Ruhle: There are problems with the catch history in the database. I reported a problem at the June Council meeting that another fisherman had that has not been resolved. I have since discovered my own catch history for herring is off by hundreds of thousands of pounds. I've seen the numbers the dealer reported and the numbers in the database as reported back to me are way out of whack. How do these numbers get changed? Everyone in this industry should contact NMFS and get their catch history.
- Mr. Dan Holland: GMRI. There is an issue in terms of a secondary allocation method on how the history will be turned into stock specific allocations. There is a possibility that some sectors may get an allocation of stocks they do not need. There are also problems that there is no way to balance quota between the sector and common pool vessels. There are ways to mitigate these problems – perhaps by allocating the capacity units by stock area based on landings history.

Mr. Warren noted that NMFS is concerned about the direction this discussion was headed. Allocating to the fishery as a whole is a fundamental change to the fishery. A simple allocation scheme would be better.

> **Motion to substitute**: The Committee offers to the Council and the PDT for analysis and consideration for the baseline for sectors, utilizing the criteria of FY 1996-2001, and FY 96-FY 2006, weighting and utilizing 50 percent landings data and 50 percent Category A DAS used and also analyzing 75 percent landings data and 25 percent Category A DAS used. (Mr. Odlin/Mr. Stockwell)

This motion would give the Committee and the Council four options to examine. By using used DAS, there may be a smoothing effect on the many changes that affected landings history. Vessels that avoided weaker stocks, while using DAS, would not be penalized for these decisions. A suggestion to change "used DAS" to "allocated DAS" was not accepted as a friendly amendment.

The motion to substitute **carried** on a show of hands (7-1-1). The vote on the motion **carried** on a show of hands (8-1). The Committee clarified that the landings history calculation would be performed in the same manner as has been done for existing sectors. The DAS calculation should be performed in the same manner as the landings history: cumulative DAS used by a permit over the time period divided by cumulative DAS used.

A Committee member commented that he did not feel the Committee was spending enough time on this issue. Decisions on the baseline will have long-term implications that should be carefully considered and discussed by the full Council since these decisions will impact Amendment 17. Sectors will make decisions based on the baselines, and once there are a large numbers of sectors operating, future changes will be resisted. Another Council member disagreed and noted that the Council had clearly stated that Amendment 17 would address allocation issues; he said that in his view the baseline decisions did not commit the Council to using this same method of allocation in the future. Another member suggested the Council make it clear to the public that the form of sectors adopted by Amendment 16 may be revised in the future.

Allowances for Other Fisheries

Staff reviewed the PDT discussion on establishing allowances or set-asides for other fisheries, noting that this issue would likely be important both for sectors and for setting annual catch limits. Preliminary stocks were identified for a set-aside for the recreational fishery. Issues concerning set-asides for the commercial fishery also explained. Staff noted that additional PDT work would be required for this issue.

The Committee discussed the limits on groundfish catch under the exempted fishery regulations, and whether this would help limit the number of set-asides that needed to be developed.

> **Motion**: Have the PDT do an analysis of all exempted fisheries in existence to see if they continue to meet the 5% bycatch standard. (Mr. Odlin/Mr. Stockwell)

The motion carried on a show of hands (8-0).

Trading Between Sectors
Staff summarized the PDT discussion of trading of fish between sectors. For clarity, the Committee adopted the PDT recommendation that "trading shares" meant trading the percentage allocation of a sector on a long-term basis, while "trading Annual Catch Entitlements (ACE)" meant a trade within a fishing year of a certain amount of pounds.

> **Motion**: The Committee recommend transfers of ACE between sectors during the fishing year and up to two weeks after the end of the fishing year be allowed and that sectors with catches of stocks that exceed their ACE allocation be required to cease operations in that stock area until they can acquire ACE of that stock to balance the catch. (Mr. Preble/Ms. McGee)

The Committee discussed whether sectors should be required to cease fishing immediately if their ACE is exceeded, noting that the PDT recommended that small overages be allowed. Staff explained the PDT's recommendation was based on similar provisions contained in other programs, which allow for some flexibility to balance ACE after exceeding an allocation in order to account for uncertainty in fishing practices. Staff noted the PDT thought the provision could be designed in such a way to prevent exceeding the overall sector allocation. While some Committee members supported this approach, others felt it would merely encourage all sectors to exceed their ACE by a small amount each year, leading to overfishing. The maker of the motion made it clear that he intended the motion to mean that sectors are not allowed to exceed their allocation. He said he expects sector managers to carefully monitor their catches and if necessary acquire ACE to make sure they do not catch more than authorized. This motion does not change existing provisions that penalize a section in the following year if they exceed their total ACE (including any ACE acquired through trading). The Committee discussion also made it clear that by not passing a motion on trading sector shares, they were rejecting this as an alternative. Ms. Murphy noted that DAS lease requests must be submitted by March 1, and asked that the Committee consider a similar deadline for trading of ACE. Mr. Warren seconded her recommendation, noting that it would be difficult to issue ACE for the subsequent year if quota balancing was still ongoing. Public comment included:

- Ms. Raymond: I support the motion. The ability to trade ACE is what will make these sectors effective.
- Mr. Dan Holland: GMRI. Most systems that are quota based allow retrospective trading. If you don't include this provision you are increasing the incentives for illegal discards.
- Mr. Vito Giacalone: NESC. We support the concept of allowing trading of ACE between sectors. We will have some implementation questions that will need to be addressed.

The motion **carried** on a show of hands (4-2-2).

Sector Monitoring
Staff reviewed the PDT recommendations on monitoring of sectors. The Committee discussed current practices by the existing sectors but did not take any other action.

Impacts of Sectors on Designing Effort Controls
Staff summarized the PDT discussion on the impacts of a substantial number of sectors on designing effort controls. In brief, since the actual sector participants are not known, the PDT will have great difficulty designing and evaluating effort controls for common pool vessels. The PDT offered two possible solutions, but one probably cannot be implemented and the other only addresses the problem in part. The Committee acknowledged the problem but did not take any further action.

Should Sectors Need a Hard TAC for All Stocks Caught?
Staff noted that initially the PDT believed this issue would be easily resolved, since a Council motion suggested this decision had already been made. The PDT, however, identified several situations that suggest this may not work for all stocks. For example, some stocks do not have a TAC calculated (e.g. GOM winter flounder, halibut), some sectors may not have any landing history for stocks that are occasionally caught, some TACs may be so small that each sector's share is difficult to monitor. While some of the problems identified by the PDT might be addressed by allowing transfers of ACE, others may not be. The Committee discussed whether there were alternatives to address these types of situations, such as a prohibition on retention or small trip limits.

> **Motion**: For the PDT to consider whether a sector should be required to have a hard TAC on all groundfish stocks and report to the Committee at the September Committee meeting. (Mr. Stockwell/Mr. Preble)

The Committee recognized the PDT already considered this issue; this motion was merely direction for the PDT to further identify the concerns and provide additional advice on how to address the issues.

The motion carried on a show of hands (8-0).

Entry and Exit to Sectors
Staff noted the PDT did not discuss whether measures need to be developed to make sure that sector overages cannot be evaded by disbanding or departing the sector. The PDT first wanted to discuss with NERO whether NMFS felt sufficient controls were already in place to address this problem. Mr. Martin noted that the regulations provide clear penalties for violating sector provisions, and that both the sector and the sector participants are subject to those penalties. Committee members also noted that perhaps this should be addressed within the sector – that is, as part of the contract between sector members. While staff cautioned that it was not clear that all the implications had been though through, Mr. Martin felt this issue was addressed by current regulations.

Sectors and the US/CA Area TACs
Staff summarized the PDT discussion: because TACs are not currently specific to area for GB cod, haddock, and yellowtail flounder, it is possible for sectors and common pool vessels to fish in ways that limit each other's opportunities in the Eastern US/CA Area. A suggestion offered by

the PDT is to make area-specific allocations for these species. A member of the public spoke in favor of this approach.

> **Motion**: To continue to develop the PDT's recommendation for allocating area-specific TACs in the US/CA area to sector and common pool vessels. (Mr. Stockwell/Mr. Ruhle)

The motion carried on a show of hands (8-0).

TRAC Report
NEFSC biologists provided summaries of the recent TRAC assessments for eastern GB cod and haddock, and GB yellowtail flounder. These assessments are summarized in stock status reports that were provided to the Committee. At the end of the report the following motion was offered:

> **Motion**: The Committee asks the Council to recommend to the Regional Administrator that the Eastern Georges Bank area not open in FY 2008 until August 1. (Mr. Odlin/Mr. Avila)

The reason for this motion is that in each of the last three years cod catches in the area in early summer have been high, leading to closure of the area and reduced opportunities to catch haddock. Delaying the opening should reduce cod catches and discards, as cod disperse over the summer. Public comment included:

- Mr. Peter Taylor: CCCHFA. We oppose this motion. We fish in this area in May and June, targeting haddock. After that we cannot successfully target haddock in the area. All of our opportunities will be gone if you approve this.

> **Motion to amend**: The Committee asks the Council to recommend that the Eastern Georges Bank area not open in FY 2008 until August 1 for trawl gear. (Mr. Leary/Ms. McGee)

This amendment will allow longline gear to fish during this period, but will prohibit trawl gear from entering until August 1. It will preserve access for longline gear while reducing cod catches by trawl gear. The Committee asked the PDT to provide information on cod catches by all gears in this area during these months.

The motion to amend **carried** on a show of hands (4-3-2, Chair voted in favor). When voted as the main motion, it **carried** on a show of hands (4-3-2, Chair voted in favor).

The meeting adjourned at 5 pm. The next meeting of the Committee will be on September 5, 2007 at the same location.

#2

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John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

MEMORANDUM

DATE: July 2, 2007
TO: Multispecies (Groundfish) Oversight Committee
FROM: Groundfish Plan Development Team
SUBJECT: **PDT Conference Call, June 28, 2007**

1. The PDT conducted a conference call to discuss support for the Committee's August meeting. The Committee meeting will focus on sector issues at this meeting. During this call, the PDT identified and prioritized issues that need to be resolved in Amendment 16. The PDT will provide further advice on these issues after a PDT meeting tentatively planned for July. Call participants were Tom Nies (Chair, NEFMC), Tom Warren, Mark Grant, Sarah Thompson, and Stan Wang (NERO), Steve Correia (Mass. DMF), Kohl Kanwit (Maine DMR), Eric Thunberg and Paul Nitchske (NEFSC), Dan Holland (GMIR), and Paul Parker (Groundfish AP). Listening in to the call were Cindy Smith (GMRI), Maggie Raymond, and Chris Kellogg (NEFMC).

2. This summary documents the issues identified by the PDT, provides very brief summaries of some of the issues raised, and identifies the PDT Member who will prepare additional discussion points for the PDT meeting. The report of that meeting will contain PDT recommendations as appropriate.

3. It may be helpful to clearly define terms when discussing sectors. The practice used in this memo is to use the term "share" to refer to the sector's percentage of the available catch, determined by the baseline period adopted and sector membership. "Annual catch entitlement" (ACE) refers to the amount (weight) of fish that the sector is authorized to catch in any specific fishing year. ACE is equal to the share times the available catch, less any penalties due to overages.

4. The PDT will also review the Council's sector policy and determine which elements should be adopted in Amendment 16 (some of these issues are discussed below).

High Priority

5. *What fixed baseline period should be used for allocating to sectors? Should factors other than landing history be considered when allocating?* The PDT noted there may be identifiable bounds on the years, such as FY 1996 through FY 2006, since that may be the limits of data available for implementation May 1, 2009. (Tom Nies/Paul Parker)

6. *How will discards be monitored, reported, and considered when evaluating sector performance?* Council policy is that discards will count against the sector's TAC, but monitoring needs to be addressed. Options might include applying a fishery-wide discard rate to all sectors,

determining a sector specific discard rate, establishing a standard on discard estimation that must be met by sectors. (Paul Parker)

7. *Should sectors be allowed to trade shares? Should sectors be allowed to trade ACE?* Generally, the PDT notes this issue may have implications on the status of sectors that can only be addressed by NOAA GC. An argument against trading shares is that these shares are determined by the landing history of vessels in the sector – trading share in essence takes away the landing history of a vessel (or vessels) and gives it to another sector. Allowing trading of ACEs allows for quota balancing within a year and may promote better use of available yield. Whether sector caps apply to trading needs to be addressed. (Dan Holland)

8. *How will allowances be made for other fisheries (recreational, scallop dredge, etc.)?* Fisheries of concern must be addressed, as well as how to account for their catch. This is also an issue for ACLs/AMs. (Eric Thunberg/Kohl Kanwit)

9. *How do sectors affect the ability to develop and analyze effort-based measures for common pool vessels?* Current analytic tools require an understanding of who will be subject to effort controls, but some sector proposals are not specific on sector membership. (Eric Thunberg/Tom Nies)

Medium Priority

10. *Should sectors need a hard TAC for all groundfish stocks?* There may be ways to address stocks that are rarely caught, or caught in small amounts, to reduce burden of monitoring small TACs and reduce likelihood a small catch of a rarely caught stock will close down a sector. (Eric Thunberg)

11. *Should a permit holder be prohibited from leaving a sector and should an entire sector be prohibited from dissolving if the sector exceeds its allocation?* More broadly, the issue is whether mechanisms exist, or need to be created, to prevent a sector or its members from evading penalties by dissolving or leaving the sector. There may be regulatory or private sector ways to address this concern. (Tom Warren)

12. *Can the sector application and review process be simplified?* NERO is already discussing this issue and may bring ideas forward at a later date. (Tom Warren)

13. *How is landings history treated within a sector?* Some vessels in a sector may not fish, yet the share they bring to the sector contributes to the sector share. (Dan Holland)

14. *How should the US/CA area be treated – should the sector allocation specifically include a portion of US/CA TACs?* Present allocations do not limit a sector's share of GB cod, haddock, or yellowtail flounder based on area. It is possible for the sector and common pool vessels to affect each other's access to the US/CA area. (Tom Nies/Paul Parker)

15. *What is the meaning of the Council's policy that says "a vessel cannot be in more than one sector in different FMPs in the same year?"* As an example, how does this affect sectors that may want to fish for groundfish and monkfish (assuming sectors are authorized under the monkfish FMP).

Low Priority

15. The PDT recommends the Committee adopt the sector definition as stated in the Council's sector policy (definition 2).

16. *Should the cap on sector shares by modified?* While there may be reasons to modify the cap, the PDT does not view this as a high priority compared to other pending issues. It may be worthwhile, however, to better define the rationale for the existing cap or any cap adopted in the future.

17. *Should there be a minimum size for sectors?* Given the administrative burden of forming sectors, the PDT does not believe it likely that very small sectors will form. Practically, any sector smaller than three firms cannot have its share or performance published because of confidentiality restrictions.

18. *Should sectors be "affinity based" – that is, have something in common – gear, homeport, etc.?* The PDT does not believe this is desirable or necessary, and conflicts with the underlying concept of self-selecting sectors. In a related issue, the PDT discussed issues related to sector operating areas: are there reasons to encourage or prefer sectors that operate in only one area? This latter issue will be explored by the PDT (Eric Thunberg/Tom Nies/Tom Warren).

19. Can multi-year authorizations be implemented? There may be NEPA and APA issues associated with the concept of changing the requirement for an annual submission of an operations plan. (Tom Warren)

Pending

19. *How will ACLs/AMs be applied to sectors?* Further development of this concept depends on NMFS guidance.

20. *Are sectors subject to LAPP cost recovery?* This question must first be addressed by NOAA GC. If so, how will costs be calculated and assessed?

#3

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MEMORANDUM

DATE: July 27, 2007

TO: Multispecies (Groundfish) Oversight Committee

FROM: Groundfish Plan Development Team

SUBJECT: **Groundfish PDT Meeting, July 25, 2007**

1. The PDT met in Mansfield, MA to consider issues related to sector management that were identified in an earlier conference call (see PDT memo dated July 2, 2007). PDT members present were Tom Nies (NEFMC), Steve Correia (Mass. DMF), Kohl Kanwit (Maine DMR), Eric Thunberg (NEFSC), Jennifer Anderson (NERO), Paul Parker (Groundfish AP Chair) and Dan Holland (GMRI). While not a PDT member, Susan Murphy (NERO) attended and answered several questions on NMFS policy and procedures. Multispecies Committee Chair Rip Cunningham and member Sally McGee also attended.

2. The PDT advice is provided in the form of discussion papers attached to this memo. They are attached in order of discussion, which reflects the PDT's prioritization of the issues. Not all issues identified during the earlier conference call were addressed because several key PDT members were unable to attend the meeting. The pending issues are:

- Departure of permit holders from sectors
- Simplifying the sector review process
- Multi-year authorizations

3. Two issues proved more complex than originally thought and additional work will be necessary. These are:

- Are hard TACs needed for all stocks caught by a sector?
- How will groundfish catches in other fisheries be accounted for?

Sector Allocation Baseline

Issue: The Council Sector Policy requires that each FMP identify a single, fixed and permanent baseline for the purpose of sector allocation, but acknowledges that there may be reasons for exceptions to this requirement (e.g. in some fisheries it may make sense to have a different baseline period for different areas).

Discussion:
(1) Amendment 13 sector provisions do not comport with this policy. Amendment 13 adopted a fixed baseline of fishing years 1996 through 2001 for allocating GB cod, and a sliding baseline ("the most recent five year period") for other stocks. The baseline for GB cod changed to the sliding baseline for any sector that begins fishing in FY 2007 or later. At a minimum, Amendment 16 must consider adopting a fixed baseline period for determining sector allocations in order to be consistent with the Council's sector policy and a recent Council groundfish motion. While the amendment could consider whether multiple fixed baselines are appropriate for this fishery, this would vastly complicate the baseline decision. It is not clear what rationale could be offered to justify multiple baselines in this fishery, it is possible permit holders would argue for a different baseline for each stock, the calculation of stock-specific allocations for each permit would be complicated by different ownership of the permits in the different periods. There are easier ways to address concerns that a specific time period may not be appropriate for one stock due to unusual resource or regulatory conditions (for example, use a longer baseline period to smooth fluctuations, use factors in addition to landings history as a basis for allocation).

(2) On the surface this is a simple, if contentious, problem: determine alternatives for a fixed baseline that will be used when calculating sector allocations based on landings history. Recent changes to the M-S Act may complicate this discussion. While it is uncertain whether sectors are subject to the requirements for Limited Access Privilege Programs (LAPP), the recently revised M-S Act adopted requirements for allocations in a LAPP system, summarized below (section 303A(C)(5)). The law also requires that an auction be considered for initial allocations. As noted in the subsequent paragraph, whether or not the Council is required to consider these factors, the Council may want to consider these factors.

> *The Council or Secretary shall:*
>
> *(a) establish procedures for a fair and equitable initial allocation, including consideration of current and historical harvests, employment in the harvesting and processing sectors, investments and dependence on the fishery, current and historical participation of communities;*
>
> *(b) consider the basic cultural and social framework of the fishery, especially through the development of policies to promote the sustained participation of small owner-operated fishing vessels and fishing communities that depend on the fisheries, and procedures to address concerns over excessive geographic or other consolidation in the harvesting or processing sectors;;*
>
> *(c) include measures to assist, when necessary and appropriate, entry-level and small vessel owner operators, captains, crew, and fishing communities through set-asides of harvesting allocations;*
>
> *(d) ensure that limited access privilege holders do not acquire an excessive share of the total limited access privileges in the program by establishing a maximum share, expressed as a percentage of the total limited access privileges, that a limited access*

privilege holder is permitted to hold, acquire, or use, and establishing other limitations as necessary to prevent an inequitable concentration of limited access privileges, ,and authorize limited access privileges to harvest fish to be held, acquired, used by, or issued to persons who substantially participate in the fishery.

(3) The allocations for the two existing sectors are based on landings history. Whether or not LAPP requirements apply, the Committee may want to consider whether other factors should be incorporated into the allocation formula. It is possible to develop a formula that weights landings history and other factors (e.g. DAS allocations, revenues, vessel size, permit existence). If the Committee wants to consider factors other than landings history, the Committee should first identify what the objectives are for using other factors – what concerns are the other factors meant to address?

Incorporating factors other than landings history into an allocation formula will complicate the calculation of sector quota shares. The portion of the stock that will be distributed in this way needs to be identified. At the end of the day, the formula has to return stock-specific shares. There are at least two ways to distribute the portion of the TAC that is assigned based on these other factors:

(a) Convert the factor directly into a stock-specific share. This will result in all vessels receiving a history for all stocks. Some vessels will have history for stocks that that they cannot use. If trading is allowed, the resulting sector allocations can be redistributed to sectors that actually want to use the shares. This may be easier to discuss and debate than the other approaches suggested.

(b) Use the factor to scale that portion of the history that is based on landings history. In this method, the factor only influences that portion of the TAC received based on history, and as a result vessels/sectors would not receive history for a stock that they did not have a history of using. This approach may be less transparent and more difficult to develop.

Other possible mechanisms (such as converting the factor into a currency that is then used to auction off the portion of the allocation that is not based on landings history) may be too complex to consider in this action.

(4) There are logical bounds on possible baseline time periods. The current two-tier reporting system was implemented March 1, 1994 (just before the start of FY 1994). Part of the justification for this system was that data in the earlier system was incomplete, so it would seem illogical to choose a starting point prior to this date. NERO has advised that the latest year of data that can be used to determine shares for sectors that will begin fishing in FY 2009 is data from FY 2006. The logical outside bounds of the baseline period would thus be FY 1994 through FY 2006.

There are other issues to consider.

- Ideally, the baseline period should be a period when all vessels had equal access to stocks. A more realistic goal would be to use a period when management measures were consistent and landings history reflected adaptation to those measures. Unfortunately, it is impossible to identify a multi-year period with unchanging measures. Major changes in effort controls occurred in 1994 (DAS system for individual DAS vessels, year-round closures on

GB), 1996 (DAS extended to nearly all vessels), 1998-2001 (inshore closures in the GOM, gear changes, possession limit changes), 2002 (DAS reductions and changes in closures as a result of the FW 33 court order), 2004 (Amendment 13), and 2006 (emergency action and FW 42).

- NMFS published a control date on September 10, 1999, for the groundfish fishery. "This notification establishes September 10, 1999, as the control date for potential use in determining historical or traditional participation in the Northeast multispecies and Atlantic sea scallop fisheries." This control date has not been used for the groundfish fishery and it would be difficult to justify its use now.
- Amendment 13 DAS allocations were based on landings history and DAS use for FY 1996 through 2001.
- DAS leasing was implemented in FY 2004. The treatment of landings history and DAS history in the leasing program is a mechanism to inadvertently increase effort in the fishery. Under the regulations in effect, the landings history accumulated by a vessel using leased DAS accrues to the vessel/permit catching the fish, while the DAS use history accrues to the permit that owns the DAS. A vessel that leased DAS during this period can take the catch history into the sector while the DAS remain outside the sector. In effect, one fishing trip generates two types of history (DAS and landings) that are on two different vessels/permits. If the permit with the catch history joins a sector while the permits that own the DAS remain outside the sector, the amount of catch allocated to the sector is not proportional to the DAS joining the sector (removed from the common pool). In the extreme, a vessel owner with multiple permits could take the vessel with landings history into the sector and sell the other permits into the common pool. This increases the amount of effort available to the fishery and the effect is not much different than increasing the number of permits in the fishery. As a result, measures for the common pool may have to be more stringent to account for increased effort (such as with more stringent effort controls or a hard TAC backstop). While more stringent management measures address the mortality implications of increased effort in the common pool, the economic and social consequences remain. These issues may support choosing a baseline period that is as long as possible but does not include leasing.
- Special access programs and the Category B (regular) DAS program were adopted subsequent to Amendment 13. The opportunity to participate in these programs was not evenly distributed. For example, only Georges Bank Cod Hook Sector vessels were allowed to participate in the CAI Hook Gear Haddock SAP in its first year; only trawl vessels are allowed to participate in the US/CA Haddock SAP; Category B (regular) DAS opportunities were limited in the Gulf of Maine.
- FW 41 includes the following statement for the CAI Hook Gear Haddock SAP: "It is the intent of the Council that none of the catch in this SAP will be considered part of a vessel's catch history with respect to any future allocation of the overall haddock TAC." If the Council complies with this statement of intent, including a qualification period that extends into FY 2004 will complicate calculation of haddock landings history.
- The experience of the two existing sectors is that there are more errors with the data in earlier years. It is possible that extending the baseline period before FY 1996 will complicate implementation because of lower quality data.

Recommendation:

(1) Given the information presented, two alternatives are offered for consideration for a baseline period (the No Action alternative must also be considered and is shown for reference). The number of alternatives that are considered should be limited, particularly if factors other than landings history are used as the basis for the allocation: the PDT suggests that if other factors are

considered, only one alternative to No Action should go forward. The calculation should be performed for all permits, including those that do not enter a sector.

(a) FY 1996 through FY 2001

- Advantages:
  - Same period used for Amendment 13 DAS allocations and first two sectors
  - Avoids possible data quality problems
  - DAS available to most vessels was less restrictive than after court order and Amendment 13
  - Reduces complications caused by DAS leasing, SAPs
- Disadvantages
  - By time of implementation, period will be almost eight years old and will not reflect current fishing activity
  - Does not take into account industry adaptations under Amendment 13
  - Does not include a period when some stocks (GB haddock, redfish, GOM cod) were more abundant than in mid-1990's

(b) FY 1996 through FY 2006

- Advantages
  - Includes more recent fishing activity
  - Includes period of improved conditions for some stocks
  - Takes into account recent adaptations under Amendment 13
  - Reduces possible data quality problems
- Disadvantages
  - Includes period with leasing and SAPs/Cat B program, which introduces complications
  - Different than period used for initial sectors and Amendment 13 DAS allocations – another reallocation of fishing privileges
  - More restrictive DAS regime since 2002

(c) No Action: For all sectors that begin operation after FY 2007, the most recent five years of landings history. (NMFS interprets the end of the five year period to be the fishing year that ends two years prior to implementation – FY 2006 for sectors that begin May 1, 2009).

(d) The PDT also briefly discussed issues associated with other periods that may be suggested:

- 2004-2006: Short period, does not reflect "historical" fishing activity, exacerbates problems caused by leasing and SAPs.
- 2002-2003: This may not be representative of fishing activity because of disruption caused by uncertainty over FW 33 court order.

(2) The Committee should consider mechanisms that prevent increase of effort in the fishery as a result of DAS leasing. Possibilities to explore include:

(a) If the baseline period includes the years when DAS leasing was authorized, for vessels that leased DAS to vessels joining a sector, reduce the vessel's DAS baseline

based on the number of DAS leased to vessels joining sectors. In this manner the allocation of landings entering the sector will be more consistent with the DAS remaining in the common pool.

(b) If the baseline period includes the years when DAS leasing was authorized, for vessel's entering a sector, adjust landings history based on the number of DAS leased that generated that history. For example, if a vessel accumulated history and half the DAS for that history were leased, reduce landings history by half. A modification would be to apply this reduction based on the number of DAS the permit holder brings into the sector: if enough permits are brought in to remove from the common pool the number of DAS leased that generated the history, the landings history wouldn't be reduced.

(c) Truncate the baseline period to exclude the years DAS leasing was authorized (exclude FY 2004 and beyond). For example, if a long period is desired, use FY 1996 through FY 2003.

How will groundfish catch in other fisheries be accounted for?

Issue
How will allowances be made (calculated) for other fisheries that catch groundfish – recreational, scallop dredge, fluke fishery, state waters, etc.?

Discussion
(1) The groundfish plan currently has set-asides or allowances for closed area access programs in the scallop fishery as well as a bycatch allowance in the herring fishery. However, other fisheries in which groundfish are not the target also encounter groundfish that may require a set-aside.

(2) Current regulations already contain provisions that require fisheries to demonstrate that they can operate with less than 5% bycatch of regulated groundfish. Given these regulations it may not be necessary to develop additional set-asides for each non-groundfish fishery. However, the amount of bycatch of groundfish by species/stock in these fisheries would need to be estimated and deducted from the overall TAC for purposes of assigning ACE to sectors. Bycatch amounts would also need to be monitored in order to make periodic adjustments to set-asides.

(3) At this time, the yellowtail founder TAC used in the scallop closed area access programs and the haddock bycatch limit for the herring fishery would shut these fisheries down when the TAC is reached. If additional bycatch set-asides are developed will these also be used to shut down non-groundfish fisheries? If not, then set-aside must be estimated and deducted from the sector and common pool TAC which effectively makes the targeted groundfish fishery the residual claimant to groundfish.

(4) Monitoring of bycatch in other fisheries would be required to make annual adjustments to the set-aside. General classes of fisheries that may require a set-aside were identified which included recreational, commercial EEZ, and state waters fisheries.

(5) Recreational - Potential recreational stocks that may require a set-aside were evaluated using VTR data for calendar years 1996-2006. Annual kept catch by stock are reported in Table 1. Harvest of different groundfish stocks varies widely with some stocks representing a potentially meaningful contribution to fishing mortality while others are infrequently taken in the party/charter fishery. Additional analysis is necessary to evaluate MRFSS estimates of recreational harvest particularly that of the private boat and shore mode.

(6) Preliminary Recommendation – The Committee may consider developing a set-aside for GOM cod, GB cod, GOM haddock, pollock, and possibly SNE/MA winter flounder. All other species should be considered de minimus and not assigned a specific allowance. However, party/charter catches of these stocks should be monitored to identify changes in de minimus status.

(7) EEZ Commercial – Setting a bycatch allowance of groundfish in other fisheries may be accomplished by either setting a single allowance for each groundfish stock to account for bycatch in all non-groundfish fisheries or by attempting to set a bycatch allowance for each separate fishery. A third possibility may be some combination of the two where specific allowances are assigned to high profile or clearly delineated activities. Assigning a bycatch allowance for all fisheries is likely to be complicated and difficult to monitor whereas assigning a single bycatch allowance for all non-groundfish fisheries may be simpler to estimate and

monitor. This approach would also recognize that some non-groundfish fisheries have low groundfish bycatch rates making the cost of setting and monitoring bycatch allowances for every fishery unnecessarily high relative to the benefit of doing so. This approach would also likely to result in less inter-annual variability in setting of bycatch allowances since it would not require an adjustment as bycatch rates in individual fisheries may be more variable than bycatch rates for all fisheries combined.

(8) Strictly for purpose of illustration, the PDT examined observer data for calendar year 2002 to 2006 to create preliminary estimates of catch per landed pound for each of the 10 regulated mesh groundfish species. A data set that included all trips where the targeted species was something other than groundfish and a series of data sets were created based on stated targeting of specific non-groundfish species. The latter included fluke, scallops, scup, black sea bass, herring, mackerel, squids, shrimp, lobster, skates, monkfish, and whiting. These data sets included trips in which these species was a target species on at least one haul.

(9) For the pooled unspecified non-groundfish target data set the number of observed trips ranged form 679 observed trips in 2002 to 2490 trips in 2005. Note that the increased trips were probably a reflection of the total level of observer coverage particularly in 2004 and 2005 and not to a major shift in targeting behavior. As noted above, the calculated bycatch rates were relatively stable even as catches of a given groundfish stock and landings of all non-groundfish species changed from year to year. Contrast this result with that of catch rates that were calculated based on fisheries identified by targeting. Calculated bycatch rates for individual targeted non-groundfish species varied considerably across target species and across years even within target species. These results serve to illustrate the potential difficulty associated with trying to assign bycatch allowances on a fishery-by-fishery basis. Note, however, that the procedures used for demonstration purposes would not be used for purposes of calculating a bycatch set-aside.

Potential issues include:

- What time period should be used to make initial estimate of allowances and what time period would be used to make adjustments?
- What is a fishery? Single species like herring and scallops are less problematic but fluke is part of a mixed-trawl fishery. To what component of the fluke fishery would a TAC set-aside apply if a fluke bycatch allowance were to be selected?
- How to assign an allowance if the assessment from which the TAC derives does not include recreational harvest?
- Does the PDT want to make a recommendation to define de minimis status for making bycatch allowances where de minimis would mean that no allowance (i.e. absence of an allowance not zero) would be assigned?
- How to expand observed bycatch rates to total catch for purposes of estimating the allowance?
- What to do about state waters fisheries?

Table 1. Summary of Annual Groundfish Kept by Party/Charter Trips (1996 to 2006)

	Calendar Year Party/Charter Kept Catch (numbers)										
Species/Stock	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
GOM COD	204,994	181,251	342,022	241,018	304,618	535,863	263,638	196,503	188,401	151,213	93,667
GB COD	1,025,819	801,868	1,032,515	762,352	740,075	1,442,981	860,715	337,283	227,002	98,214	87,567
GOM WINTER	477	174	1,074	134	192	272	199	345	759	145	2,335
GB WINTER	3	0	0	137	8,898	80	380	167	201	34	46
SNE/MA WINTER	15,274	37,025	11,832	8,545	6,403	7,568	5,642	7,128	12,337	3,305	2,034
GOM HADDOCK	9,273	19,076	24,903	21,850	35,620	43,006	59,215	55,370	107,857	116,251	118,553
GB HADDOCK	2,012	1,675	1,334	1,459	695	933	9,079	2,440	5,114	2,995	834
CC/GOM YELLOWTAIL	2	32	164	1	757	3	281	0	372	0	3
GB YELLOWTAIL	0	0	0	0	0	0	0	0	2,465	0	0
SNE/MA YELLOWTAIL	11,355	477	32	76	192	560	189	21	85	67	0
WINDOWPANE N	0	1	3	4	2	0	1	0	0	0	1
WINDOWPANE S	986	149	489	339	86	105	22	22	32	538	6
POLLOCK	52,348	101,162	83,852	77,192	66,010	137,870	81,183	97,346	101,429	67,031	86,604
WHITE HAKE	1,684	4,667	2,345	1,430	1,459	1,734	3,481	1,730	1,612	1,521	551
AMERICAN PLAICE	411	1,020	638	559	84	52	3,369	48	636	92	41
ACADIAN REDFISH	3,543	3,040	3,647	3,850	2,340	2,565	3,100	3,947	4,602	4,007	6,402

Should sectors be allowed to trade shares? Should sectors be allowed to trade ACE?

Issue:
Generally, the PDT notes this issue may have implications on the status of sectors that can only be addressed by NOAA GC. An argument against trading shares is that these shares are determined by the landing history of vessels in the sector – trading share in essence takes away the landing history of a vessel (or vessels) and gives it to another sector. Allowing trading of ACE allows for quota balancing within a year and may promote better use of available yield. Whether sector caps apply to trading needs to be addressed.

Note: "Share" means the percentage of the TAC attributed to a permit or allocated to a sector. Annual Catch Entitlement (ACE) is used to refer the amount of catch that can be taken by a sector or permit in any given year, calculated by multiplying the share by the available catch (less any penalties and/or set asides).

Discussion:
(1) The primary reason to allow trading between sectors of either sector quota shares or ACE is to mitigate imbalances between the share/ACE portfolios of the sectors and their desired or actual catches. This may be particularly important for stocks for which a sector may have only a small allocation (e.g. GOM or SNE windowpane flounder or SNE yellowtail) and may be constrained from utilizing the ACE for their primary target species due to incidental catch of these other species. If other sectors have surplus ACE, the ability to purchase additional ACE for these species if they become constraints would alleviate this problem and would likely increase the ability of sectors to utilize a greater percentage of their allocations of their primary target species.

(2) More substantial trades of ACE might be desirable in response to shifts in the distribution of primary target species. For example if cod stocks begin to expand into or shift to areas where they have been less prevalent, it may be beneficial for sectors in the area where cod has moved to purchase ACE from sectors in other areas. The gains may be sufficient to increase the profits to both sectors. If the species shifts are long-term, a shift in permits between sectors may make sense, but trades of ACE will be useful in the interim.

(3) The need for larger trades of shares or ACE between sectors will presumably be greater to the extent that allocations depart from recent catch histories. This will be more likely if the allocation baseline includes earlier years. It may be even more of an issue if a percentage of the allocation is based on factors other than catch history (e.g. vessel capacity based on DAS and vessel characteristics). It is a separate issue how those allocations might be done. However, if for example, the sector got shares of all fish stocks in proportion to their shares of overall capacity, then they would likely receive a substantial amount of ACE they were unable to use (e.g. a Port Clyde sector would be allocated ACE for Southern New England stocks), and substantial trading between sectors would be required to allow full utilization of ACE.

(4) Allowing trading of sector shares (outside of the movement of permits with their full share portfolio intact) would create substantial complications to sector management. Under current rules sectors can effectively trade shares on an annual basis through the movement of vessels between sectors although this is problematic (see next paragraph). Assuming a fixed baseline for allocation, the entire set of shares of catch history associated with a particular vessel would move with that vessel causing a reduction in the allocation to the old sector and an equal addition to the

new one. To allow the sector to trade specific amounts of shares of particular stocks as opposed to the entire basket of allocation associated with a permit would have to allow fragmentation of the catch history from a particular permit... It is probably not the intent of the Council to do this and would increase the likelihood of triggering an ITQ referendum as well. It would also require a fairly complex registry to track the shares associated with particular vessels and sectors.

(5) It may however be useful to design rules that make it simpler for vessels to move between sectors. Currently the permit owner must declare into a sector several months in advance of the fishing year. With fixed baselines, it may be possible to allow these declarations to be closer to the beginning of the fishing year and to allow a permit declared into one sector to declare its intention to switch into another at the beginning of the next fishing year. However, it may still be necessary for vessels to declare into a sector well before the beginning of the fishing year if the sector is required to submit a NEPA analysis on the final operations plan which NMFS is required to review prior to the start of fishing.

(6) Allowing sectors to trade ACE during the fishing year is much less problematic than trading of shares and provides most of the benefits of share trading. Sectors would receive allocations of ACE at the beginning of year in proportion to the catch histories of their members relative to total catches. As is true currently, sectors would be responsible for keeping the total catch of their members within those ACE limits. A registry would need to be created that tracked the ACE allocations of each Sector. If sectors wanted to trade a portion of those ACE allocations they would jointly inform the keeper of the registry (presumably someone at the NMFS regional office) and submit a form recording the trade with signatures of both sector mangers. Sector managers would then need to ensure their sector's overall catches remained within the revised ACE allocations reflecting the trade. To account for unexpected catches of stocks for which the sectors have only small allocations, it might be useful to allow sectors to make ACE trades retrospectively up to the end of the fishing year or even for a period of a few weeks after the end of the fishing year. This could allow a clearinghouse at the end of the year to allow sectors with small overages to trade with others with excess ACE. To avoid this leading to substantial overages, limits should probably be set on how much a sector's catch can exceed its ACE allocation before it has to stop operation. These might be in terms of absolute (poundage) and/or as a percentage of the sectors ACE allocation. Alternatively, sectors might have to shut down immediately once they have any overage at all until they can acquire more ACE. The problem of small unexpected catches of species for which the sector has no catch history could also be mitigated by providing all sectors with "de-minimis" allocations. This would probably be unnecessary though if the allocation method is not based solely on catch history.

(7) If ACE trading between sectors is allowed, each sector will have to designate an individual (presumably the sector manager) who is authorized to trade ACE for the sector. The sector operations plans would need to spell out internal procedures for decision on whether and what ACE to trade.

(8) Language in the Magnuson reauthorization (Section 303A(c)(5)(D) appears to require the Council to set limits on the share of ACE that any LAPP holder could control or use during a fishing year as well as the long-term shares of stocks controlled by an individual.

> "(D) ensure that limited access privilege holders do not acquire an excessive share of the total limited access privileges in the program by—

"(i) establishing a maximum share, expressed as a percentage of the total limited access privileges, that a limited access privilege holder is permitted to hold, acquire, or use; and
"(ii) establishing any other limitations or measures necessary to prevent an inequitable concentration of limited access privileges;

If sectors were considered individuals legally, this might apply to sectors. However, it is not clear that this is the case. If limits are set either for individuals or sectors, the limits could be the same for both shares and ACE. This would mean a sector that already had the maximum share of a stock would not be able to purchase more ACE then they were allocated at the beginning of the year.

Recommendations of share and ACE trading between sectors:

(1) The Council should seek assurance from NFMS that allowing trading of ACE between sectors will not result in Sectors being considered ITQs requiring a referendum.
(2) Transfers of ACE between sectors during the fishing year and up to 2 weeks after the end of the fishing year should be allowed
(3) Sectors should be required to cease operation in all areas where a given species stock exists once the Sector's catch of that species stock exceeds its ACE allocation by more than X% or once the overage is more than X% of the overall TAC. Overages of up to X% of the sector's initial ACE allocation of X% of the TAC that are not addressed through a transfer of ACE from another sector within 2 weeks of the end of the fishing year will be deducted from the ACE allocation of the sector the next year. The intent of this provision is to prevent sectors (as a group) from catching more than the total sector allocation, while allowing some ability to exchange ACE to account for unintended overages. The design of this provision will need to be coordinated with the following recommendation to prevent the possibility that the overall sector TAC will be exceeded.
(4) Once the aggregate catch of a species for all sectors is close to the aggregate allocation of ACE to sectors for that species (e.g. 95% of all ACE used), retrospective quota balancing will not be allowed (that is, acquiring additional ACE after a sector catches more than its allocated ACE). Sectors with catches of that species that exceed their ACE allocation should be required to cease operation in that stock area until they can acquire ACE for that species to balance their catch.
(5) The Committee should consider whether it is necessary or useful to set limits (as a percent of the TAC) of how much ACE one individual can utilize within a fishing year, but, exemptions should be provided for individuals with shares that exceeded these limits at the time the regulations are enacted. These limits should apply to individuals' within Sectors but not to overall shares or ACE held or used by sectors.
(6) The Committee should discuss whether limits should be set on how much ACE a sector can utilize or hold during a fishing year. The PDT is not recommending for or against limits – only that the Council should discuss this issue.
(7) Sectors should not be allowed to transfer quota shares (e.g. long-term shares of TACs) since the sector does not have a long term right to those shares (as they are based on its members permits and members can leave sectors). Transfers of shares between sectors will be possible only through movement of permits between sector and the complete portfolio of shares associated with that vessel. However, a process should be set up to facilitate movement of permits between sectors on an annual basis.

Sector Monitoring

Issue:
With 17 new applications on the table, the NEFMC must develop accurate and standardized monitoring and accountability measures for Sector management. How will a network of Sectors accurately monitor landings and discards in a timely and transparent manner?

Discussion:
(1) New England appears to be moving from an input system to an output system. Output management systems require much more certainty regarding landings and discards in order to function. Furthermore, incentives to discard in quota managed systems are heightened, especially as individuals or groups approach their annual catch entitlement (ACE). It is clear that verification or catch reporting and additional monitoring measures are needed to ensure full compliance. Under sector management, landings, information is required in both a timely and transparent manner. The current system is not designed to monitor sector specific discard rates. Given the recent submission of numerous Sector proposals for approval by the New England Fishery Management Council (Council), it is advisable that Sector monitoring be standardized or at least of consistent quality across sectors.

(2) Accurate and precise monitoring of each sectors' catch (not just landings) is essential but currently unavailable. Presently, federal fisheries observers are only present on less than 10% of trips that are taken to catch groundfish. The observer program addresses a number of priorities besides discard monitoring and these priorities change over time as does the coverage rates of specific fleet sectors. These low and variable observer coverage rates are unlikely to provide accurate estimates for 18 total sectors. There is a need for an observer program or component of it that is dedicated to sector monitoring. It may be useful to have a completely separate program as the objectives of the current observer program and a sector observer program may be quite different. It is likely that an effective monitoring program can be designed with a combination of human observers, electronic monitoring, and industry cooperation. Design of the monitoring program and control of its cost will be facilitated if sectors require their members to retain all groundfish (i.e. no discarding).

(3) Current Sectors rely on the Sector Manager to monitor the amount of fish caught. This is done though a sector specific and tailored program of electronic vessel trip reporting, electronic dealer reporting, video monitoring, electronic federal observer reporting, and a internal Sector observer program. However, as Sectors continue to develop and increase in New England, a standardized monitoring program should be developed. Considerations include:

- Cost of a robust program
- Burden of cost
- Role of technology
- Role of human observers
- Balance between technology and human observers
- Designated ports of landing with third-party verification
- Designated dealers allowed to accept sector catch
- Requirements to hail before landing
- Private Sector monitoring companies as alternative to the current NMFS program
- Mandatory establishment and use of baseline discard data
- Recognition of differences between fishing gear and scale of operation

(4) Monitoring programs could be provided by a third party contracted by the Sectors themselves, and funded through fees or taxes levied against the members. Federal and/or private assistance should be sought but not relied upon. NMFS should set performance standards for monitoring and reporting programs, but allow some flexibility in how they are achieved and allow for provision of these services by a third party contracted by the sectors.

(5) The need for intensive monitoring (particularly of discards of legal size fish) relates to the relative strength of incentives individuals have to discard or misreport catch. Policies that provide a means to land catch for which an individual or a sector does not have adequate ACE to balance without large financial penalties could substantially reduce these incentives. For example, ability of sectors to purchase ACE from other sectors would do this. Ability to land but surrender catch without it counting against ACE would also do this, but could lead to catches exceeding TACs. Another option would be to hold back a pool of ACE which individuals/sectors can access at a fixed charge low enough to remove incentives to discard or misreport but high enough to remove incentives to target species for which the individual and sector have insufficient ACE. This latter option could be done by sectors internally by sectors as a group assuming ACE trading is allowed.

Suggested components of a monitoring and reporting system:

1. Landings
    - Third-party (weighmaster) observation of offloaded fish for verifying landings data
    - Sector Managers must have a protocol developed for monitoring ports in which Sector vessels land, and vessels must declare an off-loading location before landing
    - Real-time (24 hour) electronic dealer reporting
    - Accurate attribution of landings to specific stock areas.
      Without complete observer coverage it may be necessary to prohibit trips in more than one area.

2. Discards
    - Accounted for with additional human observers via the Federal At-Sea Observer Program
    - Accounted for with additional human observers via a Sector Observer Program (potentially provided by a third party to all sectors)
    - Monitored through the use of video imagery
    - Electronic Vessel Trip Reporting (EVTR) provides real-time data

3. Timeliness and Transparency
    - Data must be available in real-time, in order to allow for the most-informed management and monitoring decisions
    - A publically -accessable website with weekly updates (landings, discards, observer coverage rates, etc) would be optimal

Recommendations

- NMFS should set performance standards for monitoring and reporting programs, but allow some flexibility in how they are achieved and allow for provision of these services by a third party contracted by the sectors.

- It may be useful to set up a separate observer program dedicated to sector monitoring. This could be a private company with observers contracted for directly by sectors. NMFS would provide oversight.

What is the impact of sectors on designing measures for common pool vessels

Issue: Sector applicants are not required to identify sector participants until their operations plan is submitted in advance of the fishing year. Sector members can also chose to exit the sector in subsequent years. This may make it difficult to design and evaluate effort controls for common pool vessels.

Discussion:

(1) The Groundfish PDT uses the Closed Area Model (CAM) to evaluate the biological and economic impacts of DAS, closed areas, and trip limits. The key data inputs to the model include average CPUE by gear and vessel size for each month-block combination and the allocated DAS available to each individual vessel. For the model results to be reliable, DAS allocations and the composition of vessels should similar to the composition of the fleet that will be subject to the effort controls adopted. This was not a concern when nearly all vessels were subject to effort controls. Even the GB Cod Hook Sector and Fixed Gear Sector were limited by DAS for catches of stocks other than GB cod. This will be more of a concern with the increased number of vessels that may join sectors.

(2) When applying the CAM, the composition of the fleet to be subject to DAS controls matters in two respects. First, DAS allocations affect regulatory design, because DAS, as a management tool, is influenced by the existence of latent effort. Even though Amendment 13 made significant strides in reducing latent effort, it did not eliminate it. The existence of latent effort meant that the DAS components of FW42 were more restrictive than would have been necessary if there were no latent effort. If the majority of vessels with latent DAS join a sector, then the DAS controls for the common pool will be more effective which could dampen the need for any across-the-board DAS reductions, if necessary, and would reduce the need to include ancillary measures such as trip limits and/or area closures. By contrast, if much of the latent effort does not choose to join a sector then the DAS controls will be less effective, meaning across-the-board DAS reductions would need to be larger and/or other ancillary measures will have to be more restrictive. Second, the fleet composition matters since total catch is affected by DAS and CPUE. The effect of the former has already been noted. The effect of the latter depends on whether the DAS pool is more or less productive than vessels that choose to join a sector. If, for example, the common DAS pool is comprised of mostly small vessels DAS measures would be more effective since the average CPUE for small vessels is less than that of larger vessels. That is, a DAS reduction, if necessary, would likely be lower than if the fleet is comprised of predominately larger vessels.

(3) For the reasons noted below the PDT does not know the vessels (permits) that will actually join a sector. While Amendment 13 says that sector proposals must include a list of all participants and a signed contract indicating their agreement to participate in the sector, this requirement has not been applied to the initial application to the Council. This will make it difficult to determine what effort controls will be needed on implementation because the number, type, and area fished of the common pool vessels will be unknown. Second, the vessels that are in the sector one year may not be the same vessels that are in the sector the following year because permits are allowed to freely move between sectors and the common pool. This weakens the assumption that measures that work the first year will in fact meet mortality objectives the second year. If there is extensive movement between sectors and the common pool on an annual basis, it may be necessary to revisit common pool effort controls each year.

An example illustrates this problem. Assume that all offshore trawl vessels join a sector in year one and effort controls are designed on this basis. As a result, there may be less need for trip limit on offshore stocks. If a number of these vessels leave sectors in year two, common pool fishing on offshore stocks would probably increase and there is less certainty that the measures will continue to meet mortality objectives. Indeed a reevaluation of the DAS measures would probably be necessary.

(4) An additional complicating factor is that it is possible all sectors considered may not be approved, or may not choose to operate.

(5) The potential problems described will likely depend on what ACL and AM's will apply to the DAS pool. If, as has been the case in the past, the DAS pool will be subject only to a target TAC with adjustments to be made in the following fishing year then keeping track of entry and exit from the DAS pool may be important as will annual adjustments to DAS. If the ACL for the DAS pool is a hard TAC backstop then the effect of entry and exit into the DAS pool may be less of a concern with respect to achieving biological (mortality) objectives.

Recommendations:

(1) Development of DAS measures for the common pool will be facilitated if a binding declaration into a sector is made early. Given the need to develop alternatives for a June DSEIS such a declaration would probably need to be made by March, 2008. The PDT recognizes this recommendation is problematic:

> (a) There isn't a mechanism to incorporate this recommendation into the regulations and it is unlikely NMFS would be willing to implement this requirement as internal NMFS policy.
> (b) Vessel owners may be unwilling to make a binding commitment to a sector more than a year in advance of implementation, particularly since stock status, reference points, and common pool management measures will be unknown. In addition, there may still be unresolved questions on the interpretation of recent changes to the M-S Act (applicability of LAPP provisions to sectors, cost recovery, etc.).

(2) Adopt a hard TAC backstop for common pool vessels, while designing effort controls to reduce the likelihood the hard TAC backstop will be binding. While this addresses concerns that the effort controls will be incorrectly designed and will not achieve mortality objectives, it does not resolve the difficulty in designing measures for an unknown group of vessels and in accurately predicting the economic, habitat, and social impacts of the amendment. It may also lead to a derby between vessels in the common pool, particularly if the management measures are not correctly designed.

