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New England Fishery Management Council
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John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

MEMORANDUM

DATE: December 14, 2008

TO: Groundfish Oversight Committee

FROM: Groundfish Plan Development Team

SUBJECT: **Groundfish PDT Meeting, December 5, 2008**

1. The Groundfish PDT met in Mansfield, MA to prepare advice on recreational and commercial accountability measures, revisions to the Category B (regular) DAS program, the drop chain requirement for southern New England, and sector monitoring standards. PDT members present were Tom Nies and Anne Hawkins (NEFMC), Eric Thunberg, Paul Nitchske, and John Walden (NMFS NEFSC), and Steve Correia (Mass. DMF). Participating via conferencing software were Doug Christel and Tom Warren (NMFS NERO), Kohl Kanwit (Maine DMR), and Paul Parker (Groundfish Advisory Panel chair).

Recreational Accountability Measures (AMs)

2. Since the recreational component of the fishery will have annual catch limits for at least two stocks (GOM haddock and GOM cod), AMs are also needed. Implementation of AMs for this component of the fishery are complicated by at least these factors:

(a) Catch information is collected via MRIP (the replacement for MRFSS) and there are some lags in when data are available.

(b) The tools typically used to manage this fishery component (seasons, bag limits, trip limits) are usually designed with an understanding of current catch patterns. Their design is sensitive to changes in the size distribution of the population, availability of species, and variability in the data. As a result, it is difficult to predict for a future period what changes in these measures will produce a needed change in catch or mortality.

(c) Enforcement of recreational measures is coordinated with state agencies, which need time to adapt state regulations to changes in federal requirements.

(d) Party/charter sector operators book trips in advance. Customers who reserve trips have an expectation of what catches they will be allowed. In-season changes in regulations, after

trips are booked, may lead to reduced expectations and result in cancellations and lost business.

(e) There is no reliable way to contact unlicensed private anglers and advice them of management changes in-season.

3. The PDT reviewed AMs approved for recreational fisheries in the Gulf of Mexico and South Atlantic (see enclosure (1)). While these approved measures detail the process for implementing AMs, the actual measure boils down to an appropriate closed season that is determined by the NMFS regional office. There is no guidance in the implementing actions that says an overage of X percent will lead to a change in the season of Y days. The changes in season will be determined by the regional office based on the data. The regulatory process for implementing these changes is unclear.

4. The PDT suggests a similar approach, described in enclosure (2). The underlying concepts are:

(a) Preliminary recreational harvest should be available within two or three months of the end of the fishing year (by June or July). NMFS will evaluate the harvest and determine if ACLs were exceeded.

(b) If ACLs were exceeded, NMFS will determine the appropriate measure that will be implemented in order to end overfishing. The measure will be published using procedures consistent with the APA. Ideally, a final rule will be published by January in order to facilitate party/charter bookings in later winter.

(c) Any implemented AM will be adopted before the end of the fishing year.

(d) The PDT proposes a stepped implementation of the AMs for the recreational fishery as described in the enclosure. While the Council plans to use three-year averages for evaluating recreational harvest against the ACL because of data variability, delaying implementation of any AM for three years after plan implementation does not seem consistent with the draft NSGs.

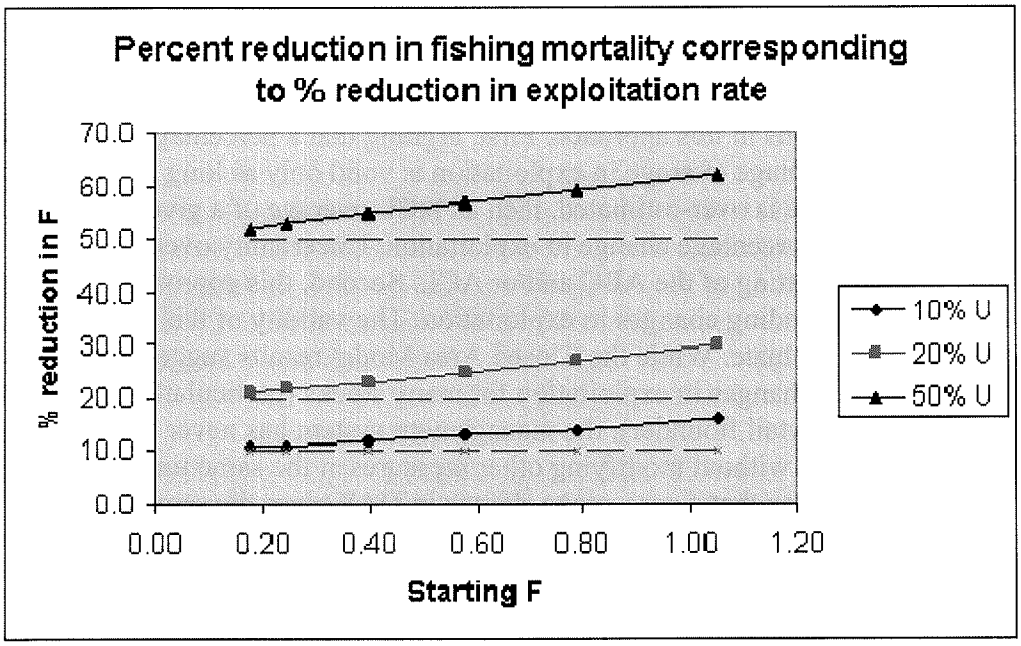
5. The PDTs recommended AM is a seasonal adjustment. April is consistently a high landings month for the GOM recreational fishery. Relatively small changes in the season in this month can effect large changes in catch. As result, an overage in one year can be effectively addressed in the following fishing year. Changes in minimum size or bag limits are not nearly as effective. As an illustration using data from earlier years, closing fishing for GOM cod in April is estimated to reduce catches by almost 40 percent. It would take a 27 inch minimum size or a four fish bag limit for the entire year to get a similar reduction.