How is landings history treated within a sector?

Issue: Some vessels in a sector may not fish, yet the share they bring to the sector contributes to the sector share.

Discussion:
(1) One of the key advantages of sectors may be to allow sectors to consolidate fishing on a subset of their members' vessels to reduce fixed costs and improve efficiency. Sectors may also allow some vessels to specialize (e.g., focus on harvesting underutilized stocks) while other vessels pursue other stocks. However, individuals may be reluctant to do this if the catch history is accumulated by the vessels that actually land the catch.

(2) Fixing the baseline for sector allocations partially mitigates this problem as long as sectors are the only means by which individuals can utilize catch history to generate catch opportunities. Relative to the current rolling baseline for sector allocation, the fixed baseline creates more security for individuals who effectively make their ACE available to other member of the sector thereby facilitating consolidation within the sector and reduction of fixed costs. It also allows for the possibility of sectors creating permit banks that generate ACE for sector members without those permits being devalued over time through. There is, however, still a lack of security since there is no guarantee that more recent catch or effort history will not be used in some future allocative actions (e.g. if ITQs or the point system is implemented in Amendment 17 with allocations based on years later than those used for sector allocation.). This concern might be alleviated by setting a control date for catch and effort history years that can be used in future allocative actions (e.g. they would not be based on years later than the control date which would presumably be either the current date or a past date). A control date would increase the level of security, but control dates can be rescinded by a future Council.

(3) Another option would be to specify by regulation that, for vessels enrolled in sectors, their catch (or other historical allocation factors such as effort or capacity) as a percentage of the total commercial catch (or other history based allocation factors) would be assumed to remain fixed while they were enrolled in the sector (e.g., if the share of the GOM cod TAC their permit contributed to a sector's allocation were 1% of the total their history for the purpose of future allocations would be recorded as 1% of total commercial catch for the years they were in the sector). This would protect individual in sectors whose catch was less (as a percent of total commercial catch) than it was in the baseline period. It would also means that Sector's and individuals' in sectors that do not catch their full ACE will not see their future allocation share reduced. However, it would also protect non-sector vessels from the possibility that sector vessels could accumulate greater catch histories (in percentage terms) because of regulatory advantages such as removal of effort controls that allow them to catch a higher percentage of their ACE allocations.

(4) An alternative would be to allow sectors to specify in sector contracts how the catch history of the sector as a whole would be distributed amongst its member permits. This, however, would create a good bit of additional complexity for the Regional Office and would not protect either the sector or the common pool vessels from redistributions resulting from either sector or non-sector vessels having an advantage in building catch history.

Recommendation on Treatment of Catch History:
Declare in regulations, that, for the purpose of future allocative regulatory actions, the catch history individual vessels participating in sectors, will be assumed to have been equal (as a percentage of each TAC for which sector allocations were made) to the share of those TACs those vessels contributed to the sector allocation during the period they were enrolled in the sector. The same would be true for other allocation factors such as measures of effort or capacity.

Should a sector be required to have a hard TAC for all groundfish stocks?

Issue
Should sectors need a hard TAC for all groundfish stocks? Are there exceptions that can be dealt with in another way?

Discussion
(1) The Council motion is consistent with a hard TAC for all groundfish stocks. In general the prospect of changing membership further makes this a desirable requirement as does the likelihood that stocks of concern will change over time. One might expect sectors wanting to diversify by being able to fish in multiple stock areas. That is, the Council needs to anticipate the likelihood that unlike present sectors, new proposals or for that matter future sectors will be more diversified. At issue is how to deal with situations where a given sector receives only a small allocation or no allocation at all of a particular species or stock. The PDT identified at least three situations that may need to be addressed.

- Will a sector be allowed to operate in an area with zero qualifying share of a species/stock? This situation might arise either because members did not catch, or caught but did not land, any of a given species/stock in the baseline period.
- What happens in situations of zero baseline share for single stock species whose range does not extend to all stock areas (Acadian redfish, for example).
- Are there de minimus stocks (Atlantic Halibut, for example) for which few vessels have any landings at all that may need to be dealt with differently?

(2) At this time the PDT does not know the potential magnitude of the problem of low or zero shares for any given species. The problem will be reduced the longer the qualification period, and the larger the number of vessels included in a sector. That is, one would expect a more diversified portfolio of sector shares with more vessels and one would expect history to be more diversified the longer the qualification period.

Recommended Alternatives

- Sector shares for stocks like Atlantic halibut and ocean pout as well as others that may become part of the groundfish plan (wolfish and cusk) should not be required. This means that the Council's original motion to require allocations for all groundfish stocks may need to be revisited. This would also require development of specific management measures for these species.
- De minimis allocation – any sector could be awarded a de minimus allocation
    - What level to allocate? A fixed quantity or scaled to sector size?
    - Creating allocation would require a deduction from allocation to other sectors and the common pool.
- Quota balancing through transfer from another sector
    - Theoretically possible but who "owns" sector quota? Will the sector manager have the authority to sell off part of a sector's portfolio? Sector operational plans may need to specify whether transferring of quota will be allowed and what person is authorized to enter into an agreement with another sector to effect the transfer.

Sectors and US/CA Area TACs

Issue: Sector allocations for GB cod, haddock, and yellowtail flounder do not include an allocation of part of the US/CA TAC for Eastern GB cod and haddock, and GB yellowtail flounder. This makes it possible for sectors and common pool vessels to affect each other's access to the US/CA area.

Discussion:
(1) The two existing sectors received a TAC for GB cod, but this did not guarantee them a share of the TAC for Eastern GB cod in the US/CA area. The sectors lost access to the Eastern Area when the area was closed when the cod TAC was approached.

(2) Amendment 16 may adopt additional sectors, and will almost certainly require that sectors be limited by a hard TAC for GB cod, haddock, and yellowtail flounder. The possibility exists that the sectors might be unable to harvest their share of these resources because of regulatory changes implemented to prevent the fishery from exceeding US/CA TACs. It is also possible that the opposite could occur: sectors might catch their shares rapidly enough that regulations for common pool vessels are changed in order to keep total catches below the TAC. For example, the total sector shares may be large enough that the sectors could catch enough in the Eastern Area to close that area to common pool vessels.

(3) The lack of US/CA area specific TACs could encourage a race to fish between sector and common pool vessels. This weakens one of the advantages of sectors – that they have more responsibility for their own access to the fishery without impacting the common pool vessels.

Recommendations: The PDT identified one ways to address this problem.

(1) Provide a specific allocation to each sector for US/CA stocks (Eastern GB cod and haddock, and GB yellowtail flounder) and for the portion of GB cod and haddock that can be caught outside the Eastern US/CA area. Measures for common pool vessels would be implemented based on the common pool's progress in catching the total US/CA TAC less the portion allocated to sectors. Initial allocation of US/CA area shares would have to be addressed. This could be based on history (consistent with other stock allocations).

Advantages:
(1) Isolates the impacts of each group's behavior in the US/CA area from the other group.
Disadvantages:
(1) Adds additional stocks to quota monitoring for sectors.
(2) Each sector's catch of GB cod, haddock, and yellowtail flounder would be area specific, providing an additional constraint on sector operations.

#4

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MEMORANDUM

DATE: August 28, 2007

TO: Multispecies (Groundfish) Oversight Committee

FROM: Groundfish Plan Development Team (PDT)

SUBJECT: **PDT Conference Call, August 21, 2007**

1. The PDT held a conference call on August 21, 2007. The PDT discussed several issues related to sectors and effort control measures being considered by the Committee. Members participating in the call were Tom Nies (NEFMC), Tom Warren and Doug Christel (NERO), Paul Nitschke (NEFSC), Kohl Kanwit (Maine DMR), Dan Holland (GMRI), and Paul Parker (Advisory Panel Chair). Three members of the public listened to the call – Maggie Raymond, Vito Giacolone, and Jackie Odell

Sector Policy Issues

Exit from Sectors

2. The question was raised by the Council whether current regulations are sufficient to hold sectors accountable for exceeding the sector's TAC if members depart the sector or if the sector disbands. A related issue is whether individual permits should be held accountable for a sector's overage if they choose to depart the sector the following year.

3. Existing regulations do provide for deducting a TAC overage by a sector from the subsequent year's TAC. NOAA General Counsel advised that the regulations may not be sufficient to address the situation where either a sector completely disbands, or enough vessels depart the sector that there is insufficient TAC to address an overage. While this could be viewed as an issue between a sector and its members – and thus amenable to a solution adopted by each sector through an operations plan or sector contract – there may be value in a regulatory solution since this is a potential issue for all sectors. The PDT identified four possible solutions:

a. Require a long-term commitment to the sector (e.g. five years). In addition to helping to address the concern about overages, this may yield additional benefits to sector management. It will increase the commitment of individual permits to the sector.

b. Require an intermediate term commitment, such as a rolling two-year commitment. This would make sure permits stay with the sector until an overage is paid back, while avoiding the lack of flexibility of a long-term commitment.
c. Require a permit to remain with its original sector until an overage is paid back. Under this approach, it may be desirable to set a tolerance so that a small overage does not restrict permit movement.
d. Devise an overage penalty that follows a permit whether the permit remains within the sector, changes to a new sector, or leaves the sector for the common pool. The concept is that a vessel incurs a responsibility for a sector's performance and does not evade that responsibility by leaving the sector. As an example, if a sector loses 10 percent of its allocation due to an overage, any vessel leaving the sector also loses 10 percent of its fishing opportunities. Such an adjustment could be applied to DAS if the vessel returns to the common pool, or to the allocation of a sector if the vessel join a different sector. This could be complicated to administer.

4. The PDT noted that current regulations do not explicitly state whether the penalty assessed for an overage is calculated in terms of pounds or in terms of the share of the sector's allocation. It may be advisable for the Committee and the Council to clarify that issue. The advantages and disadvantages of each approach are summarized below. In a situation of declining TAC, the use of percentage may advantage a sector with a relatively large overharvest. Using percentage to deduct the overharvest, the overall TAC needs to be lower before sector will face a situation where they have insufficient TAC to cover their overharvest. Using percentages, there will always be sufficient TAC to make deductions for overharvest. A combined approach would deduct whichever method gives the largest deduction.

Comparison of Methods of Deducting Overharvests

Metric Tons	Percentage
Simple, direct	More complex, indirect
Amount of deduction relates directly to the amount of overharvest, without regard to overall TAC size and does not take into account change in stock size	Amount of deduction relative to overall TAC size, and takes into account change in stock size
If **TAC declines** the following year, the deduction is more (mt) , leaving relatively **more fish available for harvest rebuilding biomass**	If **TAC declines** the following year, the deduction is less (mt), leaving relatively **less fish available for rebuilding biomass.**
If **TAC increases** the following year, the deduction is less (mt), leaving relatively **less fish available for rebuilding biomass**	If **TAC increases** the following year, the deduction is more (mt), leaving relatively **more fish available rebuilding biomass**

Illustration of Deductions by Weight and by Percent under 3 Scenarios

	Year 1	**Year 2**					
TAC Scenario		**Overall TAC Same**		**Overall TAC Decline**		**Overall TAC Increase**	
Deduction Method		By Weight	By Percent	By Weight	By Percent	By Weight	By Percent
(A) Overall TAC	100 mt	100 mt		80 mt		120 mt	
Initial Allocation	25 % 25 mt	25 % 25 mt	25 % 25 mt	25 % 20 mt	25 % 20 mt	25 % 30 mt	25 % 30 mt
Deduction	-	**10 mt**	10 % of 100 mt = **10 mt**	**10 mt**	10 % of 80 mt = **8 mt**	**10 mt**	10 % of 120 mt = **12 mt**
(B) Net Allocation	25 mt	15 mt	15 mt	10 mt	12 mt	20 mt	18 mt
Catch	35 mt	-	-	-			
Overharvest	10 mt (10% of 100 mt)	-	-	-			
(A) – (B) Total TAC minus sector allocation	75 mt	85 mt	85 mt	**70 mt**	**68 mt**	**100 mt**	**102 mt**

Illustration of Overharvest by 3 Sectors, with a Declining TAC

TAC Scenario	**Year 1**			**Year 2**			
(A) Overall TAC	100 mt			56 mt			
	Sector 1	Sector 2	Sector 3	Sector 1		Sector 2	Sector 3
Initial Allocation	25 % 25 mt	25 % 25 mt	25 % 25 mt	25 % 14 mt		25 % 14 mt	25 % 14 mt
Deduction				Wt **20 mt** **Insufficient TAC**	% **20 % of 56 mt = 11.2 mt** **Small TAC**	Same	same
Total Deduction				By Weight: 60 mt Deductions from Sectors larger than overall TAC	By Percentage: 60 % of TAC		
(B) Net Allocation	25 mt	25 mt	25 mt	zero	2.8 mt		
Catch	45 mt	45 mt	45 mt				
Overharvest	20 mt (20 % of 100 mt)	20 mt (20 % of 100 mt)	20 mt (20 % of 100 mt)				
Total Overharvest	60 mt 60 %						

Simplifying sector submissions/multi-year authorizations

5. The PDT reviewed NERO internal policy that guides sector submissions. NERO is considering a regulatory change that would remove the requirement for a proposed rule prior to approval of the sector operations plan. The approach would be similar to the EFP review process and would still provide an opportunity for Council and public comment. This change does not require Council action.

6. The Council may want to consider allowing submission of a multi-year Operations Plan if membership and operating rules do not change. This would lessen the administrative burden for both sectors and the government. If sector membership changes substantially, or the operating rules change, the sector would have to submit a new operations plan.

7. NERO recommends that the deadline for submitting operations plans and supporting documents be moved to December 1 in order to facilitate review. This requires a change to the management plan.

Hard TAC for all stocks

8. Further work on this issue included a review of the number of vessels that sold six species (Table 1). Five of the species were selected because landings are relatively low, while cod is included in the table to contrast these species with a valuable, widely distributed species. Note that these data may include vessels that caught regulated groundfish in state waters (legally) without a groundfish permit. Three of the species (pout, windowpane, and halibut) have relatively few vessels with a landings record in the dealer data. Indeed, in recent years it appears that the number of vessels selling pout was less than ten percent of the number of vessels selling cod.

Table 2 summarizes recent landings for five of these stocks. Pout landings have been less than 100 mt since 1996, yet GARM II includes information that pout discards may have exceeded landings by an order of magnitude. This species may illustrate the worst case: few boats with history, but apparent widespread discarding. Sectors that are unable to attract permits with pout history may have fishing opportunities limited by pout, a fish with limited market value. In the case of halibut, there seem to be a number of vessels landing the fish but total landings are small. The two windowpane stocks also had low landings in recent years but substantial discards – landings alone may not accurately reflect catch history.

Table 1 – Number of permits selling six species in each calendar year (NMFS dealer data)

CALENDAR YEAR	POUT	WINDOWPANE	HALIBUT	CUSK	WOLFFISH	COD
1996	157	391	192	518	718	1139
1997	124	396	192	485	696	1129
1998	143	372	229	522	720	1177
1999	130	341	252	463	634	1089
2000	91	339	174	470	654	1099
2001	72	264	176	478	619	1185
2002	68	217	208	437	582	1106
2003	62	214	218	447	546	999
2004	45	229	200	413	478	857

Table 2 – Landings of five stocks, 1996-2004, metric tons (GARM II, NEFSC Status of Stocks)

Year	Pout	Windowpane, N	Windowpane, S	Halibut	Cusk	Wolffish
1996	51	700	200	25	1031	363
1997	33	418	107	28	1152	309
1998	17	396	123	17	1180	296
1999	18	46	116	20	691	257
2000	19	142	126	17	689	200
2001	18	45	128	22	941	250
2002	12	12	85	20	826	155
2003	23	17	47	31	745	129
2004	5.4	25	44	25	632	119

9. These data highlight the problem with requiring sectors to have a hard TAC for every stock caught. For pout – a widely distributed species caught by many different gear types – it could be argued that if a hard TAC is to be used, basing the allocation on landings history may not be appropriate since discards account for most of the catch (discards cannot be estimated for individual vessels). If a TAC is not allocated to all stocks it may be difficult to design effective mortality controls as a replacement.

10. Another issue is that there are stocks for which a TAC cannot be calculated (GOM winter flounder, halibut). The stocks for which this is a concern may change after GARM III. It may be necessary to specify an arbitrary catch level to distribute the catch of such stocks to sectors.

11. The PDT will explore ways to address these issues. Some ideas that have been identified include:

- Do not specify a hard TAC for some stocks, but monitor landings and provide regulatory authority to implement a TAC quickly if necessary. The process might be similar to the one used to adopt Eastern US/CA Haddock gear standards (a Council recommendation followed by NMFS implementation, consistent with the APA).
- Require a hard TAC for all stocks unless a specific sector can demonstrate a method to avoid the stock. This might include gear requirements, time or areas of fishing, or other practices.
- This may be less of an issue if permit history calculations include factors other than landings history, and if ACE can be traded between sectors.

Groundfish Catches in Other Fisheries

12. The Committee directed the PDT to examine groundfish catches in exempted fisheries and report at the September 5 Committee meeting. Kohl Kanwit, Tom Nies, Doug Christel, Tom Warren, and Paul Nitchske will coordinate on this analysis but it will not be completed by the Committee meeting.

Sector Baseline Calculations

13. The Committee developed an alternative to include used DAS in the permit history calculation. The PDT identified three alternatives to incorporate this information into the calculation. The descriptions of the calculations are in attachment (1). The three alternatives have different effects. <u>The Committee should choose which one of these alternatives they wish to include in the Amendment.</u>

<u>Alternative 1</u>: For the time period selected, the DAS used by a permit are divided by the DAS used overall. This provides a factor for each permit that is combined with landings history based on the weighting factor. The result is used to allocate a portion of every stock to every permit.
Example: A vessel used DAS in the GOM and landed only GOM cod. It receives history for all stocks in all stock areas.

<u>Alternative 2</u>: For the time period selected, the DAS used by a permit in a stock are divided by the DAS used overall in that stock area. This provides a factor for each permit that is combined with landings history based on the weighting factor. The result is used to allocate a portion of the stocks in the area permit fished by the permit. For species with multiple stocks, a permit only gets allocated a share of the stocks in the area fished (even if the vessel does not

have any landings of that stock). For species with a single stock, the results are identical to Alternative 1.
Example: A vessel used DAS in the GOM and landed only GOM cod. It receives history for all GOM stocks (GOM winter flounder, GOM haddock, GOM cod, CC/GOM yellowtail) as well as single-stock species (redfish, plaice, pollock, etc.). It does not receive history for GB cod, GB winter, etc.

Alternative 3: For the time period selected, the DAS used by a permit are divided by the DAS used overall. This provides a factor for each permit that is combined with landings history based on the weighting factor, but only for those stocks caught by the permit. The result is used to allocate a portion of the stocks that the permit caught. The permit does not get history for stocks it did not catch.
Example: A vessel used DAS in the GOM and landed only GOM cod. It receives history for GOM cod but no other stock.

14. An exploratory analysis was performed to illustrate the impacts of these alternatives (attachment 2). To summarize the results, all three alternatives are possible to calculate and are internally consistent (that is, shares sum to 100 per cent). When compared to determining history based on landings alone, all three alternatives shift history from efficient vessels to less efficient vessels. This happens at every level of total catch: as an example, a vessel that has a relatively high ratio of cod landed to DAS used will lose history to a vessel with a lower ratio of cod caught to DAS used, with little regard to total cod landed. The more heavily DAS are weighted, the more catch is shifted.

This preliminary analysis does not explore the impacts of this approach across different stocks. For example, boats that lose cod history may gain history for other stocks. It is also likely that the shift in history will be more pronounced for those stocks landed by relatively few vessels but caught in areas where many vessels fish (e.g. redfish).

15. It is not clear if this result is consistent with the Committee's intent for this history computation. For the three different alternatives to incorporating DAS, Alternative 3 is less consistent with the Committee's stated intent that incorporating used DAS is meant in part to account for vessels that used DAS but avoided unhealthy stocks. This is because in Alternative 3 the used DAS only affect history for stocks that the permit landed.

16. Incorporating used DAS into the history calculation may affect limited access permits in categories that do not use DAS (handgear A, small vessel limited access).

Effort Controls
17. The PDT reviewed the effort measures identified by the Committee. The PDT qualitatively evaluated whether each measure was a mortality control and could be analyzed. This evaluation does not supersede the PDT's caution that effort control measures will be difficult to design and analyze since the pool of vessels subject t those measures is uncertain. The PDT's summary is in attachment (3).

Other Business
18. The PDT tentatively planned to meet in September. Topics will include setting of TACs or ACLs. The NERO Statistics Office also asked to meet with the PDT to describe in-season catch monitoring.

Attachment 1

Combining Used DAS and Landings for Permit History

I. Landings history

A. Determine stock-specific landings for each permit for each fishing year. (This will allow us to combine different fishing years should the Council change the periods they want to consider).

B. For a given period, add up the total stock specific landings and each permit's stock-specific landings.

C. To determine each permit's share based on landings history, divide the permit's stock specific landings for the period by the total stock-specific landings for the period. The result will be a percentage share for each permit.

II. DAS Used History

Alternative 1: Used DAS without regard to stock-specific landings history

A. Divide each permit's used DAS by the total used DAS for that time period to get a share.

Alternative 2: Estimate the DAS used in each stock area.

A. For each permit, match the DAS used on a trip to the statistical areas fished on that trip. For each permit, calculate days absent in each statistical area from the VTR. Use this result to apportion the DAS used from the DAS database to the statistical areas fished by the permit.

B. For each stock area (that is, combination of statistical areas), sum the DAS calculated for each permit. Divide the number of DAS each permit used by the total used for that stock area to get a DAS factor.

Alternative 3: Used DAS applied only to stocks caught by a permit

A. Determine stock-specific landings for each permit.

B. Determine DAS used for each permit. Do not calculate DAS by area – just get the total DAS used from the DAS database.

C. For each stock, calculate the total DAS used for that stock. Only count the DAS used by a permit for which that permit had landings.

D. Divide the DAS used by each permit by the total DAS used, for each stock.

III. Combining landings and DAS elements

A. If Alternative 1 is used for the DAS factor, the DAS factor is combined with the landings factor for all stocks. Each factor is weighted as suggested by the Committee.

B. If Alternative 2 is used for the DAS factor, the DAS factor is combined with the landings factor for stocks that are in the areas fished by the permit, whether or not the permit had a history of landing that stock. Each factor is weighted as suggested by the Committee.

C. If Alternative 3 is used for the DAS factor, the DAS factor is combined with the landings factor for stocks that the permit has a history of landing. It is 0 for other stocks. Each factor is weighted as suggested by the Committee.

Attachment 2

Preliminary Assessment of Including DAS Factors In Species/Stock Shares for Sector Allocation

The Groundfish Committee voted to include a factor to adjust history-based landings shares by used DAS. The Committee voted to consider two alternative that would weight used DAS and historical landings; one in which weights would be 50%/50% and another than would weight landings history by 75% and DAS history by 25%. The Committee did not decide how DAS history for any given species/stock would be calculated. The PDT developed three DAS history alternatives where the landings history share would be calculated as recommended by the Committee. Alternative 1 would result in a stock share for all vessels that used a DAS regardless of whether any given vessel landed the species or even fished within the stock area. In this manner every qualifying vessel would receive a share of every species/stock. Alternative 2 would result in a stock share for any vessel that actually fished in a stock area regardless of whether the vessel would qualify for a landings history share or not. Alternative 3 would result in a stock share only for vessels that had a landings history share greater than zero by adjusting the landings history share by the DAS factor. An assessment of these three alternatives was conducted to determine the following:

1. Does each alternative result in a stock share that when summed across permit holders is equal to one?
2. How many vessels would receive an allocation under each alternative?
3. Are there any notable implications of including a DAS factor?

Data – To address these questions a simplified data set was constructed. These simplifications were:

- Qualifying vessels from permit year 2006 – most recent complete fishing year
- Used CY2001 – reduced number of data sets that had to be merged and represented the peak landings year over any of the qualifying years.
- Used Call-in data for 2001 – later years complicated by different DAS data-bases
- Used only VTR – assignment to stock area required use of VTR anyway so simplified by using reported pounds from VTR rather than attempt to prorate dealer data
- For Alternative 1, prorated call-in data to statistical areas using proportions from VTR – matching call-in to VTR records problematic due to a variety of problems such as missing dates in VTR, mismatches due to running clock or front-loading.

A total of 1,390 limited access permits that are currently regulated under DAS for permit year 2006. Consideration needs to be given to whether limited access vessels with a Category C or HA (limited access hand gear-only) permit. A landings share could be calculated for either permit category but neither has any DAS history through the call-in system. The 1,390 permit holders were reduced to a total of 761 vessels that called in a DAS during 2001, and for which logbook data existed where one or more pounds of regulated groundfish were landed.

Findings:

Question 1 – All three alternatives required a number of different share calculations in addition to the final stock share, all of which had to sum to one. In all cases the adding up requirement

was met. That is, each of the three DAS factor alternatives would result in total stock shares that sum to one. This means that the sum of sector ACE and DAS pool ACE would not exceed the TAC.

Question 2 – Although stock shares were calculated for all permit holders and 17 stocks for the 10 regulated mesh groundfish species, results herein focus only on GOM Cod for purposes of illustration. Under Alternative 1 all 761 vessels included in the analysis would receive a stock share for GOM Cod. A total of 415 vessels fished in the GOM stock area during CY2001. All of these vessels would receive a stock share of GOM Cod under Alternative 2. Of the 761 vessels only 401 actually reported landing GOM cod during CY2001. Each of these vessels would receive a stock share for GOM Cod under Alternative 3.

Question 3 – To identify any notable effects of including a DAS factor in the determination of a stock share the landings share was used a benchmark. That is, the landings history share was subtracted from the stock share (i.e. the result of weighting the DAS history share and the landings share). In this manner a negative value indicates that the stock share was less than the landings history. Effectively, this represents a shifting of landings history. Conversely, a positive value indicates that the stock share is higher than the landings share and the DAS factor represents a gain in landings share.

There is a systematic relationship between this calculated difference and the catch rate. That is, vessels with a high CPUE end up transferring landings history to less productive vessels. This is evident in Figures 1, 2, and 3 for Alternatives 1, 2, and 3, respectively.

Notes:

- In each case the transfer of landings history is halved using the 75% weight for landings. In general, the transfer of landings history would approach zero as the weight applied to landings history approaches 100%.
- In each case, there is a point where the landings history share and stock share are equal or nearly so. This point occurs at higher CPUE as the number of permit holders without any landings history goes down.
- For GOM Cod there is relatively little difference between Alternative 1 and Alternative 2 because nearly everyone that fished in the GOM stock area caught some cod. The difference between these two alternatives would be more pronounced for stocks that fewer vessels fishing in the GOM actually land.

The rationale for adding a DAS share is to account for differences in access that different vessels may have had to certain stocks due to regulatory controls as well as vessels that may have chosen to avoid stocks of concern. In either case, vessels may be said to have differential abilities to build history for any given stock.

The PDT will have difficulty assessing whether or not this objective has been met since existing data are not adequate to trace these effects to any particular DAS adjustment factor. For example, the relationship between CPUE on trips that landed GOM cod and total cod landings is plotted in Figure 4. While there appears to be a positive correlation between the two there are also a number of cases of high CPUE but low total landings of GOM cod. Vessels in this circumstance may well have had their opportunity to build history in GOM cod compromised yet they end up having to surrender landings share just like other productive vessels with much

higher total landings history. This is illustrated in Table 1. That is, the fact that about 10% of landings history is transferred from vessels with more than 25,000 pounds of GOM cod landings to vessels with much lower levels of landings may be consistent with the Committee's objective. At the same time, however, small quantities of landings history gets transferred away from vessels with low landings and small amounts of landings history wind up getting transferred to vessels with comparatively high landings of GOM cod. The lesson here is that the DAS factor as developed thus far by the PDT may not be entirely consistent with Committee intent. Moreover, available may not be adequate to evaluate the extent to which Committee intent is being met.

Table 1. Summary of Cumulative Landings History Transfers By GOM Cod Landings Category for Alternative 1 for the 50/50 Landings History/DAS History Weights

	Categories of GOM Cod Landings in Pounds (CY2001)					
	<= 5000	5000+ to 10000	10000+ to 15000	15000+ to 20000	20000+ to 25000	25000+
Landings History Gain	5.98%	4.64%	1.89%	0.83%	0.11%	0.21%
Landings History Loss	-0.31%	-0.55%	-0.49%	-0.72%	-1.30%	-10.28%

Scatter Plot of Difference Between Alternative 1 GOM Cod Share Minus Landings Share (Y-axis) and CPU Calculated as Landings per DAS (X-axis)

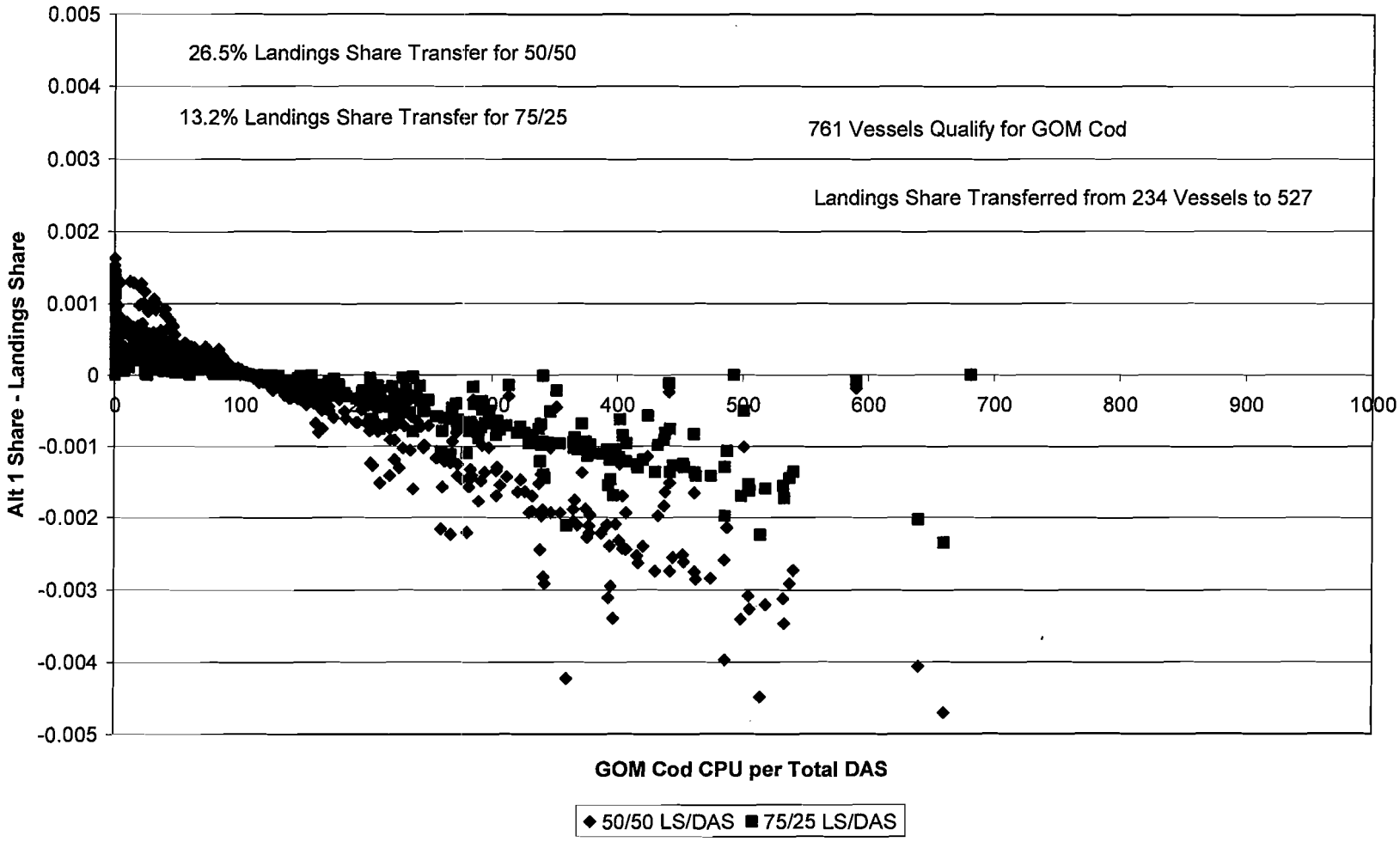


Figure 2. Scatter Plot of Difference Between Alternative 2 GOM Cod Share Minus Landings Share (Y-axis) and CPU Calculated as Landings per DA in GOM (X-axis)

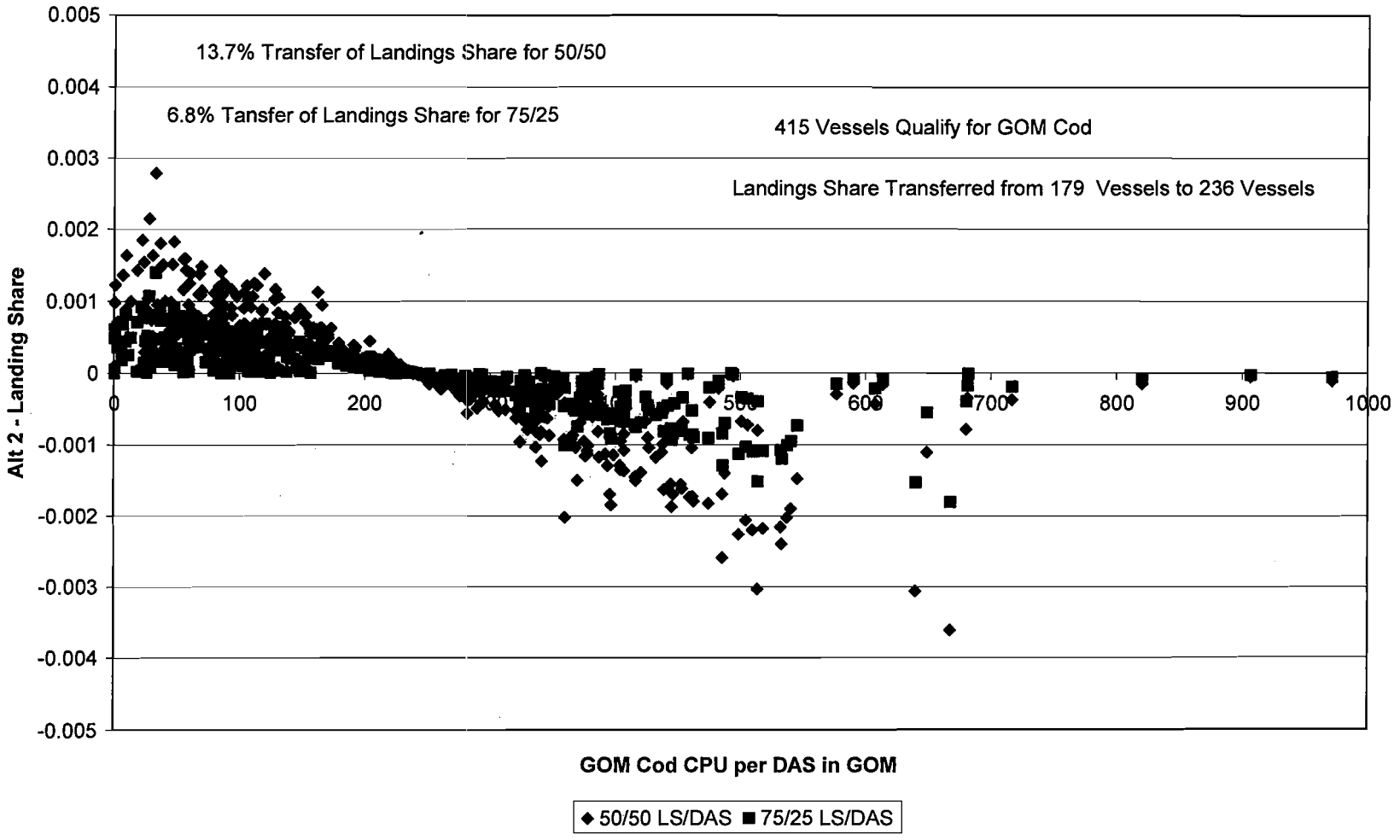


Figure 3. Scatter Plot of Difference Between Alternative 3 GOM Cod Share Minus Landings Share (Y-axis) and CPU Calculated as Landings per DA that Landed GOM Cod (X-axis)

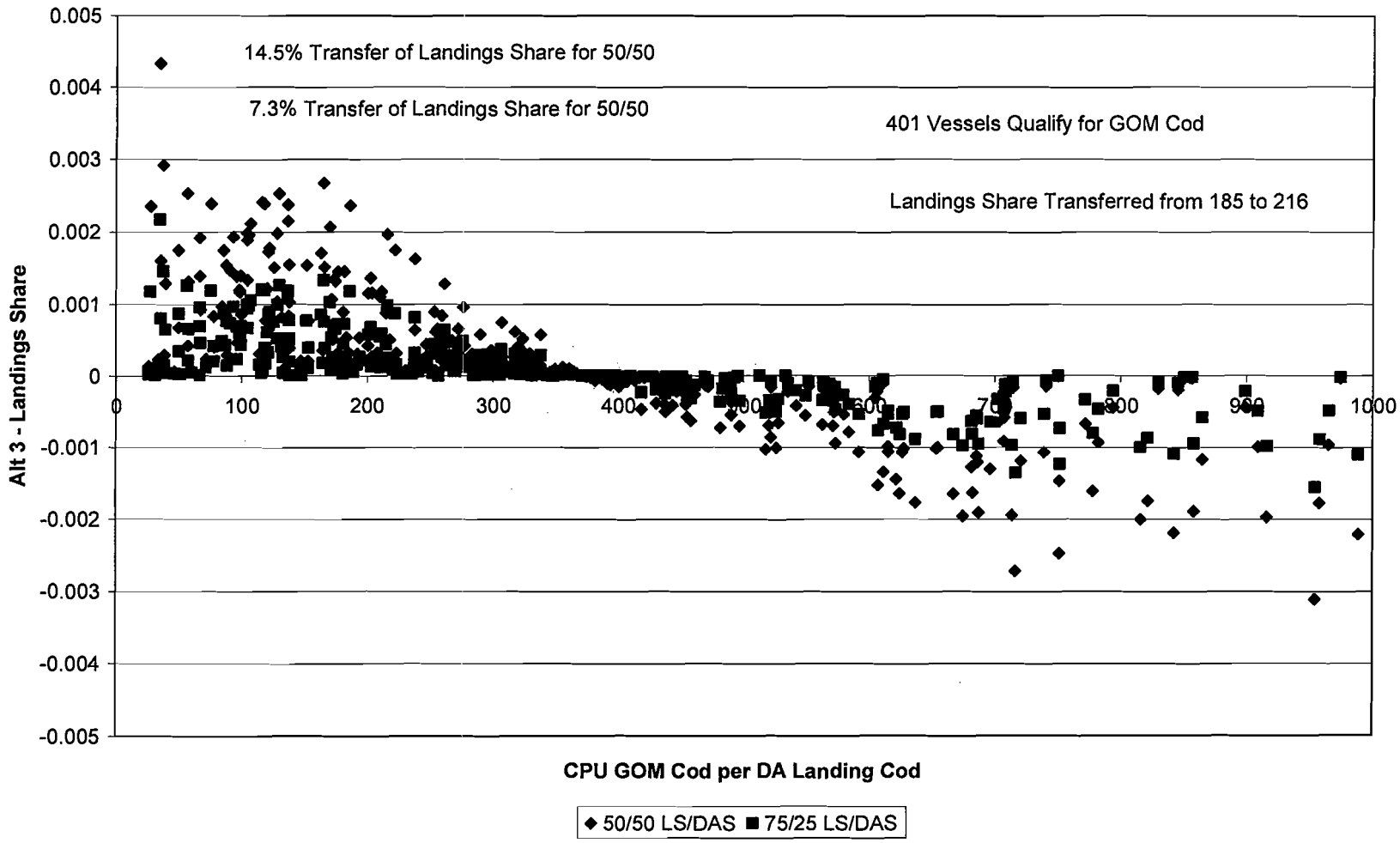
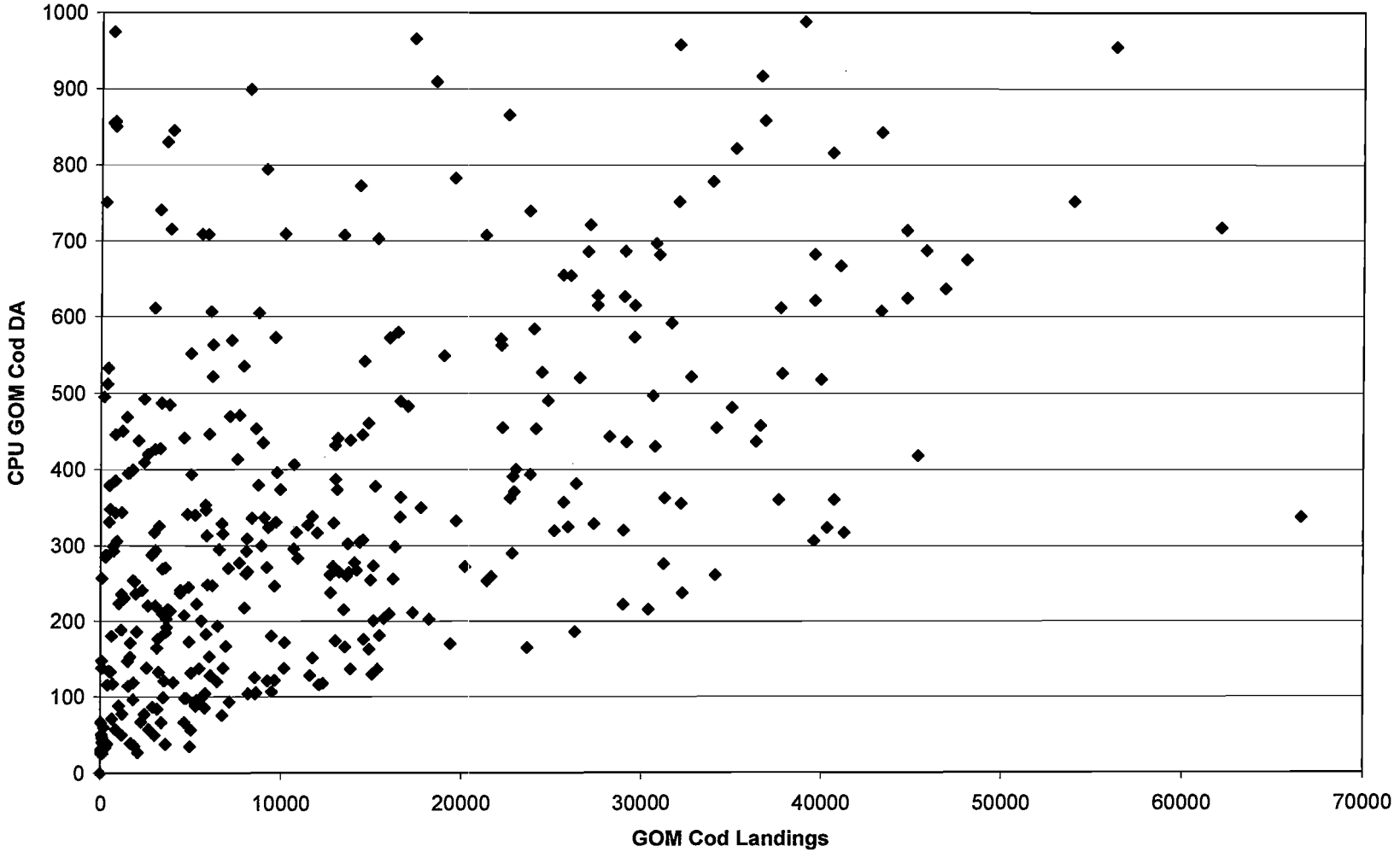


Figure 4. Scatter Plot of Total GOM Cod Landings (X-axis) and CPUE on Trips that Landed GOM Cod (Y-axis)



Attachment (3)

Table 3 – PDT review of effort measures under consideration

Measure	Mortality Control?	Analyze?	Comments
Count DAS as a minimum of 24 hours	Yes	Yes	
Remove 20-day spawning block requirement	No	No	Minor measure, no longer effective, has outlived utility
Require use of diamond mesh codend in CAII YTF SAP	No	Yes	May reduce discards if SAP is opened in future; uncertain if that will affect mortality
Allow use of 6 inch square mesh with separator trawl in the US/CA area	No	Yes	May increase haddock mortality, impacts on other stocks difficult to evaluate. Actual impacts of mesh changes often don't match theoretical impacts. Is this meant for cod end or separator panel?
Reduce/eliminate the conservation tax on DAS transfers	No	Maybe	May result in increased mortality, as analysis showed DAS leasing (without tax) was not conservation neutral. But – transfer program rarely used, so it may not be different than under current leasing program.
Provide more flexibility in the length/horsepower restrictions in the DAS leasing and transfer programs	No	Yes	Not designed as an effort control measure and not used to control mortality. Would be designed to adjust DAS leased based on relative fishing power and if correctly designed should have little impact on mortality.
Remove the tonnage restriction on replacement vessels	No	Yes	Cannot be implemented effectively through Multispecies FMP since restriction would remain in other FMPs.
Consider 6 inch mesh for gillnets	No	Yes	Effects on mortality uncertain. Difficult to analyze - actual impacts of mesh changes often don't match theoretical impacts.
Consider 17 inch GB haddock minimum size	No	Yes	Not a direct mortality control.
Reduce 72 hour observer notification requirement	No	No	Authority exists for NMFS to make change if deemed appropriate.
Consider adjustments in differential das program (areas and rates)	Yes	Yes	
Reconsideration of cod cap proposal	Maybe	Yes	Previous analyses equivocal on mortality impacts. May need revision to include other stocks.
Adjustments in DAS allocations	Yes	Yes	
Running clock	Maybe	Yes	Might affect trip behavior, reducing discards.
Trip limit triggers on stocks with trip limits	Maybe	Maybe	Difficult to incorporate into CAM for multiple stocks
Re-examine rolling/seasonal closures	Yes	Yes	Difficult and time consuming to analyze. Some work done by PDT in 2005, and by other researchers since then.

Measure	Mortality Control?	Analyze?	Comments
Reexamine exempted fisheries	No	Yes	Work in progress
Consider reducing minimum size of GOM haddock	Yes	Yes	Might increase GOM haddock mortality – but not a direct mortality control. Impacts on other species uncertain.
Allow GC scallop vessels fishing in the RMA to retain the same monkfish as allowed by general category permits in other areas vessels	No	Yes	No impact on groundfish.

#5

Amendment 16 Topics
August 28, 2007

I. Reference Point Review/Adjustments (depends on GARM III results)
- Target fishing mortality rates for stocks that are not in a rebuilding program?
- Redefine optimum yield for this fishery? (Probably will not be addressed in this action due to time constraints)

II. Rebuilding Program Adjustments (depends on GARM III: new reference points, stock status)
- May need to adjust rebuilding rates/rebuilding mortality targets as a result of updated reference points and progress towards rebuilding goals

III. M-S Act Compliance Issues
- Annual Catch Limits:
  - How specific do they need to be?
    - Groundfish: Commercial, recreational, sectors and non-sectors?
    - Other fisheries: By fishery?
- Accountability Measures:
  - For which elements of the fishery: commercial, recreational, sectors, incidental catch fisheries?
  - What form: in-season adjustments, paybacks, etc.?
  - To do what: end overfishing, penalty for exceeding an ACL, etc.?

IV. Possible revision to management unit
- Add wolffish and cusk? If so:
  - Reference points?
  - Stock status?
  - EFH?
  - (Specific measures may be necessary)

V. Commercial fishery
- A. How should TTACs/TACs be calculated?
- B. Sectors
  - Sector policy issues: see PDT reports, Council sector policy statement
    - Do LAPP provisions apply?
    - Is a referendum necessary?
    - Baseline period and history calculation elements
    - Trading of ACE and/or shares
    - US/CA area and sector TACs
    - Accounting for other fisheries
    - Monitoring
    - Which stocks need a hard TAC?
    - Entry and exit to sectors
    - Simplifying sector review process

Multiple year authorizations
SAPs/Cat B interactions?
Timing of implementation: first come first served, all at once, leave it up to NMFS, etc.

Individual sector issues
Construction of alternative: all or nothing?
Which exemptions need Council action for approval?
Overages?
Sector policy issues?

C. Common pool/effort controls: specific measures depend on GARM III results
Committee proposed list:

- Count DAS as a minimum of 24 hours
- Reconsider GOM cod cap proposal
- Adjustments in DAS allocations
- Consider adjustments in differential das program (areas and rates)
- Re-examine rolling/seasonal closures
- Running clock
- Reexamine exempted fisheries
- Trip limit triggers on stocks with trip limits
- Require use of diamond mesh codend in CAII YTF SAP
- Allow use of 6 inch square mesh with separator trawl in the US/CA area
- Reduce/eliminate the conservation tax on DAS transfers
- Provide more flexibility in the length/horsepower restrictions in the DAS leasing and transfer programs
- Remove the tonnage restriction on replacement vessels
- Consider 6 inch mesh for gillnets
- Consider 17 inch GB haddock minimum size
- Consider reducing minimum size of GOM haddock
- Reduce 72 hour observer notification requirement
- Remove 20-day spawning block requirement (at least for limited access DAS boats – question on handgear permits)

VI. Recreational fishery
Recreational allocation: which stocks and how much?
What recreational measure changes (if needed)?

VII. Other issues
Research set aside program for all groundfish stocks
Scallop/multispecies limited access permit provision
General category scallop monkfish trip limit

Eastern US/Canada Area 2007 Weekly Cod Catch

Report run on: August 30, 2007
For data reported through: August 29, 2007
Quota Period: 2007
Quota Period Dates: 5/1/07 to 4/30/08

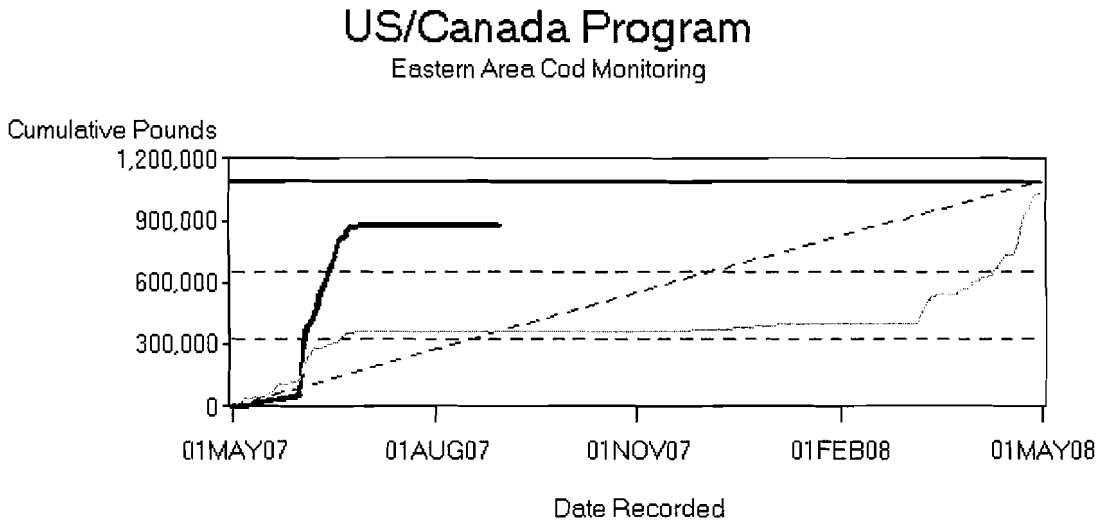
#6

Week End Date	Declared US/Canada Program (1)					Declared B DAS Program (2) (Includes flipped and unflipped trips)					Declared Eastern Area Haddock SAP (3)				
	Kept	Discard		Catch		Kept	Discard		Catch		Kept	Discard		Catch	
		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.
	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)
5/1-7/19	216,365	103,785	484,577	320,150	700,943	3,420	10	0	3,430	3,420	0	0	0	0	0
7/26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	216,365	103,785	484,577	320,150	700,943	3,420	10	0	3,430	3,420	0	0	0	0	0

Week End Date	Declared US/Canada and Haddock SAP (4)					Total Eastern US/Canada Area (1) + (2) + (3) + (4)								
	Kept	Discard		Catch		Kept	Discard		Catch		Cumulative Catch		Cumulative Catch	
		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.	Rep.	Est.	Rep.	Est.
	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	% of Quota	% of Quota
5/1-7/19	0	0	0	0	0	219,785	103,795	484,577	323,580	704,363	323,580	704,363	29.7	64.7
7/26	0	0	0	0	0	0	0	0	0	0	323,580	704,363	29.7	64.7
8/2	0	0	0	0	0	0	0	0	0	0	323,580	704,363	29.7	64.7
8/9	0	0	0	0	0	0	0	0	0	0	323,580	704,363	29.7	64.7
8/16	0	0	0	0	0	0	0	0	0	0	323,580	704,363	29.7	64.7
8/23	0	0	0	0	0	0	0	0	0	0	323,580	704,363	29.7	64.7
8/30	0	0	0	0	0	0	0	0	0	0	323,580	704,363	29.7	64.7
Total	0	0	0	0	0	219,785	103,795	484,577	323,580	704,363				

Estimated Landings Equivalent to Dealers' Reports	Total Eastern US/Canada Area						
	Cumulative Kept	Cumulative Discard		Cumulative Catch		Cumulative Catch	
		Reported	Estimated	Reported	Estimated	Reported	Estimated
	Lbs (Live Wt.)	Lbs (Live Wt.)	Lbs (Live Wt.)	Lbs (Live Wt.)	Lbs (Live Wt.)	Percent of Quota (1,089,084 lbs.)	Percent of Quota (1,089,084 lbs.)
Live Weight = Hail Weight*1.24	272,534	128,706	600,875	401,240	873,410	36.8	80.2

Based on FY2006 data, the ratio of dealer reported cod landings to Vessel Monitoring System (VMS) reported cod kept equals 1.24.



— Estimated Catch (80.2% (873,410 lbs.) of quota, dealer equivalent live weight = hail weight*1.24)
— Cod Quota (1,089,084 lbs.)
- Cod 60% Trigger
- Cod 30% Trigger
- Quota Rationing Trajectory is at 364,023 lbs., 33.4% of the quota this year to date.
— Prior Year's Estimated Catch was 362,794 lbs., 44.0% of prior year's quota at this time last year.

Notice

The 2007 Quota Period began on May 1, 2007, therefore this report does not contain any landings reported prior to May 1, 2007.

Management actions for the U.S./Canada Management Area, under the authority of the Regional Administrator (such as closures and possession limits) are based upon Vessel Monitoring System (VMS) reports and other available information.

National Oceanic and Atmospheric Administration

These data are the best available to NOAA's National Marine Fisheries Service (NMFS) when this report was compiled. Data for this report may be supplied to NOAA Fisheries Service (NMFS) from the following sources: (1) vessels via Vessel Monitoring System; (2) NOAA Fisheries Service Observer Program, through audited observer reports submitted by the Northeast Fisheries Science Center. Data in this report are for landings made through August 29, 2007 and may be preliminary. Differences with data from previous reports are due to corrections made to the database and updates to observer data.

Eastern US/Canada Area 2007 Weekly Haddock Catch

Report run on: August 30, 2007
For data reported through: August 29, 2007
Quota Period: 2007
Quota Period Dates: 5/1/07 to 4/30/08

Week End Date	Declared US/Canada Program (1)					Declared B DAS Program (2) (Includes flipped and unflipped trips)					Declared Eastern Area Haddock SAP (3)				
	Kept	Discard		Catch		Kept	Discard		Catch		Kept	Discard		Catch	
		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.
	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)
5/1-7/19	515,458	229,408	548,860	744,866	1,064,318	7,850	420	0	8,270	7,850	0	0	0	0	0
7/26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	515,458	229,408	548,860	744,866	1,064,318	7,850	420	0	8,270	7,850	0	0	0	0	0

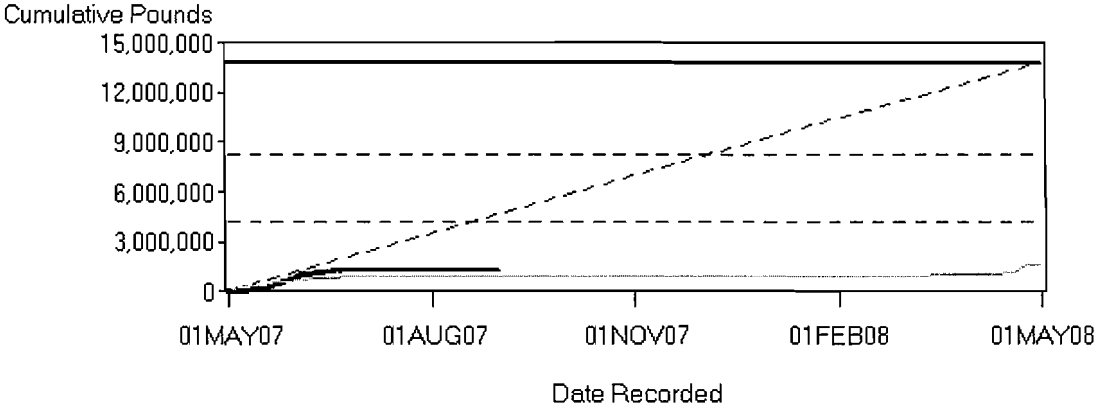
Week End Date	Declared US/Canada and Haddock SAP (4)					Total Eastern US/Canada Area (1) + (2) + (3) + (4)								
	Kept	Discard		Catch		Kept	Discard		Catch		Cumulative Catch		Cumulative Catch	
		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.	Rep.	Est.	Rep.	Est.
	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	% of Quota	% of Quota
5/1-7/19	0	0	0	0	0	523,308	229,828	548,860	753,136	1,072,168	753,136	1,072,168	5.4	7.8
7/26	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/2	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/9	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/16	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/23	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/30	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
Total	0	0	0	0	0	523,308	229,828	548,860	753,136	1,072,168	.		.	

Estimated Landings Equivalent to Dealers' Reports	Total Eastern US/Canada Area						
	Cumulative Kept	Cumulative Discard		Cumulative Catch		Cumulative Catch	
		Reported	Estimated	Reported	Estimated	Reported	Estimated
	Lbs (Live Wt.)	Lbs (Live Wt.)	Lbs (Live Wt.)	Lbs (Live Wt.)	Lbs (Live Wt.)	Percent of Quota (13,822,986 lbs.)	Percent of Quota (13,822,986 lbs.)
Live Weight = Hail Weight*1.23	643,669	282,688	675,098	926,357	1,318,767	6.7	9.5

Based on FY2006 data, the ratio of dealer reported haddock landings to Vessel Monitoring System (VMS) reported haddock kept equals 1.23.

US/Canada Program

Eastern Area Haddock Monitoring



— Estimated Catch (9.54% (1,318,767 lbs.) of quota, dealer equivalent live weight = hail weight*1.23)
— Haddock Quota (13,822,986 lbs.)
- Haddock 60% Trigger
- Haddock 30% Trigger
- Quota Rationing Trajectory is at 4,620,286 lbs., 33.4% of the quota this year to date.
— Prior Year's Estimated Catch was 932,588 lbs., 5.70% of prior year's quota at this time last year.

Notice

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National Oceanic and Atmospheric Administration

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Eastern US/Canada Area 2007 Weekly Haddock Catch

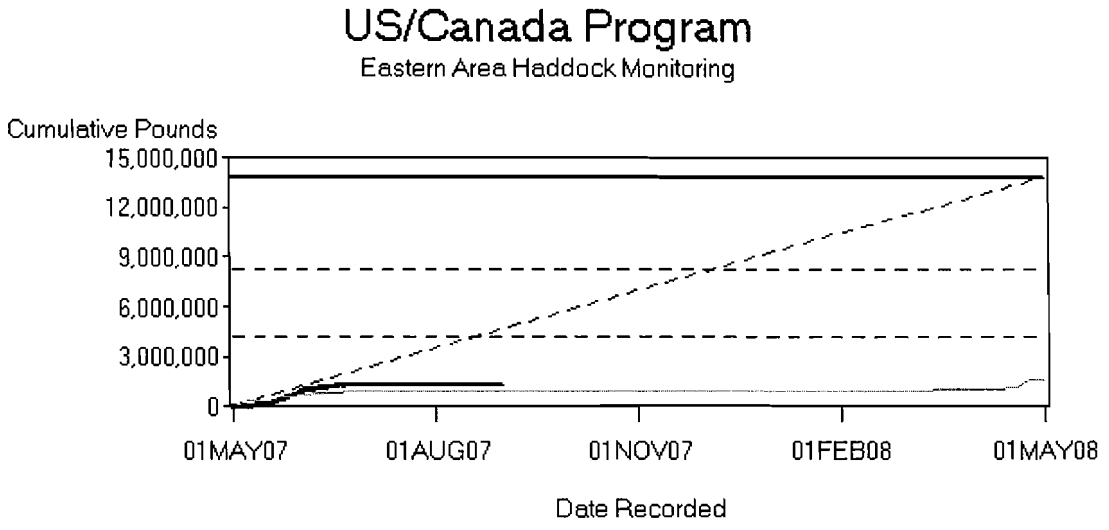
Report run on: August 30, 2007
For data reported through: August 29, 2007
Quota Period: 2007
Quota Period Dates: 5/1/07 to 4/30/08

Week End Date	Declared US/Canada Program (1)					Declared B DAS Program (2) (Includes flipped and unflipped trips)					Declared Eastern Area Haddock SAP (3)				
	Kept	Discard		Catch		Kept	Discard		Catch		Kept	Discard		Catch	
		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.
	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)
5/1-7/19	515,458	229,408	548,860	744,866	1,064,318	7,850	420	0	8,270	7,850	0	0	0	0	0
7/26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	515,458	229,408	548,860	744,866	1,064,318	7,850	420	0	8,270	7,850	0	0	0	0	0

Week End Date	Declared US/Canada and Haddock SAP (4)					Total Eastern US/Canada Area (1) + (2) + (3) + (4)								
	Kept	Discard		Catch		Kept	Discard		Catch		Cumulative Catch		Cumulative Catch	
		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.	Rep.	Est.	Rep.	Est.
	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	Lbs (Hail Wt.)	% of Quota	% of Quota
5/1-7/19	0	0	0	0	0	523,308	229,828	548,860	753,136	1,072,168	753,136	1,072,168	5.4	7.8
7/26	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/2	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/9	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/16	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/23	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
8/30	0	0	0	0	0	0	0	0	0	0	753,136	1,072,168	5.4	7.8
Total	0	0	0	0	0	523,308	229,828	548,860	753,136	1,072,168	.		.	

Estimated Landings Equivalent to Dealers' Reports	Total Eastern US/Canada Area						
	Cumulative Kept	Cumulative Discard		Cumulative Catch		Cumulative Catch	
		Reported	Estimated	Reported	Estimated	Reported	Estimated
	Lbs (Live Wt.)	Lbs (Live Wt.)	Lbs (Live Wt.)	Lbs (Live Wt.)	Lbs (Live Wt.)	Percent of Quota (13,822,986 lbs.)	Percent of Quota (13,822,986 lbs.)
Live Weight = Hail Weight*1.23	643,669	282,688	675,098	926,357	1,318,767	6.7	9.5

Based on FY2006 data, the ratio of dealer reported haddock landings to Vessel Monitoring System (VMS) reported haddock kept equals 1.23.



— Estimated Catch (9.54% (1,318,767 lbs.) of quota, dealer equivalent live weight = hail weight*1.23)
— Haddock Quota (13,822,986 lbs.)
- Haddock 60% Trigger
- Haddock 30% Trigger
- Quota Rationing Trajectory is at 4,620,286 lbs., 33.4% of the quota this year to date.
— Prior Year's Estimated Catch was 932,588 lbs., 5.70% of prior year's quota at this time last year.

Notice

The 2007 Quota Period began on May 1, 2007, therefore this report does not contain any landings reported prior to May 1, 2007.

Management actions for the U.S./Canada Management Area, under the authority of the Regional Administrator (such as closures and possession limits) are based upon Vessel Monitoring System (VMS) reports and other available information.

National Oceanic and Atmospheric Administration

These data are the best available to NOAA's National Marine Fisheries Service (NMFS) when this report was compiled. Data for this report may be supplied to NOAA Fisheries Service (NMFS) from the following sources: (1) vessels via Vessel Monitoring System; (2) NOAA Fisheries Service Observer Program, through audited observer reports submitted by the Northeast Fisheries Science Center. Data in this report are for landings made through August 29, 2007 and may be preliminary. Differences with data from previous reports are due to corrections made to the database and updates to observer data.

US/Canada Management Area 2007 Weekly Yellowtail Catch

Report run on: August 30, 2007
For data reported through: August 29, 2007
Quota Period Dates: 5/1/07 to 4/30/08

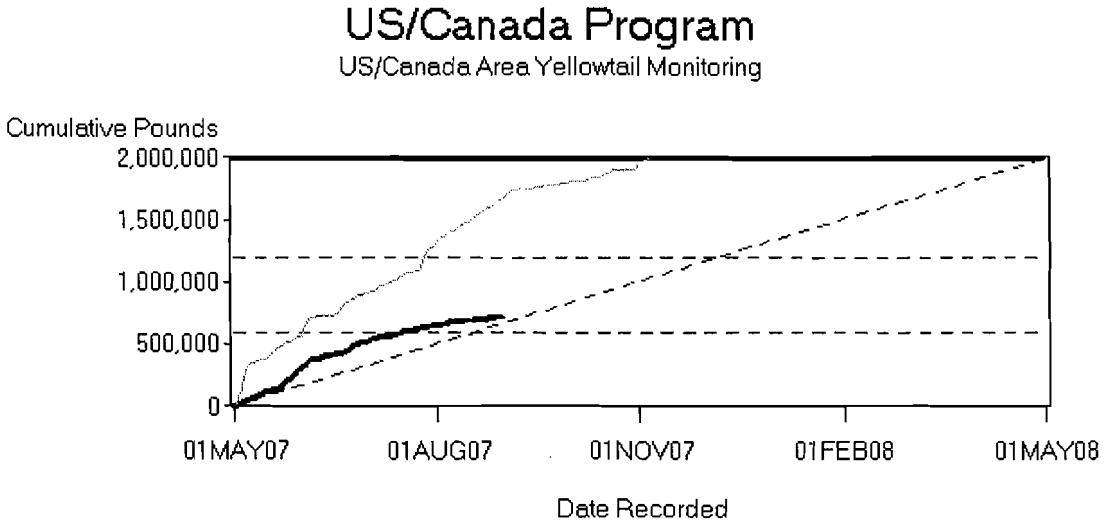
Week End Date	Declared US/Canada Program Eastern Area (1)					Declared B DAS Program Eastern Area (2)*					Declared Eastern Area Haddock SAP (3)				
	Kept	Discard		Catch		Kept	Discard		Catch		Kept	Discard		Catch	
		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.
	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs
5/1-8/2	135,612	5,809	45,314	141,421	180,926	10	0	0	10	10	0	0	0	0	0
8/9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	135,612	5,809	45,314	141,421	180,926	10	0	0	10	10	0	0	0	0	0

Week End Date	Declared US/Canada Program Western Area (4)					Declared B DAS Program Western Area (5) *					Declared US/Canada and Haddock SAP (6)				
	Kept	Discard		Catch		Kept	Discard		Catch		Kept	Discard		Catch	
		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.
	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs
5/1-8/2	258,269	11,873	113,881	270,142	372,150	12,253	578	6,076	12,831	18,329	0	0	0	0	0
8/9	13,840	780	5,928	14,620	19,768	0	0	0	0	0	0	0	0	0	0
8/16	5,605	1,207	2,896	6,812	8,501	0	0	0	0	0	0	0	0	0	0
8/23	6,525	255	2,511	6,780	9,036	0	0	0	0	0	0	0	0	0	0
8/30	8,020	867	6,144	8,887	14,164	2,900	0	0	2,900	2,900	0	0	0	0	0
Total	292,259	14,982	131,360	307,241	423,619	15,153	578	6,076	15,731	21,229	0	0	0	0	0

Week End Date	Declared Scallop Access Area (7)					Total US/Canada Area (1) + (2) + (3) + (4) + (5) + (6) + (7)								
	Kept	Discard		Catch		Kept	Discard		Catch		Cumulative Catch		Cumulative Catch	
		Rep.	Est.	Rep.	Est.		Rep.	Est.	Rep.	Est.	Rep.	Est.	Rep.	Est.
	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	% Quota	% Quota
5/1-8/2	415	6,466	41,824	6,881	42,239	406,559	24,726	207,095	431,285	613,654	431,285	613,654	21.7	30.9
8/9	0	61	1,019	61	1,019	13,840	841	6,947	14,681	20,787	445,966	634,441	22.5	32.0
8/16	10	207	2,330	217	2,340	5,615	1,414	5,226	7,029	10,841	452,995	645,282	22.8	32.5
8/23	0	65	660	65	660	6,525	320	3,171	6,845	9,696	459,840	654,978	23.2	33.0
8/30	5	30	372	35	377	10,925	897	6,516	11,822	17,441	471,662	672,418	23.8	33.9
Total	430	6,829	46,204	7,259	46,634	443,464	28,198	228,954	471,662	672,418				

Estimated Landings Equivalent to Dealers' Reports	Total US/Canada Area						
	Cumulative Kept	Cumulative Discard		Cumulative Catch		Cumulative Catch	
		Reported	Estimated	Reported	Estimated	Reported	Estimated
	Lbs (Dealer Wt.)	Lbs (Dealer Wt.)	Lbs (Dealer Wt.)	Lbs (Dealer Wt.)	Lbs (Dealer Wt.)	% of Quota (1,984,161 lbs.)	% of Quota (1,984,161 lbs.)
Dealer Weight = VMS Hail Weight*D/V Ratio	474,507	29,758	242,196	504,265	716,703	25.4	36.1

D/V Ratio - estimated ratios of dealer weight to VMS-reported hail weight based on FY2006 data. Multispecies yellowtail - 1.07, limited access scallop - 1.01, general category scallop - 1.00



— Estimated Catch (36.1% (716,703 lbs.) of quota, dealer equivalent weight=hail weight*D/V Ratio)
— Yellowtail Quota (1,984,161 lbs.)
– Yellowtail 60% Trigger
– Yellowtail 30% Trigger
– Quota Rationing Trajectory is at 663,199 lbs., 33.4% of the quota this year to date.
— Prior Year's Estimated Catch was 1,664,560 lbs., 36.5% of prior year's quota at this time last year.

Notice

The 2007 Quota Period began on May 1, 2007, therefore this report does not contain any landings reported prior to May 1, 2007.

Management actions for the U.S./Canada Management Area, under the authority of the Regional Administrator (such as closures and possession limits) are based upon Vessel Monitoring System (VMS) reports and other available information.

National Oceanic and Atmospheric Administration

These data are the best available to NOAA's National Marine Fisheries Service (NMFS) when this report was compiled. Data for this report may be supplied to NOAA Fisheries Service (NMFS) from the following sources: (1) vessels via Vessel Monitoring System; (2) NOAA Fisheries Service Observer Program, through audited observer reports submitted by the Northeast Fisheries Science Center. Data in this report are for landings made through August 29, 2007 and may be preliminary. Differences with data from previous reports are due to corrections made to the database and updates to observer data.

#7

Correspondence

July 25, 2007

RECEIVED
AUG 28 2007
NEW ENGLAND FISHERY
MANAGEMENT COUNCIL

Rip Cunningham, Chair
Multispecies Committee
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Paul J. Howard, Executive Director
New England Fisheries Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

RE: Herring Midwater Trawling in Groundfish Closed Areas

Dear Chairman Cunningham and Captain Howard,

As a groundfish fisherman I am writing to encourage the New England Fisheries Management Council to take action to eliminate herring midwater trawlers from operating in Groundfish Closed Areas, including rolling closures. Midwater trawlers have a bycatch of groundfish, as evidenced by the haddock bycatch cap that was created in Framework 43 to the Multispecies plan.

Midwater trawl ships pose a threat to the rebuilding of groundfish stocks and to the future of the rebuilt haddock stock. It is inappropriate for these huge vessels to be allowed to operate in areas that are closed to groundfish fishermen. Groundfish fishermen have sacrificed long and hard to conserve the groundfish resource and it is not fair to allow a few huge midwater ships to jeopardize our future and our livelihood.

It's time for the NEFMC to get midwater trawl ships out of Groundfish Closed Areas. Please take action immediately; for our families, for our future.

Sincerely,

Shawn Colley

F/V DAWN T

F/V SEA DANCER

This is an example of 101 received to date which have been forwarded to the Multispecies (GF) Committee.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930-2298

John Pappalardo, Chairman
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Dear John:

This letter is to inform you that the Secretary of Commerce has implemented an emergency final rule that reduces the haddock minimum size requirement from 19 inches to 18 inches in both the Gulf of Maine (GOM) and Georges Bank (GB) stock areas, except for charter/party and recreational vessels for which the haddock minimum size remains at 19 inches. This action will publish in the Federal Register on August 10, 2007, and will become effective upon publication.

This action responds to a June 25, 2007, New England Fishery Management Council (Council) request for emergency action to reduce the haddock minimum size requirement to 17 inches on GB due to recent information that indicates that there have been large amounts of regulatory discards of haddock. Despite the Council's recommendation of 17 inches, reducing the haddock minimum size to 18 inches will more than double the percentage of the GB haddock population available for harvest. Because both 18- and 19-inch fish are caught together, this action allows vessels to convert discards into landings without changing fishing practices or increasing fishing mortality on undersized fish. In addition, reducing the haddock minimum size in both the GOM and GB stock areas maintains a uniform size requirement across all areas and helps ensure meaningful and effective enforcement of the minimum size requirements.

The average size of haddock from the 2003 year class is anticipated to be 19 inches by the summer of 2008, which would make them legal to retain under the existing regulations. Therefore, the current discard situation will resolve itself over the long term. As a result, a temporary 18-inch minimum size limit will enable a larger fraction of the haddock catch to be landed, until a greater portion of the haddock population grows and reaches 19 inches. In the short-term, this action immediately reduces excessive discards in the fishery and provides greater opportunity for the fishery to achieve optimum yield.

The National Marine Fisheries Service will continue to monitor haddock landings and discards to determine whether an emergency situation still exists, and whether extension or modification of this action is necessary.

Sincerely,

for Patricia A. Kurkul
Regional Administrator

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930-2298

AUG 23 2007

RECEIVED
AUG 27 2007
NEW ENGLAND FISHERY
MANAGEMENT COUNCIL

Paul J. Howard
Executive Director
New England Fishery Management Council
50 Water Street
Newburyport, MA 01950

Dear Paul:

This responds to your letter of July 2, 2007, in which you posed four questions regarding how sectors are to be treated under the new limited access privilege program (LAPP) requirements of the Magnuson-Stevens Reauthorization Act (MSRA). I apologize for taking so long to respond, but the questions you asked have prompted an extended review of these issues, which is still ongoing. Until that review is completed and we have definitive guidance, I am unable to provide you the guidance you requested on behalf of the Council.

The one question that I can provide some information on at this time is your fourth question: If sectors are determined to be LAPPs and subject to cost recovery provisions, how will costs be determined? At least preliminarily we interpret the recoverable costs to be those incremental costs of management, data collection and analysis, and enforcement activities directly associated with the creation, operation, and monitoring of a LAPP. So, if a sector is considered to be a LAPP and subject to cost recovery, we would need to recover the relevant costs that are a direct result of that sector being created and managed. I anticipate that the agency will provide more definitive guidance on this aspect of LAPPs, as well, but this is our current understanding.

I hope to have answers to your other questions soon, and will certainly inform the Council of that guidance when it is available.

Sincerely,

Patricia A. Kurkul
Regional Administrator

tm - 8/07

New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
John Pappalrdo, *Chairman* | Paul J. Howard, *Executive Director*

June 25, 2007

Ms. Pat Kurkul, Regional Administrator
NMFS/NOAA
One Blackburn Drive
Gloucester, MA 01930

Re: Haddock Bycatch Emergency Action Recommendation

Dear Pat:

The New England Fishery Management Council voted on June 21, 2007 to recommend the Secretary of Commerce take action, under either the authority provided in Section 305(c) of the Magnuson-Stevens Act or the authority provided under Framework 42 to the Northeast Multispecies Fishery Management Plan, to address a regulatory bycatch situation involving groundfish vessels and the extraordinarily large 2003 year class of haddock. The Council motion is as follows:

> "that the Council ask the Regional Administrator to lower the minimum size of haddock to 17" for vessels declared into the Georges Bank area under either emergency action authority or the Regional Administrator's authority to adjust rules to allow the TAC to be harvested."

This action is requested because of the excessive discards of haddock that are taking place on Georges Bank. The exceptionally large 2003 year class of Georges Bank haddock is growing slowly. As a result, large numbers of these fish are not yet of minimum legal size (19 inches) and may not reach this size until 2008, when they are five years old -- two years later than other recent haddock year classes recruited to the fishery. The combination of an exceptionally large year class, slow growth, and minimum fish size regulations is leading to massive waste of an abundant resource. The discard amounts are well documented. For example, your office estimates that nearly a million pounds of haddock have been discarded in the Eastern US/Canada area since May 1, 2007 -- the weight of discards is nearly twice as large as landings on trips to this area.

The background and rationale for this request are fully delineated in the attached memo that was provided to the Council. Since that document was prepared, we have learned additional information that also supports a temporary reduction of the minimum size limit for Georges Bank haddock:

- The Northeast Fisheries Science Center advised the Council that they expect the 2003 year class will be 18.2 inches in total length (average) in the fall of 2007 and may be a similar size in the spring of 2008. These fish will be discarded under current minimum size regulations. This information indicates that there is time to take an action that will reduce discards.

- The Transboundary Resource Assessment Committee (TRAC) Stock Status report for Eastern Georges Bank haddock contains three pieces of information that lend support to this request. First, the report says "the outstanding 2003 year class was expected to contribute 66% of the 2006 catch numbers but accounted for only 28%. The contribution was less than predicted due to lower than anticipated recruitment to the fishery." This supports the argument that growth of the year class was slower than expected. Second, the report also says "the failure of this year class to contribute as expected to the fishery resulted in more of the 2000 and older year classes being caught in 2006 than had been projected from the 2005 assessment." This supports the argument that not landing this year class could lead to increased effort on older, weaker year classes in 2007 and early 2008. Since the fish are still growing slowly and will not be larger than the minimum size in the near future, the problem could continue to occur. Third, the 2005 year class also appears to be above average, though only a fraction of the size of the 2003 year class. This year class is also growing slowly, will probably be smaller than the minimum size in 2008 and may contribute to discards.
- The recently released assessment for Eastern Georges Bank haddock estimated 2006 discards as 146 metric tons, compared to 445 metric tons of landings, for a discard to kept ratio of 0.328 to one. This is a higher ratio than seen in any other recent year.

I would also like to address the concern raised by the Law Enforcement Committee that having different size limits for Gulf of Maine and Georges Bank haddock will hamper implementation. As suggested at the Council meeting, a vessel should be required to declare into Georges Bank to land smaller haddock. Such a declaration is already required for much of Georges Bank under the regulations for the US/Canada area. Any vessel that fishes in the Gulf of Maine should be bound by the larger minimum fish size. This regulation can be enforced at the point of sale, as has been done with other species (e.g. monkfish) in the past.

I acknowledge that fishing mortality for Eastern Georges Bank haddock was above the reference point in 2006 (because of the failure of the 2003 year class to recruit to the fishery in substantial numbers). The TRAC report notes that if the entire TAC is caught in 2007, mortality will decline but may still be above the reference point. This might be a concern if the U.S. fishery was catching its TAC, but in recent years the fishery has caught less than ten percent. While catch this fishing year shows an increase, the small TACs for cod in the eastern area already resulted in a closure and it is unlikely the U.S. will be able to catch its entire GB haddock TAC this year.

Thank you for considering this request. I look forward to your reply.

Sincerely,

John Pappalardo
Chairman

Attachment: June 5, 2007 memo to Council members

ASSOCIATED FISHERIES OF MAINE
PO BOX 287
SOUTH BERWICK, ME 03908

July 23, 2007

Mr. John Pappalardo, Chair
New England Fishery Management Council
50 Water Street
Newburyport, MA 01950

Dear John:

I write in reference to the Sector policy adopted by the Council in June.

In response to a request for clarification of one point in the Sector committee chairman's memo (dated June 6, 2007) at page 7, Council staff has explained that is the Council's current policy that one sector could receive quota for multiple fisheries (assuming sectors are allowed in those fisheries) but the membership of the sector could not change. For example, a vessel could not be in a groundfish sector and then be in a different herring sector, but could be in one sector that receives an allocation of both groundfish and herring.

If indeed the staff's interpretation is correct, then I must ask the Council to reconsider this policy at the September Council meeting.

There are many reasons why an individual may self-select membership in a particular sector. S/he may, for example, choose membership in a groundfish sector based on homeport. S/he may also choose membership in a separate herring sector, for the practical reason that other members of the sector chosen for groundfish do not have an allocation of herring. As I understand the Council's policy (as explained by staff), choice of a separate herring sector, in this example, would not be allowed.

I believe if left unchanged, this policy will have an unnecessary negative impact on the formation of sectors

Sincerely,

M. Raymond

Maggie Raymond

cc: TN (8/2)

Sector Policy

This policy is based on the motions made by the Council at the June 2007 Council meeting adopting the recommendations of the Sector.

Definition of "Sector"

A *sector* means a group of persons holding limited access vessel permits who have voluntarily entered into a contract and agree to certain fishing restrictions for a specified period of time, and which has been granted a TAC(s) in order to achieve objectives consistent with applicable FMP goals and objectives.

Formation of sectors

Each FMP may adopt a sector program through a plan amendment to enable limited access permit holders in the respective fishery to form sectors. In developing a sector program, the responsible species committees should adhere to the policy described in this document. Each committee should also review the Multispecies FMP sector program provisions as a basis for such a program, making modifications as needed to suit the specific fisheries.

In developing a sector program, each species committee should state the objectives of such programs specific to the FMP, and such objectives will be the context for the periodic evaluation of specific sector programs.

Each FMP must identify a single, fixed and permanent baseline for the purpose of sector allocation, but the Council recognizes that there may be reasons for exceptions. In such a situation, the respective species committee should provide the Council with the rationale for adopting multiple, movable or temporary baselines.

Individual species committees should address the question of sector size limitations in the development of their own sector programs but each FMP, with the exception of red crab, should define a minimum sector size by specifying a minimum number of participants, expressed as a number of individuals or % of permits, in order to ensure accountability among sector members, and not complicate administration or enforcement.

Individual species committees should address the geographic limitations on sectors in development of their sector programs.

Species committees should state which management measures within their respective FMPs could be eligible for exemption under sector programs, and such blanket exemptions would be subject to Council approval in the adoption of the FMP sector program.

Allocation

Individual species committees, in considering sector proposals, must consider bycatch in other fisheries, effort displacement and the impact on common pool (non-sector) vessels and any other relevant factors when allocating TAC.

Sectors will adopt Annual Catch Limits (ACLs) and Accountability Measures (AMs) for species managed under the Sector's FMP(s) and sector shares will be allocated as a percentage of the ACL of the applicable FMP. Species committees should consider stock condition in determining allocation eligibility in a manner consistent with the applicable FMPs. Sectors will adopt measures consistent with ACLs and AMS for each FMP for incidentally caught species.

Discards will not count toward a sector's allocation but discards will count against a sector's shares, unless a sector can provide other accountability for the discards and obtain an exemption. In other words, the calculation of a sector allocation, as a percentage of the total landings, would be based on historic landings only (not discards), but when the TAC is calculated each year, and a sector's catch is monitored against the TAC, both landings and discards will be counted.

Mortality Controls

Any allocation of TAC applied to a sector, when reached, would result in the sector fishery closing. Based on provisions in Multispecies Amendment 13 regarding overages by sector and non-sector vessels: if the sector does not exceed its assigned share or percentage in a given fishing year, but other sectors or the common pool do, the sector's allocation will not be reduced, if the sector exceeds its annual allocation but others do not, then the sector share will be reduced in the following year, and if all sector and open pool vessels stay within their shares, but the resource condition requires a reduction in catch, then all groups will take reductions. Individual species committees should address the regulatory response to the situation where both sector and non-sector groups exceed their portion of the total TAC in the FMPs Accountability Measures. Overages of a sector's allocation would be addressed in the annual evaluation and reauthorization process, and that individual species committees should establish the appropriate response for repeated overages, which may include disapproval of an operations plan.

In terms of mortality controls in fisheries not directly impacted by the sector fishery, each FMP sector program should require that sector applicants identify potential redirection of effort as a result of sector operations and propose limitations ("sideboards") if necessary to eliminate any adverse effects of effort redirection.

Administrative, monitoring and other policies

Sectors will be required to report their catch annually consistent with the Multispecies FMP sector reporting requirements, and any additional monitoring requirements should be stated in each sector's Operations Plan and reviewed annually.

Each FMP may allow proposals that request authorization for multi-year operations. If a multi-year sector program is allowed, and if the range of possible changes (e.g., membership and quota) is analyzed in the Environmental Assessment (EA), then a new EA would not need to be prepared each year.

Each FMP may allow transfers of quota among sectors contingent on evaluation of proposals. If any transfers of TAC between sectors is allowed within an FMPs sector program, those transfers would be on an annual basis, and the sector TACs would be reset each year based on the membership (which might change from year to year). The FMP may also authorize sector managers to request a quota transfer between themselves, and that they may do so any time after the TAC(s) for the fishing year have been finalized. The species committees should develop FMP specific criteria for the approval or disapproval of TAC transfers. If a sector transfers a portion of its TAC to another sector, and then exceeds its remaining portion, the transferred portion would not be affected, but the sector would have its TAC reduced proportionally the following year by the amount of the overage.

Each FMP should state that vessel can only be in one sector within that FMP in any fishing year. Furthermore, a vessel cannot be in more than one sector in different FMPs in the same year.

Each sector is responsible for ensuring that their eligibility criteria are implemented in a fair and uniform manner.

Species committees should adhere to the policy and guidelines described above, and wherever they deviate from these, should provide substantial rationale for such variance to the Council for its consideration and approval.

Tom Nies

From: Eric Brazer
Sent: Thursday, August 09, 2007 2:22 PM
To: Tom Nies
Cc: John Pappalardo
Subject: Hook Sector questions - answers

Tom,

Below, please find the answers to your Hook Sector EA questions from last week. Please let me know if you have more.

Cheers,
Eric

John/Eric

I've a few questions on the proposal for the hook sector submitted for consideration in A16:

1. Page 13 of the EA contains a summary of the sector rules "for the 2008-2009 fishing year." I assume that since A16 won't be implemented until FY 2009 that this will be changed to the 2009 fishing year.

Yes, this is correct.

2. Page 13 says: "sectors will be credited with their maximum TAC amount (20%) rather than the actual amount of fish caught." What is the rationale for this? Note that with more than five sectors, sectors would be credited with more than 100% of fish caught. The sentence immediately before this says sectors will be credited with their actual TAC percentage, rather than the amount caught. These sentences conflict.

The first sentence will be struck for the reason that you gave. The latter sentence will be kept.

3. The summary never mentions that the sectors ask to be exempt from minimum fish sizes, yet on page 174 a table says the sector will be exempt from these limits. Is the sector requesting exemptions from minimum fish sizes? The summary also never mentions the sector will use gillnet gear.

The Sector is requesting an exemption from minimum fish sizes, as indicated on page 174. The summary will be updated to reflect this request. Additionally, the Hook Sector does not allow use of gillnets; therefore, the word "net" will be removed from the table on page 174.

4. Will the hook sector now be allowed to use gillnet gear? See page 14 where the summary says the sector is exempt from net limits for gillnets and page 173 where the gear restriction say gillnets are authorized. Will the sector change its name to reflect the use of gillnet gear if it will be allowed?

Gillnet use is not allowed in the Hook Sector. Therefore, Item 8 on page 173 will be revised and reference to gillnets as an allowable gear will be removed. Additionally, the reference on page 14 will be removed as well.

5. What does the table on page 174 mean where it says "exemption from fishing blocks"? Does this mean gillnet

blocks out?

Yes. In that it is not applicable to the Hook Sector however, it will be removed.

6. Does the sector intend to be exempt form US/CA area trip limits as is implied by page 172 (exempt from all trip limits)?

Yes.

Thanks for your replies.

Tom Nies

Eric Brazer, Jr.
Fisheries Policy and Management Coordinator /
GB Fixed Gear Sector Manager
P.O. Box 2 North Chatham, MA 02650

Snug Harbor Marina

August 15, 2007

Captain Paul Howard
New England Fisheries Council
50 Water Street Mill 2
Newburyport, MA 01950

Dear Captain Howard:

Any proposed management system designed to replace DAS using landings only as a method of allocation, would be an injustice to many vessels and change the characteristics of the overall ground fish fleet. Current data on existing permitted vessels on size, horsepower, and fish hold capacities give an excellent assessment of the fleets' potential catch capabilities, something easily allocated as a percentage of a TAC.

In addition, these vessels have maintained their part of the infrastructure, continued reporting landings, and existed on other species to survive and should be stakeholders of any allocation system. Smaller vessels especially in SNE where cod stocks collapsed in the 1970's have been burdened by their allocation of C DAS due to the 1999-2001 landings window. Any use of current landings data would adversely affect these vessels, further changing the make up of the fleet as it existed when cod were available in SNE.

A system using vessel size, horsepower, and holding capacity, as a percentage of the overall fleet catch potential adjusted with a landings history would be a start to an equitable solution to replacing the DAS system with two additional considerations. Vessels in SNE with landings prior to designated time windows should be given some leeway in landings history and some parameters must be set to minimize possible abuses from latent effort permits vying for quota.

Ultimately fisheries management has the responsibility to fulfill the mandated goals and objectives of the Magnuson Stevens Act and not yield to political pressures when making decisions which will affect individuals, families, and communities and design an equitable system for replacing DAS.

Sincerely,

Al Conti

Al Conti, President

tn-8/28

410 Gooseberry Road • Wakefield, RI 02879 • (401) 783-7766

CAPE COD
COMMERCIAL HOOK FISHERMEN'S ASSOCIATION, Inc.
210 Orleans Road
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AUG 30 2007
NEW ENGLAND FISHERY
MANAGEMENT COUNCIL

Rip Cunningham
Chairman, Multispecies Committee
C/o Tom Nies, Fishery Analyst
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

August 30, 2007

RE: Access to Multispecies Closed Areas by Midwater Trawl Vessels

Dear Chairman Cunningham,

CCCHFA respectfully requests inclusion in Amendment 16 to the Multispecies Fishery Management Plan a prohibition on midwater trawling in all Groundfish Closed Areas. Through our ongoing work to improve regional understanding of the midwater trawl fishery, we have gained several recent insights which serve to illustrate the problems with continued access to these areas by midwater trawl vessels and which make this action necessary and timely. Simply stated, there is far too much uncertainty about their impacts, and as another major groundfish action is developed, there is no room for the risks associated with that uncertainty.

First, it is important that the Multispecies Committee, and all groundfish stakeholders for that matter, are aware of failures in the implementation of Framework 43. It is clear the framework is flawed: the tools it created to monitor the haddock bycatch cap have yet to register a single pound of haddock this year. Even if one disregards reports from Georges Bank of heavy interaction by midwater trawlers with haddock, the absence of even a single animal in the official record does not pass the straight-face test and instead suggests a complete breakdown of the monitoring program.

This possibility led to the second insight, which concerns the ongoing failure of NMFS to adequately cover this fleet with at-sea observers, made worse in this instance by the failure to meet the minimum standards (20%) contemplated in Framework 43. While exact numbers are not readily available, it is clear that since the implementation of FW 43, coverage levels have been far lower than the 20% target: approximately 5% to 10% over calendar year 2006 and the first 8 months of 2007. Even worse, through failures of scheduling, extended periods of extremely heavy effort by the midwater trawl fleet are being entirely missed by the NMFS observers program.

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For instance, while the data was recently withdrawn from public availability due to uncertainties about its accuracy and is therefore currently unavailable from NMFS, it is clear the herring fleet landed over 5,000 tons of fish from Area 1A in May 2007 alone, possibly more. According to the Fisheries Sampling Branch website, NMFS failed to observe a single trip during this period of heavy fishing effort, much of which took place on Jefferies Ledge, within the Western Gulf of Maine Closed Area. Our surprise at the failure to find one single haddock in 5,000 tons of herring faded once we realized no one was looking.

That the anecdotal reports of haddock bycatch from Georges Bank this summer are not backed up by observed instances is also not surprising when one looks at the available records of coverage. Data are available through July, and they indicate that just one trip was observed.

In addition to these specific and timely concerns, CCCHFA continues to maintain that the low coverage rates, pre-sorting grates, and at-sea dumping which characterize the observer program for this fleet do not allow for any reasonable assumptions about its' impacts on groundfish. What data we do have cannot be extrapolated across the full catch of the midwater fleet. Furthermore, the 5% bycatch threshold on which midwater trawl was initially exempted and allowed into the closed areas is inappropriate in light of the volume of the fishery- 5% of their catch would exceed the annual TAC's for many groundfish species.

Framework 43 and the events which led to its creation made it clear that the midwater trawl fleet had a groundfish bycatch problem. Now the failures of the monitoring systems on which that action is based are making it clear that NMFS is unable to adequately track the impacts of the midwater trawl fleet on groundfish. While Amendment 16 will create new management measures, like sectors, designed to rebuild both groundfish stocks and groundfish businesses, it will also no doubt contain new restrictions on effort. The NEFMC should not allow these measures to be undermined by continued pressure from midwater trawl vessels on groundfish like haddock within areas closed to groundfishermen.

Please take additional action to protect groundfish and groundfishermen by prohibiting midwater trawl vessels from fishing in groundfish closed areas. Thanks for your time and consideration.

Sincerely,

Tom Rudolph
Herring Campaign Operations Director
CCCHFA

Cc: Paul Parker, Executive Director, CCCHFA

To: Rip Cunningham, Chair, Multispecies Committee and
Paul J. Howard, Executive Director

c/o: Tom Nies, Fishery Analyst, Northeast Multispecies FMP
New England Fisheries Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

RE: Groundfish Closed Area Protection in Amendment 16

Dear Chairman Cunningham and Captain Howard,

As you develop Amendment 16 to the Groundfish Plan, please include action to eliminate midwater trawlers from the Groundfish Closed Areas, including all the GOM rolling closures. Midwater trawlers have a bycatch of groundfish, as evidenced by the haddock bycatch cap that was created in Framework 43 to the Multispecies plan. Furthermore, the argument that their bycatch is less than some 5% threshold level does not hold water because of the immense volumes of fish they catch. 5% of their catch would easily exceed many groundfish species annual TAC's.

In addition, the data demonstrating that they do not exceed 5% is fundamentally flawed because the are rarely observed, they pre-sort, and they dump un-observed fish by the thousands of tons.

Midwater trawl ships pose a threat to the rebuilding of groundfish stocks and to the future of the haddock stock. It is inappropriate for these huge vessels to be allowed to operate in areas that are closed to groundfish fishermen. Groundfish fishermen have sacrificed long and hard to conserve the groundfish resource and it is wrong to allow a few huge midwater ships to jeopardize our future and our livelihood.

Please use Amendment 16 as an opportunity to correct an unfortunate mistake. They should not have been allowed in these areas, and now is the time to remove them.

Sincerely, Kenneth Talley F/V Hunter

RECEIVED
AUG 30 2007
NEW ENGLAND FISHERY MANAGEMENT COUNCIL

To: Rip Cunningham, Chair, Multispecies Committee and
Paul J. Howard, Executive Director

c/o: Tom Nies, Fishery Analyst, Northeast Multispecies FMP
New England Fisheries Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

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Please use Amendment 16 as an opportunity to correct an unfortunate mistake. They should not have been allowed in these areas, and now is the time to remove them.

Sincerely,

Bruce A Peters
Capeshores Charters
POB 947
E. Orleans MA
02643

(3)

New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Attention: Rip Cunningham, Chairman, Multispecies Committee
Attention Paul J. Howard, Executive Director
c/o: Tom Nies, Fishery Analyst

August 29, 2007

Subject: Herring Midwater Trawling in Groundfish Closed Areas

Dear Chairman Cunningham and Captain Howard,

As a groundfisherman, I am writing to request that the New England Fisheries Management Council take action, through Amendment 16 to the Multispecies plan, to stop herring midwater trawlers from operating in all Groundfish Closed Areas, including rolling closures.

Midwater trawlers catch groundfish, as evidenced by the haddock bycatch events that led to the creation of Framework 43 to the Multispecies plan. Furthermore, the argument that it is ok for them to fish in closed areas because their bycatch is less than an arbitrary 5% threshold level does not hold water because of the immense volumes of fish they catch. 5% of their catch would easily exceed the annual TAC's for many groundfish stocks.

The data used to justify their access to these closures is fundamentally flawed. These boats are infrequently observed, they pre-sort using grates and chutes, and they can and do dump cod-ends with no examination of the contents.

Midwater trawl ships are a threat to the rebuilding of our groundfish stocks. It is inappropriate for these huge vessels to be allowed to operate in areas that are closed to groundfish fishermen. Groundfish fishermen have sacrificed long and hard to conserve the groundfish resource and it is not fair to allow a few huge midwater ships to jeopardize our future and our livelihood.

Please use Amendment 16 as an opportunity to correct an unfortunate mistake. They should not have been allowed in these areas, and now is the time to remove them.

Sincerely,
Stephen W. Walima
Labrador Fisheries
1 Salt Marsh Lane
Rockport, Ma 01966

cc: TN, LS, Council (9/3)

Joan O'Leary

From: Tom Nies
Sent: Friday, August 31, 2007 11:50 AM
To: Joan O'Leary
Subject: FW: sector overages/under harvest

Attachments: MARINE POLICY Sanchirico et al 20061.pdf

MARINE POLICY Sanchirico et al...

For the read folder and the Committee meeting.

Tom Nies
978-465-0492 ext 19
tnies@nefmc.org

-----Original Message---
From: Maggie Raymond
Sent: Friday, August 31, 2007 11:39 AM
To: Rip Cunningham
Cc: Tom Nies; Karen Roy; Mike Leary; Rodney Avila; Thomas Hill; Pat Kurkul; Sally McGee; James Odlin; David Preble; Terry Stockwell; Jim Ruhle
Subject: sector overages/under harvest

Dear Rip
You'll note from the 8/28 summary of their meeting, the PDT has developed suggestions for dealing with overages in groundfish sectors.

First, I hope to discourage the committee from recommending that sector participants make a long-term commitment (e.g. five years). This simply is not practical as circumstances may force a vessel owner (or his heirs, or his creditors) to sell a vessel for any number of unforeseen reasons (death, divorce, breach of mortgage, etc.).

I am also writing to request that the committee discuss the possibility of allowing some percentage of a sector's allocation that is under harvested to be carried forward into the next fishing year. There are several reasons why this makes sense, the most important of which is safety. We would expect sectors that are well managed to constrain a portion of allocation in reserve to prevent accidental overages as they approach the end of the fishing year, but that sensible practice could also result in under harvest, or a race to fish at the end of the year. Allowing some carryover would, we believe, be comparable to the DAS carryover in groundfish and scallops that was developed by the Council to address safety.

For your use, I've attached a document that describes the common use of "rollover allowances" in existing IFQ programs. Recognizing that sector allocations (in New England FMPs) are not IFQs, the principle of overages and under harvests as it applies to each is comparable. Carry forward allowances of 10-20% are common, though multi-year accumulations are not permitted, and in some programs, carry forwards are not allowed if the TAC decreases in the subsequent year.

As always, we appreciate your consideration of our views.

Maggie Raymond
Associated Fisheries of Maine

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www.elsevier.com/locate/marpol

Catch-quota balancing in multispecies individual fishing quotas

James N. Sanchirico[a,*], Daniel Holland[b,1], Kathryn Quigley[c], Mark Fina[d]

[a]Resources for the Future, 1616 P Street NW, Washington, DC 20036, USA
[b]Gulf of Marine Research Institute, 350 Commercial Street, Portland, ME 04101, USA
[c]National Marine Fisheries Service, 7600 Sand Point Way NE, Bldg. 1, Seattle, WA 98115, USA
[d]North Pacific Fishery Management Council, 605 W 4th Avenue, Suite 306, Anchorage, AK 99501, USA

Received 5 December 2005; accepted 19 February 2006

Abstract

Individual fishery quotas (IFQs) are an increasingly prevalent form of fishery management around the world, with more than 170 species currently managed with IFQs. Yet, because of the difficulties in matching quota holdings with catches, many argue that IFQs are not appropriate for multispecies fisheries. Using on-the-ground-experience with multispecies IFQ fisheries in Iceland, New Zealand, Australia, and Canada, we assess the design and use of catch-quota balancing mechanisms. Our methodology includes a mix of interviews with fishery managers, industry representatives, and brokers, literature review, and data analysis. We find that a combination of incentives and limits on use rates for the mechanisms provide sufficient flexibility to the quota owner without the fishery manager incurring excessive levels of overexploitation risk. Contrary to some opinions, these programs are evidence that it is possible to implement IFQ programs for multispecies fisheries and that they can be profitable and sustainable.

Keywords: Natural resources; Created markets; Tradable permits

1. Introduction

Individual fishery quotas (IFQs) provide individuals or companies with rights to a share of the total allowable catch (TAC) from a fish stock.[2] They are an increasingly prevalent form of fishery management, with more than 170 species in Iceland, New Zealand, Canada, and Australia currently operating under an IFQ. More importantly, research has shown that they can be effective in improving the profitability and sustainability of fisheries [1–5].

Multispecies fisheries, however, can present particular difficulties for IFQ management because it is very difficult to know ex ante the catch composition [8]. While fishers have some ability to alter the species composition of their catch either by location choices, timing of trips, or alteration of fishing methods, it is almost inevitable that individual fishers' species mix of catch will not exactly match their ex ante portfolio of catch rights. Critics of multispecies IFQ systems often cite "catch-quota balancing" as an insurmountable problem [6].