Commercial Non-Sector Accountability Measures

6. One of the accountability measures proposed for the non-sector vessels is an adjustment to DAS counting. Last summer the PDT recommended that an overage of the ACL should result in a proportional adjustment to the DAS counting rates. After making that recommendation, the PDT decided to revisit the issue since a change in catch does not correspond to the same change in fishing mortality.

7. Exploitation (as opposed to fishing mortality) is simply the catch divided by the stock size. For a given stock size, a chance in catch of a given percent results in the same percentage change in exploitation. If stock size is correctly predicted, exceeding a targeted catch level by X percent means that the exploitation targeted by that catch is exceeded by the same percent. The relationship between exploitation and fishing mortality is not linear, though it is nearly so at desired fishing mortality rates. A percent change in exploitation results in a slightly larger percent change in fishing mortality. As an example, this means that a 20 percent overage in exploitation translates into a 21 change in mortality (at low fishing mortalities – the exact amount increases as exploitation/mortality increases). Figure 1 illustrates this relationship for three percentage changes in exploitation. What this means for AMs is that if stock size is correctly estimated, exceeding the ACL by a specific percentage means that the fishing mortality associated with that ACL will be exceeded by a larger percentage. Similarly, a DAS adjustment designed to reduce exploitation by a certain percentage will result in a slightly larger percentage reduction in fishing mortality.

Figure 1 – Percent changes in fishing mortality resulting from a fixed change in exploitation.



8. The PDT recommends basing the differential DAS adjustment on the difference between the catch estimates and the ACL using the attached table. This is the same recommendation offered earlier.

Table 1 – Proposed differential DAS adjustment factor

Proportion of ACL Caught	Differential DAS Factor
0.5	0.5
0.6	0.6
0.7	0.7
0.8	0.8
0.9	0.9
1.0	No Change
1.1	1.1
1.2	1.2
1.3	1.3
1.4	1.4
1.5	1.5
1.6	1.6
1.7	1.7
1.8	1.8
1.9	1.9
2.0	2.0

9. There are two critical assumptions in this approach. First, arguing that a percentage overage of the ACL results in the same percentage overage in exploitation is valid only as long as stock size is correctly estimated. If stock size is over-estimated, then an ACL overage of a given percentage will result in a larger percentage change in exploitation. Uncertainty over this assumption can be built into the setting of the ABC and/or ACL. Second, this approach assumes changes in DAS result in corresponding changes in exploitation. The validity of this second assumption is more difficult to evaluate. While the Closed Area Model results suggest that changes in DAS result in similar changes in exploitation for many stocks (particularly the target stocks of cod, haddock, and yellowtail flounder), the management system has never actually tried to control mortality in this manner without modifying other measures at the same time. As a result, there is no empirical evidence that a percentage change in DAS gives the same percentage change in exploitation. In addition, shifts in effort from one area to another may result from changes in DAS counting implemented through AMs. This cannot be explicitly accounted for with an automatic adjustment to the DAS system. It would require a complete redesign of the effort control system which does not seem possible given the desire to have AMs implemented with minimal analyses and absent a Council action. Once again, these uncertainties could be elements of management uncertainty when setting ACLs. The management program does provide for possible adjustments every two years which could address shifts in effort if observed.

Other ACL/AM Issues

10. ACLs are going to be set every two years. If an ACL is exceeded in year one, the amount of the overage needs to be evaluated to determine if the ACL in year two should be adjusted in order to prevent overfishing. This is a separate issue from whether the management system requires a sub-component to account for an overage, as is the case with sectors. This is not as simple as it first appears. If there is only one component of the fishery, and the ACL is set exactly at ABC, an overage in year one would be expected to reduce stock size such that the ABC/ACL in year two should be adjusted to account for the lower stock size. But with more than

one sub-component, and if ACLs are set lower than ABC, it is possible that an overage by one component and not the others may not lead to a depressed stock size that requires adjusting ACLs. In addition, the ACL setting approach under development by the PDT would likely set out-year ACLs at a lower level to account for the increased uncertainty of future catches. Simplistic "payback" provisions – reducing the ACL in year two by an overage in year one – may not be sufficient if stock size is expected to decline, and may unnecessarily sacrifice yield if a stock is growing.

11. In order to address this issue, the PDT suggests that the ACL/AM process include the following concepts:

(a) If an ACL is exceeded, the annual SAFE report will review whether adjustments to future ACLs are required.

(b) If an adjustment is necessary, the SAFE report will contain a recommendation to adjust the ACL in subsequent years. There are timing issues with this suggestion. Whether an ACL overage in year 1 results in a reduced stock size will not be evaluated in a SAFE report delivered to the Council until some time late in year 2, which makes it difficult to adjust the year 2 ACL.

(c) The Council may adjust sub-component ACLs so that, to the extent practicable, components not responsible for the overage are not subject to reductions in their ACL and resultant changes in fishing opportunities.

Modifications to the Category B (regular) DAS Program

13. The PDT considered changes to the Category B DAS program to facilitate targeting healthy stocks (primarily GOM and GB haddock). Enclosure (3), which identifies a broad range of possible ideas, was used to inform this discussion. The following discussion highlights three ideas:

(a) Changing trawl and gillnet mesh minimum sizes

(b) Requiring use of longlines with special bait (similar to the CAI Haddock SAP)

(c) Allowing leasing of Category B DAS

14. Relatively few Category B DAS were used in FY 2007 (about 500 of a possible 3,500). Anecdotal information suggests that it is difficult for trawl gear to make a B DAS trip profitable, often attributed to Category B DAS program gear requirements coupled with stringent limitations on landings of stocks such as cod, monkfish, etc. when required to use these gears. Information that will be included in Amendment 16 shows that FY 2007 trawl gear landings on trips required to use a separator trawl were primarily pollock and there was little targeting of haddock. Average catches of haddock per tow while using a separator trawl have actually declined over the last few years (Table 3) - this may be due in part to changes in targeting behavior as in FY 2007 many vessels targeted pollock with the gear. The Committee may want to consider allowing the use of a six inch trawl codend while fishing in the Category B DAS program using selective trawls (separator or Ruhle trawl, or other approved trawl).