Fishery managers have addressed this difficulty by allowing market transactions, such as permanent and temporary transfers of quota. Management systems permit "retrospective balancing" or trades after landings are made to allow a fisherman to cover overharvest of quota. Managers also have used non-trading mechanisms to aid in balancing catches with quota holdings. These include rollover provisions, such as carrying forward or back of quota, "deemed value payments," under which fishers are charged a fee for each unit of catch they land above their quota, or permitting fishers to surrender or discard catch they cannot match with quota. Some programs also permit "cross-species" exchanges where quota of one species can be used to cover catches of another species at a prescribed trading ratio.

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E-mail addresses: Sanchirico@rff.org (J.N. Sanchirico), dholland@gmri.org (D. Holland), Kathryn.Quigley@noaa.gov (K. Quigley), Mark.Fina@noaa.gov (M. Fina).

[1]Work on this project was started while Dan was senior economist at SeaFic in New Zealand.

[2]We use IFQ interchangeably with individual transferable quota (ITQ), the term used in the New Zealand and Australia fisheries, and individual vessel quota (IVQ), the term commonly used in Canada.

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All of these mechanisms introduce flexibility into the system for the benefit of the individual quota owner. The costs of this additional flexibility, however, can be a loss of precision in TAC management, potential effects on the performance of the lease market, and a greater administrative burden. If two species in a multispecies complex have TACs that are out of balance with average catch ratios, the non-trading instruments might enable fishers to more fully utilize the TAC of the species that would otherwise have been constrained by the TAC of the jointly caught species. Flexibility mechanisms can, therefore, increase the value generated by the multispecies complex, but they also can increase the risk of overexploitation. Achieving the right balance between flexibility, overexploitation risk, and administrative simplicity is critical for the profitability and sustainability of multispecies fisheries.

Over the years, fishery scientists, policy analysts, academics, managers, and fishermen have debated whether IFQs are appropriate for multispecies fisheries (e.g., [6–8]). During this time, fishery managers and governments around the world have gained considerable on-the-ground-experience with multispecies IFQ programs. The objective of this paper is to document, assess, and compare the experiences with catch-quota balancing mechanisms in Iceland, New Zealand, Australia, and Canada. Analysis of the flexibility mechanisms is timely and relevant for managers currently designing multispecies IFQ programs, including those in the Gulf of Alaska, Gulf of Mexico, and along the West Coast of the United States (Washington, Oregon, and California).

While other papers provide qualitative discussions of catch-quota balancing mechanisms used in specific multispecies IFQ fisheries [4,9–14] or of general issues with multispecies IFQ systems [8], we evaluate the effectiveness of the methods for balancing catches against quotas using qualitative and quantitative data. We also pay particular attention to how and why these policies might have changed over time in response to experiences in the fisheries or changing conditions and needs. Data on the use of these mechanisms (up to now absent in the literature) helps to put the use of each mechanism into perspective. Quantitative analysis also reveals the preferences of the quota owners for the different types of mechanisms, as all of the programs have multiple options.

Our methodology consists of reviews of available literature; interviews with fishery managers, industry representatives, and quota brokers; and compilation and analysis of data on the use of catch-quota balancing mechanisms. In particular, we analyze information on retrospective balancing arrangements, quota markets, cross-species exchanges, rates of quota rollover, catch surrender and discarding provisions, and deemed value payments. Because the types of policies used and the information available to assess them differ greatly across the systems, our assessment includes a mixture of quantitative indicators, such as how actively various balancing mechanisms are used, potential for TACs being exceeded, and more subjective criteria, such as perceptions of fishery stakeholders and managers.

We find that a combination of incentives to match catches with leasing quota and limits on the level each mechanism can be used provides sufficient flexibility to the quota owner without fishery managers incurring excessive levels of overexploitation risk. In most circumstances, flexibility mechanisms are used at the margin and represent a small percent of the TAC. There are designs where abuses are more likely, especially if managers do not take into account the incentives provided by the entire suite of options available to the quota owner. Contrary to some opinions, we believe that the performance of these programs is evidence that it is possible to implement IFQ programs for multispecies fisheries and that they can be profitable and sustainable.

The paper is organized as follows. Next, we provide background information on the multispecies IFQ systems in New Zealand, Australia, Iceland, and Canada. We then define and analyze the catch-quota balancing mechanisms used in the different systems. A discussion on our findings follows, with a focus on how each of the mechanisms fits into the design of each system, potential issues that arise when instruments are used simultaneously, and the balance between providing incentives and limiting the use of the mechanisms. We conclude by highlighting issues that arise in the design of catch-quota balancing mechanisms.

2. Background

For each of the five programs, we provide selective background information on the overall structure of the management program, such as species and gear included, the setting of the total allowable catches, and the systems put in place to monitor catches. This discussion is not meant to be comprehensive; rather, we focus on the information relevant to understanding the performance of the catch-balancing mechanisms. Readers interested in more information on the programs should consult the review articles listed in the reference list.

Since their inception, each of the programs has evolved and adapted to new information on the ecology, economics, and social implications of the program, but the goal to create a profitable and sustainable fishing industry remains the same.

2.1. New Zealand quota management system (QMS)

The New Zealand QMS had its origins in the enterprise allocation system, which created company-held quotas for nine companies for seven deepwater stocks in 1983.[3] In 1986, the QMS was implemented, creating allocations for 17 inshore species and the 9 offshore species. The majority

[3]For further history and institutional detail on New Zealand fisheries management, see [9,15,16].

of the quota was allocated free of charge and based on catch histories. An expansion of the QMS began in 1998 and, as of 2004, there were 93 species included, with a goal of including all living marine resources (including invertebrates and some seaweeds but not marine mammals) that are commercially valuable or where sustainability concerns could arise as a result of fishing [17].[4]

For each fish species managed under the QMS, New Zealand's exclusive economic zone is divided up into a number of quota management areas, creating a total of 550 fishing quota markets as of 2004. The TAC is set annually for each species in each management area.[5] Fisheries legislation requires individual fish stocks to be maintained at or above a level capable of producing maximum sustainable yield (MSY).[6]

Most TACs are not changed in response to overcatch or undercatch situations, and many remain constant from year to year. In some cases, this has lead to TAC overruns persisting for many years. If overcatch results in a depletion of the stock, it could result in a reduction of the TAC, but this stems from management advice that a reduction is appropriate rather than an automatic adjustment. Many fish stocks (especially those of low value) do not have formal stock assessments [9], but TACs must be set for allocated species to administer the QMS.

Quota shares originally were issued as fixed annual tonnages, which required the Crown to operate in the market to change the TAC. This proved too costly, and in 1990, quota shares were redefined as a share of the TAC. In 2001, managers began issuing annual catch entitlements (ACE), which is a right to harvest a specific quantity of fish in a given year that is separate from long-term quota and is determined by multiplying a share and the TAC as a means to simplify leasing or temporary trades. A regularly updated registry of quota and ACE holdings facilitates transfers that can be made online.

Species aggregation limits on quota ownership, which cap the amount of quota an entity may own of a combined TAC of a species across all management areas, have changed over time. Current caps range from 45 percent for hake, hoki, and orange roughy to 20 percent for paua and bluenose. Spiny lobster is the only species subject to a limit on the ownership of quota stock (a limit in each management area at 10 percent). Maori (aboriginals) own more than 40 percent of the total quota (levels vary by fish stock) through companies they own collectively and quota owned by individual iwi (tribes). Much of this quota ownership resulted from companies and quota purchased by the government and transferred to Maori as a settlement of Maori claims to fishery resources. Maori are allocated 20 percent of quota for all fish stocks introduced to the QMS after 1992.

Monitoring of catches and quota holdings occurs through a dual reporting system that requires fishers and fish purchasers to fill out forms matching catches to fishers' permits. For most small vessels and fish purchasers, catch-effort-landing returns are due the 15th day of the month following the catch. For large trawl vessels, the trawl-catch-effort-processing-return must be submitted within 7 days after the end of a trip. FishServe, a private company, processes all of these forms under contract for the New Zealand Ministry of Fisheries. Observers and vessel-monitoring systems are not comprehensive but are required in some cases, particularly in fisheries with marine mammal interactions and on vessels participating in international fisheries, such as Patagonian toothfish. When observers are required, costs are distributed across the fleet through cost recovery levies.

2.2. Iceland IFQ system

More than in most other countries, the Icelandic fishing industry is a major direct and indirect contributor to the country's gross domestic product, with estimates of its contribution as high as 45 percent [18]. Furthermore, the industry is important for trade and employment, and in many remote communities it is single largest employer. As such, fishery issues and policies have far-ranging implications; therefore, it comes as no surprise that Iceland has been at the forefront of rationalizing its fisheries. The impetus for rationalization, as in other settings, came out of crises, first in the herring fisheries in the early 1970s, followed by the demersal fisheries (i.e., cod, haddock, saithe, redfish, Greenland halibut, plaice, catfish, and witch) in the mid-1980s. In 1990, the Fisheries Management Act made permanent the demersal IFQ systems that had existed in some form since the early 1980s.[7]

Most of the major commercial stocks (25 species) are under IFQ management, and together they account for more than 97 percent of the commercial value. TAC levels, at least for the most important species, are determined each year by the Ministry of Fisheries based on recommendations from the Marine Research Institute.[8] Recently, the

[4]The QMS primarily relies on output controls to manage fisheries, but a variety of other regulations are used, including closed areas, gear restrictions, and minimum size limits. There is relatively little use of input controls and no direct restriction of the number of fishing vessels or effort.

[5]An allowance is made within the TAC for non-commercial use—customary recreational fishing and other sources of fishing-related mortality—with the remaining portion allocated as the total allowable commercial catch. For consistency, in this paper we will refer to the total allowable commercial catch as the total allowable catch.

[6]Although Section 14 of the Fisheries Act of 1996 provides some flexibility, allowing the Minister of Fisheries to deliberately set a total allowable catch that may result in the stock size falling below B_{msy} in the interest of increasing the value generated by a multispecies complex as long as viability is not threatened, the requirements for applying this exception are substantial and the minister has never exercised authority under it.

[7]Originally, vessels under 10 GRT where not included, but they were brought into the IFQ system under the 1990 legislation. Vessels under 6 GRT have only recently been included in the IFQ program.

[8]The Marine Research Institute uses logbooks to estimate catch per unit of effort by vessel classes and landing reports to help with stock assessments, where data are gathered on age, length, height, maturity, and sex.

ministry has followed the institute's recommendations fairly closely [19]. Since 1995, the ministry has adhered to a catch control rule that generally sets cod TACs at 25 percent of the fishable biomass, which naturally changes over time.[9] Setting the TAC as a fixed percent of biomass has focused discussions on the estimate of fishable biomass, removing the TAC rule from controversy. According to fishery managers the rule automatically incorporates overages and underages into the annual TAC setting process.

As with other IFQ systems, each vessel was allocated gratis a permanent share of the TAC based on past catch histories. Each year, the tonnage available to a quota holder is their ACE. Current limits on quota ownership are 12 percent for cod; 20 percent for haddock, saithe and Greenland halibut; and 35 percent for redfish. An additional cap prohibits any entity from holding more than 12 percent of the value of the combined quota shares for all IFQ stocks.

Multiple government agencies monitor and enforce the IFQ regime. The Fisheries Directorate issues commercial fishing permits, allocates catch quotas to Icelandic fishing vessels, tracks quota transfers between vessels, and checks that vessels do not fish in excess of their quotas. Licensed operators, hired by port authorities, weigh and record catch, transmitting catch data to the directorate twice daily by computer.[10] While at sea, vessels can be boarded by the Coast Guard to monitor catches and fishing gear.[11] With due cause, the Directorate of Fisheries can place inspectors aboard vessels who monitor catch composition, handling methods, and equipment.

The Icelandic IFQ system places significant emphasis on balancing economic efficiency, ecological sustainability, and social objectives. Trade-offs across these dimensions have likely constrained efficiency gains. At the same time, these rules have been attempts to preserve employment, particularly in areas where the fishing industry is the largest employer. Any type of assessment of the Icelandic system cannot ignore these often competing interests.[12]

2.3. Australia Southeast Trawl Fishery (SETF)

Established in 1915, the SETF is one of Australia's oldest commercial fisheries.[13] Participants in the fishery target 20 quota species (or species groups) using otter trawl and Danish seine. The estimated gross value of production of the SETF for 2003–2004 was $54 million [22], making it Australia's third most valuable commonwealth fishery.

The use of IFQs for the SETF was adopted gradually beginning with the introduction of IFQs for gemfish and then orange roughy between 1988 and 1990. In 1992, a number of other scalefish species were brought under IFQ management, bringing the total to 16 species [25]. A large number of other "bycatch" species caught in the SETF remain outside of the system, with catch constrained primarily by input controls.[14] In response to increased targeting, some new species are being introduced into the quota management system (e.g., deepwater sharks and a basket quota for a number of species, including smooth dory, ribaldo, oreos, and alfonsino), with others likely to be added in the future (Towers, personal communication, 12 May 2005).

Most of the SETF IFQ species are managed as one stock, but gemfish are managed as two separate stocks and orange roughy as four. Each stock has a separate TAC and quota shares to reconcile against catch. Quota shares always have provided a perpetual right[15] to a share of the total allowable catch rather than as a fixed quantity. IFQs are associated with particular permits that specify the vessel and gear. Quotas are transferable both through sale and leasing, but the Australian Fishery Management Authority (AFMA) must approve transfers, and only licensed vessels can fish the quota. Leasing across sectors/gears has been allowed for most species since 1998.

The 1991 Fishery Management Act is the primary fishery legislation, and it sets forth an objective of "maximizing economic efficiency in the exploitation of fisheries resources." At the same time, the act dictates that the exploitation of fisheries be "conducted in a manner consistent with the principles of ecologically sustainable development and the exercise of the precautionary principle." To date, TACs for primary target stocks have been set using single-species assessments, while TACs for some stocks that are primarily taken as incidental catch are generally set at levels that accommodate historical catch levels.[16]

Monitoring requirements in the SETF vary by fishery and state. Logbooks have been mandatory for trawl and

[9]The rule also states that the resulting TAC cannot be below 155,000 tons. In 2000, a further clause was added to the catch rule for cod that states that the total TAC should not vary by more than 30,000 MT from one fishing year to the next.

[10]If Icelandic fishing vessels sail directly from the fisheries to markets in Europe, the catches are monitored through sales records that are transmitted from the importing country to the Directorate of Fisheries (http://www.fisheries.is/managem/enforcem.htm).

[11]In addition to the IFQ system, fisheries continue to be subject to other management measures, such as closed nursery and spawning areas, gear-area restrictions, and minimum-size requirements imposed via mesh size regulations.

[12]For more information on the Icelandic Fishery management system, see [19–21,2].

[13]For more information on the history and management system for the SETF, see [22–24].

[14]There is a limit on the number of boats that operate in each sector, as well as limits on mesh size and the amount of fishing gear that can be used.

[15]The legal nature of quota rights has changed over time. Quota rights in the SEFT have been issued annually as annual renewable permits since 1998 and the law does not ensure the perpetuity of the right. This will change when statutory fishing rights are issued under the new plans in 2005.

[16]A project currently underway is exploring ecosystem-based management strategies for setting TACs, including a system of companion TACs that would set a group of individual TACs based on the relative sustainable harvest of the most-at-risk species and a system of multi-year TACs (and quotas) intended to accommodate uncertainty by allowing increased retention in years of high abundance and reduce effort in years of low abundance.

Danish seine fishermen since 1985. Prior to the introduction of the trawl IFQ system in 1992, data analyses and targeted validation studies indicated most (more than 80 percent) logbook data to be of good quality [24]. Since that time, logbook data quality is thought to have declined due to underreporting of catches and misreporting of catch location [26].[17]

When the catch is landed, the fisher is required to complete a form detailing the weight of each species caught—a copy of which is forwarded to AFMA.[18] Historically, observer coverage in the SETF is relatively low, but the SETF Integrated Scientific Monitoring Program, which began in 2001, has resulted in increases [27]. AFMA funds the program, with 80 percent cost-recovery from industry. The principal objectives of the program are to collect information on the composition of the retained and discarded catches and the size and age composition of the quota species landed (including those of the non-trawl sector). These data are used to monitor the fisheries and for stock assessments.

2.4. British Columbia trawl individual vessel quota system

The commercial groundfish trawl fishery on the Pacific coast of Canada originated in the 1940s. Beginning in 1976, a series of limitations were implemented, including a limited entry license system, the establishment of TACs, and a collection of other input and output controls. After a closure of the fishery in 1995, due to concerns regarding TAC overages, discards, and stock management, a consultation process resulted in the implementation in 1997 of the Individual Vessel Quota (IVQ) system for the groundfish trawl fishery.[19] An IVQ is a privilege to a share of the TAC for a period of one to nine years that is revocable at any time at the discretion of the Minister of Fisheries and Oceans.[20]

Currently, 31 species across 8 species management areas, identified according to stock distribution, are included in the IVQ, resulting in 56 area-specific stocks. Approximately 50 other species are caught in conjunction with the IVQ species and are not subject to TAC management. An "other rockfish" category is, however, managed through bycatch limits. Certain IVQ species and areas can be closed to bottom trawlers due to concerns that arise with regard to non-IVQ species. IVQ species are a large share of the harvest and total value from West Coast Canadian fisheries.

The Minister of Fisheries and Oceans sets TACs based on scientific advice from the public and government officials. This body bases its recommendations on stock assessments from the Department of Fisheries and Oceans (DFO) and includes a precautionary buffer that is based on the life history traits of the species.[21] The groundfish trawl TAC is divided into three different quotas: vessel owner quota (80 percent), groundfish development quota (10 percent), and code of conduct quota (10 percent). The initial allocation of quota to vessels was based 70 percent on catch history and 30 percent on vessel length. Groundfish development quota is allocated to vessels based on social objectives achieved through joint proposals from vessel owners and processors. The code of conduct quota is intended to encourage the fair and equitable treatment of crewmembers. Both of these special programs are allocated at the minister's discretion based on recommendations of a group of industry, community, and provincial government representatives.

Monitoring and enforcement in the IFQ system is facilitated by 100 percent at-sea observer coverage and dockside monitoring.[22] The DFO contracts this work to a private company (Archipelago Marine Research Limited) that is responsible for transmitting catch information to DFO within 24 h after it is landed. At-sea observers record towing location and time, record discards and estimate mortality based on towing duration and species-specific mortality rates, examine and measure fishing gear, verify the weight and species of fish caught and retained, and conduct biological sampling. Industry pays for two-thirds of the cost of observers (~CA$300 per day for an at-sea observer) (Mc Elderry, personal communication, 11 May 2004) and the entire cost of the port monitoring.

2.5. Nova Scotia mobile gear groundfish IFQ

In the 1970s and 1980s, the inshore mobile gear groundfish fishery in the Scotia-Fundy region of Canada was regulated by fleet quotas, limited entry, area closures, and various input restrictions (including vessel length and gear restrictions). Overcapacity concerns and stock declines led to early closures of some areas in 1989 and to the development of the IFQ program.[23] Since 1991, the IFQ

[17]Among other things, these logbook inaccuracies have led to the introduction of compulsory satellite transponders for the orange roughy fleet operating off of New South Wales.

[18]For some areas and gears, fishing operators are required to call-in to AFMA one to four hours before arriving in port with information on catch and port destination. In addition, AFMA is working cooperatively with state/territory fisheries compliance organizations to implement a system to require records at all points in the marketing chain. The system will enable product movements to be tracked beyond the first receiver and auditing of products at all stages of the market.

[19]In addition to the IVQ allocations, fishing in the IVQ fishery is regulated by gear and vessel-length restrictions, prohibited species regulations, species and area closures, area-specific quotas, species-specific caps on individual and vessel holdings of quota, and license limitation.

[20]For more information on the British Columbia groundfish fishery, see [5,28,29].

[21]Overages and underages are not explicitly incorporated into the annual TACs but are indirectly accounted for through stock assessments. Only sablefish stock assessments are carried out each year; other IVQ species are assessed every 3rd or 4th year.

[22]Complete observer coverage was instituted before the IVQ program in response to the crisis in 1995.

[23]For more information on the Scotia–Fundy inshore mobile gear groundfish fishery, see [4,30].

program has governed directed harvests of cod, haddock, pollock, various flatfish, and redfish.[24]

An aggregation limit prohibits any quota holder from holding more than 2 percent of the TAC of any species for a specific area. Processors were not allowed to own vessels or quota at the time of the initial allocation. Soon thereafter, vessel owners bought processing facilities and were allowed to keep the quota they were allocated initially.

Under the current management, TACs are set for fish stocks, which are species–area combinations. The Minister of Fisheries and Oceans sets TACs based on recommendations from the DFO and the regional advisory panel. Unlike in the British Columbia fishery, TACs are set to achieve a biomass that yields 10 percent less than MSY. Four stock assessments are carried out each year, with the goal that each stock is assessed every 2–4 years. Overruns are subtracted from the following year's TAC and the fleet's allocation. For example, if the mobile fleet goes over its allocation in any fish stock, then its allocation will go down next year.

Portions of the various TACs are allocated to the inshore mobile gear fleet as fleet quotas, which are in turn allocated as IFQ among the 327 licenses in the program. Most fleet quotas are for fish stocks. If the fleet quota is reached for a fish stock, the area is closed to the fleet. In this way, any quota species for which the fleet quota has been fully caught constrains the catch of other species.

The DFO introduced a Dockside Monitoring Program in 1991 to verify and report landings on a timely basis. Recent discrepancies between monitored and unmonitored landings data led to a goal of increasing dockside monitoring to 100 percent. Observer coverage requirements vary by gear. For example, mobile gear vessels 65–100 feet are required to carry industry-funded observers at a rate of 10–20 percent in some areas and 10 percent in other areas. In other sectors, observers are required when using certain gear combinations. In the generalist fleet, industry-funded observer coverage is required at a rate based on a minimum of one sea day per 100 ton of quota.

3. Catch-quota balancing mechanisms

Across the five programs, solutions to balancing catches with quota focus on introducing flexibility at the individual level. How much flexibility is needed depends on how closely initial allocations match catch histories, how aligned the TACs are with species catch rates, and how much control operators have in modifying their fishing to match catches with quota/ACE holdings. What is clear, however, is that each of the programs has introduced a suite of mechanisms for fishermen—all with the goal of helping address the problem of catch balancing. In designing mechanisms, managers try to encourage selective fishing and discourage fishing for species without adequate quota as well as ensure that fishermen land and report catch that exceed their holdings.

In Table 1, we list the flexibility mechanisms encountered in our survey of the different programs. In the analysis that follows, we describe each of the mechanisms, the scope and limitations on their usage, changes in the mechanisms over time, and insights into their performance from industry and government representatives. Where data are available, we illustrate the use of the mechanisms in terms of the volume of quota covered, which is measured as percent of the TAC, percent of vessels using the instrument, and relative cost measured as percent of the annual profits for the industry.[25]

Use rates provide information on each quota owner's preferences for a particular instrument.[26] Measuring volume in terms of percentage of the TAC also provides insights into the potential aggregate TAC overage or underage in that year due to use of the instrument. It is important to point out, however, that there is not necessarily a one-to-one mapping between the volume of use and ratio of the aggregate catch to the TAC. Suppose, for example, that there are 100 quota owners, each of which has the same 10-ton allocation of ACE. If half the quota owners' carry-forward 10 percent of their allocation and half use deemed values to cover overages of 10 percent, then the TAC is not exceeded.[27] Obviously, other examples can be constructed where there is a one-to-one mapping.

3.1. Quota markets

When quota owners have portfolios of annual quota (or ACE) that, on average, balance with expected catch composition, then trading of ACE between fishermen should enable reallocations over the year such that ACE balances against catch in the aggregate. Markets for ACE are, therefore, an important mechanism for

[24]In some areas, quota are allocated for a single species, with no directed fishing for other species. Directed fishing of some other species harvested by this fleet are governed by a competitive, limited entry management. These fisheries that are not managed with multispecies IFQs are beyond the scope of this paper.

[25]Limited data are available for some of the fisheries. In each case, data are presented to the extent available.

[26]One caveat in mapping use rates onto preferences of quota owners is lack of information on why fishermen use a mechanism. An interesting research project would be to collect the necessary data to better understand the behavioral factors that drive quota owners to utilize certain mechanisms over the course of the year, such as the reasons why leasing occurs (see footnote 43).

[27]This example illustrates our point, but a natural question to ask is why would the quota not owners carrying forward quota sell to those using the deemed value system. If the deemed value rates were set optimally, transaction costs are zero, and fishermen were risk neutral, then we would expect these trades to occur. In real-world IFQ markets, none of these conditions hold. In many cases, fishermen might prefer to carry-forward quota rather than sell it, because they want to make sure that next year they will have enough quota or they might think the price of fish will be higher next year. The former reason is more likely when there are stiff penalties for going over your holdings.

Table 1
Flexibility mechanisms for catch-quota balancing

Instrument	Definition
Permanent transfer	Transfer of a share of the TAC in perpetuity
Temporary transfer	Transfer of a annual catch entitlement (ACE). Similar to leasing
Carry-forward	Ability to "bank" any unused ACE to be used in the next fishing year
Carry-backward	Ability to borrow a portion of next year's expected allocation of ACE to use in this fishing year
Discarding	Fish that are not retained for market; usually discarded at sea
Deemed value	A per unit fee that is charged to fishermen who land catch in excess of holdings
Species equivalence	Ability to covert ACE of one species into ACE of another at a pre-specified conversion ratio
Retrospective balancing	Period of time allotted fishermen to match catches with quota holdings
Quota baskets	Grouping species into one aggregate quota bundle where the TAC is for all the species combined
Fishing-on-behalf-of arrangements	A fishermen can agree to cover his catch with the ACE of another
Surrender	Provision allowing fishermen to land fish that do not count against their ACE by surrendering it to the government

accommodating imbalances between fishermen's catches and their annual quota.

Each of the programs allows the sale of the permanent rights and lease of annual quota or sale of the ACE, but most do so under certain conditions. In Iceland, the sale of quota was tied to the vessel before 1991 [21], and currently there are restrictions on the amount of ACE each owner can sell each year and use-it-or-lose-it restrictions. Use-it-or-lose-it restrictions are intended to prevent "armchair" fishermen that own and only lease out their quota. There are often ways to work around these restrictions, however, such as fishing-on-behalf-of arrangements or contractual arrangements for a multiple-year lease. British Columbia, which recently amended its program to allow leasing (it had unofficially existed before), plans to reduce gradually the amount that can be leased each year to maintain an owner–operator fleet. New Zealand, Nova Scotia, and Australia, on the other hand, do not restrict quota ownership to active vessel operators.[28]

Other common restrictions are allowing trades only within a pre-specified market (area–species combinations), limits on the share of quota ownership, and requirements that trading partners must be members of the same fleet (i.e., gear and vessel type). For example, in Nova Scotia in-season transfers are restricted to members of the same gear sector, while transfers in the off-season to balance holdings and catches are permitted more broadly. In Iceland, regional trades must be pre-approved to limit concentration of the quota in certain areas of the country.

Each fishery examined has an active market for the temporary transfer and sale of the permanent right (or privilege to catch fish out into the foreseeable future). In almost all systems, quota brokers facilitate trades, taking commissions of three to six percent. Large quota owners in New Zealand employ quota managers. Fishery associations also facilitate trades. Newell et al. [3] found that quota market participation rates increased over time, with more than 75 percent of the quota owners either buying or selling in the market by 1998. Connor and Alden [23] also report high quota market participation rates for the Australian SETF.

Iceland and New Zealand both have established central trading exchanges. New Zealand managers have experimented with two centralized quota-trading exchanges over time. The first, created by the New Zealand Legislature alongside the QMS [31], included fish brokers and a trading information exchange but never materialized and was closed down shortly after the QMS system was implemented. In 2004, an online auction system for annual quota (or ACE) (www.acetrader.maori.nz) was created. The system has achieved limited success to date.

The primary purpose of Iceland's trading exchange was to convey timely information on the value of fishing quota to be used by crew and non-quota owners to negotiate contracts and payments. The exchange was abolished after 2 years because it was partly redundant with a separate system that monitors the compensation of crew.

Fig. 1 illustrates the annual volume of temporary transfers as a percentage of the TAC for the median fish stock in each system.[29] We find that in a typical year, between 30 and 50 percent of shares of the median stock are transferred temporarily. There also is substantial variation from year-to-year, and this likely is due to changing economic, ecological, and oceanographic conditions from 1 year to the next. In Iceland, managers attribute the dramatic drop in leasing in 2000 to a rule requiring all leases to be registered on the central exchange.

[28]In addition to leasing, Iceland and New Zealand also permit "fishing on behalf of other" relationships, under which one person can fish the quota of another without engaging in a formal transfer.

[29]Data on the volume of leases for the SETF was reported in Kompus and Che [32], and TAC data is from Smith and Wayte [24]. The Icelandic Fisheries Directorate provided data for Iceland. We utilize the multi-species subset of the lease transaction data compiled by Newell et al. [3]. The New Zealand Ministry of Fisheries provided data on the deemed value use rates and revenues and the bycatch trade-off scheme. In SETF, the TAC used in the calculations is the actual TAC, which differs from the agreed TAC due to netting-out overages and underages from the previous year (see [23] for a discussion of the different TACs).

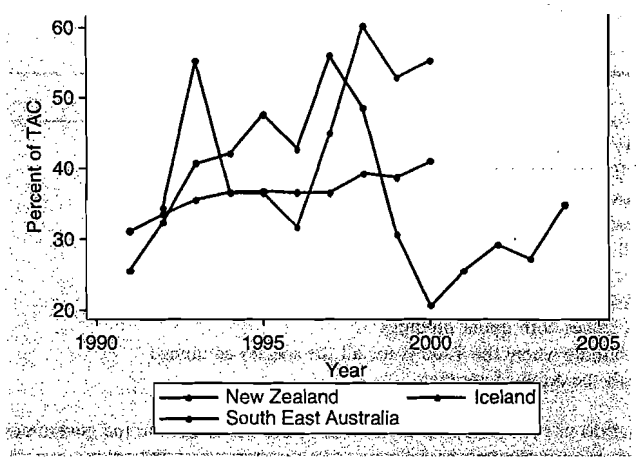

Fig. 1. Median percent of the TAC leased each year. *Note*: New Zealand lease transaction data are from Newell et al. [3]. Our results differ slightly from those presented in Newell et al. [3] because we focus specifically on multispecies fisheries (shellfish fisheries are not included). The New Zealand data also represent market transactions between different economic entities (e.g., trading between subsidiaries of one company or family members are omitted). Neither the data from Iceland nor Southeast Australia has been subject to the same data-filtering process. This would imply that relative to the other systems, we would expect New Zealand to be lower, everything else being equal. TAC: total allowable catch.

The recent increase is then explained by the abolishment of that exchange. This example illustrates the potential effects that administrative rules can have on market performance. Overall, the large volume of temporary transfers illustrates that leasing is an important tool for quota owners.[30]

We focus on temporary transfers rather than permanent ones because temporary transfers are the preferred means of meeting short-term mismatches between catches and holdings. Of course, over the long-term, firms will learn and acquire a portfolio of quota that better matches their expected catches. Therefore, permanent transfers are an important part of the solution. Overall, the volume of permanent transfers is much lower than leases; for New Zealand, the median stock has seen about an average of six percent sales volume between 1986 and 2000 [3].

An expert on the SETF, Richey (personal communication, 29 November 2004), suggests that the South East Trawl quota market, though primarily an informal one, is effective at facilitating trading. Nevertheless, there are indications that quota is not always getting to those who can use it. Other experts note that for some species, the availability of quota becomes constrained when the catch gets up around 80 percent of the TAC (Knuckey, personal communication, 9 December 2004). The relatively tight market at the end of the season as catches get close to the cap, which is normal in a rationed market, suggests that fishermen may not solely be using leasing to resolve catch-matching issues. The ability of participants to discard overages and to carry-forward as much as 20 percent of their allocation for use in the following year also may limit the need for temporary transfers to cover overages in the fishery.

In the other fisheries, managers reported that the markets are liquid, with varying amounts of average annual transactions. For instance, in Nova Scotia there are approximately 1100 temporary transfers between the 300 licensed vessel owners each year. Quota transactions are facilitated by participation in the Mobile Gear Fishing Association and/or the Fixed Gear Fishing Association (McMaster, personal communication, 20 April 2005). According to British Columbia groundfish trawl managers, there are approximately 2500 transfers of quota each year among its 142 owners, with seasonal fluctuations in trade volume within each of those years (Ackerman, personal communication, 20 April 2005).[31]

Consolidated holdings, which may be objectionable to some for distributional reasons, can facilitate catch-quota matching. For example, some New Zealand processors hold large allocations that are leased out to fishing fleets, with fishermen leasing out exactly what they need to cover their landings. If distributional concerns are an issue, coordinated quota management (through entities such as fishermen cooperatives) is another possible means to address catch-quota matching issues. Quota-owner cooperatives also developed under IFQ management in New Zealand with very little government intervention.

In theory, rules such as caps on ownership, annual limits on leasing, use-it-or-lose-it restrictions, and limiting transfers by region or fleet can constrain individual flexibility in balancing catches with quota holdings. However, the fishery managers surveyed in our study do not seem to think that this is a problem, at least not in the aggregate.

3.2. Rollover allowances

Rollover allowances permit operators either to carry-forward unused quota for use in the following year or carry-back or deduct from the next year's allocation an overharvest of the current quota. Each of the programs allow some form of rollover, but none allow the quota to

[30]According to brokers in British Columbia, the first quarter of the fishing year is the most active time for trading, as vessels are getting their portfolios of quota ready. Newell et al. [3] report a similar result for New Zealand.

[31]These transfers are categorized as permanent transfers, but most are likely for short-term leasing purposes since, until recently, leasing was not officially allowed in British Columbia. Some of the short-term leasing that takes place at the end of the season in British Columbia is not to cover overages but instead to ensure that quota left at the end of the year is carried forward. For example, if an individual has 35 percent of his quota for a particular species left at the end of the year, 30 percent of that will automatically be rolled over to next year. To avoid the loss of the remaining 5 percent, a fisherman may sell it to someone who has not yet maximized his rollover allowance and can roll over his 5 percent. The fisherman will then sell the amount back to the original quota holder the following year.

be carried over multiple years, which would permit the accumulation of banked quota for use in future periods.

Carry-forward allowances vary across programs. Iceland and the SETF[32] both allow persons to carry-forward 20 percent of their annual quota. For SETF, the carry-forward amount permitted increased from 10 percent in 1994. New Zealand allows 10 percent carry-forward. Generally, British Columbia allows up to 30 percent of a person's quota to be carried forward, but British Columbia managers can reduce the percentage of, or even eliminate, the carry-forward for conservation reasons on an annual basis. Since 2001, New Zealand operators have borne the risk that all quota carried forward will be forfeited if the TAC is reduced the following year. British Columbia also is reducing its carry-forward allowance to reduce the possibility of TAC overruns.

British Columbia and SETF have symmetrical carry-forward and carry-back percentages, while Iceland limits its carry-back to five percent over the annual quota (or ACE). Nova Scotia had an overage schedule that was graduated by the amount of total overage, until a recent court decision declared the system punitive. In particular, overages up to 10 tons (after an allowed 1 ton overage was accounted for) were counted at a one-to-one rate against the next year's allocation. Overages of between 10 and 20 tons were counted at a rate of two-to-one, and overages in excess of 20 tons were accounted for at a rate of three-to-one. After the court decision, the 1-ton allowed overage was removed and all overages are charged at a rate of one-to-one against the following year's quota.[33] In 2001, New Zealand eliminated its 10 percent overage rule that was in place since 1986, requiring overages to be covered by acquiring ACE or paying a deemed value.

A common pattern across the systems is that the volume and use of carry-forward provisions is greater than carry-back provisions. Fig. 2 illustrates the median percentage of quota owners using the mechanism and the volume measured as a percentage of the TAC for the median fish stock across all Icelandic ITQ fish stocks. We find that about 60 percent of the vessels carry-forward quota in the median fishery, corresponding to about 10 percent of the median TAC. While the percentage of vessels carrying back to cover overages is around 10 percent, the tonnage carried back is a very small percentage of the TAC. In Iceland, Atlantic cod had the greatest percentage of quota owners carrying back quota, and in one year, there was little difference between the percentage carrying back and carrying forward. The temporal variation in Fig. 2 likely is driven by changes in stock abundance due to environmental factors (changes in water temperatures, etc.), world markets for fish, and prices of inputs.

Likewise, Connor and Alden [23] found that the use of carry-forward provisions tended to decline in general as the SETF IFQ system matured, particularly for stocks such as ling where catches generally were close to the TAC. However, for a number of stocks, aggregate catches are chronically well below the TAC and many fishermen continue to carry-forward unused quota from 1 year to the next. There appears to be much less use of carry-back provisions.

While there is not much hard evidence, it appears that the same patterns found in the Icelandic and SETF hold for the British Columbia fishery and New Zealand. In New Zealand, the lack of resistance to canceling the allowed overage amounts in 2001 is evidence that this mechanism was not considered critical to catch balancing. One reason for this might be the potential redundancy with New Zealand's deemed value system, which is described below.

One potential reason for lower usage rates of the overage provisions both in terms of the number of vessels and the volume is that quota owners face penalties if they exceed their overage amounts. For example, in the SETF, managers can deduct from next year's quota at a penalty of 2:1 the weight of fish caught in excess of the overage provisions. Similarly, over-compliance is also found in pollution control settings where firms face pollution control standards and stiff penalties [33].

3.3. Deemed value payments

New Zealand is unique in its use of deemed value payments, under which quota owners are charged for landing fish for which they do not have sufficient annual quota (or ACE). Deemed value rates generally are set to discourage discarding at sea but at the same time to not encourage targeting of fish for which the fisherman does not have quota.[34] The deemed value system creates a dual price–quantity management regime under which both the TAC for allocated quota and deemed value prices for individual overharvests manage total catch. Theoretically, a fisherman in New Zealand could fish throughout the year without balancing any of his catch with ACE as long as he pays the deemed value.[35] Obviously, the deemed value rate

[32]In 2003, fishers in the SETF were not allowed to be in an over-quota situation at any time (i.e., to land catch for which they do not own quota) for some species, and the same is true for other species in 2004. However, this is a temporary measure related to a legal change in the catch entitlement and presumably carry-backs will be allowed in future.

[33]Overages that are deemed excessive also can be prosecuted.

[34]For example, deemed values are set for each QMS fish stock, with 2004–2005 per kilogram values ranging from as low as NZ$0.01/kg for frostfish in area 2 to a high of NZ$105/kg for spiny rock lobster in area 8. The law requires the minister to set deemed values with the primary objective of providing incentives for fishers to cover catch with ACE. In practice, annual deemed values are adjusted as some percentage of ex-vessel prices. However, deemed values sometimes are set above ex-vessel prices for some high-value target species and for overcaught stocks in response to TACs being exceeded.

[35]This holds only so long as no overfishing threshold has been imposed for any species found in the area the person is fishing. If an overfishing threshold is imposed on a QMS stock, no fishery can continue to fish where it is feasible to catch that species/stock if the catch they have landed exceeds their ACE holdings by a given percentage. If they have no ACE for that species in that QMA, they cannot fish in that QMA. However, overfishing thresholds have rarely been imposed.

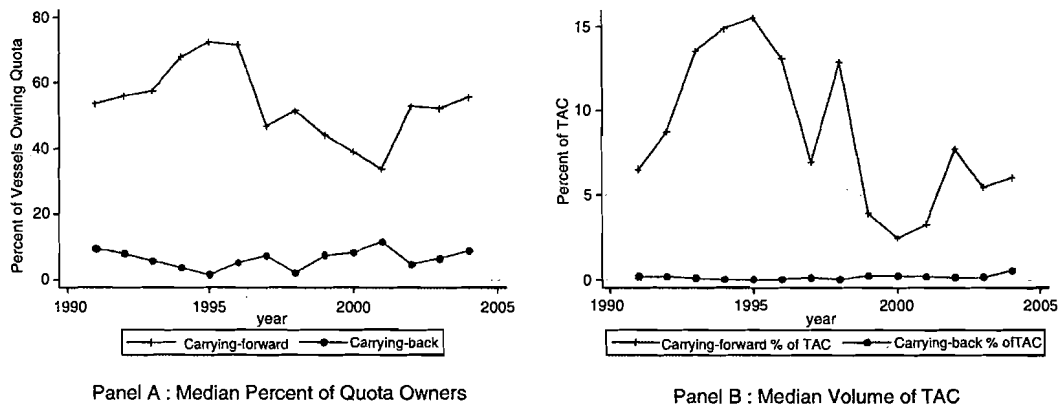

Fig. 2. Rollover provisions in Iceland's demersal fisheries. *Note*: Panel A is the median percent of quota owners using the rollover mechanisms. Panel B is the volume of carry-forward and carry-back for the median stock measured as a percent of the individual stock's TAC. TAC: total allowable catch.

(per unit of fish landed) is an important potential deterrent for such actions.

Fig. 3 illustrates the percentage of the fish stock's TAC that was covered by deemed value payments for the 25th, median, and 75th quartile stocks. While the percent of the median fish stock's TAC covered by deemed value payments remained steady at approximately one percent, the upper quartile averaged more than five percent in most years. Between 1990 and 2004, the total annual deemed value outlays by the industry ranged from approximately \$5–10 million in New Zealand 2000 dollars. These outlays are a small percentage of the annual profits in each fish stock, where the median percentage is about two percent.[36] The revenues from the deemed value system go to the New Zealand Treasury's general fund.[37]

Fig. 3 also shows that the variation in the volume of usage across stocks has increased since 1999. One reason for increase is that additional fish stocks were introduced into the system in 1999, and for many of these stocks, very little information is available for setting the TAC. Also in 2001, the 10 percent carry-back allowance to cover overages and the bycatch tradeoff scheme that allows use of quota of one species to cover catch of another in 2001 were eliminated and this reduced the mechanisms available to match quota to catch.

The large variation in usage of deemed value payments across stocks and perception of the negative effects on certain stocks because of consistent use of the deemed value compelled managers to revise the payment rate schedule in 2001. Under the revised system, an owner's payments increase with use of the system.[38] Table 2 illustrates the schedule, under which payments increase in 20-percent increments for each 20 percent by which a person's catch exceeds ACE holdings. Differential deemed values are not charged on some low-value stocks for which there is inadequate stock assessment for regulators to have confidence that the TAC has been set appropriately. The differential deemed value system is designed to provide stronger incentives to the individuals who are most responsible for TAC overruns. For certain stocks, the differential deemed value system increased the level of the outlays by the industry.

In 2003, a new ACE trading service was created by a private company (FishTech Ltd.) with the specific aim of matching individuals paying different deemed value rates with those that still had quota remaining. The gains from trade are split evenly between the parties after FishTech takes a percentage. This system attracted 12 participants in 2003 and reduced total deemed value payments by around \$400,000. In 2004, 40 participants signed up, of which 20 ended up making ACE trades, resulting in a total net reduction of deemed values around \$600,000 (Howard, personal communication 12, May 2005).

Deemed values have been particularly useful in providing flexibility for some bycatch stocks for which there is relatively little information on biological status but for which there are no sustainability concerns.[39] Deemed values for these stocks are set at 60 percent of port price and in some cases much lower. There is some evidence that even in cases where deemed values have been set near or

[36]Annual profits were estimated by multiplying the annual lease price of quota in New Zealand and the total allowable catch.

[37]When employing a system of deemed values, careful consideration should be given to the recipient of the funds to ensure that there is no potential conflict of interest.

[38]In New Zealand, a joint working group that included members of the Ministry of Fisheries, Treasury, and the industry completed a comprehensive review of the deemed value system in 2005. Among the issues

(*footnote continued*)
considered were whether responses, in terms of raising deemed values, should be stronger to eliminate chronic TAC overruns, whether differential deemed values should be applied as a default policy, and whether a portion of the revenue from the deemed values should be returned to quota owners in some form.

[39]An interesting research question is to adapt the single species analysis investigating the use of quantity or price instruments for fisheries [43,34] to the multi-species context with target and bycatch stocks with multiple types of uncertainties.

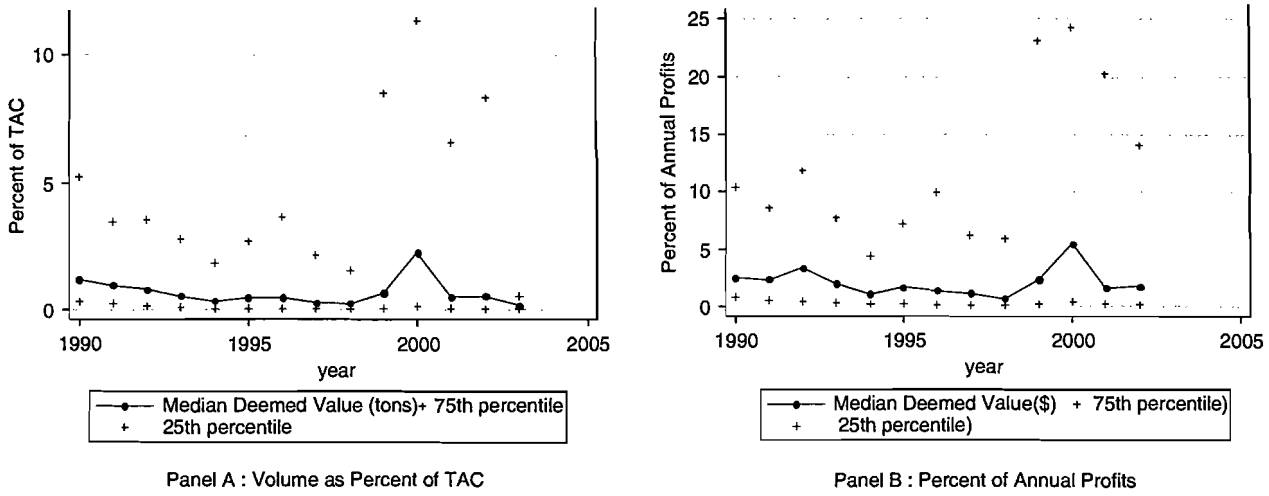

Fig. 3. Usage of deemed value as percent of TAC and annual profits in New Zealand. *Note*: Panel A is the volume of deemed values measured as a percent of the TAC, and panel B is the dollar amounts measured as a percent of the annual average profits in the fish stock (annual profits are approximated by the annual average of the lease or ACE price). TAC: total allowable catch; ACE: annual catch entitlement.

Table 2
Differential annual deemed values in New Zealand IFQ fisheries

Individual catch as a percentage of ACE held	Differential annual deemed value
100 percent $< x \leqslant$ 120 percent of ACE	Basic annual deemed value
120 percent $< x \leqslant$ 140 percent of ACE	120 percent of basic annual deemed value
140 percent $< x \leqslant$ 160 percent of ACE	140 percent of basic annual deemed value
160 percent $< x \leqslant$ 180 percent of ACE	160 percent of basic annual deemed value
180 percent $< x \leqslant$ 200 percent of ACE	180 percent of basic annual deemed value
$x >$ 200 percent of ACE	200 percent of basic annual deemed value

ACE: annual catch entitlement.

above ex-vessel prices, they have been used to balance incidental catch. In these rare cases, fishermen have found it worthwhile to pay the deemed value because the alternative would be to forgo use of the quota for the associated target species or undertake costly bycatch avoidance actions.[40]

Iceland has an instrument that resembles deemed value payments, but it differs in that it only applies to catches in excess of the five percent carry-back provision. In Iceland, boats that land fish in excess of the five percent carry-back provision must supply their catch to the local auction house, where the proceeds are split between the government (80 percent) and vessel owner (20 percent). The 20 percent that the vessel owner gets is to pay for the variable costs of fishing, mainly crew wages. Government revenues go to a special development fund run by the Minister of Fisheries. The amount of quota surrendered to the auction house cannot exceed 10 percent of an owner's total holdings. According to industry sources, there are ongoing discussions to remove this provision, because the perception is that it is mainly used for cod. We find that between 2002 and 2004, cod was the primary species subject to this auction; however, the amount of cod landed under this provision was less than one percent of the cod TAC.

Similar to Iceland, catch in excess of the overage allowance in British Columbia may be retained, but revenues from that catch must be relinquished to the Canadian Groundfish Research and Conservation Society, a non-profit organization that conducts research for the benefit of the fishery. In addition, the pounds of fish caught in excess of the overage allowance are deducted from the vessel's allocation the following year. In a 7-year span, this overage forfeiture has been applied only twice (Ackerman, personal communication, 22 November 2004).

3.4. Species quota exchanges

Species quota exchanges permit fishermen to cover catch of one species with quota of another at a pre-specified trading ratio. For example, consider a fisherman that lands 10 tons of haddock over and above the amount of quota

[40]This example also illustrates the need to consider joint production when setting deemed values. A fisherman can be expected to pay deemed values for constraining low-value stocks to allow targeting of a high-valued target stock.

owned, who also holds 5 tons of uncaught cod quota. If the quota program allows an exchange of cod quota for haddock catch at a rate of 1 ton of cod quota to cover 2 tons of haddock catch, the fishermen could use the 5 tons of cod quota to cover the haddock overage.

A disadvantage of species exchanges (similar to deemed value payments) is that the aggregate catch of each species is uncertain. The possibility that TACs will be exceeded depends on the relationship of relative catches and TACs of exchangeable species. In some instances, these could arise from rates of exchange that create incentives for fishermen to convert quota of less valuable stocks into ones for more valuable stocks. Limits on the amount that can be converted from one species to another can inhibit such abuses.

Iceland is the leader in using species exchanges. Under its system, quota shares are put into cod equivalents or a cod currency.[41] Limits, however, constrain the conversion of ACE among species. Specifically, quota owners can convert cod to other demersal species and make conversions among the other demersal species, but demersal species other than cod cannot be converted into cod. In addition, owners cannot convert more than five percent of their total ACE in "cod equivalent" units, and no more than two percent of their ACE can be converted into any one species. These restrictions attempt to reduce the possibility for large overruns of TACs in any given year. Very sophisticated web-based catch-balancing data collection and real-time updating of catches has helped to reduce the administration costs of the species trade-off system in Iceland.

Panel A in Fig. 4 shows the annual net volume of quota converted through cod equivalents from 1991 to 2004 for four species. Negative levels indicate that cod equivalent conversions decreased quota for the species, and positive levels indicate that on net the species quota was increased by cod equivalent conversions. None of the species consistently had positive (or negative) conversion over the period. Most of the annual conversions are less than 20 percent of the TAC, but there are some anomalies with saithe and plaice.[42] While the figure represents net aggregate conversions, individual quota-owner conversions likely are offsetting to some degree, as one quota owners use of halibut quota to cover haddock catch will be offset by another's use of haddock quota to cover catch of halibut.

Similar to the deemed value system, where the use depends on the deemed value charged for quota, the use of the "species exchanges" greatly depends on the exchange rates between species quota. Cod equivalence rates have changed over time and are calculated based on the relative value of the different species.[43] While Icelandic fishery managers do not dismiss the potential for abuse of their system of cod equivalents, their oversight has disclosed no evidence of systematic abuse. A more comprehensive method of setting exchange rates, which considers factors such as economic rents and ecological risks, could reduce the potential for abuses, but the additional complexities of such a system could pose analytical challenges and could have difficulty obtaining public acceptance.