Table 2 – Average catch per tow (lbs.) on observed trips using a separator trawl

FY	Haddock	Cod	Yellowtail	Winter Flounder	Pollock
2004	778	155	136	26	7
2005	376	98	222	185	14
2006	528	103	70	95	662
2007	151	17	1	0.5	1,601

15. The current minimum mesh size is a compromise for a range of species. Mesh selectivity is only one element that determines the selection pattern in a fishery. Figure 2 below illustrates theoretical haddock selection curves for three different cod-end mesh sizes[1]. The vertical lines mark eighteen inch and nineteen inch minimum sizes. Clearly, few haddock at either minimum size would be expected to be retained by the current 6.5 inch mesh requirement. For a targeted haddock fishery, using gear that is designed to minimize catches of other bottom-dwelling species, a smaller mesh would be expected to catch more haddock.

16. Figure 3 augments the mesh selection curves with information on GB haddock size and numbers at age for 2004 and 2007. Each marker represents the mean length at age (from the spring DFO survey) and the January 1 biomass at the same age. This graph makes it clear that in 2007 the bulk of the GB haddock biomass consisted of age 4 fish with a mean length unlikely to be retained by the minimum mesh required. The graph also shows that there was less biomass at older ages in 2007 than in 2004.

17. Performance of the haddock separator trawl on observed trips has been spotty (see Table 3). The ratio of haddock to other species has been low compared to reported Canadian catches, though there was some improvement after adoption of the performance standards in FW 42. If minimum mesh size is reduced and the selective gear does not perform as expected, this program will rapidly meet its incidental catch TACs and haddock yield will be foregone.

Table 3 – Observed ratios of haddock to other species on tows using a haddock separator trawl, FY 2004 – November, FY 2007

	FY				
	2004	2005	2006	2007	All Years
Had/Cod	5.50	4.10	4.94	9.01	4.71
Had/YTF	6.59	1.84	7.65	201.53	3.15
Had/WFL	34.05	2.21	5.33	322.45	3.91
Had/Monk	8.92	4.43	12.92	4.82	6.34
Had/Skate (All)	2.32	0.61	1.45	27.98	0.98

[1] He, Pingguo, Hamilton, Rachel, and Smith, Tracey. 2005. The effect of mesh size and shape on codend selectivity in the Gulf of Maine multispecies trawl fisheries. NOAA Fisheries Cooperative Research Partners Program, EA 133F-02-CN-0040. Published as: He, Pingguo. 2007. Selectivity of large-mesh trawl cod-ends in the Gulf of Maine; I. Comparison of square and diamond mesh. Fisheries Research 83:44:59.

Figure 2 – Trawl gear selectivity for haddock (from He at al 2005). Mesh selectivity shown as fork lengths, while minimum regulatory sizes are total length.

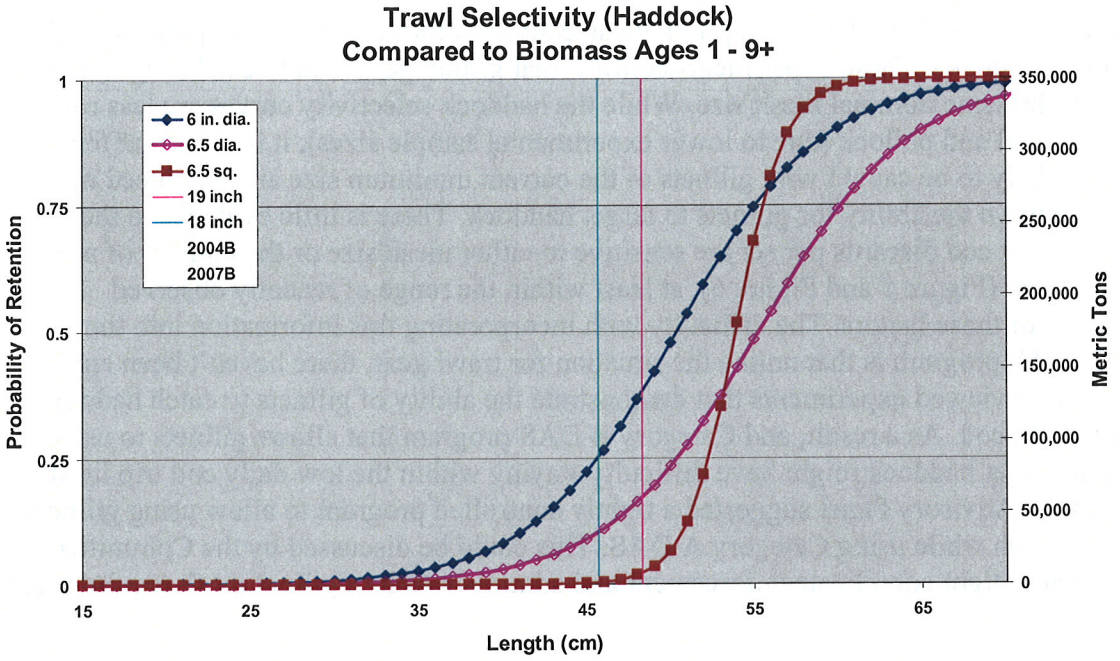
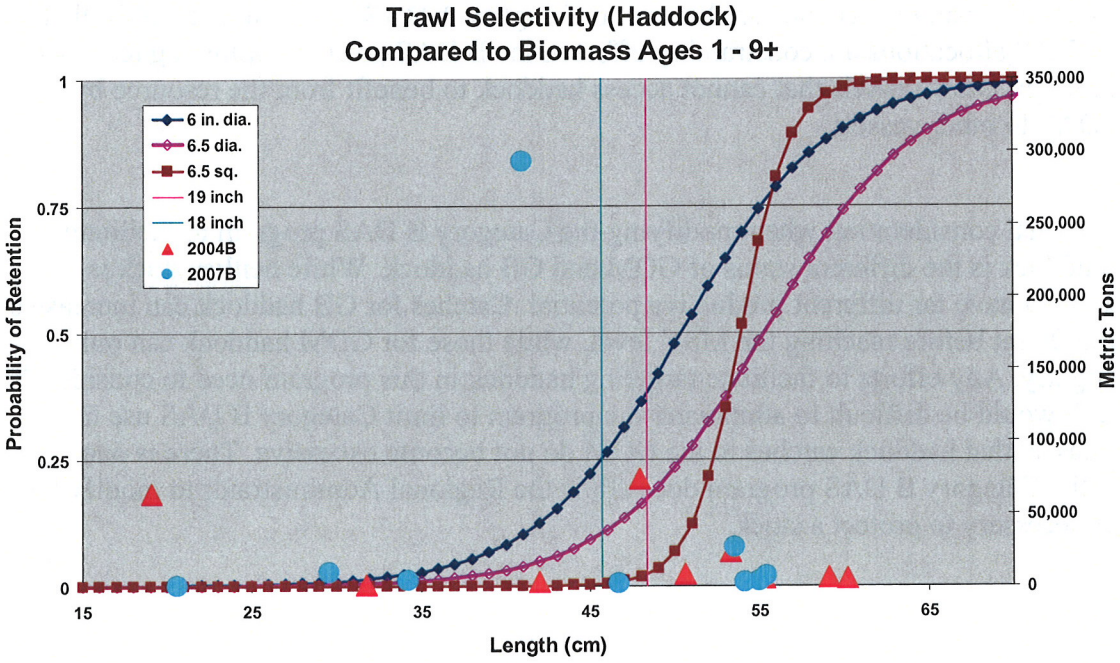


Figure 3 – Trawl gear selectivity for haddock with 2004 and 2007 biomass at age plotted.



18. A recent experiment[2] with gillnets provided selectivity information for cod, pollock, and haddock (see Figure 4). These experiments confirm that gillnet gear tend to catch larger fish than trawl gear of the same nominal mesh size. While the haddock selectivity curves are less robust than those for cod and pollock (due to lower experimental sample sizes), it is clear that few haddock are likely to be caught with gillnets of the current minimum size and a reduced mesh size might improve the ability for gillnets to target haddock. There is little evidence in the observer data that cod discards per set are sensitive to either mesh size or the number of nets fished in each set (Figure 5 and Figure 6), at least within the range of recently observed measurements of these factors. The difficulty with incorporating this information into the Category B DAS program is that unlike the situation for trawl gear, there haven't been any completed and reviewed experiments that demonstrate the ability of gillnets to catch haddock without catching cod. As a result, and Category B DAS program that allows gillnets to use 6-inch mesh to target haddock might have difficulty staying within the low daily cod trip limit. The Groundfish Advisory Panel suggested a tightly controlled program to allow using gillnets with smaller mesh while using Category A DAS. This could be discussed by the Committee. Such a program might complicate enforcement and administration of gillnet mesh requirements.

19. The use of certain baits with longline gear has been successfully used in the CA I Hook gear Haddock SAP for several years. Nothing prevents the use of this gear in the Category B Program at present, but perhaps its use could be fostered by requiring it.

20. Current DAS leasing provisions are limited to Category A DAS. While it is doubtful that limits on B DAS allocations are constraining effort in the B DAS program, allowing leasing of these DAS might allow vessels that cannot access haddock to benefit from the resource by leasing B DAS to other vessels.

21. An additional consideration when modifying the Category B DAS program to facilitate targeting haddock is the different status of GOM and GB haddock. While neither stock is overfished, they have far different productive potential. Catches for GB haddock can increase by roughly 10,000 mt before reaching the MSY level, while those for GOM haddock can only increase slightly. Any efforts to facilitate targeting haddock in this program need to consider this difference. It would be difficult to administer the program to limit Category B DAS use in specific areas so that haddock catches in the GOM do not become excessive. There is one safeguard: the Category B DAS program does allow the Regional Administrator to modify the program if necessary to protect a stock.

[2] Marciano, David, Rosen, Shale, Pol, Michael, and Szymanski, Mark. 2005. Testing the selectivity of gillnets to target haddock in the Gulf of Maine. NOAA Fisheries Cooperative Research Partners Program, contract EA 133F-04-SE-0821.

Figure 4 – Gillnet selection curves for cod, pollock, and haddock (from Marciano et al. 2005). Note different scales. In all graphs, curve to the far right is 6.5 inch (current minimum mesh size).

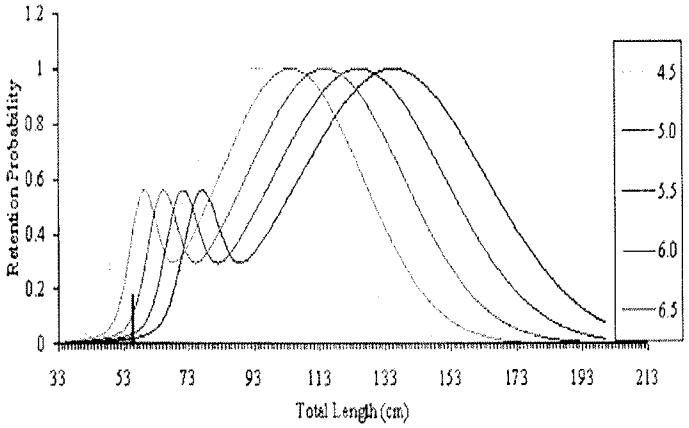


Figure 3: Bimodal retention curves for Atlantic cod for five mesh sizes. All lengths were pooled. Arrow indicates minimum landing size.