Panel B of Fig. 4 illustrates the time series of the cod equivalence rates in Iceland. Considering the quota exchange rates together with the net transfers across species shows that the system has provided incentives for fishermen to reduce the catch of a species. The increase in the halibut exchange rate in the mid-1990s corresponds with lower net conversions for that species. For example, by setting a rate greater than one for halibut, the Icelandic government could make it unprofitable to convert other species to halibut and profitable to convert halibut to other species. Such a pattern is observed when comparing the two panels, where the increase in halibut rates corresponds with lower conversion volumes.

Between 1990 and 2001, New Zealand included a system similar to Iceland's cod equivalents. The bycatch trade-off scheme allowed limited trading of quota of certain species against quota of other species. Each year the program was in operation, specific bycatch and target stocks would be listed with the rates at which they could be traded. The scheme allowed a fisherman who landed the bycatch stock for which he had insufficient quota to trade off quota for the target stock at a specified rate on the condition that the bycatch was taken while fishing for that target species. The trading ratios were specific to each bycatch and target species. That is, elephant fish (area 3) could be traded at one ratio with red cod (area 3) and at another with flatfish (area 3). Over the course of the program, 30 fish stocks were denoted target species, 46 were denoted bycatch, and 6 were denoted both bycatch and target. Unlike in Iceland, where quota could not be converted into cod, often a species would be classified as bycatch in one quota management area and as a target species in another quota management area.

Panel C of Fig. 4 shows the aggregate percent of the TAC converted at the 25th quartile, median, and 75th quartile from 1991 to 2001. Although overall conversion of quota under the bycatch trade-off scheme was relatively small, converted quota was a large portion of the TACs of some stocks. The annual quota conversions for a select group of fish stocks are shown in Fig. 5 to illustrate some of the variability across various stocks. An upward trend in conversion is also evident, at least for some of the stocks for which conversion was most widely used.

[41]"Cod equivalent" refers to weight and implies the relative value of different fish species on the market and is set by a regulation every year. For each vessel having a quota for several species, the total quota may be calculated in kilograms as cod equivalents. Quota transfer between vessels, even if the same non-cod species (e.g., saithe) is traded in the market, often is measured in cod equivalents.

[42]In reviewing conversions, it should be noted that halibut TACs disproportionately are lower than the other TACs due to natural differences in the population sizes.

[43]Value is defined as gross revenues, which is the product of the expected average price of fish times the TAC.

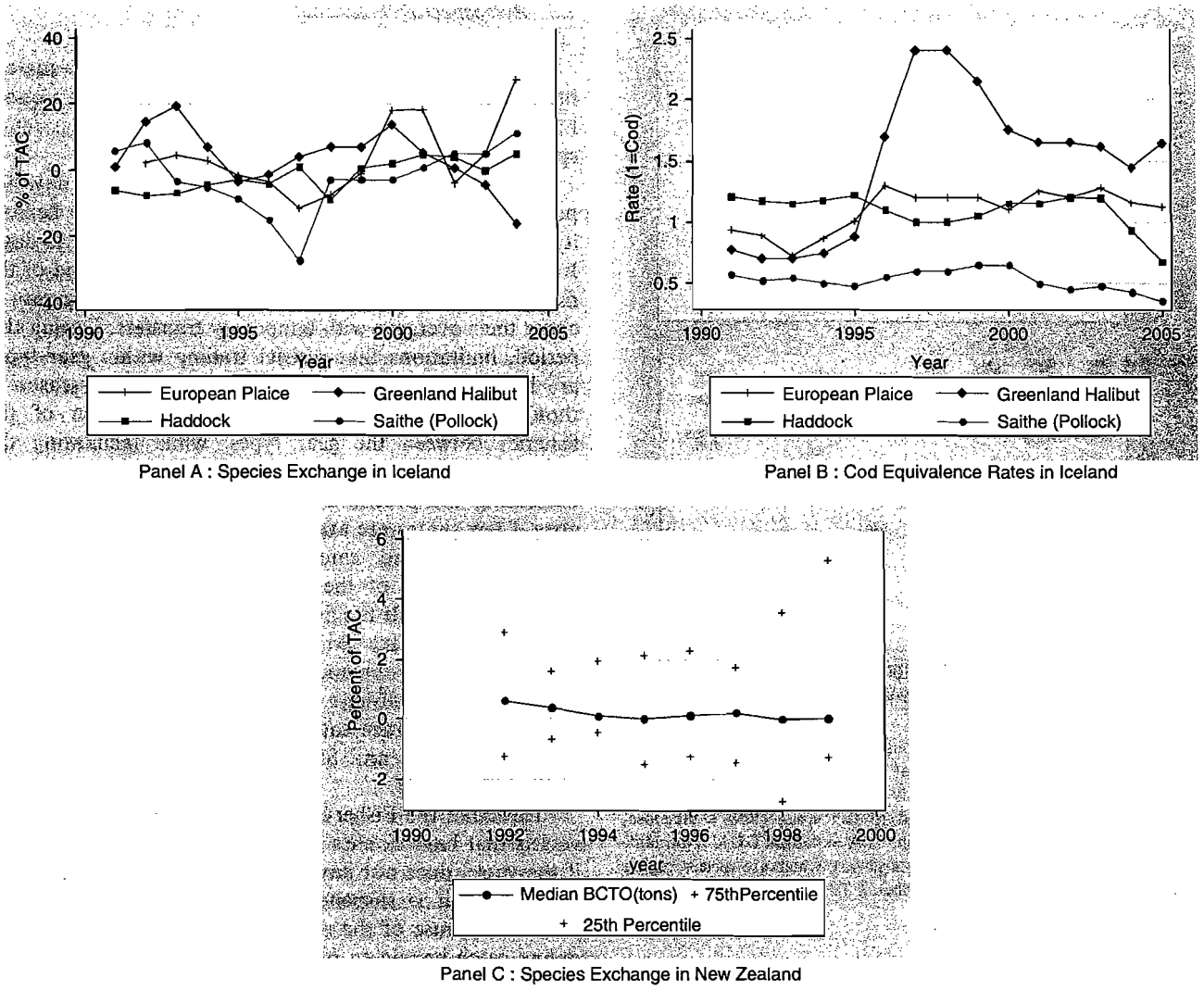

Fig. 4. Species conversions in Iceland and New Zealand. *Note*: Panel A is the conversion of species as percent of TAC in Iceland's species exchange system. Negative percent means the species was converted out of and into another in the aggregate, and positive means that the species was converted into on net. Panel B is the exchange rates, or "cod-equivalence" rates. Rates below one imply that 1 ton of cod can be converted into more than 1 ton of another species. Panel C is the conversion of species in the New Zealand BCTO scheme measured as a percent of the TAC. Negative levels imply that the species are being converted out of their quota into another species' quota. Since the BCTO scheme developed exchange rates between species, we should not expect to see a one-to-one relationship between negative and positive levels. TAC: total allowable catch; BCTO: bycatch trade-off.

While Iceland limits the amount of quota that a fisherman can convert and protects cod, its most valuable stock, by not allowing conversions to cod quota, conversions by New Zealand fishermen were constrained only by their target species holdings. The absence of additional limits increased the potential for abuse and the risk of overfishing bycatch stocks. At the extreme, net conversion of target quota into both bluenose quota and elephant fish quota in area 3 exceeded 60 percent of their TACs in at least 1 year. As Peacey [35] notes when discussing the trade-off scheme, "the method was biologically unsound and some fishers used the system to target species which they had little or no IFQ for." The former manager of the BCTO system, McGregor, believes that the system was ended primarily because of the administrative complexity of the annual process of setting exchange ratios, but abuses also contributed to its demise (McGregor, personal communication, 11 October 2004).

Nova Scotia's quota program initially included a species exchange system similar to Iceland's. Conversion rates among the three species (cod, haddock, and pollock) included in the program were predetermined based on the market prices. In the 1st year, conversions balanced the catch of the different species without any substantial fleet quota overruns. In the 2nd year, however, conversions led to an overharvest of haddock and an underharvest of cod and pollock, leading managers to discontinue the program (Hansen, DFO manager, personal communication, 19 November 2004). Similar to concerns in New Zealand, some commentators in Nova Scotia believe

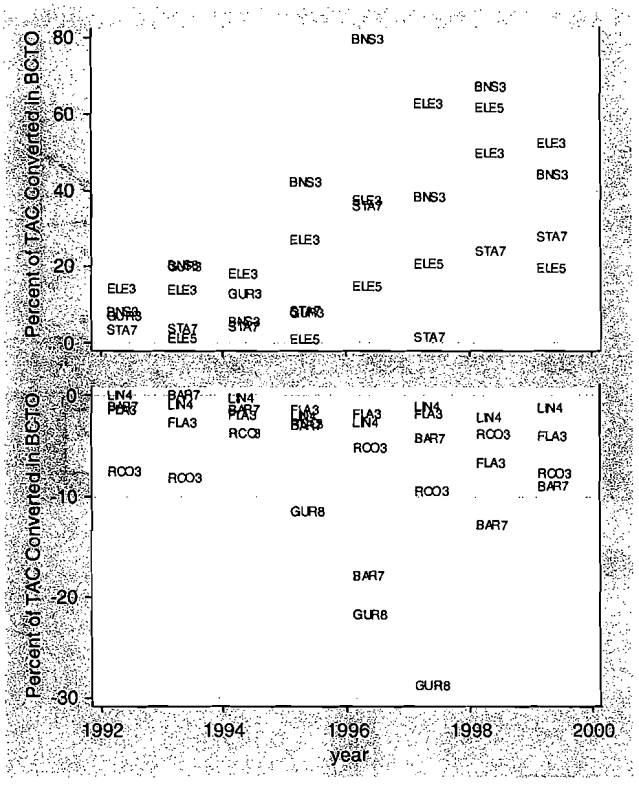

Fig. 5. Percent of TAC of the BCTO usage for selected fish stocks from New Zealand. *Note*: Positive values imply that quota was converted into the fish stock and negative values imply that quota was converted out of the fish stock. The labels correspond to fish stock (BNS = bluenose, BAR = barracuda, ELE = Elephant fish, FLA = flatfish, GUR = gurnard, LIN = ling, RCO = red cod, STA = stargazer), which are species–region combinations (represented by the numbers). TAC: total allowable catch; BCTO: bycatch trade-off.

overruns occurred because some participants fished for species for which they held no quota [36], referenced by [4]).

Although the Nova Scotia system was eliminated, some current participants in the quota program think it could be resurrected. Supporters of this view believe that better market information could improve the setting of exchange rates, which in conjunction with limiting the use of quota exchanges to unintended incidental catch that cannot reasonably be covered with quota acquisition, would prevent abuses (Giroux, personal communication, 11 January 2005).

British Columbia also has a species exchange system similar in some ways to Iceland's. According to Bruce Turris (personal communication, 18 November 2005), British Columbia's program allows fishermen to convert their quota to groundfish equivalents where pacific ocean perch is the base. Under the rules, fishermen are able to exchange pounds of one species for another in terms of groundfish equivalents. To date, this is a rarely used (if at all) flexibility mechanism in the British Columbia system.

3.5. Retrospective balancing

Beyond simply permitting transfers, catch-quota matching in many programs is facilitated by permitting a quota holder to balance their catches and quota holdings retrospectively.

The Nova Scotia program initially allowed 30 days for post-landing quota acquisitions. To allow greater flexibility, the period for purchases has been extended to 45 days. In addition, a 2-month period is allowed at the end of the fishing season during which people have the opportunity to cover their overages with temporary transfers. During this period, limitations that restrict trading within gear types are lifted. Limiting these transfers to the post-season is thought generally to preserve the distribution of the fisheries between the gear types, while facilitating the coverage of quota overages to prevent TAC overruns and decreasing the potential incentive to discard that might arise if few shares are available for the gear type.[44]

In New Zealand, catch must be balanced with ACE by the 15th day of the following month in which the fish were caught. If the fisherman does not do so, he must pay a deemed value, which is refunded if the fisherman acquires ACE to balance the catch within 15 days of the end of the fishing year. British Columbia quota owners must balance catch and quota within 30 days of the landing date, and SETF owners have until the end of the fishing year.

In Iceland, the Fishery Directorate immediately notifies vessels that have catches over their holdings. After 3 days, if the vessel does not have quota to match its catches, its fishing permit is suspended. This immediate response is possible because of the real-time data monitoring and an online catch-balancing program. All the ports of landing electronically transmit catch information to the Fisheries Directorate twice a day. Many in Iceland argue that such rapid catch reporting and real-time monitoring avoids surprises that might arise if fishermen have a longer period to balance their catch and quota.

3.6. Discarding

Most programs have general prohibitions on discards of quota species. Nova Scotia allows no discards of groundfish by licensed groundfish trawlers. New Zealand generally does not allow discards except for certain species, such as lobster, where survival rates are high. Iceland permits discarding for live young haddock and cod caught on a handline.[45] In British Columbia, discarding of quota species is permitted, but discards are counted against annual quota based on mortality estimates.

[44]Allowing for balancing after the season can get very confusing, however, as this period will overlap with the start of the new fishing season and can introduce additional administrative and accounting costs.

[45]This catch typically is counted against annual quota at a 50 percent discount, but the total amount cannot exceed 10 percent of the vessel's total catch.

Few estimates of discards are available, but Iceland has produced estimates for cod and haddock in recent years. Between 2001 and 2003, cod discards were estimated to be between 0.4 and 1.8 percent of total landings, with a downward trend, and haddock varied between 3 and 5.8 percent of total landings, with an upward trend.[46] According to fisheries biologists in Iceland, the different trends in discards most likely are connected to recruitment trends. Cod recruitment in recent years has been near or below average, whereas haddock recruitment has been exceptionally strong.

A key characteristic of the SETF system that differs from the others is allowing discards that do not count against your quota. Discarding occurs for a range of reasons, including lack of quota, highgrading, damage to fish, and weak markets for landings (Towers, personal communication, 12 May 2005). While regulators and the industry are attempting to decrease discards, most currently accept it as an unavoidable part of multispecies IFQ management. The ability to discard effectively eliminates the possibility that catch of any one species will be constrained by the TAC of another.

In the SETF, managers believe that discarding accounts for a large, though highly variable, percentage of catch for certain low-value species and is significant for some higher value species as well. Estimated discard rates in all zones increased slightly in 2001 and were highest for redfish off New South Wales (65 percent); mirror dory in New South Wales, Victoria, and eastern Tasmania (54, 84 and 89 percent, respectively); and inshore ocean perch off New South Wales and eastern Victoria (70 and 77 percent). Discards of mirror dory, redfish, ocean perch, and eastern gemfish are considered to be a major issue in the fishery [24].

As part of the accreditation for authorizing exports of fishery products, regulators are required to quantify discarding in the fishery and then reduce it by 40 percent. Managers have informed the industry that reporting of discards is not an offence and that any discards of quota species reported will not be taken off the individual's quota holdings. Managers intend to use these data to reduce the level of discards through spatial and temporal closures or gear restrictions, such as increased minimum cod-end mesh size. Managers are hopeful that these measures will achieve the 40 percent reduction goal, particularly for species that are limited by low TACs.

3.7. Additional flexibility mechanisms

While we have covered the most utilized mechanisms, there are some additional ones that are or were in use. Between 1986 and 2001, fishers in New Zealand could surrender their catch to the government. Fishing on behalf of other relationships is permitted in Iceland and was permitted in New Zealand until 2001. In this case, quota-owner 10 can upon agreement with quota-owner 11 use some of quota-owner 11's quota to cover his catch without formally making a transfer.

Another design mechanism that simplifies catch-quota matching is the grouping of multiple species into an aggregate for which a single quota is issued. For species in the aggregation, the catch of each is allowed to vary, but the quota for the aggregation limits the total catch of all species. Nova Scotia uses a species aggregation for a group of flatfish and SETF aggregates warehou. New Zealand relies on numerous aggregations. For example, it has a flatfish aggregation that includes six species (black flounder, brill, New Zealand sole, greenback flounder, lemon sole, sand flounder, and turbot), a hapuku and bass aggregation, and a jack mackerel aggregation that also includes slender and horse mackerel.

New Zealand adopted aggregations for species with little differentiation in data reporting before the introduction to the QMS and for species with little market differentiation (Banks, personal communication, 17 February 2005). In these cases, managers considered the benefits of introducing individual species as separate quota stocks insufficient to offset the complications that would result from separate reporting and setting individual TACs. Undoubtedly, the likelihood of any individual component species constraining catches of other species and problems of balancing catches with quota are reduced.

4. Discussion

The multispecies IFQ systems surveyed all provide flexibility mechanisms for balancing catches and holdings. We summarize the use of the different mechanisms in Table 3. In the table, a *Y* indicates that the instrument currently is used as a catch-balancing mechanism, and the box is shaded to represent changes over time in the limit, availability, or both. Two observations are worth emphasizing. First, programs employ multiple instruments to provide more dimensions over which the quota owner can balance catches and holdings. Second, the systems and rules regarding catch balancing are dynamic, with many programs trying and then canceling different options or changing the parameters. Both observations imply that no one design is optimal and that participants involved in multispecies IFQ systems are responding to changing conditions and information.

Our survey also found, not surprisingly, that the design of the systems follows directly from the characteristics of the fisheries and the goals of fishery management. An implication of this is that it is difficult to compare the relative performance of a flexibility mechanism across the programs. For example, under the Australian management system, discards are permitted without deduction of quota. The importance of other mechanisms to catch matching is diminished severely given the liberal discard rule. Similarly, the importance of the cod fishery in Iceland is reflected in

[46]Sources of this information are Pálsson [37,38], Pálsson et al. [39,40] as translated to us by Ólafur K. Pálsson.

Table 3
Use of flexibility mechanisms in multi-species IFQ programs

	Permanent transfer	Temporary transfer	Carry-forward	Carry-backward	Discarding (without use of ACE)	Deemed values	Species equivalence	Retrospective balancing
British Columbia	Y		30%	30%			Y	30 days after landed
Nova Scotia	Y	Y	0%					
Iceland			20%	5%			Y	3 days after landed
New Zealand	Y	Y	10%			Y		15 days after last day of month landed
Australia	Y	Y			Y			End of fishing year

Note: Y and specific rule indicate that yes the instrument is employed; shaded box indicates that the system employed the instrument at one time; shaded box with a Y or rule implies that the rules regarding the use of the instrument have changed over the course of the program.
ACE: annual catch entitlement.

their system of "cod equivalents," under which exchange of shares across species is measured against cod and cannot be used to create cod shares.

While rankings are not possible, there are some strong patterns that we observe across the systems. First, the amount of leasing of quota or sale of ACE is significant across the programs.[47] Quota leasing and ACE sales are the primary mechanism to match ex ante quota holdings with expected catches or to reconcile discrepancies after landing the catch. Other mechanisms in Table 3 are utilized, for the most part, to match catch and holdings at the margin. For example, the median fish stock's volume of carry-forward, carry-back, bycatch trade-off (BCTO), deemed value, and cod equivalence conversions basically are within 10 percent of the TAC. The median volume of carry-back in Iceland and BCTO in New Zealand is much closer to one percent of the TAC. However, we do observe exceptions to this pattern. For example, certain stocks in the BCTO system had usage totals at 50 percent their TAC.

In designing multispecies IFQ systems, managers need to consider that the potential risks of overexploitation vary across the mechanisms, everything else being equal. Lease or ACE market transactions with retrospective balancing simply reshuffle quota amongst the participants in a given year and therefore have negligible risk. Rollover provisions allow shuffling of quota over time, and because the programs do not allow owners to accumulate banked quota, a TAC overage will be temporary, leading to little additional risk to the viability of fish stocks. Species exchanges allow reshuffling of quota between species within a given year, and if there are large differences in TACs levels, overexploitation is possible, especially if conversions into the species persist over many years. Deemed values differ from the other mechanisms because their use is akin to creating quota as opposed to a shuffling of existing or future quota, either within or across species. Therefore, continued non-marginal use of deemed values has the greatest potential risk of overexploitation.

Managers can reduce the risks associated with the use of each of the mechanisms in a number of ways. First, instituting limits on the level of use could reduce overages. Iceland has implemented upper limits on the use of their mechanisms, with the goal of preventing abuses.[48] Another option is to set incentives such that quota owners find it in their interest to not over use the mechanisms; for example, by using differential deemed values or graduated penalties for overages. Managers also can address TAC overruns explicitly in the TAC-setting process, either by reducing the TAC of the jointly caught stock or, if appropriate, increasing the TAC of the overcaught stock. Relatively little attempt has been made to coordinate TAC setting in multispecies fisheries. New Zealand and Australia are moving in that direction, but it remains to be seen whether they will be successful.

Setting permissible limits or incentives for each mechanism imposes varying degrees of informational requirements over and above those needed to set TACs and varying levels of regulatory oversight. On this dimension, leases, time limits for retrospective balancing, and limits on rollover provisions likely are on the low end of the spectrum. Species exchanges and deemed values, on the other hand, require additional information when setting the exchange rates or levels and could have knock-on effects in the lease market. In both cases, for example, managers need to gauge the potential incentive for targeting behavior (or bycatch avoidance) against the potential harm to the stock caused by the allowed overage

[47]Given the information collected by fishery managers, it is difficult to discern the reasons for quota leasing or ACE sales. For instance, leases could be due to contractual arrangements between owners who own but do not fish quota (e.g., processors or investors) and/or trades between harvesters to balance portfolios with either expected catches or after the fact.

[48]In addition, vessels in Iceland are not allowed to commence a fishing trip unless they have sufficient catch quota for their probable catches.

and the incentives to land catches rather than discard at sea. While setting an optimal level is a very complex problem, in practice the exchange rates in Iceland are based on ratios of expected total revenues in the coming year, and deemed value rates are set as some fraction of average ex-vessel price over the season.[49]

When contemplating the set of instruments and their design, managers need to consider the possibility for interaction effects between the options. For example, we find that more than 30 fish stocks in New Zealand had occurrences, sometimes over many years, where the aggregate catch of a species was covered with deemed value payments at the same time that the species was used in the BCTO scheme to cover the catch of a bycatch species. This implies that quota owners covered their catch of the target species by paying the deemed value while simultaneously converting their target species quota into bycatch quota. We also find cases where species catches were converted into in BCTO and deemed values were used to cover catch. This latter case can lead to higher TAC overruns.

Another factor contributing to overexploitation risk is whether the set and level of each flexibility mechanism causes unreported discards at sea to increase or decrease. All things being equal, it is preferable to have information on overages via reported use of the mechanisms than to not have the information. To eliminate the potential for unreported discards, the British Columbia program employs 100 percent observer coverage.[50] In Nova Scotia, New Zealand, and Iceland, partial observer coverage, along with catch profiling, accommodating flexibility mechanisms, and stiff penalties for violations apparently has been sufficient to inhibit extensive discarding. The permitting of unreported discarding of IFQ and non-IFQ species in Australia is an anomaly in our study.[51]

Another issue in the design of the programs is the administrative burden associated with the mechanisms. Each of the programs has faced problems with the additional complexity in recordkeeping that accompanies flexibility mechanisms. Nova Scotia and New Zealand abandoned the use of species exchange rates partly for this reason. Given that these programs installed these approaches prior to the information technology revolution, it is not surprising that these tasks were costly and that data delays were frequent. The real-time, web-based catch recording and quota balancing in Iceland is a notable exception, and many managers believe that it is the linchpin for their success. With fisheries such an important commodity in Iceland's economy, the costs of implementing such a system are more tenable. For some fisheries with lower value, it is not clear that such costs are practical; however, the costs of developing web-based data programs are coming down.

5. Conclusion

Managing fisheries where a number of species are caught jointly is a difficult task, regardless of the type of management system used. Differences between the ratios of catch rates and desired total catch levels across species can constrict total catches of some species below desired levels or allows catches of other species to exceed them. IFQ management helps address this problem by providing individuals with economic incentives to match catches with quota holdings and, as a consequence, total catches with total quota. As demonstrated most clearly in the British Columbia groundfish fishery, the combination of the incentives provided by the market and the monitoring and enforcement program can lead to substantial changes in fishermen's behavior and therefore in relative catch rates [28,41].

While all of the IFQ programs reviewed include multiple species that are caught jointly, the complexity of the fisheries varies, and this has implications for the need and use of catch-quota balancing mechanisms. For example, in a large system like New Zealand's, with more than 93 species and 550 stocks (and more being added), the probability is higher that ex ante holdings do not match catches and that the catches of some species are likely to be constrained by quota of others. This is particularly true if there is little information to set the TACs for stocks that are primarily taken as bycatch or if species in the multispecies complex have very different life history traits that can lead to greater variability in stock levels across years and/or variability in the level of the mixing of the stocks. For systems with these traits, more flexibility in catch-quota balancing may be necessary to avoid

[49]Because lease prices are measures of profitability per unit of catch (prices minus marginal costs of fishing), it follows that in a well-functioning lease market, lease prices should be a fraction of ex-vessel prices. Therefore, the Icelandic and New Zealand systems are likely to have a smaller effect on the performance of the lease market than if the limits were set lower, everything else being equal. Iceland also limits the potential knock-on effects in the market by limiting the amount of quota that can be converted across species. Theoretically, all flexibility mechanisms can affect market performance, and this is especially true with species exchange programs and deemed value systems, as both systems represent an additional level of information and government participation.

[50]Branch et al. [28] have found that the at-sea observer coverage has resulted in changes in target behavior and consequent changes in species catches so that they aligned more closely with TACs. For example, fishermen are making a short, sample tow to assess the suitability of the mix of species when entering a new area and are investing in gear that allows for selective harvesting [41].

[51]Although incentive to balance catches with quota remain since handling bycatch is costly and fishermen generally do not want to discard fish, legal discarding greatly reduces incentives to avoid species for which the individual does not hold sufficient quota. Nevertheless, the large volume of ACE transfers in the SETF indicates that individuals do attempt to acquire quota portfolios to balance catch. The flexibility allowed by discarding may increase short-term profits from the multi-

(footnote continued)
species complex, but the effects on the fish stocks over time would likely reduce the profits in the long run, especially if the costs of fishing are dependent on the size of the fish stock.

constraining the profitability of the complex. Too much flexibility, on the other hand, can lead to persistent overruns in TACs and lower the incentives for quota owners to change their targeting behavior to limit the catch of incidental species or to align their portfolios of catch rights with their expected catch of species.

In designing multispecies IFQ programs, managers will need to find the "right" balance between risks of overexploitation, economic benefits of the fishery, preserving the social structure, and administrative costs. One approach to this problem is to cautiously experiment with different flexibility mechanisms and TAC levels, with the goal of mitigating, where possible, large discrepancies between TACs and catch rates. Such an experimentation process, where managers set levels for the mechanisms, TACs, record use rates, TAC overages, and iterate until a socially acceptable design is found, is consistent with the adaptive management system put forth by Walters and Hilborn [42]. A learning process is present in the systems we surveyed, but the process to date is ad hoc rather than adaptive. It also should be noted, however, that such a process can have distributional consequences. For example, removing a flexibility mechanism could increase the value of bycatch species quota at the expense of the target species, whose catch is more constrained. Depending on the set of owners in the system, this can result in a redistribution of wealth from the quota owners of the target species to those owning bycatch quota.

Acknowledgments

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CHOIR COALITION

Coalition for the Atlantic Herring Fishery's Orderly, Informed and Responsible Long Term Development
210-E Orleans Road · North Chatham, MA 02650 · 508-945-2432

Rip Cunningham
Chairman, Multispecies Committee
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

August 30, 2007

RE: Midwater Trawl Vessels in Groundfish Closed Areas

Dear Chairman Cunningham,

I'm writing to you today on behalf of the CHOIR Coalition to request that Amendment 16 to the Multispecies FMP include a prohibition on midwater trawling in all areas closed to groundfishing, including the GOM Rolling Closures.

CHOIR is an industry coalition made up of commercial and recreational fishermen and fishing organizations, fishing and shore side businesses, and eco-tourism companies. CHOIR is recognized as a stakeholder in the herring fishery and is a leading voice for the conservation of herring. Our groundfishing members and supporters are extremely concerned that ongoing uncertainty caused by poor data is masking ongoing damage to groundfish stocks caused by midwater trawlers.

Framework 43 is not working. It was predicated upon a minimum of 20% coverage. Instead we have day and night effort on Jefferies Ledge all throughout May with 0% coverage. Thus we have over 5,000 tons of herring landed from within the year-round Western Gulf of Maine Groundfish Closed Area and not a single haddock tallied towards the FW43 bycatch cap. This is just one timely example of the failure to completely and accurately monitor the midwater trawl fleet, and illustrative of the particular vulnerability of groundfish within the closed areas.

Since NMFS is unable to observe midwater trawlers at a level which will allow for the extrapolation of their full impacts on groundfish within the closed areas, it is clear that action must be taken to remove this major source of uncertainty and risk. Since Amendment 16 is going to impact the businesses of hundreds of New England groundfishermen in order to protect groundfish stocks, it is the appropriate vehicle to eliminate the inappropriate and unfair situation in which midwater trawl vessels are allowed to catch more groundfish in closed areas than groundfishermen.

cc: fn. C4 ~ 8/4

CHOIR COALITION

Coalition for the Atlantic Herring Fishery's Orderly, Informed and Responsible Long Term Development
210-E Orleans Road · North Chatham, MA 02650 · 508-945-2432

Please take action to protect groundfish and groundfishermen by prohibiting midwater trawl vessels from fishing in groundfish closed areas. Thanks for your time and consideration.

Sincerely,

Steve Weiner
Chairman
CHOIR Coalition

September 1, 2007

RECEIVED
SEP 04 2007
NEW ENGLAND FISHERY
MANAGEMENT COUNCIL

Rip Cunningham, Chair
Multispecies Committee
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950
Paul J. Howard, Executive Director
New England Fisheries Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

RE: Any Type of Fishing in Groundfish Closed Areas

Dear Chairman Cunningham and Captain Howard,

As a groundfish fisherman I am writing to encourage the New England Fisheries Management Council to take action to eliminate any form of fishing, either recreational or commercial from operating in Groundfish Closed Areas, including rolling closures. Some fishing vessels have a bycatch of groundfish, as evidenced by the haddock bycatch cap that was created in Framework 43 to the Multispecies plan.

It's time for the NEFMC to get all vessels large and small out of Groundfish Closed Areas. ***According to the Webster's Dictionary copywrited 1914; it defines "Closed" as 1.To stop up; shut 2. To bring to an end; conclude. Additionally one of "Conclude's" definitions is "cessation; ending; end."***

This should apply to *all* vessels. As a result of Area 1A being closed to all types of fishing this past summer; the ocean is coming back to life before our eyes. Pods of whales, tuna, numerous seabirds and other species of animals are returning dramatically to our waters. Let's continue to work together to restore groundfish stocks and to the renewal of our ocean.

All recreational and commercial ships pose a threat to the rebuilding of groundfish stocks and to the future of the rebuilt haddock stock. It is inappropriate for any vessels to be allowed to operate in areas that are closed to groundfish fishermen, as a result of being determined essential habitat and a groundfish nursery area. Groundfish fishermen have sacrificed long and hard to conserve the groundfish resource and it is not fair to allow any large or small ships to jeopardize our future and our livelihood.

Please take action immediately; for our families, for our future.

Sincerely,

Captain Gary S. Libby, F/V Leslie & Jessica
Founding Member of The Mid Coast Fishermen's Association

(3)

September 4, 2007

Rip Cunningham, Chair
Groundfish Committee
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Dear Rip,

The Northeast Seafood Coalition, in our role as a regional industry organization, continues to work diligently and purposefully to guide, educate and assist permit holders throughout a very broad geographic range of the Northeast Multispecies Fishery towards formation and development of twelve groundfish sectors.

Since the August 1st Groundfish Committee meeting, NSC coordinated several meetings for Sector Leaders and their core groups to focus on the aspects of an allocation methodology and the associated impacts to their specific sector formation.

NSC met with Sector Leaders in Point Judith, New Bedford, Marshfield/Scituate and Gloucester. Ten of the twelve sectors currently under NSC guidance were present at these meetings. Two of the sectors that were unable to attend are well informed of the discussions pertaining to allocation methods. In general, all four meetings revealed serious concerns about a purely catch history method of allocation. Although most agreed that a longer time period would be more desirable than a shorter one, there was no agreement that a longer period was sufficient in itself to mitigate the numerous concerns associated with a purely catch history approach.

In addition to these internal discussions, NSC has found fishermen, currently considering or developing other sectors that are based in ports across the northeast, to have similar concerns and views. The results of our focused discussions and polling of Sector Leadership from Stonington Connecticut to Port Clyde Maine include the following:

1. Unanimous sentiment that a purely catch history method of allocation will produce the greatest level of reallocation and disruption of the current permit value structure. "Reallocation" being measured relative to current DAS allocations resulting from Amendment 13. Numerous concerns were articulated relative to catch history. Most are listed on attached page.
2. The Groundfish Committee should adopt an alternative for inclusion in Amendment 16 that incorporates capacity units (length, horsepower, "A" DAS) along with catch history to a degree that adequately balances dependency in the fishery with investment and current DAS allocation.

cc: Council, TN (9/6)

3. For the purposes of analysis, it was felt that results of a weighting of 50/50 catch history and capacity would be extremely helpful towards assisting the industry in making an evaluation of allocation methodology.

The items below highlight key issues that have arisen from our discussions on a purely catch history driven allocation:

- A purely catch history driven allocation will cause the greatest potential for the redirection of effort.
- A purely catch history driven allocation will cause uncertainty in the level of sector enrollment because of the necessity to know the catch history of each permit at a very early stage in the process.
- Entities holding multiple permits are extremely concerned that they will be left with stranded investments under a purely catch history driven allocation.
- Entities holding multiple permits need the liquidity of maintaining sufficient monetary value on each individual permit. This not only allows them the ability to sell an asset to repay debt without liquidating their entire fishing operation, but it gives them the opportunity to enroll their additional permits into a sector.
- Allocating the resource following a period when some key stocks were constricted in geographic range is unacceptable.
- Allocating the resource following a period of geographically disproportionate effort controls may permanently strip access to those most impacted by the measures.
- A purely catch history driven allocation places sectors in the difficult position of refusing low quota permits that have relatively high capacity.
- If there is little or no consideration of capacity then the "common pool", those that remain under the days at sea, will be a disaster. The uncertainty associated with sector formation at this stage should demand a closer link between capacity and quota allocation.
- The industry funded buyout utilizes vessel characteristics and A13 DAS allocations to evaluate bids and to ultimately determine the degree of capacity removal. If the allocation method is entirely disconnected from the buyout measure of capacity, the buyout analysis for capacity removal will no longer be valid.
- Converts past effort on some stocks that was perceived to be too high into a permanent allocation / reward at the expense of those conducting less effort on certain stocks of concern.
- Quota distribution will be skewed due to trip limits and the reliance upon "landings" qualification. This will cause problems for larger vessels that have had to use regulatory discarding to access other stocks. A purely catch history approach to allocating will not adequately consider the mortality ratios of past "catch" ratios but will instead memorialize "landings" ratios. This disconnect is likely to cause excessive under-yielding of quota awarded without sufficient bycatch of stocks with low trip limits. Landings history effectively **reallocates past mortality** of low trip limit stocks which will result in reallocation of healthier stocks.

- Allocating stocks that were at low levels during the baseline period may result in narrow distribution of that stock when it has rebounded, i.e. haddock.

Thank you for your immediate attention to this issue,

Sincerely,

Jackie Odell

Jackie Odell
Northeast Seafood Coalition

Enzo Russo
Gloucester/Boston Trawl Gulf of Maine and Georges Bank Sector

Peter Libro
Gloucester Fixed Gear Sector

Joseph Orlando
Gloucester Trawl/Western Gulf of Maine Sector

William McCann
New Bedford and Southern New England Fixed Gear Sector

Richard Canastra
New Bedford Channel Trawl Sector
New Bedford Deep Water Trawl Sector

Erik Anderson
New Hampshire and Southern Maine Fixed Gear Sector

Dennis Robillard
New Hampshire and Southern Maine Trawl Gulf of Maine Sector

Fred Mattera
Point Judith/Southern New England Offshore Trawl Sector

Christopher Brown
Point Judith/Southern New England Trawl Sector

Edward Barrett
South Shore Fixed Gear Sector
South Shore Trawl Sector

Glen Libby
Port Clyde Community Groundfish Sector

Cc: Paul Howard
John Pappalardo
Patricia Kurkul

Sept 4 2007

ATTN Tom Nuge

TO: NEFMC
c/o 50 WATER STREET
FAX # 978 465 3116

From: Tom Osmers
508 696 8277

INTRODUCTION:

The island of Martha's Vineyard and the fishing community has been severely and negatively impacted by management failure and by regulations, especially the establishment of qualifying years that are unfair to Vineyard and other fishermen.

In addition to these difficulties joined with the absence of the fishes from our waters for so many years, the vital infrastructure supportive of commercial fishing (supplying both ice and market access) has undergone one negative change. This was the closing of the Vineyard Haven FISH Pier which occurred shortly after the events of 9/11.

This "honor system" fish pier was closed as much for its decline in profit as for the "security improvements" (est. cost of $150,000) deemed necessary because of its location next to the fuel depot for the island. The honor system, whereby fishermen arrived and exited the pier thru the fuel terminal, left fish, got ice or bait etc. as needed was deemed a security threat, hence an upgrade for security and an end to the honor system.

At present ice and transport to markets on the mainland are accomplished in a piecemeal fashion and with a buy-boat in Menemsha, in Chilmark which has only limited ice and capacity.

Island fishermen are a cohesive and agreeable lot - deeply resentful of being closed out of their heritage as fishermen for many and diverse species not just limited to cod and other groundfish.

The number and severity of injustices committed against island and small community fishermen are legion and include the regulatory bodies many actions which destroy the validity of our history, include several notable management failures regarding the fish and food fish of these fisheries and clearly explicate the failure to achieve sustainability that riddles the entire system.

Goals of VINEYARD SECTOR

* To promote fairness and a level playing field for participants
* to facilitate restoration of the fishes which are a public trust
* to eliminate present large scale waste of fishes by ending and quantifying discards
* enable our future and future of our island fishermen youth
* to work with whatever framework is necessary to open the eyes of the council + NMFS and effect pos. CHANG

As per sector practice observed from other Sector proposals the Vineyard sector asks exemption from the 96-06 or 96-01 qualifying years and asks to incorporate our young people and open access fishermen into the sector.

Based upon a cursory investigation of approximate landings for the Vineyard the sector asks for a cod/haddock/pollack allocation for its members in sum not to exceed 1,000,000 lbs. which was the annual average landings of the hook fleet pre-1990. (SNE/WGB)

Also - the Vineyard Sector asks of the committee additional time to organize and submit more and more appropriate documents.

PROPOSED SECTOR PARTICIPANTS (VINEYARD)

NAME of VESSEL	CAPT./OWNERS
UNICORN	GREG MAYHEW
QUITSA STRIDER	JONATHAN MAYHEW
FREEDOM	WAYNE IACONO
SHERRY LYNN	CARL FLANDERS
Esther's PRIDE	STEVE LARSEN
Summer's DAWN	JOHN LARSEN
ENDEAVOR	BOB SLOAN
ALLISON LEE	JOE SMITH
SOLITUDE	PAT. JENKINSON
TOMAHAWK	BUDDY VANDERHOOP
FLASHY LADY	DICK VINCENT
ROYAL	SCOTT STEVENS
MIRAGE	GLEN PACHICO
SEA RAVEN	TOM TURNER
LADY MARION	RUSTY CANNING
Room to Move	MIKE SNOWDEN
RIGHT STUFF	DAVID CHIPPERFIELD
LITTLE LADY	DENNIS JASON
Super SEA SAW	DAVID TILTON
Femme FATALE	JENNIFER CLARK
MEGAN + HALEY	JEFFREY LYNCH
PAY BACK	DONNY BENEFIT
CLEAN SWEEP	Cooper + DAN GILKES
A.D. THORN	TOM OSMERS
MARIAH	RAY GALE

[redacted] NAMES OF INDIVIDUALS willing to PARTICIPATE IN [redacted] VINEYARD SECTOR (NAMES of VESSELS BEING COLLECTED.)

MATT MAYHEW	CLINTON FISHER
ALEX FRIEDMAN	KARSTEN LARSEN
LEU WLODYKA	STEVE COSTA
ZACHARIAH TILTON	WHITNEY BRUSH
ZEB TILTON	ISIAH SCHEFFER
AL KARALIEKAS	STEVE NORBERG F/V CORRINA
RICK SILVA	NICK WARBURTON
GUS LIEF	MARC DAVIS F/V BEETLE
AL GALE F/V DEBORAH LEE	JOHN ARMSTRONG

New England Fishery Management Council
Multispecies (Groundfish) Oversight Committee
Meeting Summary
September 5, 2007

The Multispecies (Groundfish) Oversight Committee met in Peabody, Massachusetts to continue development of Amendment 16. The discussions focused on sector management issues. The Committee did not discuss effort controls, as was planned, due to a lack of time. Committee members present were Mr. Rip Cunningham (Chair), Mr. Mike Leary (Vice-chair), Mr. Jim Odlin, Mr. Terry Stockwell, Mr. Rodney Avila, Mr. David Preble, Mr. Tom Hill, Ms. Sally McGee, and Ms. Sue Murphy. The Committee was supported by staff Mr. Tom Nies (NEFMC), Mr. Tom Warren (NMFS/NERO), Dr. John Witzig (NMFS/NERO), Ms. Amy VanAtten (NEFSC), and Mr. Gene Martin (NOAA GC). Much of the Committee discussion was based on a Groundfish PDT conference call report dated August 28, 2007; the Committee also referred to a PDT meeting report dated July 27, 2007.

At the beginning of the meeting, Mr. Odlin reported that the Executive Committee discussed the Regional Administrator's concern that the Committee was spending too much time on sector issues and not enough on measures to continue rebuilding.

Sector Policy Issues

Sector Baselines
Council staff reviewed the PDT's advice on how used DAS could be incorporated into permit history calculations. The PDT asked for guidance on which suggested method should be used. A Committee member offered that using used DAS was a non-starter. He said it was just a proxy for catch and would lead the Council to using history based on a period when stocks were in their worst shape. A method should be used which takes into account vessel capacity.

> **Motion**: To recommend that percent quota shares allocated to each permit for the purposes of forming sectors be determined one-half by catch history over a 1996-2006 baseline and one-half by vessel capacity using vessel replacement baselines on record for each permit multiplied by the number of allocated A DAS using the formula: ((10L+HP)(allocated "A" DAS)=capacity baseline) (Mr. Preble/Ms. McGee)

Mr. Odlin opposed the motion because it would give fish to people who never caught them. Ms Murphy opposed the motion for three reasons: it was a reallocation of the fishery, a similar suggestion was discussed but not approved at the August 1, 2007 Committee meeting, and the Regional Administrator was concerned over the amount of time the Committee was spending on sector development. Mr. Hill pointed out the Committee had not decided what it was trying to accomplish, which made it difficult for the PDT to evaluate which proposals had merit. He also questioned whether the discussion was changing from one about sectors to one about allocating the entire fishery.

> **Motion**: To substitute Alternative 3 as described by the PDT in its conference call report (page 7) as the method for combining landings history and used DAS. (Mr. Odlin/Ms. Murphy)

This alternative uses DAS to affect the history of a permit for only those stocks that the permit has landed. The rationale for the motion is that this approach would help smooth the disruptions

caused by changes in regulations, etc. The Committee debated the motion. Some were concerned that while this approach might make sense for stocks that were fully utilized, it did not make sense to award under-utilized stocks to a small group of fishermen who had demonstrated the inability to harvest the entire stock. Some Committee members were concerned about the lack of access that limited some fishermen in recent years. Public comment included:

- Ms. Maggie Raymond: Associated Fishermen of Maine, Sustainable Harvest Sector. The number of options cannot be endless. We don't have the capacity in the fishery now to catch some stocks. It is a problem to give fish to people who never will have the intent or ability to catch it.
- Mr. Chris Brown: Pt Judith, RI fisherman. I can't believe I just heard that there is a lack of capacity in the groundfish fishery. Lots of boats are waiting for the opportunity to catch haddock. We can't hand it to people who have not been able to get the job done. There are so many issues that were not even discussed – to suggest we have had a full discussion is insane. It will take years to do a complete analysis, to do the proper audits that are necessary, to make sure people have not falsified a large number of landings. The common pool people will be completely fleeced of landings – and full of DAS. People left in that pool are going to die. We need a capacity related allocation in the mobile gear fishery – horsepower equals production. If we have an overcapacity problem – and regulatory discard - we have to allocate to some extent based on capacity. It is only logical. If we allocate only fish that you caught – sounds effective enough unless there is a massive stock shift. Recent tagging study shows 50 percent of SNE/MA yellowtail flounder is transient. I oppose the motion to substitute.
- Mr. Vito Giacalone: Northeast Seafood Coalition (NESC). We opposed the motion to substitute. I am confused why we are only looking at catch history. Everything is being discussed in the context of IFQs. This subject is easier to discuss if you remember we are talking about sectors. The original motion helps to insulate the common pool from stripping away the entire quota. If we are trying to promote sector enrollment, something that gives every permit holder value in the fishery is important. Look at how the industry values permits, past buyout values – the value of permits is judged by capacity.
- Mr. Carl Bouchard: F/V Stormy Weather. Does anyone believe that what we decide here will not carry over into the entire fleet when we eventually do ITQs? What you decide is what is going to go for the rest of time. I oppose the motion to substitute. We were on the right track with the original motion, but I don't fully agree with that either. We have been operating on a DAS basis now. We have invested heavily into that currency. We have been forced to borrow money to keep our business going – to say that those permits are now no good by basing the allocation on history alone is ludicrous. Every permit with DAS – should get points based on where it fishes – one point for each DAS. Anything less than 75 percent credit for DAS should not be acceptable. Give 25 percent to history, the rest to DAS.

The motion to substitute **carried** on a show of hands (4-3-1). The main motion, as substituted, **carried** on a show of hands (7-1).

Motion: To recommend that percent quota shares allocated to each permit for the purposes of forming sectors be determined one-half by catch history over a FY 1996- FY 2006 baseline and one-half by vessel capacity using vessel replacement baselines on record for each permit multiplied by the number of allocated "A" DAS using the formula: ((10L+HP)(allocated "A" DAS)=capacity baseline). (Mr. Preble/Mr. Hill)

This motion was offered to provide an additional history calculation alternative. Public comment included:

- Mr. Glenn Libby: Port Clyde. Whatever we do here – we should be looking towards the future and what we want the fishery to look like. There are huge areas where no one is fishing. You must do the best job possible so something left for our children.
- Mr. Chris Brown: This should be stated somewhere: this is not an attempt to permanently allocate; this is in response to the required midterm correction. There was discussion at the last committee meeting that allocation secured through a short process would in all likelihood flow through. I think it important that in one of these motions that this is not our intent – permanent allocation is not our intent. This motion will encourage that GB vessels will be catching cod off Rhode Island five years from now and I will be tied to the dock. I will be missed when it comes to cod because I did not catch them in the right years.
- Mr. Vito Giacalone: One point – referenced rather frequently at the last meeting. People act as if we have already allocated based on history and any alternatives are a reallocation. All we have allocated so far is DAS. We support this motion to look at this alternative.
- Mr. Frank Gable: On behalf of the Pier 6 sector, we support this for analysis purposes.

In response to several questions, the maker of the motion clarified that vessel replacement baselines would be used for the calculation, and the capacity factor would only influence allocation of stocks in the area fished by a permit. Mr. Hill commented that the Committee was confusing the discussion of alternatives for sector measures with a longer-term discussion about allocating the fishery, and expressed concern that this short-term response might inadvertently become permanent.

The motion carried on a show of hands (5-2-1).

Staff summarized the seven history alternatives for the Committee: based on landings history alone for two different time periods (FY 1996-2001 and FY 1996-2006), combining landings history and used DAS at two different weights (50 percent landings/50 percent used DAS, and 75 percent landihngs/25 percent used DAS) and two different time periods (FY 1996-2001 and FY 1996-2006), and combining landings history and capacity at equal weights and one time period (FY 1996-FY 2006).

Exit/Entry
The Committee next discussed whether to address the concern that current regulations do not provide a mechanism to deduct an Annual Catch Entitlement (ACE) overage should a sector disband or enough members leave so that there isn't sufficient ACE to cover an overage. Suggestions offered by the PDT were discussed but in general were found wanting – either because they only delayed the problem, raised questions about whether they could be enforced, or were felt inadequate. A motion to require vessels to remain in a sector until an overage was paid back was withdrawn after Mr. Martin raised concerns over its constitutionality. A second motion to have the penalty follow a permit was also withdrawn.

> **Motion**: Remand issue of overage penalties following permits back to the PDT to work with NOAA GC to develop something along the lines of item d (PDT conference call report – overage penalty follows a permit). The issue should be dealt with by each individual operations plan. (Mr.Odlin/Mr. Stockwell)

Mr. Martin said this type of approach would be more enforceable if it was included as an element of the sector operations plan and all members agreed to it by signing the sector contract – in essence, it would be similar to a contract's "liquidated damages" clause. It would also help if the requirement to address this in an operations plan were included in the management plan and the regulations. A friendly amendment was offered by Ms. McGee: "if sector disbands it must resolve any overages through transfer of ACE before its members can fish in subsequent fishing years" – but was not accepted by the maker of the motion.

The motion carried on a show of hands (8-0).

The Committee next addressed the PDT concern that it was not specifically stated in the management plan how an ACE overage would be paid back – is the payback charged in the form of pounds or as a percent of the ACE allocated to a sector? The Committee reviewed the PDT discussion and concluded that for ease of administration any overages would be paid back in terms of pounds on a pound-per-pound basis.

> **Motion**: For clarification, sector overages of ACE will be paid back in pounds, on a pound per pound basis. (Mr. Odlin/Mr. Preble)

The motion **carried** on a show of hands (8-0).

Simplifying Sector Applications/Administration
The Committee reviewed PDT and NMFS recommendations to allow multi-year operations plans, and to require sector operations plans be delivered by December 1. Allowing multi-year operations plans may reduce the administrative burden on NMFS and sectors, while requiring an earlier submission will make it more likely the submissions can be reviewed in time for fishing to begin at the start of the fishing year. Ms. Murphy noted that sectors still had the option to submit an annual operations plan if they desired, and that the Environmental Assessment accompanying a two-year plan would have to address the impacts for both years. Mr. Glenn Libby spoke in support of the motion.

> **Motion**: To allow for operations plans to cover a two-year period and to require operations plans to be submitted by December 1. (Mr. Odlin/Mr. Avila)

The motion **carried** on a show of hands (8-0).

Reporting/Monitoring
Council staff reiterated PDT recommendations for monitoring of sector catches that had not been acted on by the Committee (summarized in the PDT report dated July 27, 2007). Ms. Murphy said that NMFS preferred weekly reporting by sector managers, as opposed to the PDT recommendation for real-time reporting. She also said that for discards, NMFS preferred to take the discard rate "off the top" of a sector's ACE. If a sector did not want to accept that rate, they would have to demonstrate a different rate was appropriate, perhaps through the use of industry-funded observers. Council staff raised several concerns over the suggestion to take discard rates "off the top": would this be done for different time periods, what would be done for stocks without discard rates, what would be the source for the rates, how would it be applied to sector's that use more than one gear (since rates differ by gear), how does the fact sectors operate very differently from the common pool, etc. Staff suggested that a standard for the precision of discard estimates could be set, and sectors could be held responsible for meeting it.

Motion: (1) Discards will be counted at the previous assumed discard rate, calculated as often as is practicable, by gear and that rate will be deducted off the top of the ACE unless and if a sector can come up with an adequate monitoring system that can satisfy NMFS that discards will be adequately monitored and accounted for at the sector's expense. (2) Each sector will report catches (landings and discards) to NMFS weekly. (Mr. Odlin/Mr. Stockwell)

This motion adopted the NMFS recommendation for taking discards "off the top" and weekly reporting. Public comment included:

- Ms. Maggie Raymond: Discards are often caused by trip limits, yet longer trips have fewer discards. Is there some way to factor that in as well?
- Mr. Frank Mirarchi: Commercial fisherman, Scituate, MA. The "assumed discard rate" is not where we want to be. It becomes a powerful disincentive to do any better. I do not oppose third party observers, but we should be able to shop for value and not be limited to one source.
- Mr. David Borden: Massachusetts DMF. Is it the number of dead discards or total discards? (dead discards was the reply).

The Committee discussed the motion at length. They questioned whether discard rates could be calculated for gear/size classes – staff cautioned that may not be possible. In response to staff concerns about how gear-specific discard rates would be applied to an ACE, Ms. Murphy suggested that discards could be added to the landings of each trip based on gear. Staff noted that this did not seem to be the approach described by the motion. The Committee also wrestled with how this impacts trading of ACE. As the Committee began to get bogged down in considering technical issues, Council staff suggested that the PDT be asked to address these issues.

The motion carried on a show of hands (8-0).

Motion: The Committee recommends that sector applicants must demonstrate the ability to accurately attribute landings to a specific statistical area or prohibit trips in more than one stock area. (Ms. Mcgee/Mr. Preble)

This motion was in response to a PDT suggestion. Accurate assignment of catch to stock areas is critical for monitoring sector performance. Public comment included:

- Ms. Maggie Raymond: What is it exactly the Committee wants sectors to do? We already report landings by statistical area on VTRs. A lot of these issues that are raised also apply to the common pool. Everyone has to accurately report and monitor everything. Common pool needs same scrutiny as sectors. Majority of our boats are fishing in more than one stock area per trip.
- Mr. Frank Gable; Pier 6 sector. I am not sure if this motion means we must demonstrate this prior to forming a sector. Accurately attributing landings comes from NERO.
- Mr. Vito Giacalome: Generally we understand this concept and makes sense. Right now the common pool agrees to the most restrictive regulations when fishing in multiple areas. If trip limits are removed by sectors - there will be a heightened need for where the fish come from. There has to be a better way to attribute catch from a vessel.

Ms. Murphy said NMFS was still considering these issues and preferred a consistent solution across all sectors. Mr. Odlin spoke against requiring vessels to stay in one stock area. Council staff noted that many vessels that fish in more than one statistical area do not correctly complete VTRs and only report one area, and the incentives for a sector member to misreport catch

location could be large if the sector has a small ACE from one stock area that could shut operations down if exceeded, and a larger ACE for the same species from another area.

> **Motion to amend**: To delete "or prohibit trips in more than one stock area." (Mr. Odlin/Mr. Preble)

The motion to amend carried on a show of hands (5-2-1).

> **Motion as amended**: The Committee recommends that sector applicants must demonstrate the ability to accurately attribute landings to a specific statistical area. (Ms. Mcgee/Mr. Preble)

The main motion carried on a show of hands (7-0-1).

The Committee briefly discussed the issue of observer coverage, but did not take any action.

Council Sector Policy Issues
The Committee next reviewed a number of issues related to the recently adopted Council sector policy. First, the Committee discussed what sector elements needed to be defined in the management plan and regulations. As an example, regulations define the gear, stocks allocated, and general operating area for the two existing sectors, while other provisions are typically negotiated with NMFS in the annual operation plan. Are there elements that the Committee believes must be defined?

Ms. Murphy said that gear should be one such element that is defined. Mr. Warren relayed enforcement concerns that sectors should have specific geographic operating areas - otherwise there could be many sectors fishing under different rules in many areas. He suggested that the absence of such information could impact the approvability of a sector. Some Committee members expressed concern by this comment. Staff noted that it appeared there was a need for a dialogue between the Council and law enforcement on enforcement expectations – it could be that the Council did not expect NMFS to enforce every sector requirement, but to focus on accurate catch reporting. Ms. Murphy commented that they were relaying the concerns of enforcement that if everyone fished everywhere there would be a complex set of rules.

Staff raised the issue of the Council policy that says "each sector is responsible for ensuring that their eligibility criteria are implemented in a fair and uniform manner." Some were interpreting this to mean a sector must admit anyone who desires to be a member and that meets the eligibility criteria. This would seem to be in conflict with the concept that sectors are voluntary and self-selecting. It also implies that sectors – essentially a business contract between permit holders – can be forced to do business with entities that they may be reluctant to do so. Several Committee members felt that sector membership must be left to sector members. Since sector members are responsible for the performance of other sector members, they felt it was a non-starter to require a sector to accept a member against the will of current members. Staff also noted that during Amendment 13 the Council did not act on the suggestion to explicitly require sectors to accept all qualifying applicants.

> **Motion**: To recommend that the Council strike the following sentence for the sector policy document: "Each sector is responsible for ensuring that their eligibility criteria are implemented in a fair and uniform manner." (Mr. Preble/Mr. Avila)

Mr. Preble said this motion would clarify the intent of the Council was not to say who would be in a sector. Mr. Martin said that under current regulations, all vessels eligible to participate are allowed in if they have documented landings. Council staff asked if this raised the constitutional question mentioned in an earlier discussion: can someone be forced to do business with another? Public comment included:

- Mr. Glenn Libby: Compare sectors to a fish cooperative: applicants are voted in or out by current members. It is a business decision. It is not attractive to say sectors have to take whoever comes along.
- Mr. Vito Giacalone: We are deeply concerned about common pool. If someone is blackballed from joining a sector, you are in essence forcing those to do business with each other.
- Mr. Frank Mirarchi: I would like to add an additional point to this discussion. Sectors are not only a group of people affiliated to catch fish – but they share a common vision on marketing. Sectors need people with common vision to merge together.

The motion carried on a show of hands (7-0-1).

> **Motion**: In formation of a sector, sector participants can select who may participate in the sector. (Mr. Odlin/Mr. Avila)

The motion carried on a show of hands (7-0-1).

The Committee next discussed whether sectors should be capped at 20 percent of the TAC for each stock.

> **Motion**: The Committee recommends that the Council consider not having a 20 percent cap by stock on groundfish sectors. (Mr. Odlin/Mr. Leary)

The maker of the motion said that the cap could be a problem for some sectors that are forming, Staff reported that NMFS has published technical guidance on the issue of maximum shares; Ms. Murphy asked that the PDT discuss this issue, particularly with respect to possible social and community impacts. Public comment included:

- Ms. Maggie Raymond: Current regulations allow a sector allocation to exceed 20 percent of a stock with Council action. Our sector will be above that limit for some stocks. If the cap is not changed, we will have to split into two sectors. We urge you to eliminate the cap.
- Mr. Chris Brown: The TAC for some stocks will be small. If you keep the cap, some sectors will not have enough fish to absorb the costs of administration and monitoring.

The Motion carried on a show of hands (6-0-2).

Motion carries 6-0-2.

Participation in more than one sector in different fisheries
The Committee discussed the Council sector policy that says "Furthermore, a vessel cannot be in more than one sector in different FMPs in the same year." Council staff interprets this to mean if a vessel wants to be in sectors in two different fisheries, the membership of the sector must be the same in both fisheries. A Committee member felt this would inhibit the formation of sectors. Staff noted this could be an issue in the case of fisheries with significant catch overlap (monkfish

and multispecies as an example) – how are allocations determined and how are catches assigned against those allocations? For other fisheries without overlap (multispecies and red crab as an example) it may not be an issue. Committee members noted that while there may be instances where the restriction is necessary, it may not need to apply to every combination of fisheries.

> **Motion**: Recommend that the Council strike this sentence from the sector policy: "Furthermore, a vessel cannot be in more than one sector in different FMPs in the same year." (Mr. Preble/Mr. Leary)

Ms. Murphy and Mr. Martin commented that this might undermine the concept that vessels stop fishing when a TAC/ACE is reached. Two members of the public spoke in favor of the flexibility the motion would provide. The motion carried on a show of hands (7-0-1).

Carry-forward of TACs
Staff advised that the Committee had been asked to consider allowing a sector to carry-forward unused TAC into a following year. Several ITQ programs have similar provisions. Staff expressed concern that it ma prove difficult to incorporate such a concept in the context of mortality targets and annual catch limits.

> **Motion**: That a sector can carry up to 10 percent of its ACE forward into the next fishing year if it doesn't use it. (Mr. Odlin/Mr. Avila)

Several Committee members supported having the PDT examine the issue, while one Committee member opposed it. Three members of the public supported the motion. The Chair clarified that the intent of the motion is to have the PDT examine this issue. The motion **carried** on a show of hands (6-1-1).

Specific Sector Provisions
The Committee reviewed specific provisions of sectors that have been submitted. In most instances this discussion was intended to facilitate Committee understanding of the submissions and no action was taken.

- Paper reporting: Several sectors asked to be exempt from paper reporting. Mr. John Witzig (NMFS NERO) said that absent additional resources the NMFS statistics office cannot accept electronic reports. When they are able to do so, they would expect to have an overlap when both paper and electronic reporting is required until they are certain electronic reports are reliable. Staff suggested that the current prohibition against sector exemptions from reporting requirements be revised to allow electronic submission when NMFS is able to accept the information. The Committee did not object to this suggestion.
- Several sectors asked to be exempt from annual closures. While some Committee members argued that mortality closures are not necessary for a sector limited by a hard TAC, others suggested re-examining the closure before eliminating them. Staff noted that the thinking about the benefits of closures has changed over time, and that allowing fishing in a closed area might complicate the use of closed areas as an effort control for the common pool vessels. The Committee suggested staff consult with the PDT on this issue.
- Several sectors asked for changes in the way catch is credited to a sector. The Committee asked for, but did not receive, a clarification on the intent of this measure. They assumed it was to establish catch history in case a future allocation scheme is implemented. Ms. Murphy said that if something like this was adopted, NMFS would apply it to all sectors.

- Several sectors asked to be exempt from monkfish DAS requirements. Since these cannot be granted by the groundfish plan, staff offered a possible way to fish for monkfish with minimal impact on groundfish DAS: use groundfish DAS in combination with monkfish DAS only on trips that are landing more than the incidental catch limit of monkfish. Other solutions will have to be pursued in changes to the monkfish plan. The Committee may consider asking the monkfish committee to look into this issue.
- Several sectors asked for an exemption from all habitat closures that are not Level III closures. Council staff pointed out that this appeared to be an error. Access to Level I closures is prohibited to all gear, access to Level II closures is prohibited to all bottom-tending gear. It does not make sense for a sector to request these exemptions.
- Several sectors asked for a de minimis allocation in those instances where sector history does not result in an allocation below a small level. Committee members expressed concern, and noted that this may be addressed as the Committee resolves whether hard TACs are needed for every stock or not.
- Delayed operations plan approval. NMFS noted that sectors have been allowed to operate under the previous year's rules prior to operations plan approval.
- One sector asked for an allocation exceeding 20 percent of the white hake TAC. An earlier Committee motion might address this issue, and some Committee members preferred to wait until those issues are addressed by the PDT.

  Motion: To recommend to the Council that the Sustainable Harvest Sector be allocated greater than 20 percent of the white hake TAC. (Mr. Stockwell/Mr. Odlin)

The motion failed on a show of hands (3-4-1).

- One sector has asked to be exempt from the qualification criteria, to receive an allocation of one million pounds of cod, haddock, and pollock, and to be allowed to have members who have open access permits join the sector. The Committee did not discuss these exemptions.

A member of the public asked if sectors can include vessels with multispecies "C" DAS permits – those without any Category "A" DAS. Ms. Murphy said she thought that was allowed, but Mr. Warren was uncertain. Ms. Murphy noted that the regulations for the GB Cod Hook Sector limited participation to those vessels with documented landings of GB cod during a specific period.

A Committee member suggested that sectors should be approved on a first-come, first –served basis. Sectors submitted in February should receive priority over those submitted in April. The Chair said that might be an issue the Council should have a policy on.

Mr. Vito Giacolone said that several sectors were operating under the assumption that sectors would be able to receive exemptions from seasonal and rolling closures. Clarification was needed on this issue. He also asked that the Council or NMFS prepare guidance on what is needed for a complete sector proposal. The Chair acknowledged the request.

Future Work
The Committee reviewed an overview of pending Amendment 16 issues prepared by staff. The Chair asked staff to prepare a timeline for addressing those issues.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930-2298

#9

SEP 12 2007

Paul J. Howard
Executive Director
New England Fishery Management Council
50 Water Street
Newburyport, MA 01950

Dear Paul:

I recently (August 22, 2007) sent you a partial response to your letter of July 2, 2007, in which you posed four questions regarding how sectors are to be treated under the new limited access privilege program (LAPP) requirements of the Magnuson-Stevens Act (MSA) Reauthorization Act (MSRA). Review of all of the issues has now been completed, and I can now provide you answers to the other questions you posed.

Question: Are sectors, as implemented by this [Northeast Multispecies] FMP, consistent with the term "sector allocation" used in section 303A(c)(6)(D) of the MSRA and exempt from the requirement to hold a referendum before submission?

Answer: MSRA sections 303A(c)(6)(D)(i) and (vi) require a referendum for individual fishing quota (IFQ) programs but provide that an IFQ does not, for purposes of the referendum requirement, include a "sector allocation." MSRA section 303A(h) provides that nothing in the MSA or MSRA shall require a reallocation of, among other things, a "sector allocation" in effect prior to enactment of the MSRA. Prior to enactment of the MSRA, the Northeast Multispecies FMP and regulations codified at 50 CFR 648.87 had provisions for "sector allocations." Thus, a reasonable interpretation is that "sectors" under that FMP are exempt from the referendum requirements. The referendum exemption is not limited to sector allocations under the Northeast Multispecies FMP, so if any new "sector allocation" is proposed, the specific elements of the proposal should be reviewed to see whether the exemption is also applicable in that instance.

Question: Are sector allocations, as implemented by this FMP, considered LAPPs and thus subject to the LAPP provisions of MSRA?

Answer: Sector allocations, as currently implemented by the Northeast Multispecies FMP, do not appear to be LAPPs. Whether any new, proposed "sector allocation" would be considered a LAPP is a fact-based question that would need to be reviewed as proposals develop. Section 3(26) of the MSRA, 16 U.S.C. 1802(26), states that a "limited access privilege":

> (A) Means a Federal permit, issued as part of a limited access system under section 303A to harvest a quantity of fish expressed by a unit or units representing

cc: TN, Council (9/14)

a portion of the total allowable catch of the fishery that may be received or held for exclusive use by a person; and
(B) Includes an individual fishing quota; but
(C) Does not include community development quotas as described in section 305(i).

Under the multispecies regulations, a "sector" is "a group of vessels that have voluntarily signed a contract and agree to certain fishing restrictions, and that have been allocated a portion of the TAC [total allowable catch] of a species, or an allocation of DAS [days-at-sea]." 50 CFR 648.2. A DAS sector, on its face, does not appear to be a LAPP because it does not involve the allocation of a specific quantity of fish or a portion of the TAC. NMFS's longstanding position is that input controls such as DAS are not the equivalent of quantities of fish or IFQs. Therefore, sectors allocating DAS would not be subject to the IFQ or LAPP provisions of the MSRA.

A TAC-based sector allocation also does not appear to be a LAPP, because it does not involve issuance of "Federal permit, issued as part of a limited access system under section 303A to harvest a quantity of fish expressed by a unit or units representing a portion of the total allowable catch of the fishery that may be received or held for exclusive use by a person." As noted above, a "sector" under the multispecies regulations is a contract arrangement among a group of vessels, and NMFS implements sector allocations through framework adjustments and other regulatory actions. See, e.g., 50 CFR 648.87(a)(2) and 648.90(a)(2). There is no Federal permit issued to the "sector" per se. Rather, the TAC assigned to sectors under the multispecies regulations is a management restriction on a group of vessels, not a permit to harvest fish that can be held for "exclusive use by a person."

A "sector," as defined in the multispecies regulations, also does not clearly qualify as a "person" eligible to hold a LAPP under section 303A(c)(1)(D). Only a U.S. citizen, corporation, partnership, or other entity established under Federal or state law, or a permanent resident alien may hold LAPPs. MSRA section 303A(c)(1)(D). A group of vessels under a voluntary contract-arrangement does not seem to fall within the definition of "person" as that term is used in the MSRA.

As a final note, your letter suggested that sector allocations could be interpreted to be limited access privileges, because limited access privileges are defined as "Federal permits" (MSRA section 3(26)) and MSRA section 303A(b)(1) refers to quota share and other measures as "permits." As a clarification, section 303A(b)(1) refers to three categories of measures that "shall be considered a permit for the purposes of sections 307, 308, and 309," or in other words, for enforcement purposes. The categories are quota share, other limited access system authorization, and limited access privilege. As noted above, limited access privilege has its own, separate definition that includes the term "Federal permit." However, "limited access system" is not defined as a "Federal permit" and "quota share" is not defined at all. See MSRA section 3(27). While MSRA section 303A(b)(1) specifies that the three categories of measures are permits for the

specific purpose of enforcement, this does not necessarily mean that all quota shares and other limited access system authorizations are limited access privileges.

For all of these reasons, the conclusion that a sector as currently provided for in the multispecies regulations is not a LAPP under the MSRA is the most legally reasonable and supportable interpretation.

I hope these responses will be helpful to you and the Council as you consider additional sectors in New England fisheries.

Sincerely,

Patricia A. Kurkul
Regional Administrator

#10

RECEIVED
SEP 14 2007
NEW ENGLAND FISHERY
MANAGEMENT COUNCIL

September 12, 2007

Ms. Patricia A. Kurkul
Regional Administrator
National Marine Fisheries Service
One Blackburn Drive
Gloucester, MA 01930-2298

Dear Pat,

I am writing this in my capacity as Chair of the Mayor of New Bedford's Ocean and Fisheries Council.

First, I would like to extend thanks on behalf of Mayor Lang and the Council for the bycatch accounting presentation made by John Witzig and David Potter. The Council appreciated the opportunity, and as we discussed with John yesterday, we are interested in putting together a small group of interested Council members to work with John and his staff to ensure that the discard estimations reflect realized discards to the furthest extent possible.

My primary reason for writing you today is to express the Council's strong preference for a particular Sector Allocation method being considered by the New England Fishery Management Council. As you know, New Bedford has organized three Sectors for consideration by the Council and the Service for operations beginning May 1, 2009. The New Bedford Channel Trawl Sector, New Bedford Deep Water Trawl Sector, and New Bedford and Southern New England Fixed Gear Sector are developing operations plans designed to ensure that the fishing community of New Bedford plays an integral role in developing community-based management with a focus on protecting groundfish stocks, maintaining the fishing infrastructure in the port of New Bedford, and preserving our communities' fishing heritage. As these Sectors are developed, we feel it is critical that the industry have alternatives to a purely catch history allocation formula.

We feel that the allocation alternative utilizing 50% catch history and 50% vessel capacity is the optimal sector allocation method. It is designed to: (1) promote sector enrollment; (2) ensure that multiple permits holders are not left with stranded investments; (3) avoid redirection of fishing effort into other fisheries; and (4) minimize the impact of skewed quota distribution due to trip limits.

It is important to note that a purely catch history-based approach to allocating groundfish stocks to sectors will not adequately consider the mortality of past *catch* but rather will memorialize past *landings*—the difference of course being many fishing operation's mandated reliance on regulatory discards to access healthy stocks.

cc: tn ~ 9/14

For these reasons and many others, we wish to express our preference for the sector allocation method that relies upon combination of 50% catch history and 50% vessel capacity. Fundamentally, we believe this approach to be the fairest and most equitable to all groundfish fishermen of the allocation strategies being considered at this time.

A hard copy of this letter will follow.

Sincerely,

Brian J. Rothschild /afw

Brian J. Rothschild
Chair, Mayor's Ocean and Fisheries Council
City of New Bedford

BJR/afw

cc: Paul Howard
John Pappalardo
Mayor's Ocean and Fisheries Council

#11

ASSOCIATED FISHERIES OF MAINE
PO Box 287, South Berwick, ME 03908 207-384-4854

September 6, 2007

Mr. John Pappalardo, Chair
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Dear John:

I am writing today, on behalf of the Board of Directors (Board) of the Sustainable Harvest Sector (Sector), to request that the Council answer two questions that have recently been asked regarding potential membership in this Sector.

First, the Board has received a membership request from an individual issued a limited access groundfish permit with C DAS. This individual has no groundfish landings allocation to bring to the Sector and he seeks to share the allocation of other members. The Sector would like to accommodate this membership request. We seek guidance from the Council that this membership is acceptable within the existing policy on sectors; otherwise we request the Council take action to amend the groundfish sector regulations to allow this type of membership request.

In addition, the Board has received a membership request from a few individuals issued limited access monkfish permits, but no limited access groundfish permit. As I'm sure you understand, it would not be economically practicable for a small number of individuals to form a sector. These permit holders share the vision and principles adopted by the Sustainable Harvest Sector, and they are interested in participating in a monkfish sector if and when the Council amends the monkfish plan to allow sector formation. These individuals do not seek to share in the Sector's groundfish allocation or to fish for groundfish without a groundfish permit. We seek action from the Council that would allow these individuals to join the Sustainable Harvest Sector if and when the monkfish plan allows the Sustainable Harvest Sector to receive an allocation of monkfish.

I look forward to the Council's deliberation of these queries, and your earliest possible response.

Sincerely,

M. Raymond

Maggie Raymond
for the Sustainable Harvest Sector

cc: Council, TN, Pch (9/7)

Fisheries and Oceans Canada | Pêches et Océans Canada | NOAA FISHERIES NATIONAL MARINE FISHERIES SERVICE

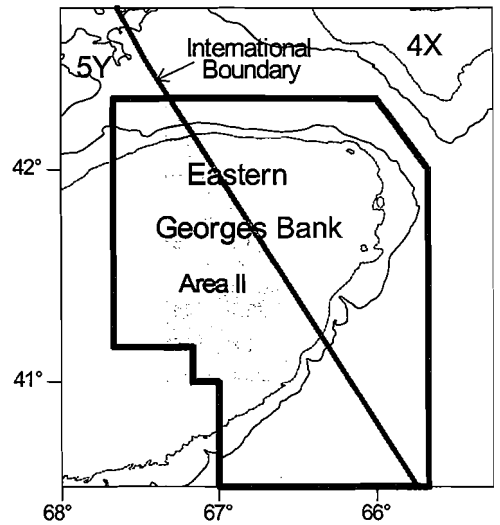
#12

Transboundary Resource Assessment Committee

Status Report 2007/01

EASTERN GEORGES BANK COD

[5Zjm; 551,552,561,562]



Summary

- Combined Canada/USA catches in 2006 were 1,615 mt, including 441 mt of discards.
- Adult population biomass (ages 3+) declined from 43,800 mt in 1990 to 8,500mt in 1995, subsequently increased to 19,600mt in 2001 and was 20,200mt at the beginning of 2007.
- Recruitment at age 1 of the 2003 year class, at 7.7 million, is the first above average cohort since the 1990 year class. The 2002 and 2004 year classes, at 1 million each, are the lowest on record. The initial estimate of the 2005 year class is below average, at 2.1 million.
- Fishing mortality for ages 4-6 increased sharply between 1989 and 1993 from 0.5 to 1.0. In 1995, fishing mortality declined substantially to F=0.19, due to restrictive management measures. Fishing mortality subsequently fluctuated between 0.18 and 0.50 until 2005 when it declined to 0.10 and was 0.15 in 2006, below F_{ref}=0.18.
- Resource productivity is currently poor due to low weight at age and generally low recruit per spawner ratio.
- Assuming a 2007 catch equal to the 1,900 mt total quota, a combined Canada/USA catch of about 2,700 mt in 2008 would result in a neutral risk (50%) that the fishing mortality rate in 2008 will exceed F_{ref} and a neutral risk (50%) that the 2009 adult biomass will be lower than the 2008 adult biomass. A 20% biomass increase is unlikely even with no catch, but a catch of 700 mt results in a neutral risk that biomass would fail to increase by 10%.
- The 2003 year class is projected to contribute over 50% of the fishery catch biomass in 2007 and 2008. With below average 2004 and 2005 year classes, exploitation below F_{ref} would maintain biomass at higher levels in the near future, increasing chances of better recruitment.

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http://www.mar.dfo-mpo.gc.ca/science/TRAC/trac.html

Catches, Biomass (thousands mt); Recruits (millions)

		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Avg[1]	Min[1]	Max[1]
Canada	**Quota**	1.9	1.8	1.6	2.1	1.2	1.3	1.0	0.7	1.3	1.4			
	Landed	1.9	1.8	1.6	2.1	1.3	1.3	1.1	0.6	1.1		6.6	0.6	17.8
	Discard	0.4	0.3	0.1	0.1	0.1	0.2	0.1	0.2	0.4		0.1	0.0	0.5
USA	**Quota[3]**							0.3	0.3	0.4	0.5			
	Landed	0.8	1.2	0.7	1.4	1.4	1.8	1.0	0.1	0.1		4.1	0.1	10.6
	Discard	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.1		0.1	0.0	0.2
Total	**Quota**							1.3	1.0	1.7	1.9			
	Catch	3.1	3.3	2.3	3.7	2.8	3.4	2.3	1.1	1.6		10.8	1.1	26.5
Adult Biomass[4]		12.1	15.5	16.1	19.6	18.5	16.6	18.5	13.4	17.0	20.2	24.9[2]	8.5[2]	43.8[2]
Age 1 Recruits		1.8	4.4	2.6	2.2	3.0	1.0	7.7	1.0	2.1		6.3	1.0	21.1
Fishing mortality[5]		0.33	0.29	0.18	0.31	0.23	0.33	0.19	0.10	0.15		0.46	0.10	1.00
Exploitation Rate		25%	23%	15%	24%	18%	26%	16%	9%	13%		32%	9%	58%

[1]1978 – 2006
[2]1978 – 2007
[3]for fishing year from May 1 – April 30
[4]Jan 1 ages 3+
[5]ages 4-6

Fishery

Combined Canada/USA catches, which averaged 17,500 mt between 1978 and 1992, peaked at 26,460 mt in 1982, declined to 1,804 mt in 1995, fluctuated around 3,000 mt until 2003 and subsequently declined again. Catches in 2006 were 1,615 mt, including 441 mt of discards (Figure 1).

Canadian catches increased to 1,450 mt in 2006 from 861 mt in 2005. Since 1995, with reduction in cod quotas, the fishery has reduced targeting for cod through changes in fishing practices. All 2006 landings were subject to dockside monitoring. As well, at sea observers monitored about 25% (by weight) of 2006 landings. Estimated discards of cod by the Canadian groundfish fishery were 237 mt in 2006. Since 1996 the Canadian scallop fishery has not been permitted to land cod. Estimated discards of cod by the Canadian scallop fishery were 117 mt in 2006.

USA catches declined to 166 mt in 2006 from 277 mt in 2005. Since December 1994, a year-round closure of Area II has been in effect, with the exception of a Special Access Program in 2004. Minimum mesh size limits were increased in 1994, 1999 and in 2002. Limits on sea days, as well as trip limits, have also been implemented. Quotas were introduced in May 2004. Estimated discards of cod in the groundfish fishery for 1989-2004 were generally less than 100 mt annually, increased to 153 mt in 2005, and declined to 87 mt in 2006.

The combined Canada/USA 2006 **fishery age composition** was dominated by the 2003 year class at age 3 (40% by number) but the 2001 year class at age 5 continued to make an important contribution (30% by number). The USA groundfish fishery cod discard catch at age for 1989-2006 and the Canadian groundfish fishery and scallop fishery cod discard catch at age for 1978-2006 were included in the assessment.

Harvest Strategy and Reference Points

The Transboundary Management Guidance Committee has adopted a strategy to maintain a low to neutral risk of exceeding the fishing mortality limit reference, $F_{ref} = 0.18$. When stock conditions are poor, fishing mortality rates should be further reduced to promote rebuilding.

State of Resource

The state of the resource was based on results from an age structured analytical assessment (VPA) that used fishery catch statistics and sampling for size and age composition of the catch for 1978 to 2006 (including discards). The VPA was calibrated to trends in abundance from three bottom trawl survey series; NMFS spring, NMFS fall and DFO. Retrospective analyses were used to detect any patterns to consistently overestimate or underestimate fishing mortality, biomass and recruitment relative to the terminal year estimates. The extent of the pattern for this assessment was similar to that seen in the past and was not of concern.

Adult population biomass (ages 3+) declined substantially from 43,800 mt in 1990 to 8,500 mt in 1995, the lowest observed (Figure 2). The biomass subsequently increased to 19,600 mt in 2001, declined to 13,400 mt in 2005 but increased again to 20,200 mt at the beginning of 2007 (80% Confidence Interval: 16,000 mt – 24,000 mt). Much of the increase in the late 1990's was the result of growth and survival to ages 5+ of the 1992, 1995 and 1996 year classes. The increase in 2006 was due largely to recruitment of the 2003 year class and the increase in 2007 was due to growth of the 2003 year class. Lower weights-at-age in the population in recent years and the generally poor recruitment have contributed to the lack of sustained rebuilding.

Recruitment at age 1 of the 2003 year class, at 7.7 million, is the first above average (6.3 million for 1978-2006) cohort since the 1990 year class (Figure 2). Prior to the 2003 year class, the 1996 and 1998 year classes, at over 4 million, were the strongest since the 1990 year class. The 2002 and 2004 year classes, at about 1 million each, are the lowest on record. The initial estimate of the 2005 year class is below average, at 2.1 million.

Fishing mortality for ages 4-6 increased sharply between 1989 and 1993 from 0.5 to 1.0 (Figure 1). In 1995, fishing mortality declined substantially to F=0.19, due to restrictive management measures. Fishing mortality subsequently fluctuated between 0.18 and 0.50 until 2005 when it declined to 0.10 and was 0.15 (80% Confidence Interval: 0.13 – 0.20) in 2006, below F_{ref}=0.18.

Productivity

Age structure, fish growth, recruits per spawner, and spatial distribution reflect changes in the productive potential. In both absolute numbers and percent composition, the **population age structure** displays a higher abundance at older age groups compared to

the mid 1990s. However, the abundance for older ages may not be well determined. Average weight at length, used to reflect **condition**, has been stable, but declines in **weight at age** have hampered biomass rebuilding. The **recruit per adult biomass ratio** has been generally lower than that seen prior to 1990, with the exception of occasional year classes like the 2003 year class. **Spatial distribution** patterns observed during the most recent bottom trawl surveys were more widespread than average patterns over the previous decade. Resource productivity is currently poor due to low weight at age and generally low recruit per spawner ratio.

Outlook

This outlook is provided in terms of consequences with respect to the harvest reference points for alternative catch quotas in 2008. Uncertainty about standing stock generates uncertainty in forecast results which is expressed here as the risk of exceeding F_{ref} =0.18. The risk calculations assist in evaluating the consequences of alternative catch quotas by providing a general measure of the uncertainties. However, they are dependent on the data and model assumptions and do not include uncertainty due to variations in weight at age, partial recruitment to the fishery, natural mortality, systematic errors in data reporting or the possibility that the model may not reflect stock dynamics closely enough.

For **projections**, the 2004-2006 average values were assumed for the fishery weight at age and partial recruitment pattern in 2007-2008 and the 2005-2007 survey average values were assumed for beginning of year population weight at age in 2008-2009. Assuming a 2007 catch equal to the 1,900 mt total quota, a combined Canada/USA catch of about 2,700 mt in 2008 would result in a neutral risk (50%) that the fishing mortality rate in 2008 will exceed F_{ref} and a neutral risk (50%) that the 2009 adult biomass will be lower than the 2008 adult biomass (Figure 4). A 20% biomass increase is unlikely even with no catch, but a catch of 700 mt results in a neutral risk that biomass would fail to increase by 10%. A status quo catch of about 1,900 mt in 2008 would result in a low risk (less than 25%) that the adult biomass would decrease from 2008 to 2009 and a high chance of maintaining the fishing mortality below F_{ref}=0.18.

Special Considerations

The 2003 year class is projected to contribute over 50% of the fishery catch biomass in 2007 and 2008. With below average 2004 and 2005 year classes, exploitation below F_{ref} would maintain biomass at higher levels in the near future, increasing chances of better recruitment (Figure 3).

Cod and haddock are often caught together in groundfish fisheries, although they are not necessarily caught in proportion to their relative abundance because their catchabilities to the fisheries differ. Due to the higher haddock quota, discarding of cod may be high and should be monitored. Modifications to fishing gear and practices, with enhanced monitoring, may mitigate these concerns.

Source Documents

Gavaris S, O'Brien L, Clark K, Hatt B. 2007. Assessment of eastern Georges Bank Atlantic cod for 2007. TRAC Reference Document 2007/(in prep.).

TRAC. 2007. O'Boyle R, O'Brien L, editors. Proceedings of the Transboundary Resource Assessment Committee (TRAC); 12–15 June 2007. TRAC Proceedings 2007/(in prep.).

Correct Citation

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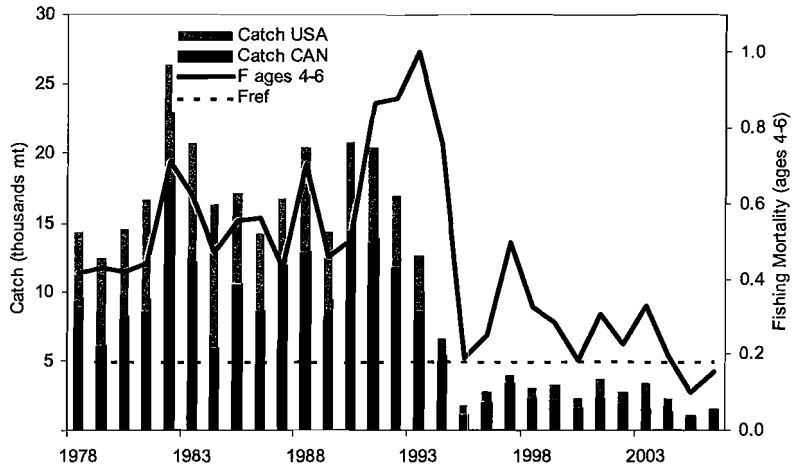

Figure 1. Catches and fishing mortality.

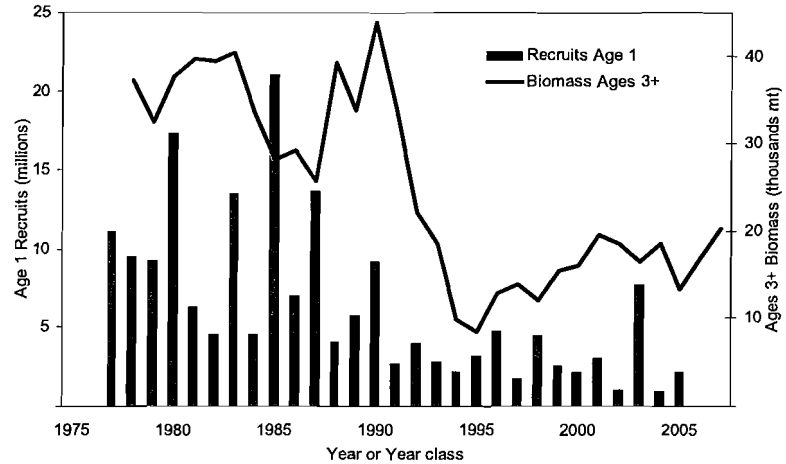

Figure 2. Biomass and recruitment.

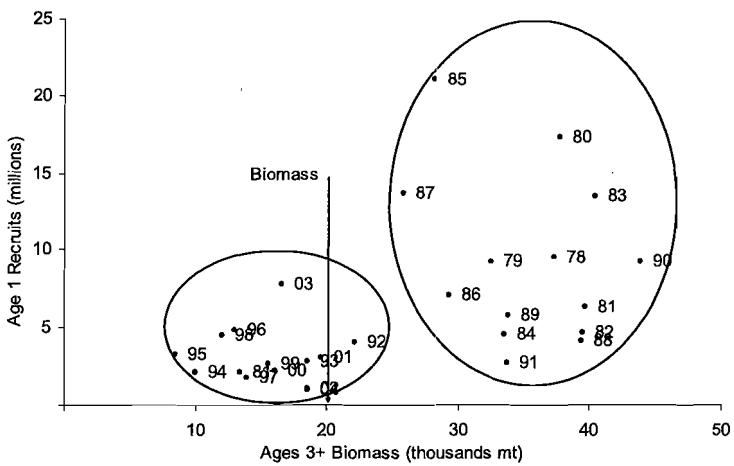

Figure 3. Stock recruitment patterns.

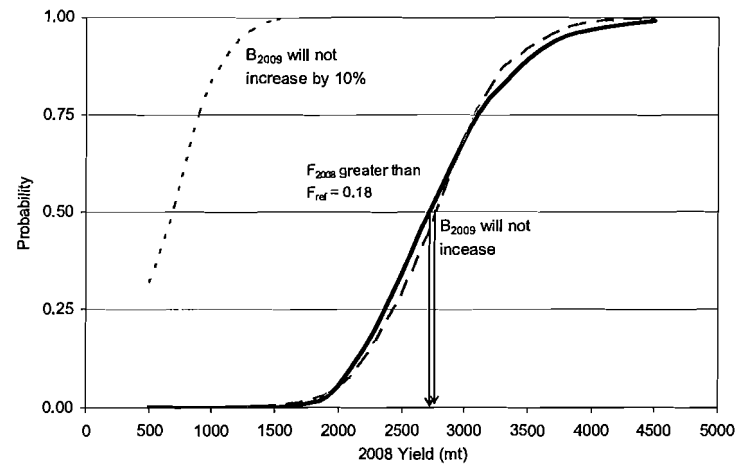

Figure 4. Projection risks.

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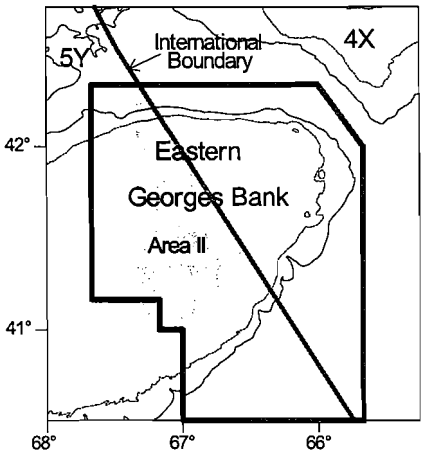
Transboundary Resource Assessment Committee

Status Report 2007/02

EASTERN GEORGES BANK HADDOCK

[5Zjm; 551,552,561,562]



Summary

- Combined Canada and USA catches in 2006 were 12,642 mt.
- Adult biomass (ages 3+) increased from 8,500 mt in 1993 to 69,500 mt in 2003. Adult biomass decreased to 46,900 mt in 2005 but subsequently increased to 145,300 mt in 2007, higher than the 1931-1955 maximum biomass of about 90,000 mt.
- The exceptional 2003 year class, estimated at 321.7 million age-1 fish, is the largest observed in the assessment time series (1931-1955 and 1969-2005). The 2001, 2002 and 2004 year classes, at less than 8 million, are below the recent 10 year average of 18 million fish while the 2005 year class, at 30.5 million, is above the average. Initial estimates of the 2006 year class suggest that it is about the size of the 2004 year class.
- Fishing mortality (ages 4+) was below $F_{ref} = 0.26$ during 1995 to 2004. The failure of the 2003 year class to recruit as expected to the 2005 and 2006 fishery resulted in fishing mortality in 2005 and 2006 exceeding F_{ref} (F_{2006}=0.36).
- With expanded age structure, broad spatial distribution and generally higher recruit per spawner ratio, resource productivity is high, negatively impacted only by recent reductions in fish weight at age.
- Assuming a 2007 catch equal to the 19,000 mt total quota, a combined Canada/USA catch of 26,700 mt in 2008 would result in a neutral risk (50%) that the fishing mortality rate in 2008 will exceed $F_{ref} = 0.26$. A catch of 23,000 mt would result in a low risk (25%) that the fishing mortality rate in 2008 will exceed F_{ref}. However, there is high uncertainty in the partial recruitment estimated for the 2003 year class.

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http://www.mar.dfo-mpo.gc.ca/science/TRAC/trac.html

Canada

June 2007

Catches, Biomass (thousands mt); Recruits (millions)

		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Avg[1]	Min[1]	Max[1]
Canada	**Quota**	3.9	3.9	5.4	7.0	6.7	6.9	9.9	15.4	14.5	12.7			
	Landed	3.4	3.7	5.4	6.8	6.5	6.8	9.7	14.5	12.0		4.5	0.5	14.5
	Discard	0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1		0.1	<0.1	0.2
USA	**Quota[6]**							5.1	7.6	7.5	6.3			
	Landed	0.3	0.4	0.2	0.6	0.9	1.6	1.8	0.5	0.4		2.1	<0.1	9.1
	Discard[2]	<0.1	0	0	<0.1	<0.1	0.1	0.2	0.1	0.1		0.9	<0.1	7.6
Total	**Quota**							15.0	23.0	22.0	19.0			
	Catch	3.8	4.1	5.6	7.5	7.5	8.5	11.8	15.1	12.6		7.2	2.2	23.3
Adult Biomass[4]		23.7	28.9	33.5	44.8	38.0	69.5	64.2	46.9	114.9	145.3	43.0[3]	6.8[3]	145.3[3]
Age 1 Recruits		7.2	24.8	9.0	69.3	3.5	2.0	321.7	7.8	30.5	8.7	27.7[7]	0.5[7]	321.7[7]
Fishing mortality[5]		0.15	0.14	0.17	0.19	0.20	0.20	0.18	0.32	0.36		0.30	0.08	0.59
Exploitation Rate[5]		13%	12%	14%	16%	16%	16%	15%	25%	27%		23%	7%	41%

[1] 1969 - 2006
[2] discards not estimated in 1999-2000 but assumed negligible
[3] 1931 - 1955, 1969 – 2007
[4] Jan 1 ages 3+
[5] ages 4+
[6] for fishing year from May 1 – April 30
[7] 1931 - 1955, 1969 – 2006

Fishery

Under restrictive management measures, **combined Canada/USA catches** declined from 6,522 mt in 1991 to a low of 2,181 mt in 1995, fluctuated between about 3,000 mt and 4,000 mt until 1999 and since increased to 15,112 mt in 2005 (Figure 1). The combined catch in 2006 was 12,642 mt. Greater catches were recorded in the late 1970s and early 1980s, ranging up to about 23,000 mt, but catches subsequently declined and fluctuated around 5,000 mt during the mid to late 1980s.

The **Canadian catch** in 2006 decreased to 12,051 mt from 14,536 mt in 2005. Weight of all Canadian landings was monitored at dockside. At-sea observers monitored 31% of the total haddock landed in 2006, by weight. Discarding and misreporting by the groundfish fishery have been negligible since 1992. Discards of haddock by the Canadian scallop fishery ranged between 29 and 186 mt since 1969 and were 67 mt in 2006.

USA catches in 2006 increased slightly to 591 mt from 569 mt in 2005. Landings were 445 mt and discards were estimated to be 146 mt.

For the **combined Canada/USA fishery catch in 2006**, the 2000 year class (age 6) and the 2003 year class (age 3) dominated by numbers and weight. The 2003 year class, again, did not contribute as much as expected due to its slower than anticipated growth rate.

Harvest Strategy and Reference Points

The Transboundary Management Guidance Committee has adopted a strategy to maintain a low to neutral risk of exceeding the fishing mortality limit reference, $F_{ref} = 0.26$. When

stock conditions are poor, fishing mortality rates should be further reduced to promote rebuilding.

State of Resource

The state of the resource was based on results from an age structured analytical assessment (VPA) that used fishery catch statistics and sampling for size and age composition of the catch for 1969 to 2006 (including discards). The VPA was calibrated to trends in abundance from three bottom trawl survey series; NMFS spring, NMFS fall and DFO. Data to approximate the age composition of the catch during 1931 to 1955 were used to reconstruct a population analysis of eastern Georges Bank haddock that was suitable for comparison of productivity. Retrospective analyses were used to detect any patterns to consistently overestimate or underestimate fishing mortality, biomass and recruitment relative to the terminal year estimates. This stock assessment does not display a retrospective pattern.

Improved **recruitment** in the 1990s and the strong 2000 year class, lower exploitation, and reduced capture of small fish in the fisheries allowed the **population biomass** (ages 3+) to increase from near an historical low of 8,500 mt in 1993 to 69,500 mt in 2003 (Figure 2). Adult biomass decreased to 46,900 mt in 2005 but subsequently increased to 145,300 mt (80% Confidence Interval: 113,000 mt – 200,000 mt) in 2007, higher than the 1931-1955 maximum biomass of about 90,000 mt. The marked increases in 2006 and 2007 are due to the exceptional 2003 year class, estimated at 321.7 million age-1 fish, the largest in the assessment time series (1931-1955 and 1969-2006). In contrast, the 2001, 2002 and 2004 year classes, at less than 8 million, are below the 18 million average of the 10 most recent year classes (excluding the 2003 year class). The 2005 year class (30.5 million age-1 fish) is well above the 10 year average. Initial estimates of the 2006 year class suggest that it is about the size of the 2004 year class.

Fishing mortality for ages 4+ fluctuated between 0.2 and 0.4 during the 1980s and showed a marked increase between 1989 and 1993 to about 0.6, the highest observed. During 1995-2004, fishing mortality was below the reference, $F_{ref} = 0.26$, but exceeded F_{ref} in 2005 and 2006 ($F_{2006} = 0.36$; 80% Confidence Interval: 0.28 – 0.49) (Figure 1).

Productivity

Recruits per spawner, age structure, spatial distribution and fish growth reflect changes in the productive potential. The recruits per adult biomass ratio was generally low during the 1980s but higher during the 1990s, comparable to that of the 1931 to 1955 period, suggesting that higher recruitment might occur, as the biomass is above 40,000 mt (Figure 3). However, in the early 2000's, excepting 2003 and 2005, recruits per spawner were again low. In both absolute numbers and percent composition, the **population age structure** displays a broad representation of age groups, reflecting improving recruitment and lower exploitation, particularly at younger ages, since 1995. The **spatial distribution** patterns observed during the most recent bottom trawl surveys were similar to the average patterns over the previous ten years. Consistent with the pattern observed for

previous large year classes, the exceptional 2003 year class, the main component of the 3+ age group, was widely distributed throughout the survey area. Both **length and weight at age** have declined since about 2000. While size at age increased in 2007 for most ages, weights remained about 40% to 50% below the average during 1986 to 2000. The size at age for the 2003 year class is smaller than previous year classes. DFO survey average weights at length, used to reflect fish **condition,** exhibit a declining trend but improved during 2006. With expanded age structure, broad spatial distribution and generally higher recruit per spawner ratio, resource productivity is high, negatively impacted only by recent reductions in fish size at age.

Outlook

This outlook is provided in terms of consequences with respect to the harvest reference points for alternative catch quotas in 2008. Uncertainty about standing stock generates uncertainty in forecast results which is expressed here as the risk of exceeding F_{ref}=0.26. The risk calculations assist in evaluating the consequences of alternative catch quotas by providing a general measure of the uncertainties. However, they are dependent on the data and model assumptions and do not include uncertainty due to variations in weight at age, partial recruitment to the fishery, natural mortality, systematic errors in data reporting or the possibility that the model may not reflect stock dynamics closely enough. To characterize the dependence of the projection results on the fishery partial recruitment for the 2003 year class, a sensitivity analysis was done to augment the risk analysis.

For projections, the weights at age and fishery partial recruitment at age for the 2003 year class were derived by accounting for recent trends in reduced growth rate. Assuming a 2007 catch equal to the 19,000 mt total quota, a combined Canada/USA catch of 26,700 mt in 2008 results in a neutral risk (50%) that the 2008 fishing mortality rate will exceed $F_{ref} = 0.26$ (Figure 4) and adult biomass is projected to be 145,000 mt at the beginning of 2009. A catch of 23,000 mt in 2008 results in a low risk (25%) that the 2008 fishing mortality rate will exceed F_{ref}.

Special Considerations

The outstanding 2003 year class was expected to contribute 66% of the 2006 catch numbers but accounted for only 28%. The contribution was less than predicted due to lower than anticipated recruitment to the fishery. The failure of this year class to contribute as expected to the fishery resulted in more of the 2000 and older year classes being caught in 2006 than had been projected from the 2005 assessment. This generated a fishing mortality above F_{ref} on the older ages in 2006. Slow growth of the 2003 cohort will continue to impact the fishery. If the TAC in 2007 is caught, fishing mortality will, again, be higher than F_{ref} on the fully recruited ages (F_{5+}=0.33) because the 2007 age 4 fishery partial recruitment is now estimated at 0.2 compared to 0.3 from the 2006 assessment.

While best judgement was used to determine the fishery partial recruitments for the reduced weight of the 2003 year class, the risk analysis does not capture the extent of

uncertainty of the consequences for various catch levels. Using the observed range of partial recruitment at weight during 1995 to 2006, the 2008 projected catch could vary from 17,000 mt to 31,000 mt. If the realized partial recruitment is near the higher end of the observed partial recruitment range, the fishery could forego available yield, if it is lower, the 4+ fishing mortality could be higher than F_{ref}.

Cod and haddock are often caught together in groundfish fisheries, although their catchabilities to the fisheries differ and they are not necessarily caught in proportion to their relative abundance. With current fishing practices and catch ratios, the achievement of rebuilding objectives for cod may constrain the harvesting of haddock. Modifications to fishing gear and practices, with enhanced monitoring, may mitigate these concerns.

Source Documents

TRAC. 2007. O'Boyle R, O'Brien L, editors. Proceedings of the Transboundary Resource Assessment Committee (TRAC); 12–15 June 2007. TRAC Proceedings 2007/(in prep.).

Van Eeckhaute L, Traver M, Mayo R. 2007. Assessment of haddock on eastern Georges Bank for 2007. TRAC Reference Document 2007/(in prep.).

Correct Citation

TRAC. 2007. Eastern Georges Bank Haddock. TRAC Status Report 2007/02.

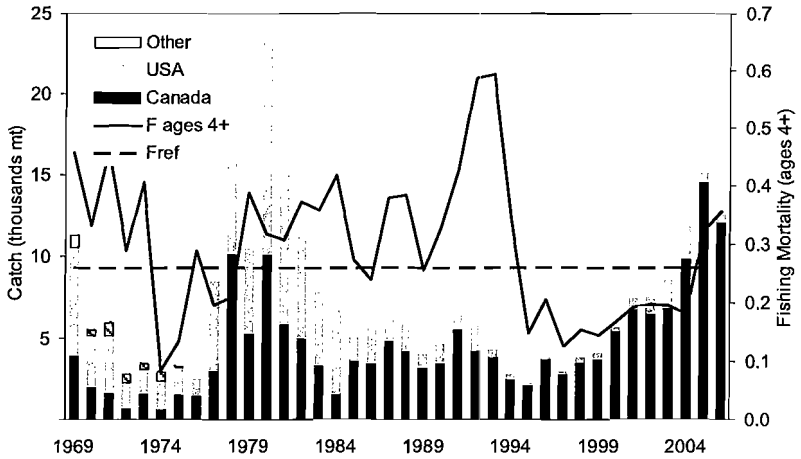

Figure 1. Catches and fishing mortality.