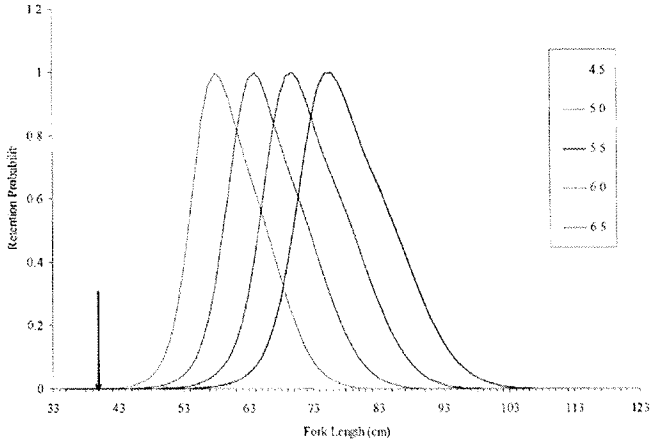


Figure 4: Pollock bimodal retention curves for five mesh sizes. Curves were derived from REML analysis of five individual sets. Arrow indicates minimum landing size, converted to fork length.

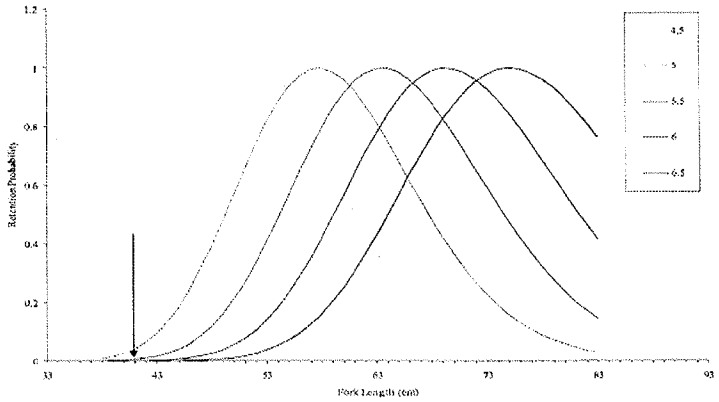


Figure 2: Haddock lognormal retention curves for five mesh sizes. All lengths were pooled. Arrow indicates minimum landing size, converted to fork length.

Figure 5 – Observed discards/set, SAs 511-515, vs. number of nets per set. Boxes represent interquartile range (25 percentile – 75 percentile); horizontal line is median. (NMFS OBDBS, unpublished data)