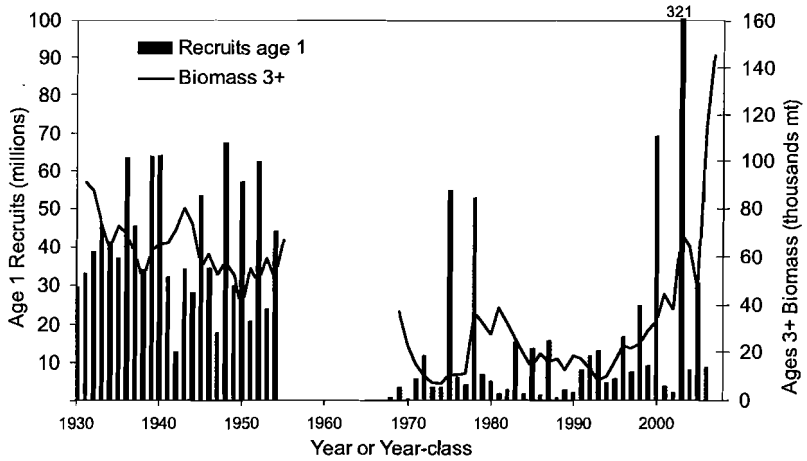

Figure 2. Biomass and recruitment.

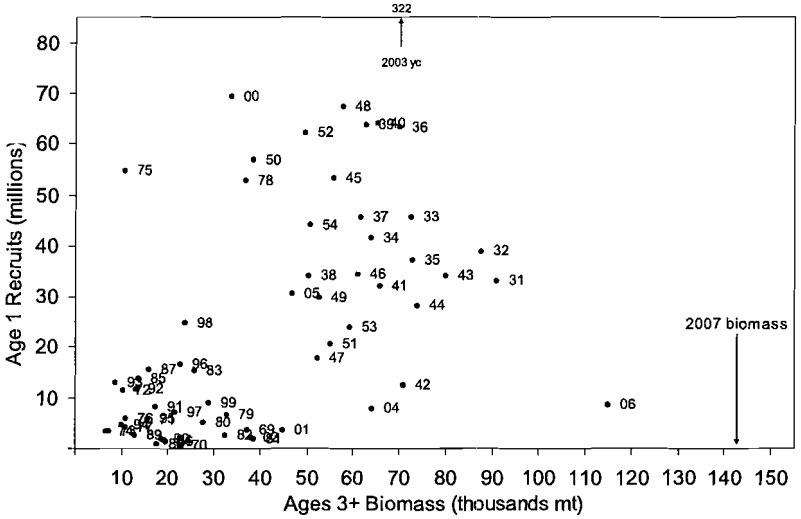

Figure 3. Stock recruitment patterns.

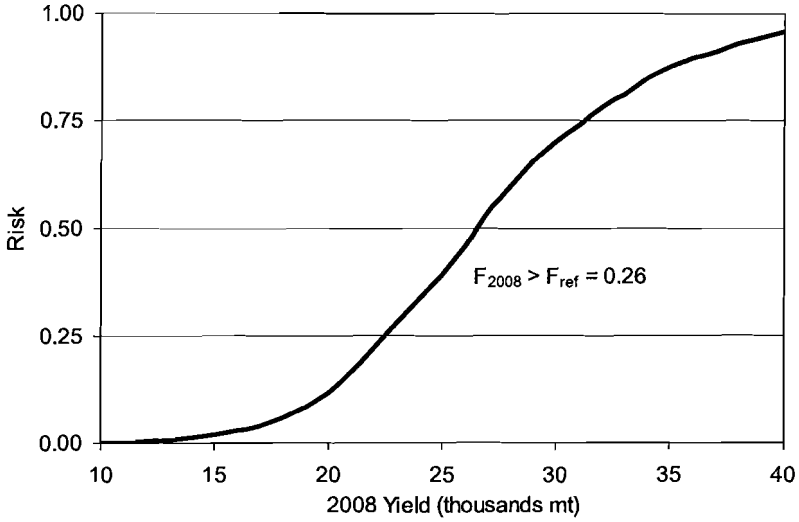

Figure 4. Projection risks.

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Transboundary Resource Assessment Committee

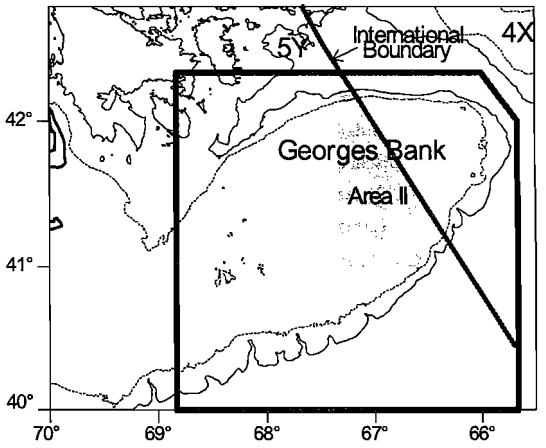
Status Report 2007/03

GEORGES BANK

YELLOWTAIL

FLOUNDER

[5Zhjmn;
522,525,551,552,561,562]



Summary

- Combined Canada and USA catches in 2006 were 2,206 mt.
- Adult biomass (ages 3+) increased from a low of 2,200 mt in 1995 to 11,400 mt in 2003 and then declined to 4,400 mt in 2005 and increased to 6,200 mt at the beginning of 2007. Spawning stock biomass in 2006 was estimated to be 5,000 mt.
- Recruitment improved from the mid-1990s averaging 23.6 million fish at age 1 during 1998-2001, but has since declined, with the exception of the 2006 value of 62.9 million, which is near the highest value in the time series.
- Fishing mortality for fully recruited ages 4+ was close to or above 1.0 between 1973 and 1994, fluctuated between 0.58 and 0.95 during 1996-2003, increased in 2004 to 1.88, and then declined to 0.89 in 2006.
- Truncated age structure in the surveys and changes in distribution indicate current resource productivity may be limited relative to historical levels.
- Assuming a 2007 catch equal to the 1,250 mt quota, a combined Canada/USA catch of about 3,500 mt in 2008 would result in a neutral risk (~50%) that the fishing mortality rate in 2008 will exceed F_{ref} (F=0.25). Fishing at F_{ref} in 2008 will generate a 16% increase in median age 3+ biomass from 21,400 mt in 2008 to 24,900 mt in 2009. These projections are highly dependent on the magnitude of the 2005 year-class.

Ce document est disponible sur l'Internet à : This document is available on the Internet at :
http://www.mar.dfo-mpo.gc.ca/science/TRAC/trac.html

Canada

June 2007

Catches, Biomass (thousands mt); Recruits (millions)

		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Avg[1]	Min[1]	Max[1]
Canada	Quota	1.2	2.0	3.0	3.4	2.9	2.3	1.9	1.7	0.9	0.4			
	Landed	1.2	2.0	2.9	2.9	2.6	2.1	0.1	<0.1	<0.1		0.6	<0.1	2.9
	Discard	0.7	0.6	0.4	0.8	0.5	0.8	0.4	0.3	0.6		0.5	0.3	0.8
USA	Quota[5]							6.0	4.3	2.1	0.9			
	Landed	1.8	2.0	3.7	3.8	2.5	3.3	6.2	3.3	1.2		4.9	0.4	15.9
	Discard	0.1	0.5	0.4	0.3	0.2	0.4	0.5	0.5	0.4		0.6	<0.1	3.0
Total	Quota							7.9	6.0	3.0	1.3			
	Catch	3.8	5.0	7.4	7.9	5.9	6.6	7.3	4.1	2.2		6.7	1.2	17.2
Adult Biomass[3]		6.4	7.9	10.3	10.7	9.2	11.4	9.2	4.6	4.4	6.2	7.4[2]	2.0[2]	26.4[2]
SSB		7.0	9.5	10.5	9.5	10.5	10.5	6.0	4.4	5.0		7.6	2.6	21.9
Age 1 Recruits		23.9	25.5	21.0	23.8	16.2	12.2	12.5	14.9	62.9		23.6	6.6	70.6
Fishing mortality[4]		0.78	0.70	0.89	0.95	0.62	0.58	1.88	1.22	0.89		1.05	0.58	1.88
Exploitation Rate[4]		50%	46%	54%	56%	42%	40%	79%	65%	54%		58%	40%	79%

[1]1973 – 2006
[2]1973 - 2007
[3]Jan-1 ages 3+
[4]ages 4+
[5]for fishing year May 1 – April 30

Fishery

Combined Canada/USA catches of Georges Bank yellowtail flounder peaked at about 20,000 mt during the mid 1960s and early 1970s. The USA fishery accounted for most of the catches during the late 1960s and early 1970s. The combined Canada/USA catch increased from 1995 through 2001, averaged 6,600 mt during 2002-2004, but declined from 2005 (4,088 mt) to 2006 (2,206 mt; Figure 1).

The 2006 **Canadian catch** of 590 mt was well below the Canadian quota of 930 mt, with landings of only 25 mt and estimated discards of 565 mt. Canadian fishermen were unable to find commercial densities of yellowtail in 2006, similar to the situation in 2004 and 2005. Discards were due to the sea scallop dredge fishery.

USA catches in 2006 were 1,616 mt, a 58% decline from 2005, with landings of 1,239 mt and discards of 377 mt. The USA landings in 2006 were predominantly from the trawl fishery while discards came from both the trawl and scallop dredge fisheries.

Ages 2-4 accounted for most of the **combined Canada/USA fishery** catch in 2006 by number, with few age 1 fish caught due to mesh regulations. Both the Canadian and particularly the USA fisheries were well sampled to determine length composition of the catch.

Harvest Strategy and Reference Points

The Transboundary Management Guidance Committee has adopted a strategy to maintain a low to neutral risk of exceeding the fishing mortality limit reference, $F_{ref} = 0.25$. When stock conditions are poor, fishing mortality rates should be further reduced to promote rebuilding.

State of Resource

The state of the resource was based on survey observations and the range of results from plausible age structured analytical assessments (VPA) that used fishery catch statistics and sampling for size and age composition of the catch for 1973 to 2006. The VPAs were calibrated to trends in abundance from three bottom trawl survey series (NMFS spring, NMFS fall and DFO) and a recruitment index from the NMFS scallop survey. Two VPA formulations were examined based on recommendations from the 2005 benchmark assessment review: 1) Base Case, the same formulation as used in the 2004 assessment, and 2) Major Change. Based on previous years' experience, the Minor Change VPA was not considered. Splitting the survey time series in 1995 is the only difference between the Base Case and the Major Change VPAs. The Major Change VPA shows unexpected large increases in survey catchability since the mid 1990s that are not understood.

The Base Case VPA and Major Change VPA were compared using retrospective patterns and agreement with survey biomass trends. Retrospective analyses were used to detect any patterns to consistently overestimate or underestimate fishing mortality, biomass, and recruitment relative to the terminal year estimates. The Base Case VPA continues to display a retrospective pattern, updating population biomass estimates to lower values than previously determined and compromising interpretation of results. The Major Change VPA did not exhibit a retrospective pattern; updates were both above and below previously estimated values (range 47% decrease to 59% increase). Trends in age 3+ biomass from the Base Case VPA do not follow the pattern of reduced abundance in the most recent years relative to the late 1990s and early 2000s as indicated by all three surveys (Figures 2-3) and this model is not recommended as the basis for management advice. The Major Change VPA better reflects the recent trend observed in all three surveys (Figures 2-3) and is recommended as the basis for management advice.

Population biomass (ages 3+), based on the Major Change VPA results, increased from a low of 2,200 mt in 1995 to 11,400 mt in 2003 and then declined to 4,400 mt in 2005 and increased to 6,200 mt at the beginning of 2007 (80% Confidence Interval: 5,000-8,000 mt) (Figure 3). Spawning stock biomass in 2006 was estimated to be 5,000 mt (80% Confidence Interval: 4,300-6,200 mt).

Recruitment improved from the mid-1990s averaging 23.6 million fish at age 1 during 1998-2001 but has since declined, with the exception of the 2005 year-class estimated at 62.9 million, which is near the highest value in the time series. Previous assessments indicated the presence of some large recruitment in the late 1990s and early 2000s, but the size of these cohorts is now estimated to be much lower. The 2005 year-class was observed at high levels in 2006 at age 1 in the NMFS Fall, NMFS Spring, and NMFS Scallop surveys, and observed at high levels in 2007 at age 2 in the DFO and NMFS Spring surveys. This coherence among surveys gives confidence that this year-class is well above average. However, the magnitude of this year-class will be better estimated as more observations become available.

Fishing mortality for fully recruited ages 4+ was close to or above 1.0 between 1973 and 1994, fluctuated between 0.58 and 0.95 during 1996-2003, increased in 2004 to 1.88, and then declined to 0.89 in 2006 (80% Confidence Interval: 0.67-1.13) (Figure 1). Fishing

mortality was well above the reference point of F_{ref} = 0.25 for the entire time series, in contrast to the perception of being below F_{ref} since 1995 as estimated in pre-2005 assessments.

Productivity

Age structure, spatial distribution, and fish growth reflect changes in the productive potential. In both absolute numbers and percent composition, the **population age structure** estimated by the VPA displays a truncated pattern with few old fish. As abundance continues to decline, **spatial distribution patterns** in the 2006 and 2007 surveys show yellowtail were caught in fewer strata relative to previous years. Truncated age structure in the surveys and changes in distribution indicate current resource productivity may be limited relative to historical levels.

Outlook

This outlook is provided in terms of consequences with respect to the harvest reference points for alternative catch quotas in 2008. Uncertainty about standing stock generates uncertainty in forecast results which is expressed here as the risk of exceeding F_{ref} = 0.25. It is considered that in this assessment these uncertainties, particularly those associated with the changes in survey catchabilities, are more problematic than in other assessments. As such, the standard risk plots do not capture the extent of uncertainty of the consequences for various catch levels. A sensitivity analysis illustrates the dependence of the projected 2008 catch on the magnitude of the 2005 year-class.

Due to fishery partial recruitment patterns over time and increasing trends in both survey and fishery weights at age, averages for 2004-2006 were used in the projections. Assuming that the TAC of 1,250 mt is caught in 2007, a combined Canada/USA catch of about 3,500 mt in 2008 would result in a neutral risk (~50%) that the fishing mortality rate in 2008 will exceed F_{ref}. Fishing at F_{ref} in 2008 will generate a 16% increase in median age 3+ biomass from 21,400 mt in 2008 to 24,900 mt in 2009.

The 2005 year-class accounts for 59% of the 2008 catch, 73% of the 2008 age 3+ biomass, and 60% of the 2009 age 3+ biomass. To demonstrate the sensitivity of these projections to the strength of the 2005 year-class, the projections were repeated with the 2007 age 2 value (the 2005 year-class) replaced by the average during 1997-2006 (14.8 million fish at age 2). Catching the 2007 TAC of 1,250 mt and fishing at F_{ref} in 2008 generates a combined Canada/USA catch of 2,000 mt (44% lower than the default projections). The age 3+ biomasses in 2008 and 2009 are 10,000 mt (53% lower than the default) and 13,900 mt (44% lower than the default), respectively. The 2005 year-class now only accounts for 30% of the 2008 catch, 44% of the 2008 age 3+ biomass and 31% of the 2009 age 3+ biomass. This sensitivity analysis is an extreme example because the average age 2 population abundance during 1997-2006 of 14.8 million fish, is well below the lower 80% confidence interval estimated from bootstrapping (34.6 million) and the point estimate (52.5 million) for the 2005 year class at age 2 in 2007. However, in the past, some year-classes that were estimated as strong were later found to be average when the cohort was observed for more years. If a 2008 TAC of 3,500 mt is caught, and the

2005 year-class is only average, the resulting fishing mortality rate would be about twice F_{ref}.

Special Considerations

Although the Major Change VPA is recommended for management decisions, the mechanism for the large changes in survey catchability are not easily explained. These changes in survey catchability are most appropriately thought of as an aliasing of an unknown mechanism that produces a better fitting model. The inability to plausibly explain these survey catchability changes causes increased uncertainty in this assessment relative to other assessments. However, the Major Change VPA results more closely reflect the recent trend in abundance observed in all three surveys and is the preferred model from which to make management decisions.

The realized fishing mortality rates have been higher than the target F used to set the quotas. In 2005, a catch of 2,100 mt in 2006 was projected to produce a fishing mortality of 0.25. However, the observed catch of 2,200 mt resulted in an F of 0.89. In contrast, when set in 2006, the 2007 TAC of 1,250 mt was expected to result in an F of 0.25. The F in 2007 is now projected to be 0.20 due to the well above average 2005 year-class. This highlights the difficulties of assessing this resource because of a strong retrospective pattern of unknown source, truncated age structure, and reliance on incoming year-classes. The current model, while an improvement over the Base Case model, should be used with these uncertainties in mind.

Source Documents

Legault CM, Stone HH, Waters C. 2007. Stock assessment of Georges Bank yellowtail flounder for 2007. TRAC Reference Document 2007/(in prep.).

TRAC. 2005. Gavaris S, O'Boyle R, Overholtz W, editors. Proceedings of the Transboundary Resources Assessment Committee (TRAC): Benchmark review of stock assessment models for the Georges Bank yellowtail flounder stock; 25 – 26 January 2005 and 26 – 29 April 2005. TRAC Proceedings 2005/01: 65p.

TRAC. 2007. O'Boyle R, O'Brien L, editors. Proceedings of the Transboundary Resource Assessment Committee (TRAC); 12–15 June 2007. TRAC Proceedings 2007/(in prep.).

Correct Citation

TRAC. 2007. Georges Bank Yellowtail Flounder. TRAC Status Report 2007/03.

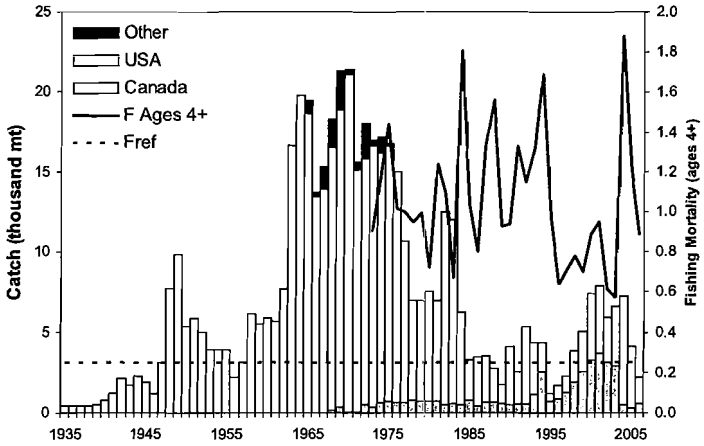


Figure 1. Catches and fishing mortality.

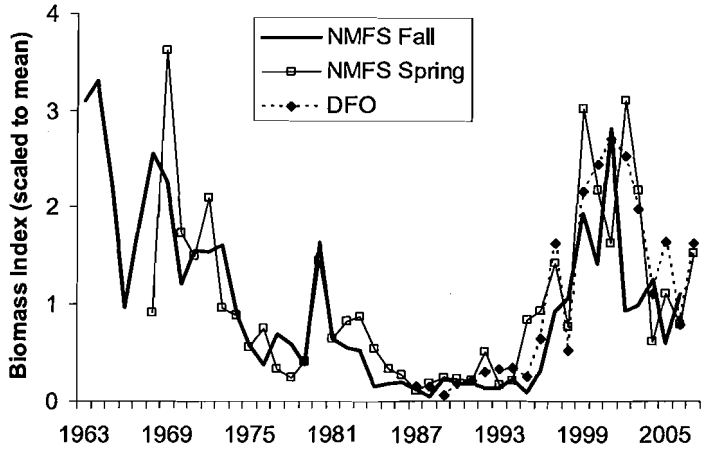


Figure 2. Survey weight (kg/tow) scaled to mean of 1987-2005.

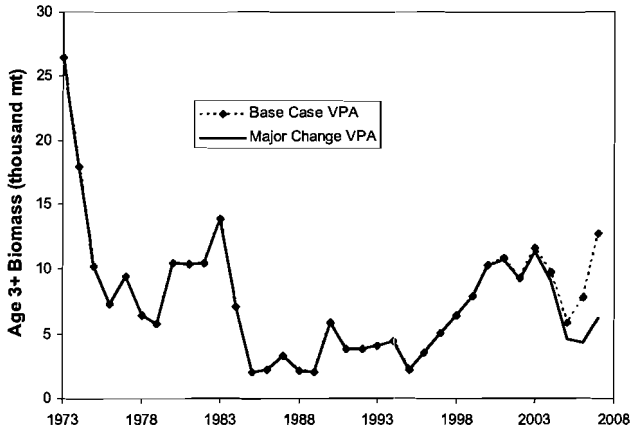


Figure 3. Ages 3+ biomasses.

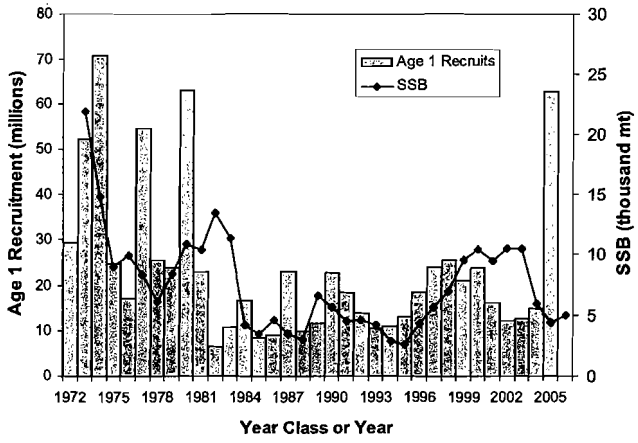


Figure 4. Recruitment and spawning stock biomass.

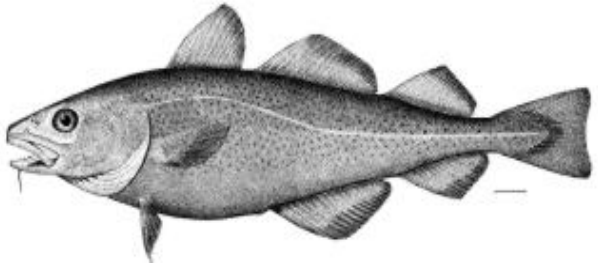
TRAC Status Reports

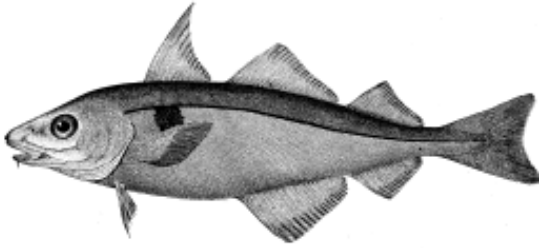
Eastern Georges Bank Cod and Haddock and Georges Bank Yellowtail

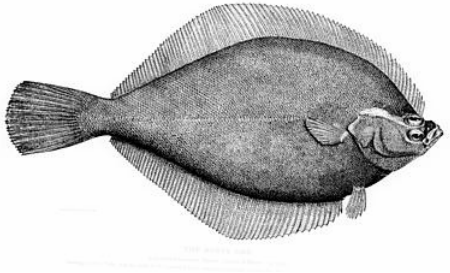
http://www.mar.dfo-mpo.gc.ca/science/trac/tsr.html

NEFMC
September 18, 2007
Plymouth, Ma

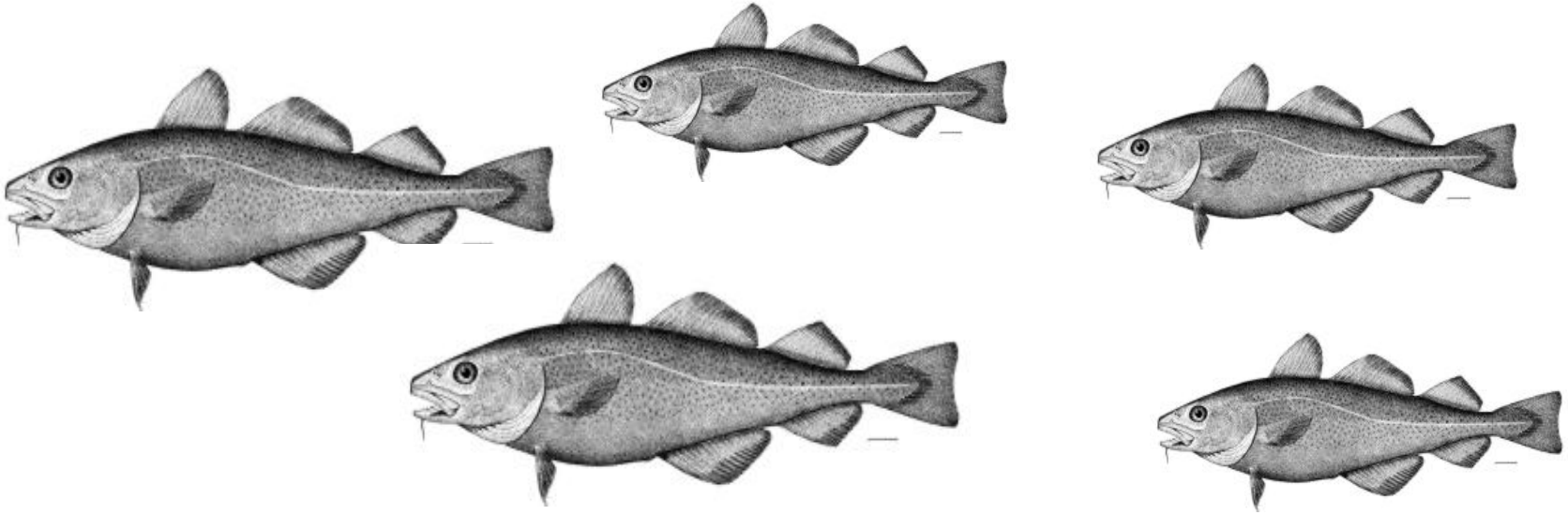
Loretta O'Brien



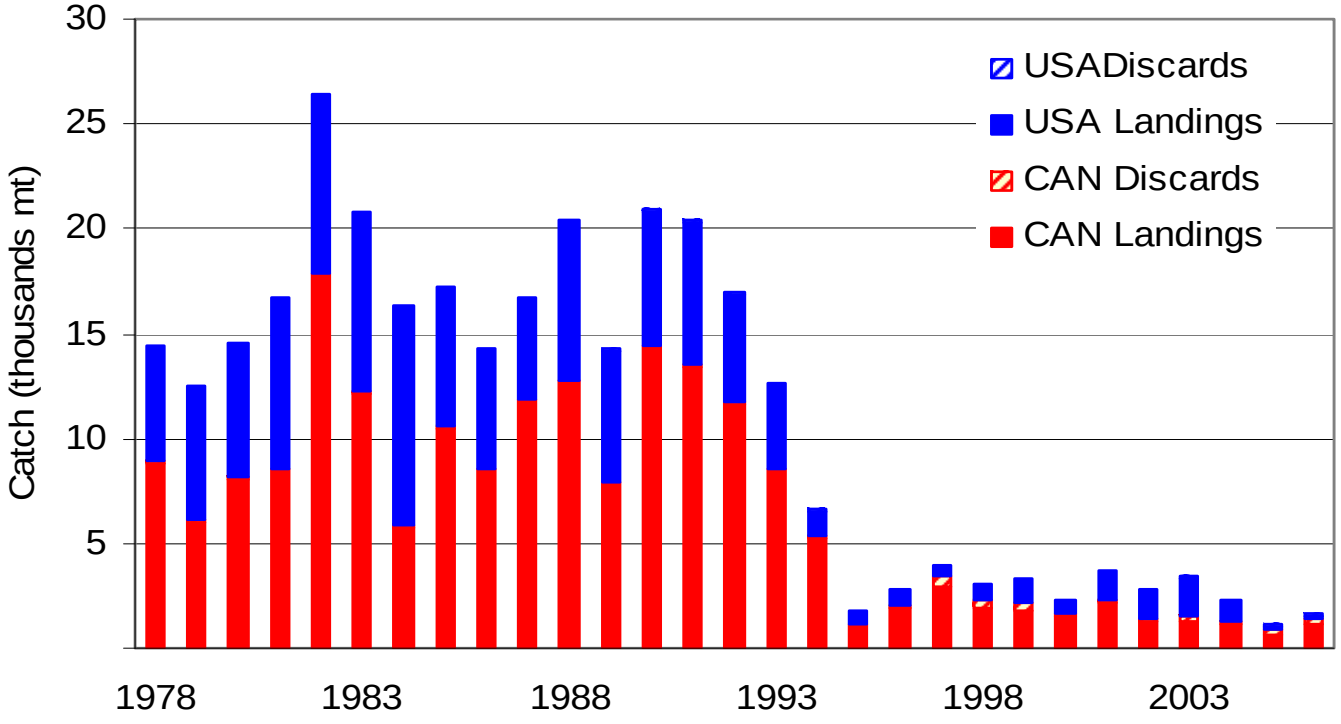




Eastern Georges Bank Cod

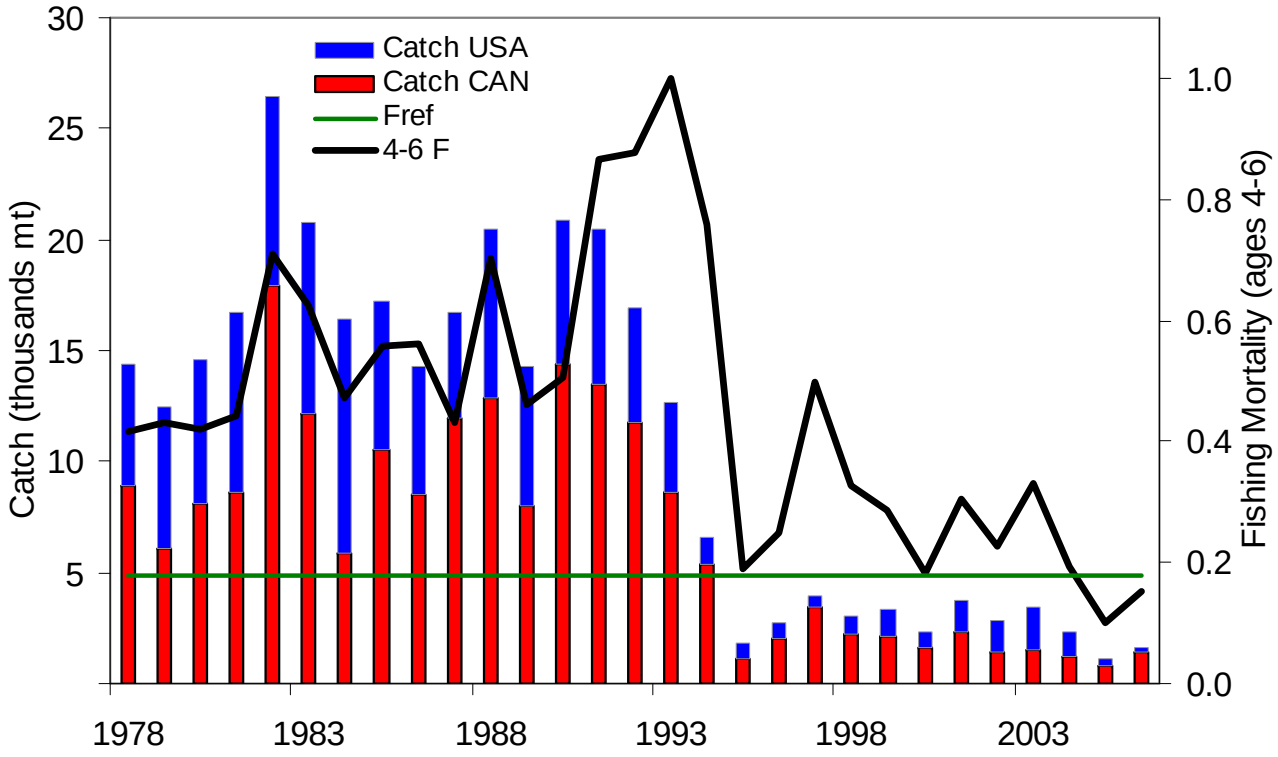


Eastern GB Cod - Catches



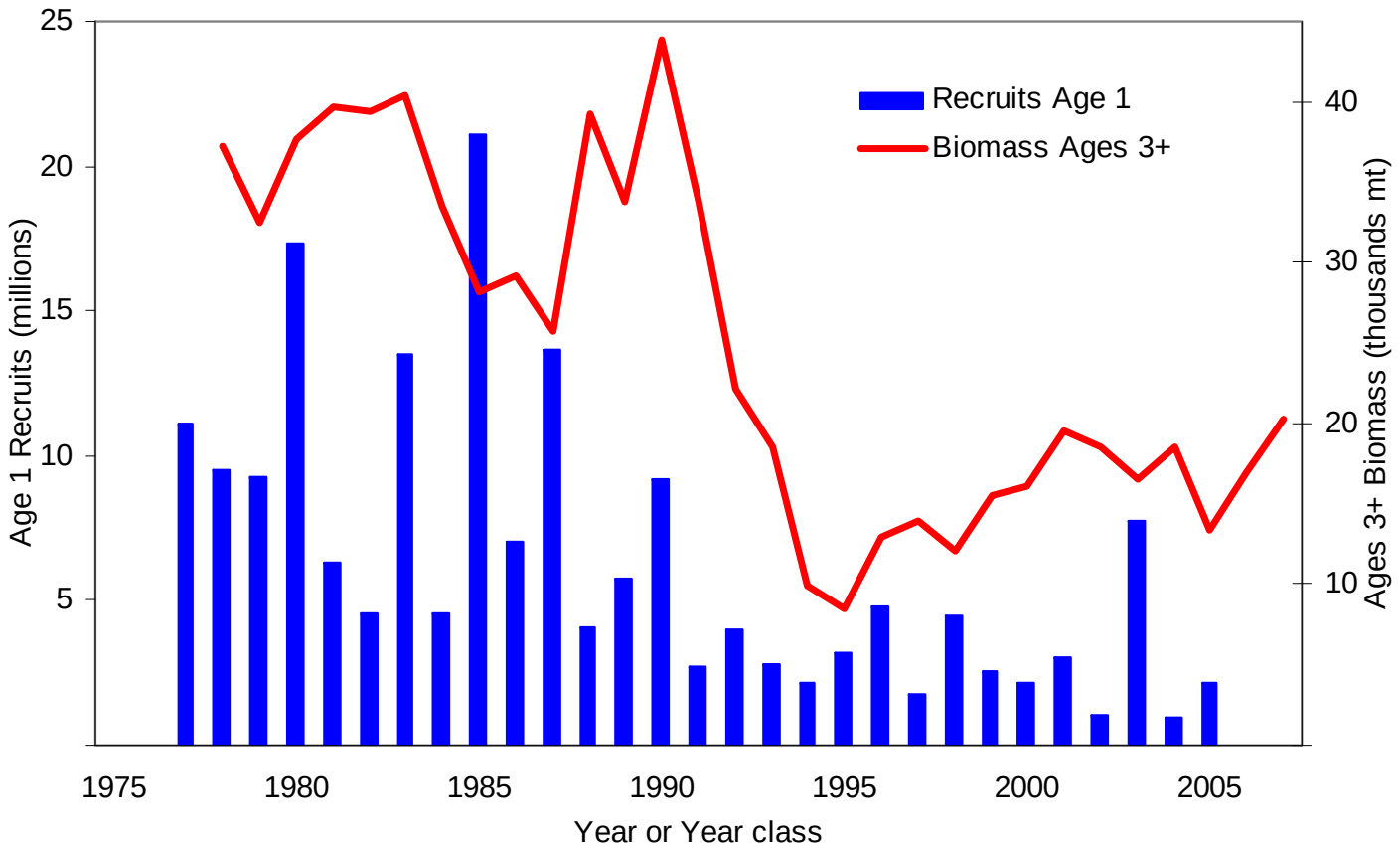
- Combined Canada/USA catches in 2006 were 1,615 mt, including 441 mt of discards; Quota = 1,700 mt
- CAN 2006 landings **1096** mt; discards **356** mt
- USA 2006 landings **79** mt ; discards **87** mt

Eastern GB cod – Fishing mortality and catch



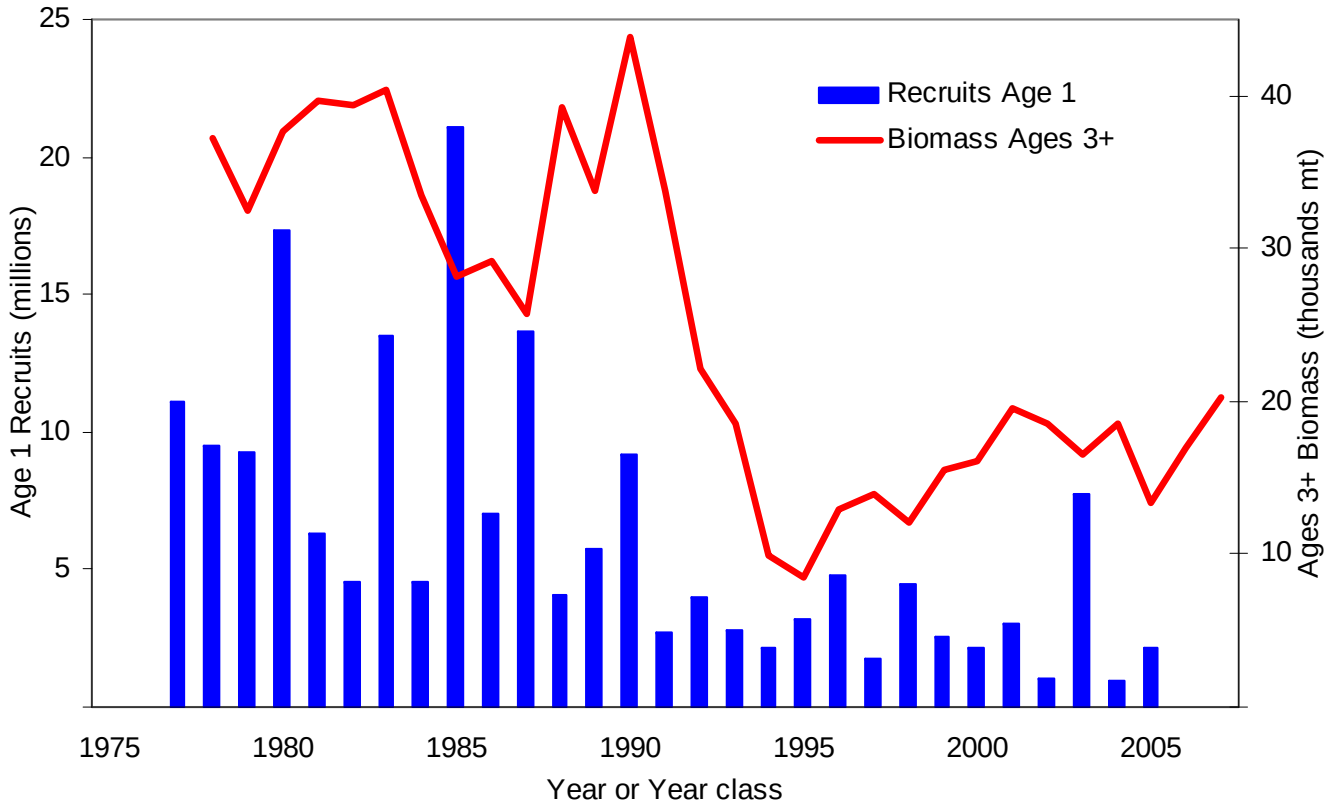
- In 1995, F declined substantially to F=0.19
- F subsequently fluctuated between 0.18 and 0.50 until 2005
- Declined to 0.10 in 2005 ; At 0.15 in 2006, below Fref=0.18.

Eastern GB cod – Biomass & Recruits



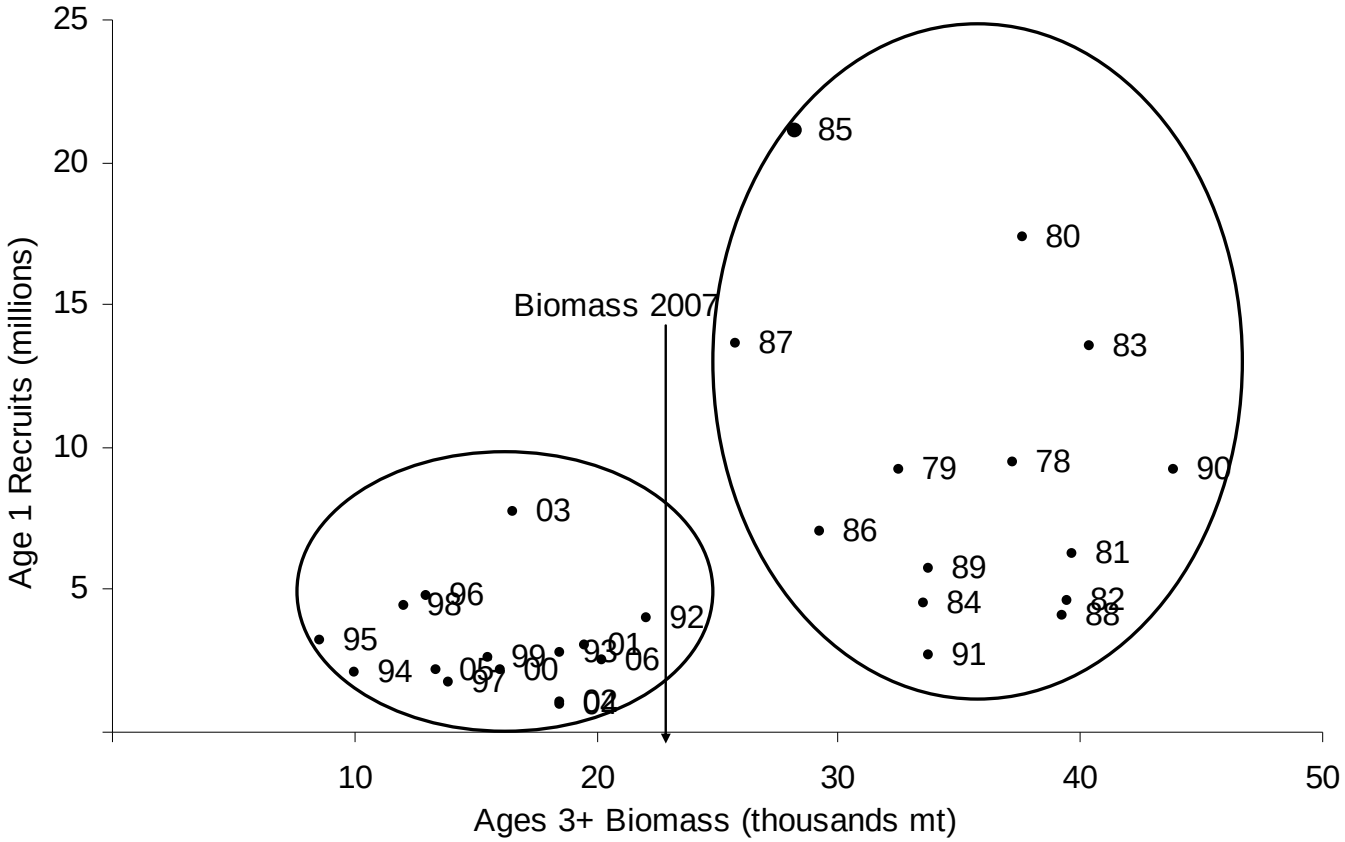
- Biomass declined from 43,800 mt in 1990 to 8,500 mt in 1995
- Increased to 19,600 mt in 2001
- Beginning of 2007~ 20,200 mt

Eastern GB cod – Biomass & Recruits



- Recruitment (age 1) of the 2003 year class, at 7.7 million, is the first above average cohort since the 1990 year class.
- The 2002 and 2004 year classes, at 1 million each, ~ lowest on record.
- Initial estimate of 2005 year class ~ below average, at 2.1 million.

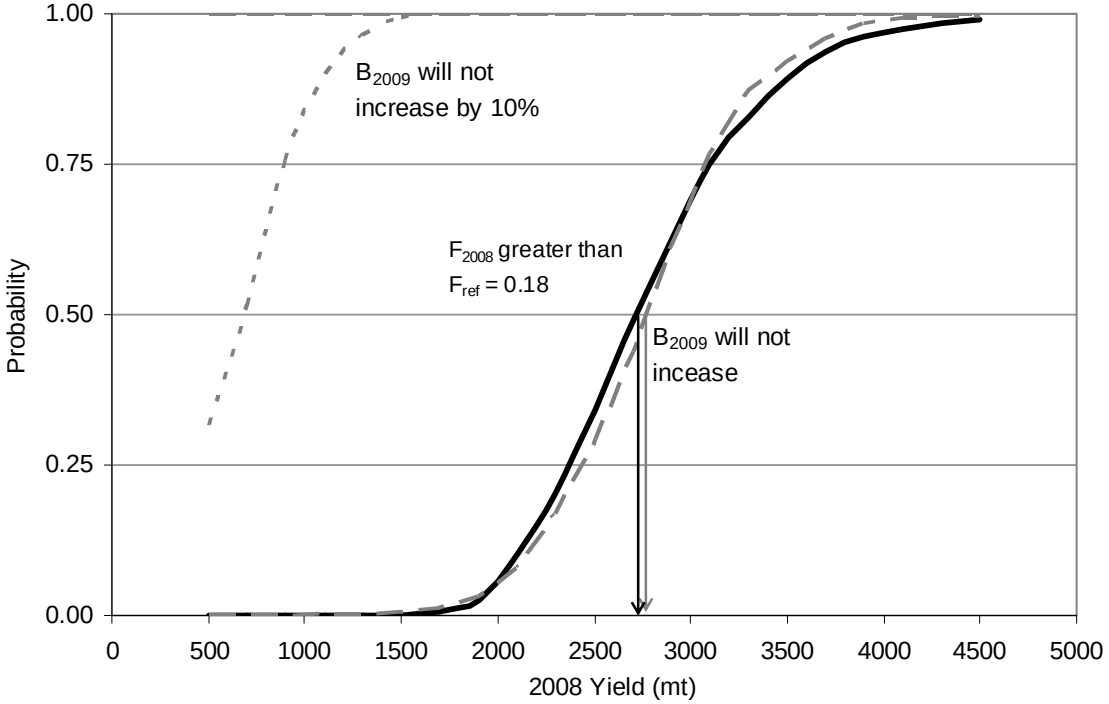
Eastern GB cod – Stock recruitment patterns



•Resource productivity is currently poor due to low weight at age and generally low recruit per spawner ratio.

•Biomass in 2007 remains below 25,000 mt, where recruitment is generally lower compared to stock sizes above 25,000 mt.

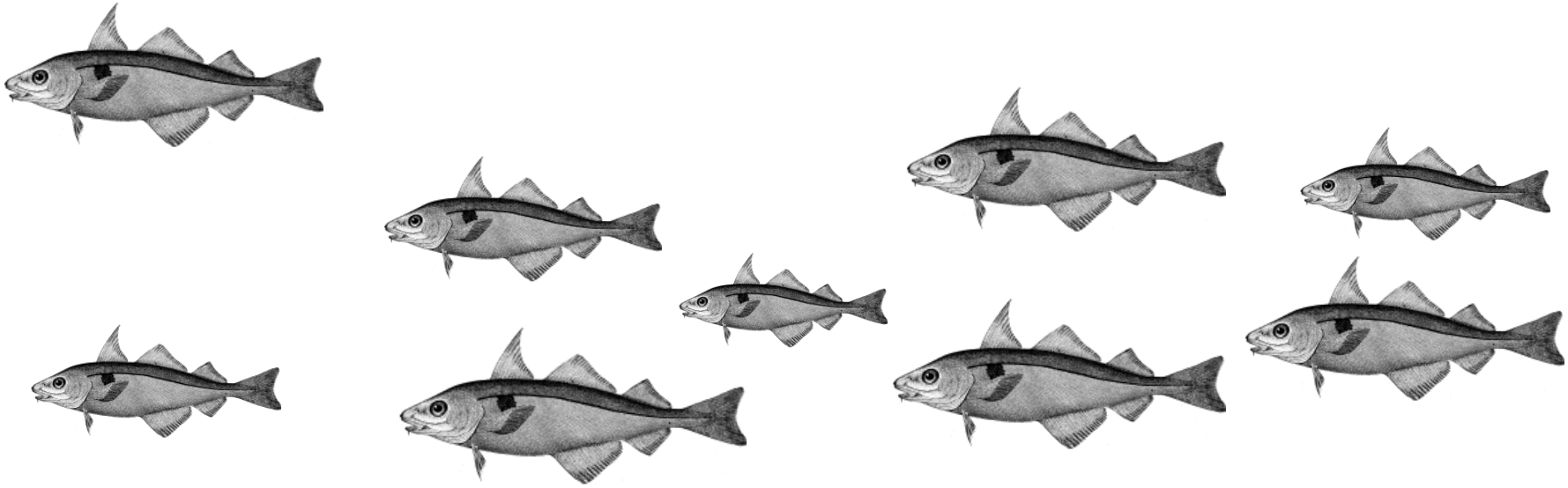
Eastern GB cod – Projection risks



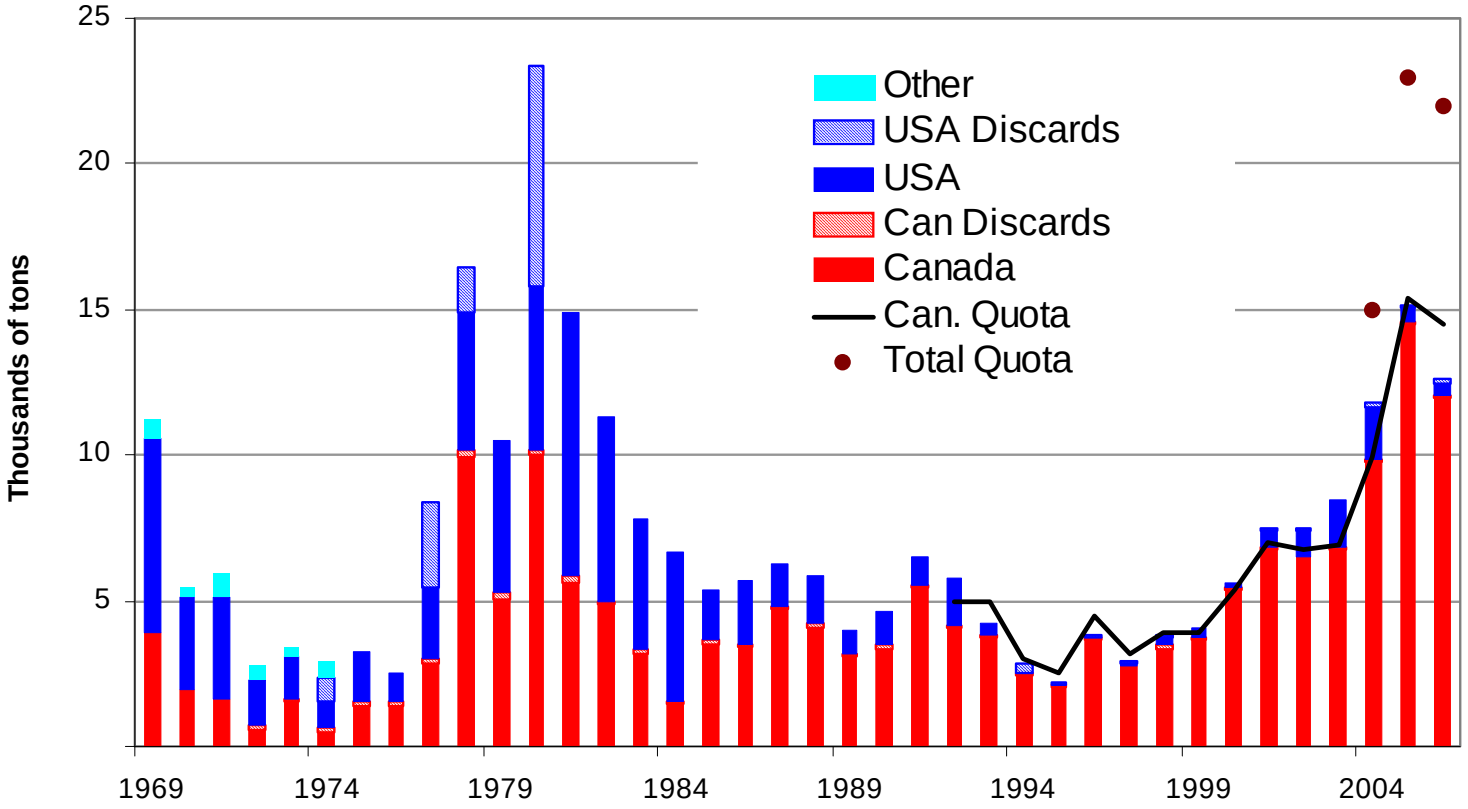
- Assuming a 2007 catch = 1,900 mt total quota, a combined Canada/USA catch of about 2,700 mt in 2008 would result in a neutral risk (50%) that the fishing mortality rate in 2008 will exceed F_{ref}

- and a neutral risk (50%) that the 2009 adult biomass will be lower than the 2008 adult biomass.