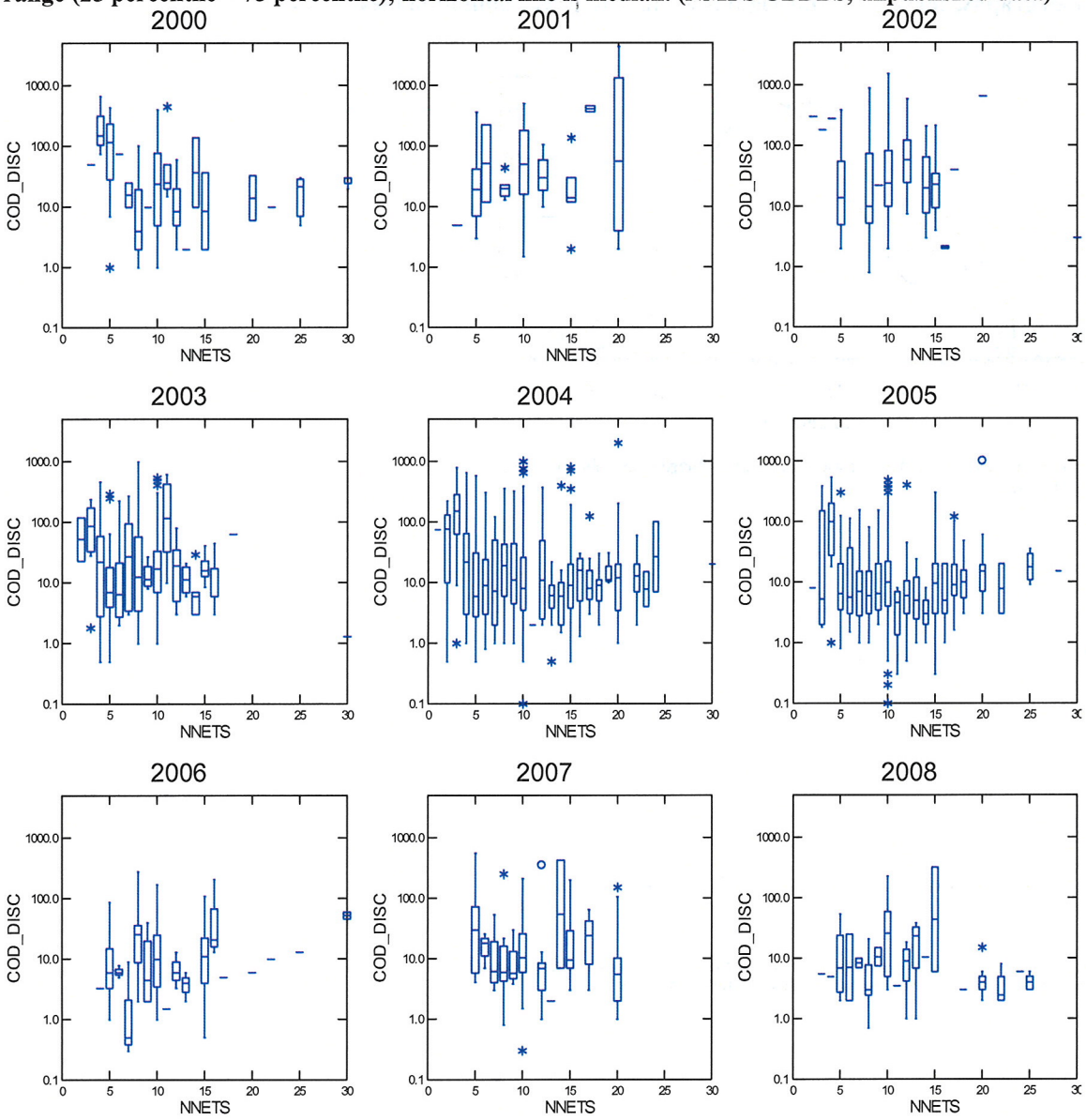
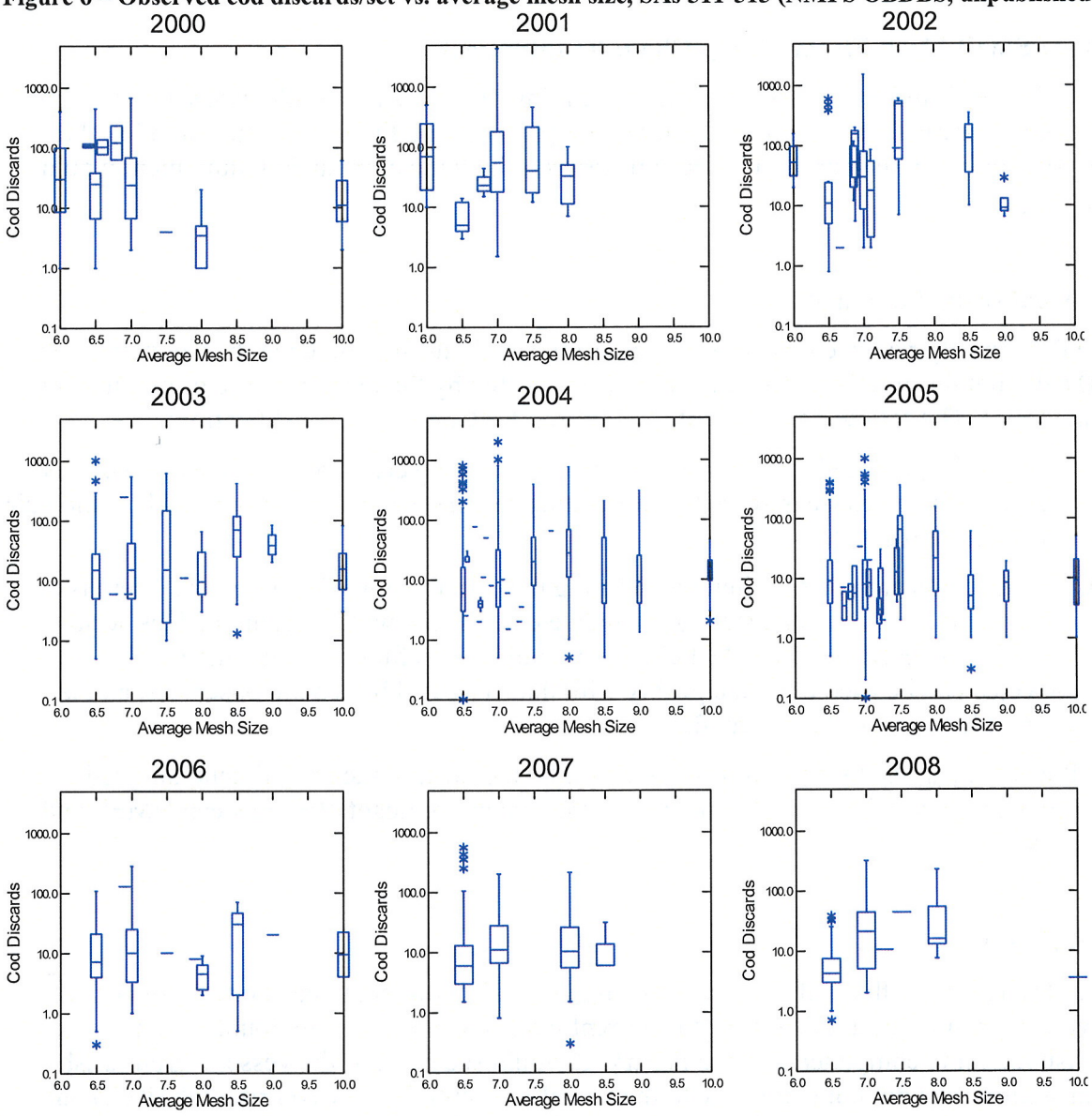


Figure 6 – Observed cod discards/set vs. average mesh size, SAs 511-515 (NMFS OBDBS, unpublished data)



SNE Area Small-Mesh Fishery Drop Chain Requirement

22. The PDT needs industry assistance with specifying this measure. While data sources can be used to identify areas that small mesh fisheries are pursued (see Figure 7 as an example), the PDT is not familiar with gear used in these fisheries or how the drop chain requirement would impact that gear.

Sector Monitoring Standards

23. The PDT briefly reviewed the sector monitoring standards distributed at the Council meeting (the PDT did not discuss the proposed revisions suggested by the industry's sector monitoring working group). The following comments are offered for Committee consideration:

(a) Some of the proposed requirements seem to be excessively detailed. For example, it is not clear what purpose is served by reiterating requirements of other law, such as the Fair Labor Standards Act.

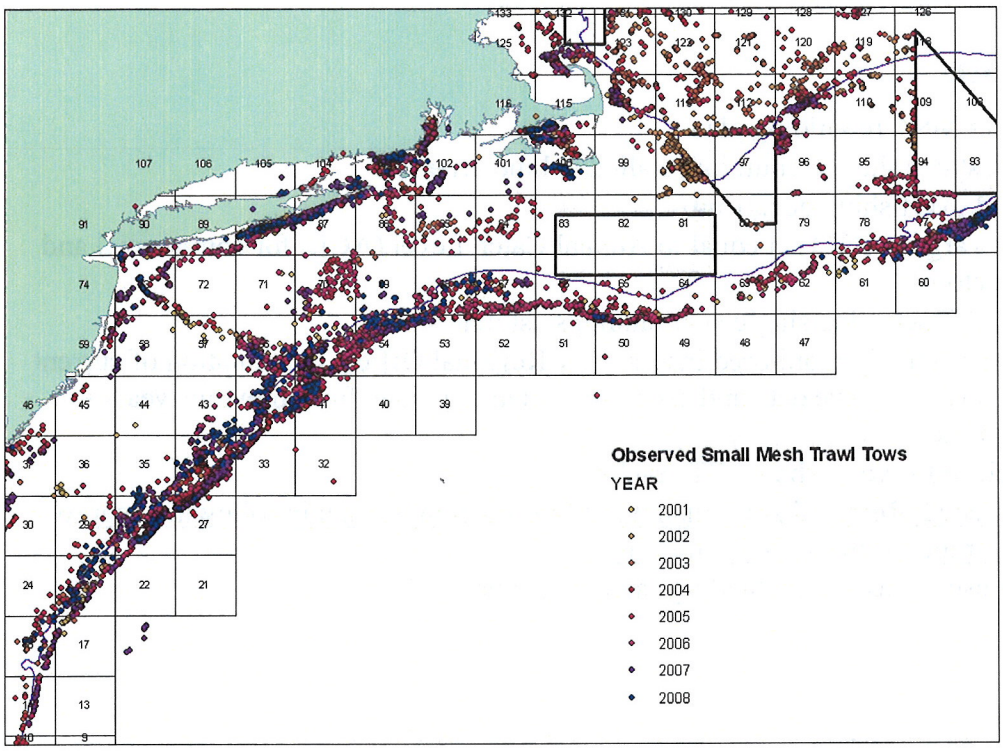
(b) The standards are notably silent on defining the data that must be collected. There is no information on the format, storage, or data elements that will be required. This seems to be a serious shortfall. The PDT believes it would be useful if the data that will be collected can be used interchangeably with that collected by federal observers, and is accessible to users of observer data.

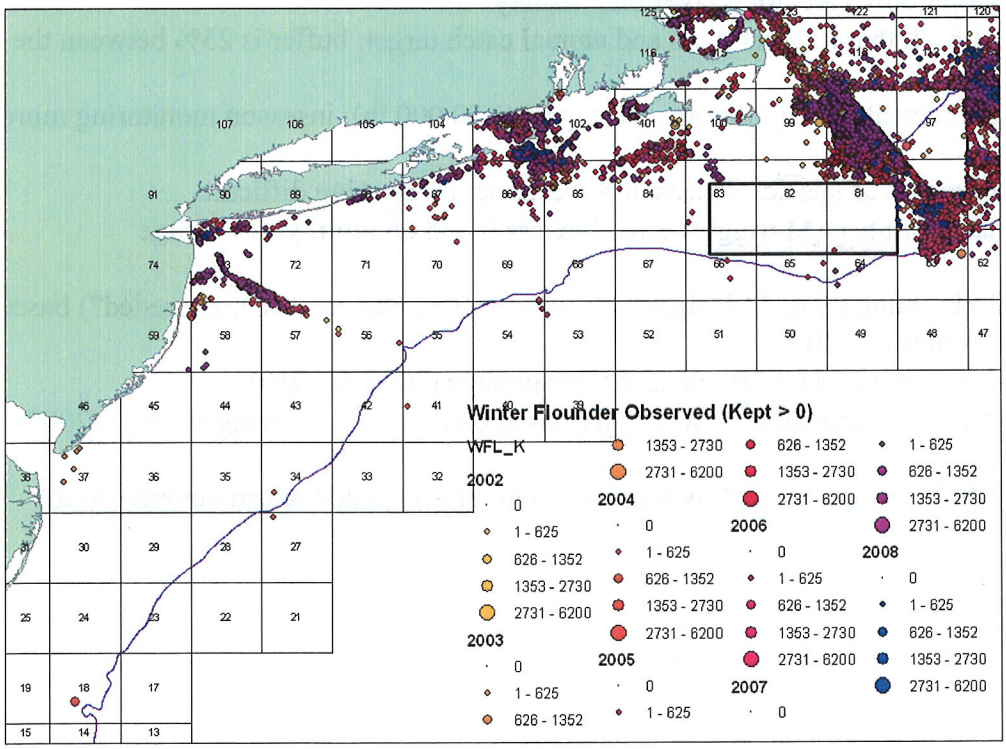
(c) It is not clear whether this information will be included in the amendment, adopted as regulatory text without including in the amendment, or negotiated between NMFS and sectors.

Other business

24. The PDT reviewed the draft amendment language. With respect to catches of groundfish by sector vessels on non-groundfish trips, the current language does seem to double-count groundfish for some components of the fishery. It would seem that if the vessel's groundfish catch on similar trips did not contribute to the vessel's potential sector contribution (PSC), and either a sub-ACL or a set-aside exists to take into account those catches, it should not be counted against a sector's ACE.