Eastern Georges Bank Haddock

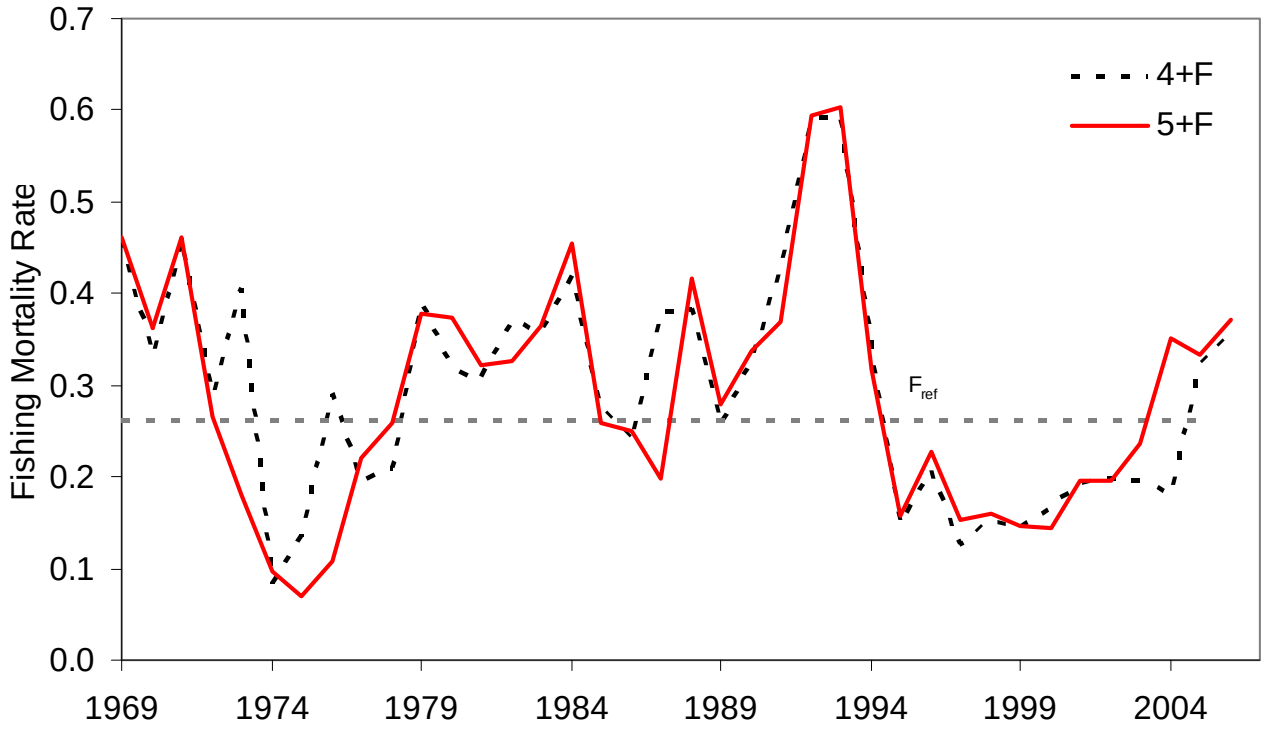


Eastern GB Haddock - Catches



- Combined Canada/US 2006 catches: **12,642** mt; quota 22,000 mt
- Can. 2006 : Landings **11,984** mt; Discards **67** mt
- USA 2006 : Landings **445** mt ; Discards of **146** mt

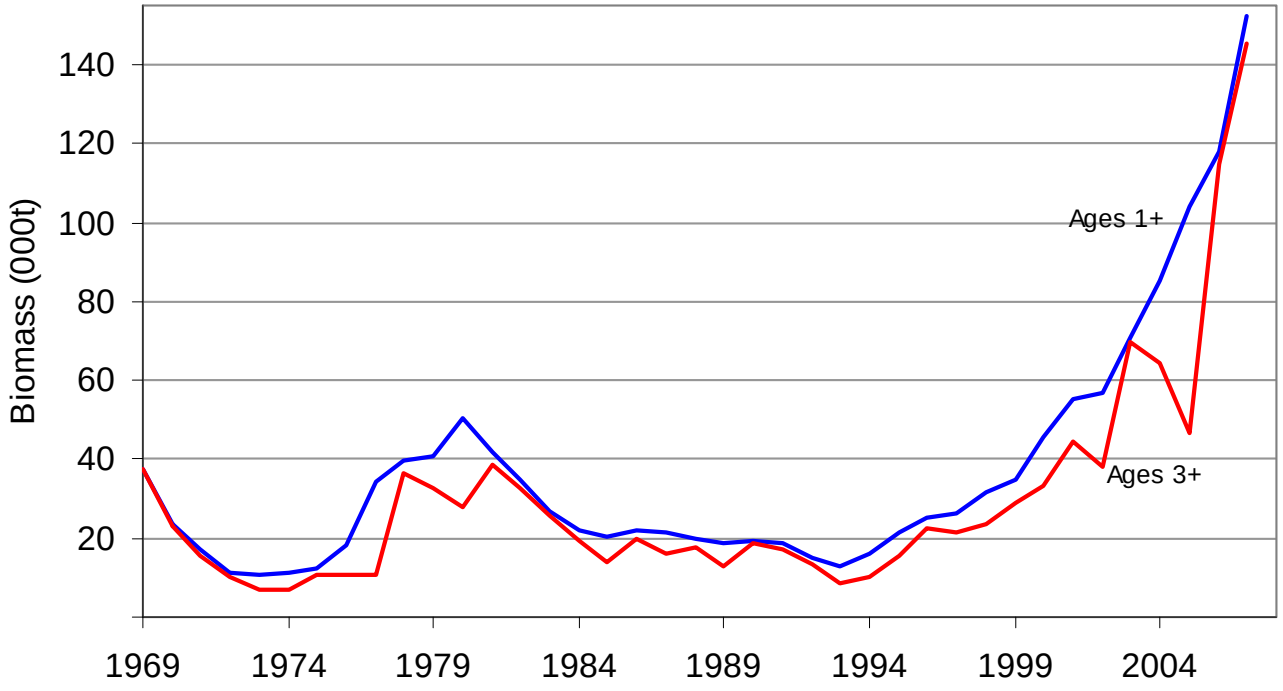
Eastern GB Haddock – Fishing Mortality



- Fishing mortality (ages 4+) was below F_{ref} = 0.26 during 1995 to 2004.

- The failure of the 2003 year class to recruit as expected to the 2005 and 2006 fishery resulted in fishing mortality in 2005 and 2006 exceeding F_{ref} (F_{2006}=0.36).

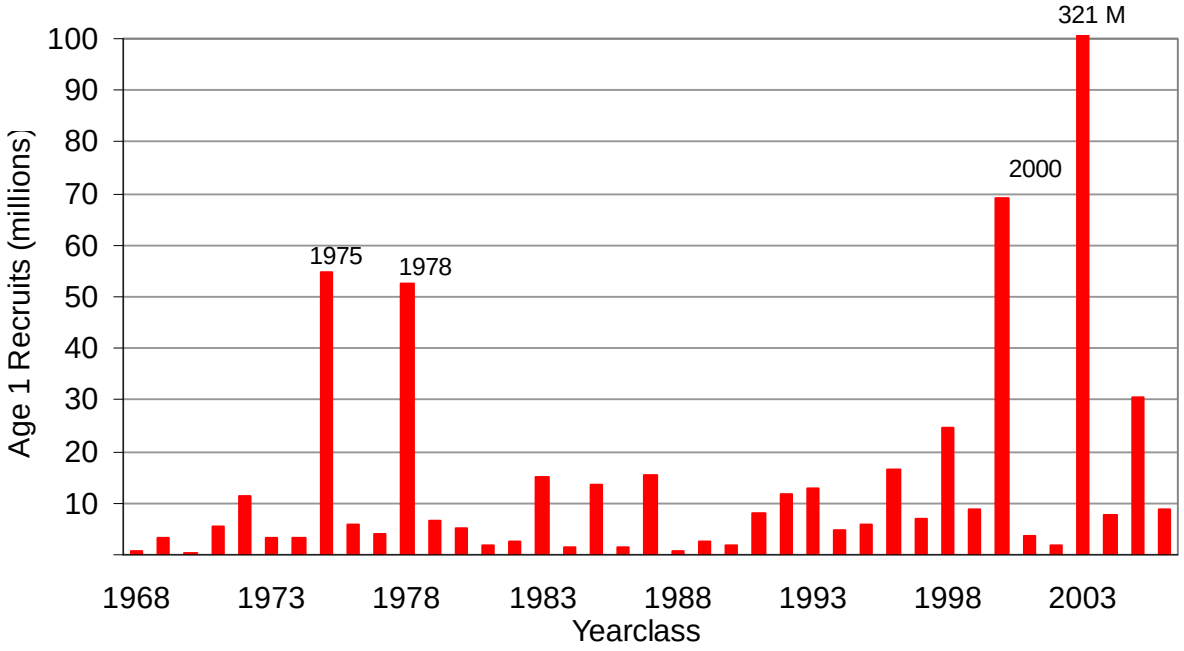
Eastern GB Haddock - Biomass



- Adult biomass (ages 3+) increased from 8,500 mt in 1993 to 69,500 mt in 2003.

- Adult biomass decreased to 46,900 mt in 2005 but subsequently increased to 145,300 mt by 2007, higher than the 1931-1955 maximum biomass of about 90,000 mt.

Eastern GB Haddock – Recruits



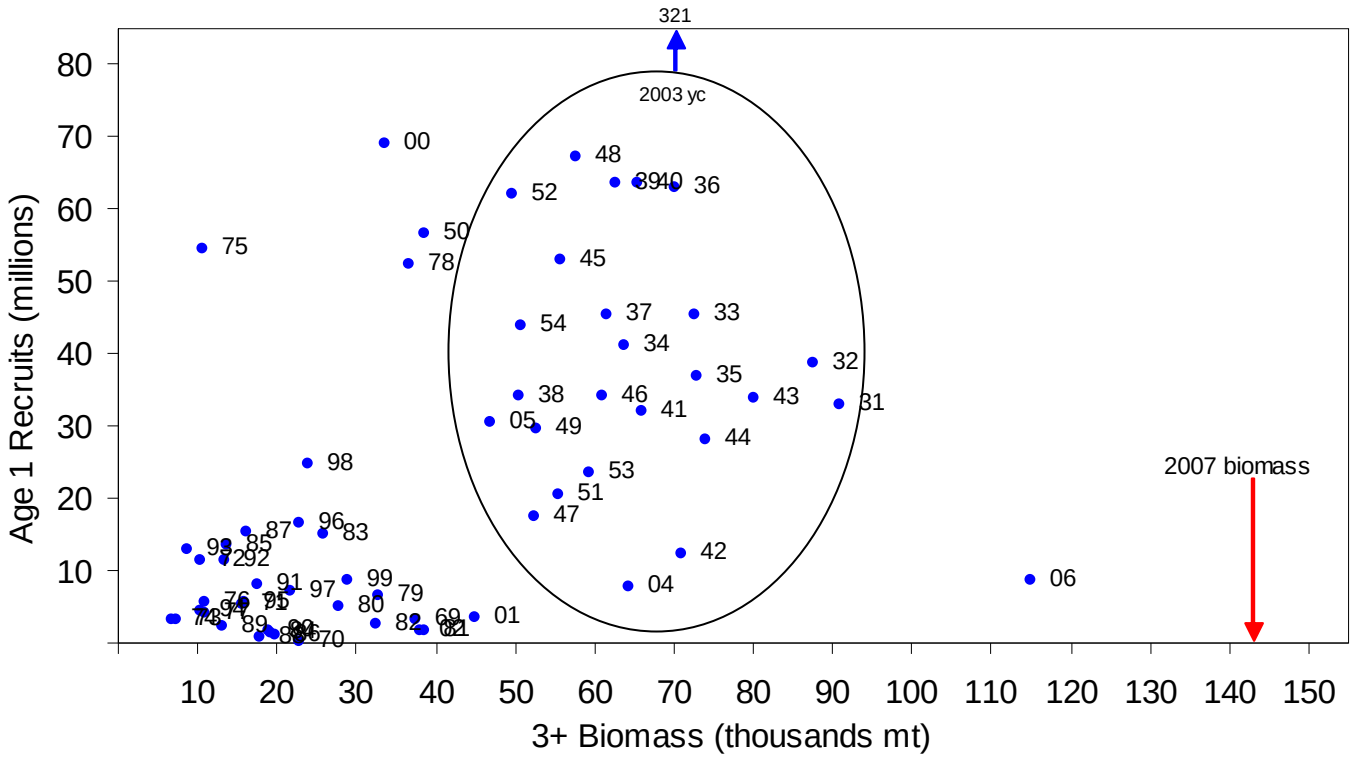
- The exceptional 2003 year class, estimated at 321.7 million fish, is the largest observed in the time series (1931-1955 and 1969-2005).

- The 2001, 2002 and 2004 year classes, at less than 8 million, are below average

- The 2005 year class, at 30.5 million, is above average.

- Initial estimates of the 2006 year class ~ about size of the 2004 year class.

Eastern GB Haddock – Stock recruitment patterns

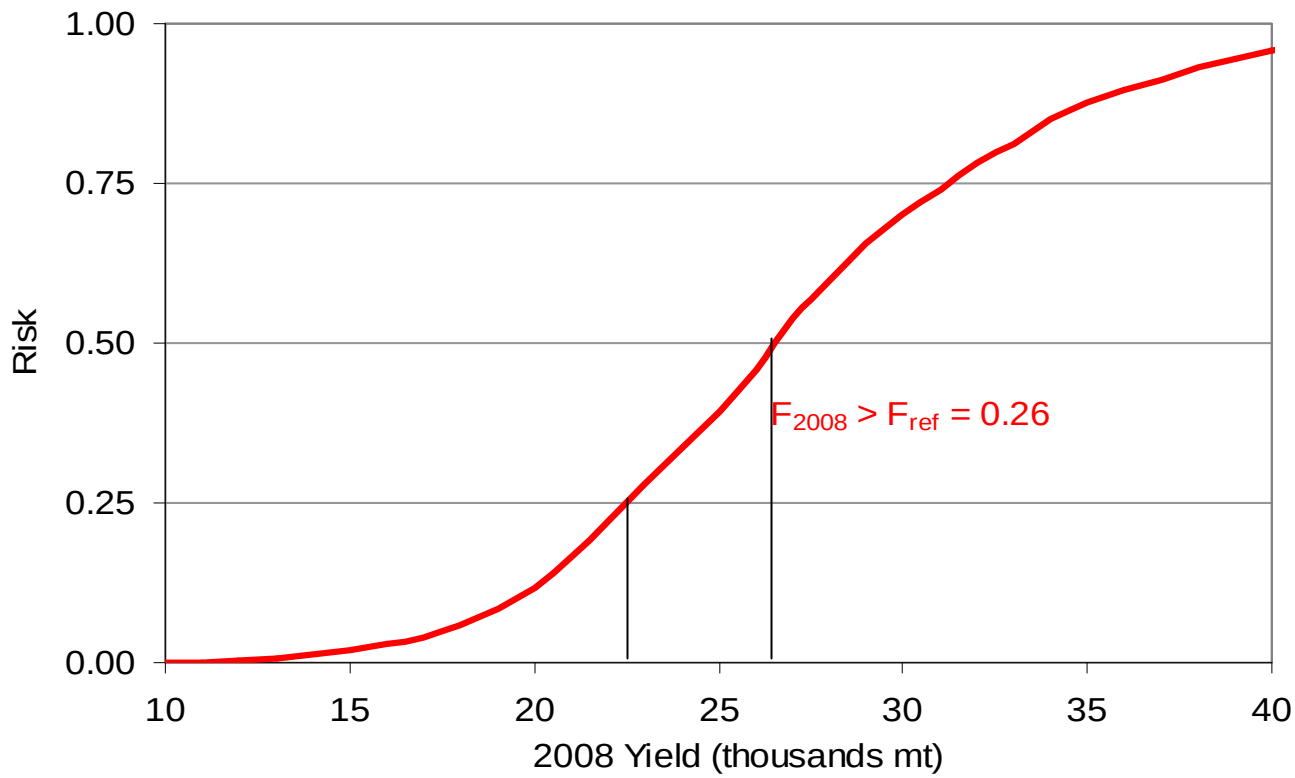


- Resource productivity is high ~ expanded age structure, broad spatial distribution & generally higher recruit per spawner ratio

- Negatively impacted only by recent reductions in fish weight at age

- Chance of observing higher recruitment more likely above 40,000 mt

Eastern GB Haddock – Projection

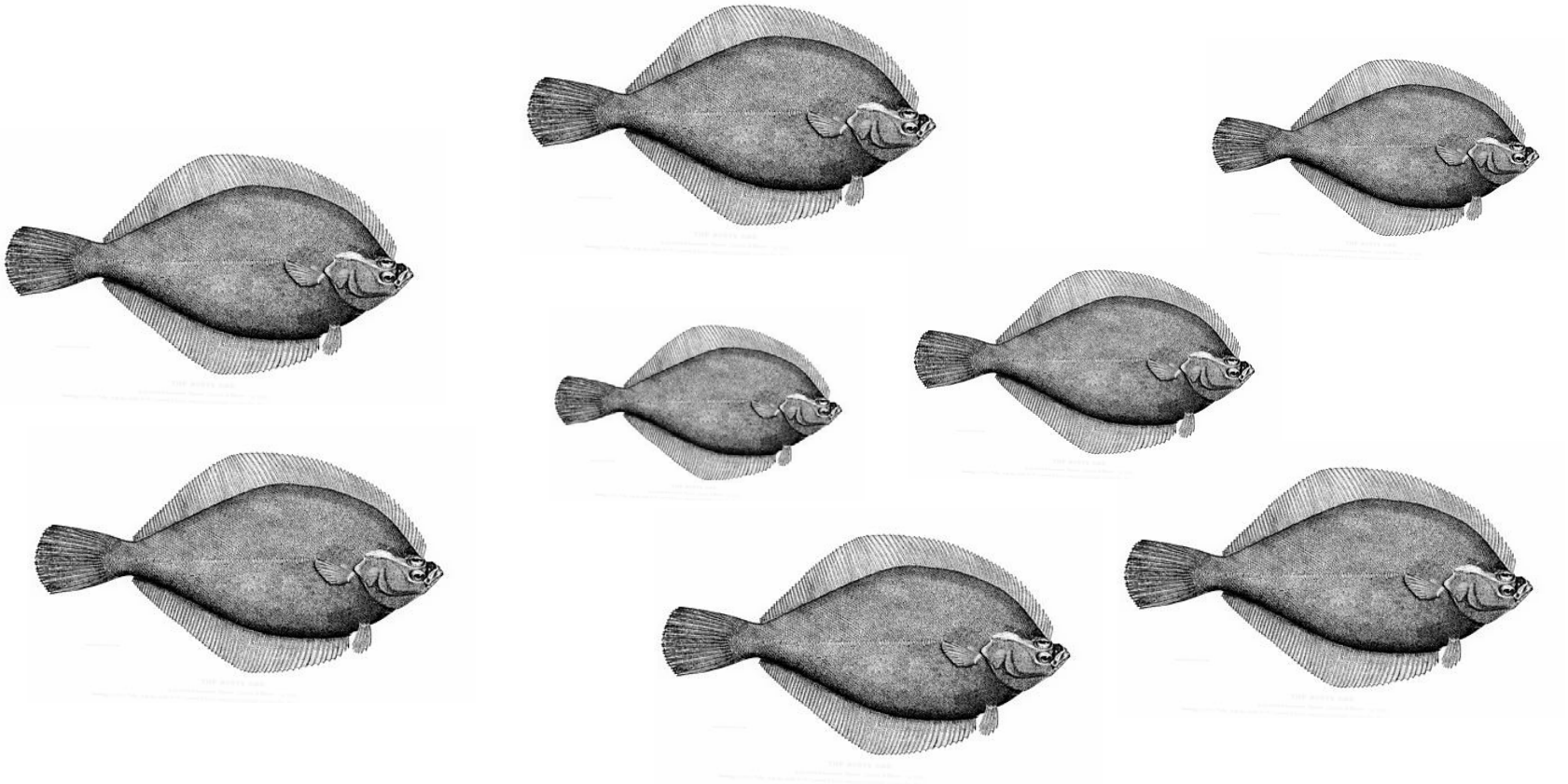


- Assuming a 2007 catch = 19,000 mt total quota, a Canada/USA catch of 26,700 mt in 2008 → neutral risk (50%) that F in 2008 will exceed F_{ref} = 0.26.

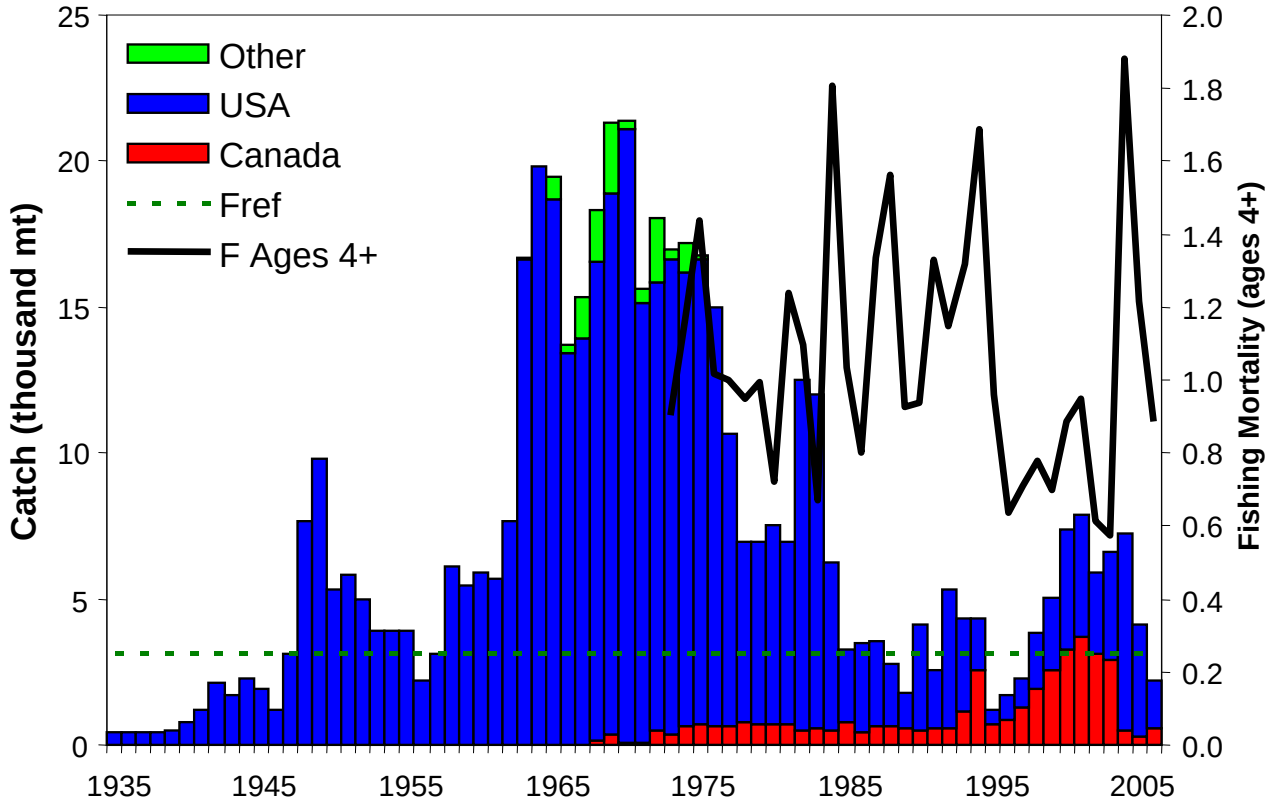
- A catch of 23,000 mt → a low risk (25%) that the F in 2008 will exceed F_{ref}.

- However, there is high uncertainty in the partial recruitment estimated for the 2003 year class.

Georges Bank Yellowtail Flounder



GB Yellowtail – Catches

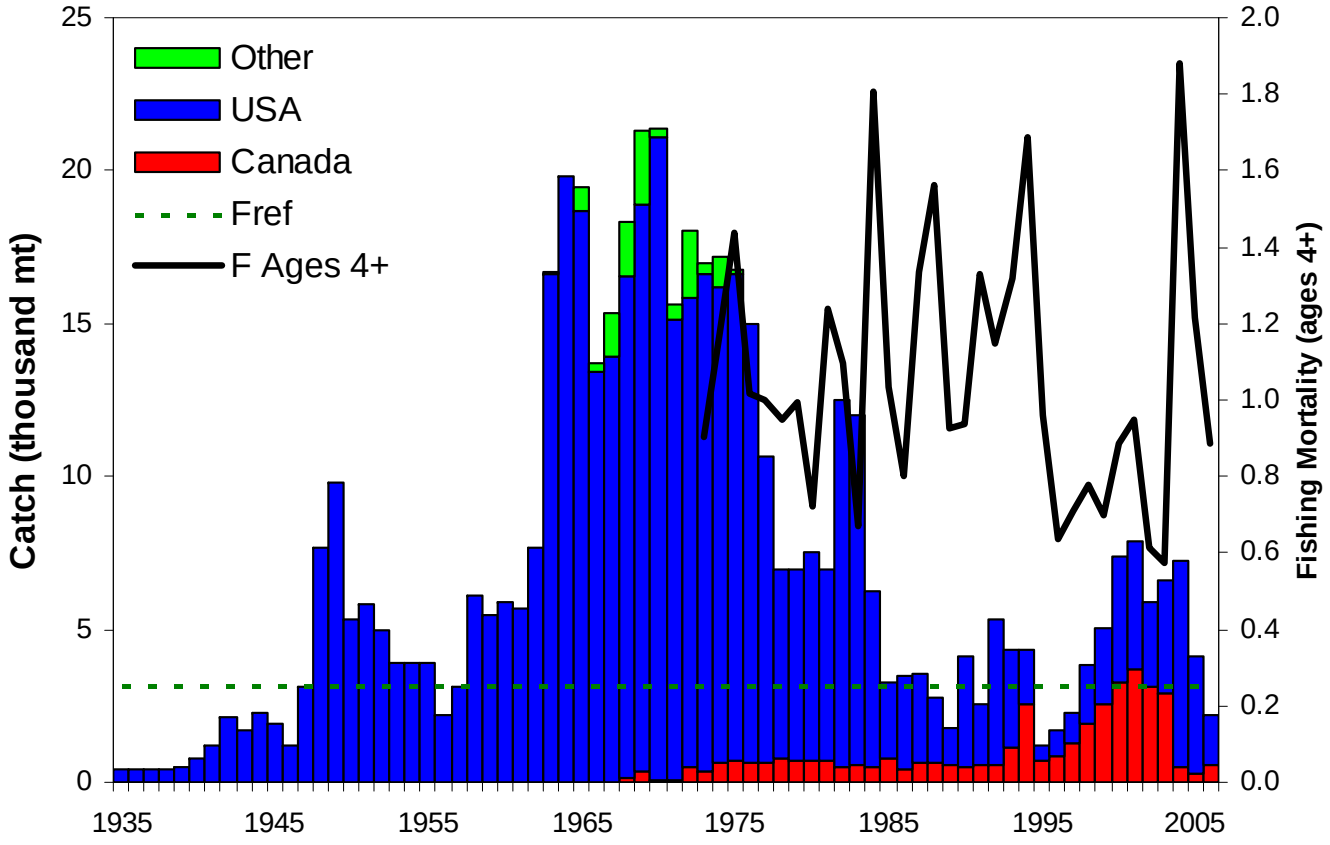


- CDN landings in 2006: **25 mt**; estimated discards: **565 mt** (offshore scallop)
- US landings: **1,239 mt**; estimated discards: **377 mt** (trawl + dredge)
- Total CDN: **590 mt** (TAC: 930 mt); Total US: **1,616 mt** (TAC: 2,070 mt)

- Total CDN + US: **2,206 mt** (TAC: 3,000 t)

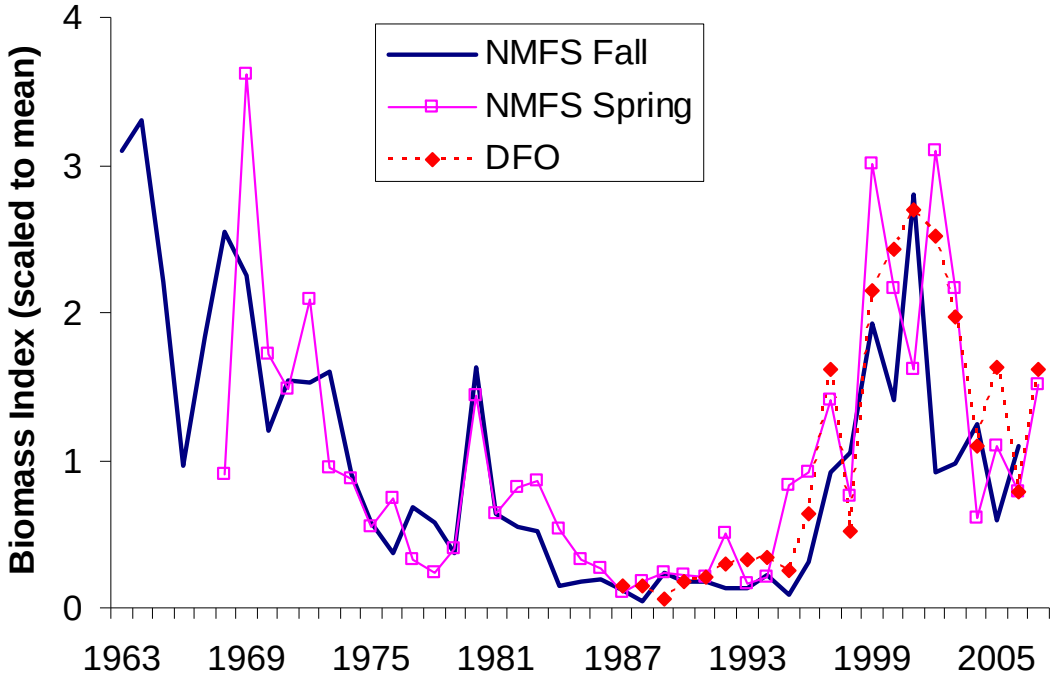
NOTE: US catch is for calendar year, while TAC is for fishing year (May 1-Apr 30)

GB Yellowtail – Fishing Mortality



- F for age 4+ , close to or above 1.0 between 1973-1994
- Declined and fluctuated between 0.58 and 0.95 during 1996-2003
- Increased in 2004 to 1.88, declined to .89 in 2006

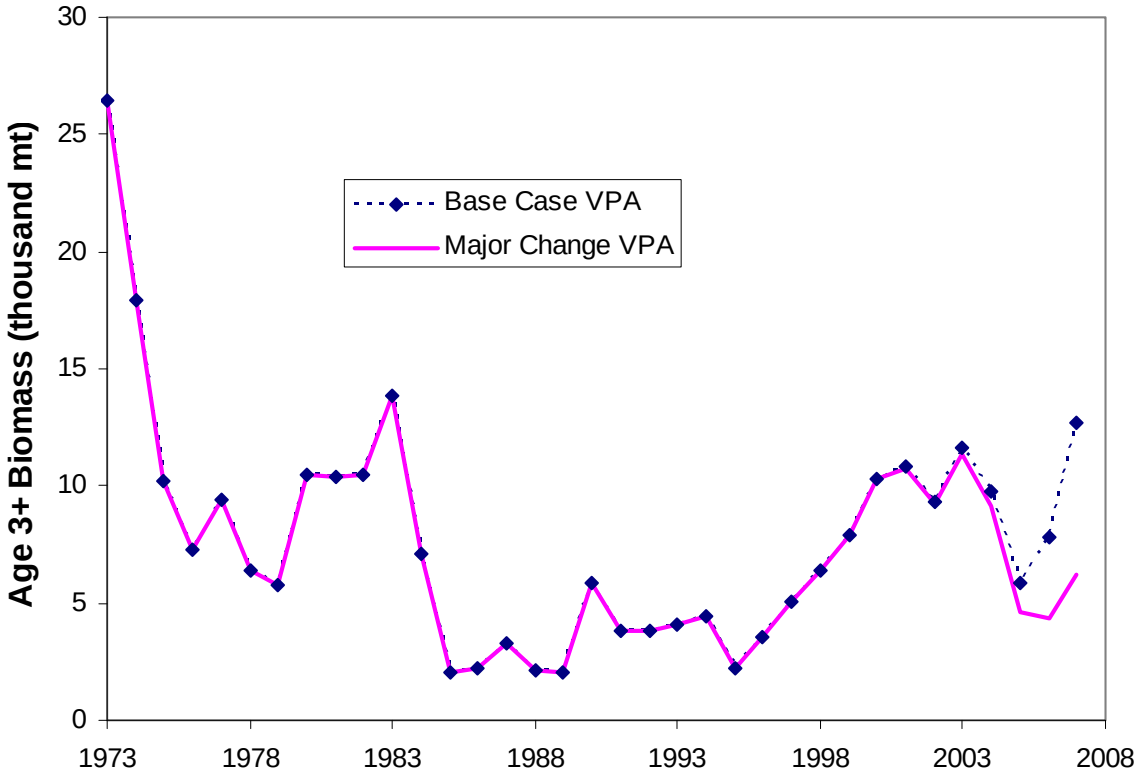
GB Yellowtail – Surveys



- Biomass increased from the mid 1990s, peaked around 2000
- Subsequently declined until mid 2000s and has fluctuated without trend the last few years

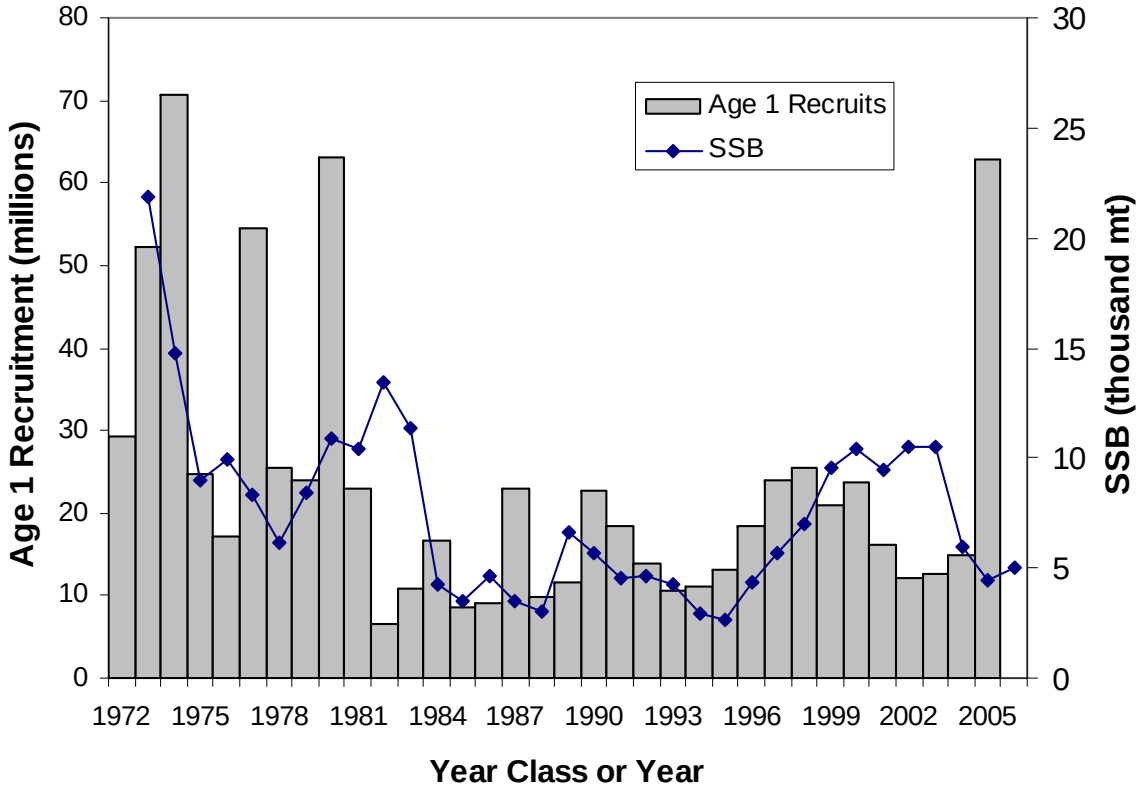
Fig 2 of TSR

GB Yellowtail – Age 3 Biomass



Adult biomass (ages 3+) increased from a low of 2,200 mt in 1995 to 11,400 mt in 2003 ;declined to 4,400 mt in 2005 ;increased to 6,200 mt at the beginning of 2007

GB Yellowtail – Recruitment

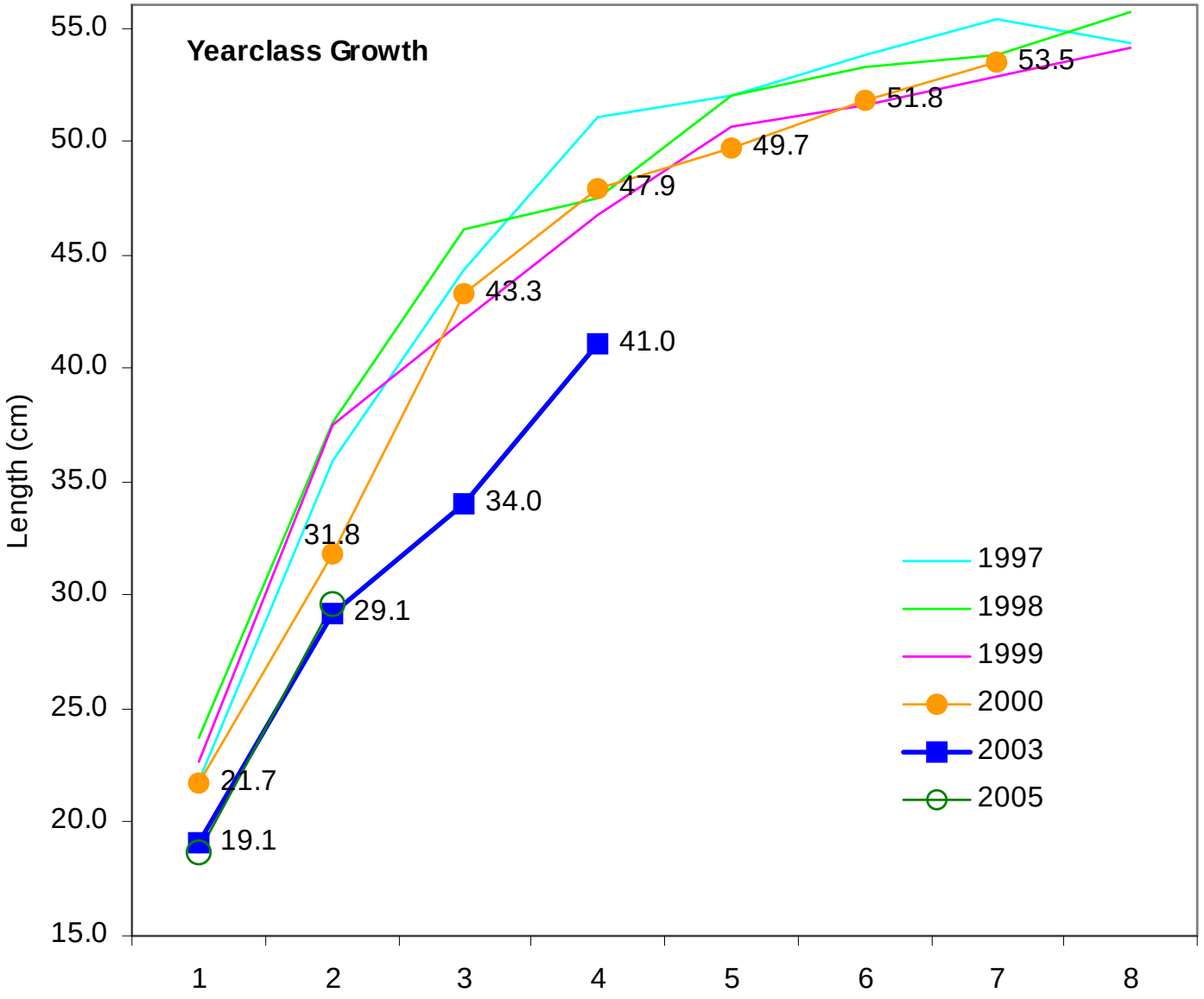


- Spawning stock biomass in 2006 ~ 5,000 mt
- Recruitment improved from the mid-1990s averaging 23.6 million fish during 1998-2001
- Since declined - with exception of 2005 yc ~ 62.9 million

Projections

- Assume 2007 Catch = 1,250 mt
- 2007 F projected = 0.20
- 2008 Catch projected = **3,500 mt**
- Highly dependent on 2005 yc
  - Repeat projections with avg 2005 yc
    - 2007 F projected = 0.26
    - 2008 Catch projected = 2,000 mt

Eastern GB Haddock – Year class growth



- DFO survey lengths at age for several year classes since 1997

#14

September 17, 2007

John Pappalardo, Chairman
New England Fishery Management Council
50 Water Street Mill 2
Newburyport, MA 01950

Re: Sector monitoring and reporting measures in Amendment 16

Dear John:

We are writing to urge support of Council action to improve monitoring and reporting by sectors in the groundfish fishery.

Our organizations have been closely following development of Amendment 16, including the changes being considered for sector management. As New England's approach to groundfish management transitions to a system with hard TAC's and additional sectors, it is evident that the current approach to fishery monitoring and reporting will be insufficient to adequately account for catch by the fleet. The inability to develop and implement strong monitoring and reporting measures now as part of Amendment 16 will result in significant negative consequences for the fishery.

New management measures establishing standardized monitoring and reporting will be essential to the success of a hard TAC managed fishery including an expanded system of sectors. These measures should be developed and supported by committed industry members. As part of this effort, the Council should establish a dedicated TAC observer program that, along with additional management measures, ensures that landings and discards are accounted for accurately and precisely in a timely manner, and that inefficient monitoring and reporting be minimized. To be effective, it is critical that a sector's operations plan identify a transparent mechanism which adheres to the agreed upon monitoring standards.

Thus far, the Groundfish Committee has not adequately addressed these critical monitoring and reporting issues as part of its Amendment 16 deliberations. In order to advance this much needed discussion, we support as a starting point building the monitoring language included in the PDT document dated July 25, 2007, and the Hard TAC monitoring proposal put forth by the Cape Cod Commercial Hook Fishermen's Association, with the inclusion of more accurate discard reporting requirements.

Thank you for your consideration. We are committed to work with the Council and other stakeholders to further develop the details necessary to implement an accurate and reliable hard TAC monitoring system.

Sincerely,

Craig A. Pendleton
Coordinating Director
Northwest Atlantic Marine Alliance
200 Main Street
Saco, Maine 04072

Roger Fleming, Esq.
Earthjustice
1042 Peabody Road
Appleton, Maine 04862

Jennifer Litteral
Marine Program Officer
Island Institute
386 Main Street
Rockland, Maine 04841

cc: Paul Howard
Pat Kurkul

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Hard TAC Monitoring Proposal

SUMMARY
As New England transitions to a management system Hard TAC's and sector management, it is evident that the current levels of fishery monitoring will be insufficient to accurately and precisely characterize the catch of the fleet. Such a monitoring system is essential to establishing responsible systems of management that ensure HARD TAC's are not exceeded. Creation and adherence to a Standardized Monitoring Plan is essential to the success of this system, and must be developed by committed industry members. Such a plan will account for the reporting of landings and discards (catch) in a timely manner. Finally, a Sector's performance should be transparent, and possibly made available to the public by NMFS through an easily-accessible website. Implementation of these standards will provide a strong foundation of support within all stakeholder groups.

NEED
Current low and inconsistent observer coverage rates will not provide accurate estimates of catch for 18 total sectors of 19 stocks across three stock areas. We suggest there is a need for a dedicated TAC observer program that ensures landings and discards are accurately and precisely accounted for in a timely and transparent manner. Reliance upon existing at-sea monitoring programs will not improve the current downward spiral the fishing industry is experiencing and it will reduce the benefits industry should expect of Sector management due to the use of extrapolated (assumed) rates of catch.

PROPOSAL
To achieve NMFS and Council approval, Sector operations plans must provide for the following accountability measures:

Landings:
- All Sector landings must be reported to the Sector Manager within 24 hours of landing.

Discards:
- All discards must be accounted for and reported to the Sector Manager within 24 hours of landing.

Coverage:
- A dedicated Sector TAC observer program will provide levels of observer coverage to Sectors that will allow for a specific (*to-be-determined*) level of certainty for TAC management.

Reporting:
- The Sector Manager must report all cumulative catch and coverage information to NMFS on a weekly basis, until 90% of any TAC is achieved at which point reporting must be done daily.

Transparency:
- NMFS will publish all catch and coverage information on a public website at the rate of Sector reporting: weekly until 90% of any TAC is achieved, at which point publication is to occur daily.

#15

Capt Paul Howard
Executive Director
The New England Fisheries Management Council
50 Water Street, Mill 2
The Tannery
Newburyport Ma 01950

September 4, 2007

Dear Capt Howard,

On behalf of the Rhode Island Commercial Fisherman's Association, I must express our grave concern with the tenor of guidance recently provided to the NEFMC from the Groundfish Committee. It is our belief that the current range of recommendations and allocative strategies proposed by the Groundfish Committee, if enacted, will prove to be inconsistent with the objectives of Amendment 16 as well as specifically harmful to the Sector managed fishermen of Southern New England and devastating to those vessels remaining in the common pool.

Amendment 16 will be judged a success only if the sum of its measures are successful in reducing mortality on stocks of concern. It appears now that the Groundfish Committee is in an enormous rush to allocate without fully discussing the outcome of their actions and certainly without understanding the range of their consequence. The very act of empowering an allocative policy that is decidedly favorable to one group over another is cause for reconsideration of any action ay all, along these lines. Simply choosing to make winners or losers of the New England fishing fleet in such an arbitrary and capricious manner is neither worthy of council endorsement or something that we, as fishermen, should tolerate.

We are most troubled by a process that has broken down to one that willfully ignores its charge to restore the stocks and maintain communities. Not one, not the other, but both to the best of its ability. The very act of suggesting that future allocation should be based exclusively on historical landings bear's public witness to the fact that there are those in high positions of authority who care little for the resource and care a great deal more of their own wealth and immediate future.

The effects of landings generated allocation will be manifold. First, it will strip history from those who saw fit to lease days to another, for whatever reason and reenter them into a common pool of the disadvantaged. Very few fish will exist in this sector by default, along with very many days. The very act of creating sectors while their exists a DAS system diminishes the probability that A-16 will be an overall biological success and will have a ruthless and wicked effect to those left in the common pool, not to mention the horrific potential for discard mortality these vessels will represent. Collectively they will try to struggle by in an even more pressurized environment, only to fail or be forced into another fishery. It is of common consent, that when fishermen struggle to find profit in a management system, the resource suffers. Eco-system management is based on the premise that all stocks are related, fisheries management

from here on must recognize that all capacity is related as well there is no reason to experiment along these lines, the outcome will be certain.

It is our contention that any attempt to rationalize the fishery must include a component of capacity in the allocation formula, simply, if nothing else, to accommodate the relationship between horsepower and catch potential in the mobile gear fleet. In the mobile gear fishery, it is common knowledge that power equals production. It stands only to reason that if we are in a state of overcapacity in the New England fishery, plagued by regulatory discards, then we should allocate at some level towards capacity to avoid them as much as is possible.

Please do not gage our response to be one opposed to the rationalization of the fishery. Nothing could be farther from the truth. The rationalization of the NE Fishery will be looked back upon as what saved it. Of this we are certain. The process cannot start too soon, if it is capable, transparent and operates in the absence of bias. Unfortunately, A-16 is incapable of facilitating such a magnificent change. We lack the infrastructure to handle a full blown allocation procedure with the reverence it deserves. The permanence of these actions will undoubtedly and rightfully call into question the legitimacy of hundreds of landings and claims. The last thing we need do is hand the fishery off to those who have deceived it.

There are other reasons to consider capacity in any future allocative decisions. Among them, the great potential for fish to relocate. Southern New England has been without a significant cod population for more than the 10 years recommended we look at by the Groundfish Committee. Last winter, in the waters south of Block Island we caught tens of thousands of large cod. If our future allocation of cod was based exclusively on historical landings we would be asked to not benefit from the recovery of a once abundant staple of our winter fishery. With a component of capacity in the allocative formula we would be able to catch these fish where they existed, in our own back yard, simply because they were there, as were we.

As the President of an association, I have members who have chosen to remain in the common (DAS) pool as well as members who will be joining a sector. I feel it is my duty to represent a wider ranging perspective than most. At this time it is my duty to represent a position that acknowledges our dependence on healthy stocks and avoids the temptation of achieving short term gain at the expense of others. If A-16 is implemented without an allocation strategy that is significantly more discard sensitive than what is currently on the table then we have wasted a terrible amount of time and will have wasted a tremendous amount of fish in doing so. It is my fear that should both of these come to pass A-16 will be devastating to all who fish, regardless of history, permits held, or vessel size. We implore you to not turn A 16 into a fish grab.

Thank you,
Christopher Brown
President
The R.I.C.F.A.