Figure 7 – Location of observed small mesh tows (top) and observed trawl tows keeping winter flounder (bottom)





Enclosure (1)

Southeast Region Recreational Fishery ACLs and AMs

Greater Amberjack

- Currently under MSA rebuilding plan
- Updated stock status shows rebuilding stalled/behind schedule
- Overfished and overfishing occurring
- Annual Catch Target (ACT) set equal to Annual Catch Level (ACL) for commercial and recreational sectors
- Recreational ACT set using single year landings estimates
- Annual landings actively monitored inseason by Regional Office; combination of current year MRFSS wave by wave data and estimates of landing rates from previous years for unavailable waves
- Fishery will close for year when ACT reached
- If ACT is exceeded, Regional Administrator adjusts fishing season in following year to recover the overage for the sector in question
- No averaging used in assessing landings against annual ACT

Gray Triggerfish

- **R**ebuilding plan recently established
- Commercial quota/ Soft TAC for recreational fishery
- Buffer between ACL that triggers AMs and annual catch target; buffer is 25% between the two
- Commercial and recreational quotas are low (approx. 80,000 lb); inseason monitoring more difficult
- Infrequently encountered species, inseason recreational monitoring difficult
- Recreational catch limits (AM trigger) effectiveness based on multi year average examination:
- In year one of rebuilding plan, AM trigger assessment (i.e., was rec. ACL exceeded?) based on single year of data (2009)
- Year two, AM trigger based on 1st and 2nd year average (2009 & 2010)
- Year three and all years thereafter, AM trigger based on three year moving average (2009-2011, etc)
- If recreational AM is triggered, following season length is adjusted return landings to the target level

Red, Gag, Shallow water Grouper Complex

Preferred Alternative (Amendment still under development)

- ACLs and AMs set for Red and Gag groupers only; remainder of complex comprise small percentage of complex's landings
- Commercial and recreational fisheries managed inseason; Assistant Administrator for Fisheries would close fisheries when projected to reach quotas/ACLs
- If ACL is exceeded, then AMs are:
    - Current year recreational harvest limit is maintained for following year
    - Recreational fishing season length is reduced to ensure that target catch is not exceeded again
- Recreational landings are compared to ACLs as follows:
- For 2009, 2009 landings compared to 2009 ACL
- For 2010, average of 2009 and 2010 landings compared to 2010 ACL
- For 2011, average of 2009-2011 landings compared to 2011 ACL
- Target catches remain at 2011 levels until modified by subsequent amendment to FMP
- ACTs based on yield at Fmax for gag, equilibrium MSY for red grouper
- Multiyear averaging of landings provides for some buffering between quota(s) and ACL (through monitoring performance through multi-year averages)
- Minimum fish size, fishing season, and possession limits used as recreational management tools

Enclosure (2)
Proposed Multispecies Recreational AM

- ACLs for rec fishery set as described in A16: based on a percentage share of the ACL for GOM cod and GOM haddock (and other species if recreational ACLs are adopted in the future)
- ACLs are established for a fishing year
- Recreational fishery catches are monitored using MRFSS/MRIP data on a fishing year basis
- As soon as data are available for March and April of the fishing year, recreational catches are totaled for the fishing year and compared to the ACL (see below). This is expected to be mid-summer (June/July)
- If catches exceed the ACL, NMFS/NERO will determine the measures necessary to prevent exceeding the ACL and publish measures that will be put into effect consistent with the APA. Final measures will be published no later than January.
- The AM will be selected and implemented as follows (this list is in priority order):
- Adjustment to season: implemented in the current fishing year (i.e. season opening in late spring is changed)
- Adjustment to minimum size: implemented in the current fishing year
- Adjustment to bag limit: implemented in the current fishing year
- At plan implementation, AMs will be monitored and implemented as follows:
    - For FY 2010, FY 2010 harvest will be compared to the FY 2010 ACL and if necessary AMs will be implemented in FY 2011
    - For FY 2011, the average of FY 2010 and FY 2011 harvest will be compared to the average of the FY 2010 and FY 2011 ACL and if necessary AMs will be implemented in FY 2012
    - In subsequent years, the three-year average of recreational harvest will be compared to the three-year average of the recreational ACL and if necessary AMs will be implemented in the year immediately following.

Enclosure (3)
Possible Regular B DAS Program Changes
PDT Meeting Discussion Document, December 5, 2008

Objectives:

- Try to expand catch of haddock and redfish in program
- Try to expand catch by increasing participation in program

Approaches:

- Gear Modifications:
  - Additional Selective Gear:
    - "Raised footrope" gillnet (UNH experiment – unsure of status)
    - Hook gear with specialized bait (same as CA I SAP)
    - Prohibit the use of tie-down gillnets
  - Mesh Size Changes:
    - Reduce codend mesh size to 6" square mesh for trawl vessels (selective gear restrictions would be retained)
    - Allow the use of 6" gillnets (stand-up only and/or "raised footrope")
    - Application of mesh changes
      - To all areas or just GB (to address stock differences)?
      - Throughout the year, or during peak abundances of haddock?
- Increase DAS Availability:
  - Increase allowed number of DAS year-round or by quarter
    - Increase DAS by 10% due to default measure
    - Increase/allocate DAS based upon proportion of fleet in common-pool
  - Redistribute B DAS by area or quarter
    - Distribution by quarter could be to reflect distribution of haddock
    - Difficult to administer and enforce distribution of DAS by area
    - Uncertain distribution of impacts even though contained by TACs
    - Objective could also be achieved by imposing revised area trip limits
- TAC Distribution:
  - Redistribute TACs by quarter to provide incentives to fish when haddock are abundant
  - Allow for TAC under-harvest roll-over/overage deduction between quarters

Background Information:

- Order of most haddock landings by gear: Trawl, longline, and then gillnet
- Default measure already increases # of B DAS to 55% of allocation
- Seasonal Restrictions:
  - Peak haddock landings:
    - GOM – June, October – November, March
    - GB – May – June, October – November, February – April
  - Peak redfish landings: May – June, September – October, January – April
- GAP Recommendation: Allow vessels to use up to 30 gillnets with 6" mesh from January – April
  - January – March are three of the highest months for cod landings in the GOM and March – April are two of the highest landing months for GB cod
    - Gillnet landings higher than trawl landings in January
  - Average or low landings of GOM haddock in January – February and April