Summary of Amendment 15 Outstanding Issues

April 2, 2009 Scallop Committee meeting in preparation for
April 9, 2009 Council meeting – approval of final measures for analysis

In addition to small changes to the overall ACL section and associated accountability measures that were not complete at the February 2009 Council meeting, there are five other outstanding issues: 1) limits on effort in other fisheries from vessels that have leased scallop DAS and/or access area trips; 2) revising the ownership cap provision for vessels that lease DAS and/or access area trips; 3) additional provisions for vessels that lease DAS and/or access area trips; 4) allow LAGC permit and/or quota to be split from other permits on that vessel; and 5) details of the fishing power adjustment (FPA) alternatives that would be applied for vessels that choose to stack or lease DAS.

Each is briefly summarized in this document and background information and analyses are included if necessary. This document is intended to help the Committee make final recommendations so that the final range of alternatives for Amendment 15 can be approved in full at the April 2009 Council meeting.

ISSUE #1: Limits on effort in other fisheries from vessels that have leased scallop DAS and/or access area trips

Amendment 15 to the Scallop FMP is considering an alternative that would allow limited access scallop vessels to lease DAS and/or access area trips to other limited access scallop permit holders. There is concern that if for example, an individual has 2 vessels and leases all scallop effort from one vessel to the other, that one vessel will have more time and incentive to increase effort in other fisheries that second vessel may have permits for. The Scallop Committee is very concerned about increasing effort in other fisheries as a result of leasing in the scallop fishery so developed a range of options (Section 3.3.3.3 on page 52).

The Scallop Committee also requested that the Interspecies Committee consider these ideas and/or other approaches to address this issue. The full Council briefly discussed this issue at the February Council meeting.

Council discussion on this issue:

Several Council members agreed that something should be considered in the scallop action to prevent effort from increasing in other fisheries as a result of leasing under the Scallop FMP. However, others felt that increases in effort in other fisheries should be dealt with under those FMPs – each fishery needs to manage the harvest and mortality of that species, it should not be done under a different FMP. Several added that this shift is not as much as people think it will be because all other fisheries are heavily regulated already, so effort cannot just increase. For example, states that regulate fluke have a quota, and every vessel has to qualify, so it has already been identified who can fish and up to how much. It was also pointed out that this concern has come up in the past with other leasing and limited access programs, and time and time again the effort shifts that people are concerned about never happen to the level that is expected.

Several concerns were also raised about what legal authority there really is to manage fishing in other fisheries under the Scallop FMP. It was pointed out that in order to regulate vessels under an FMP there needs to tie measures to the objective of that FMP. So in order for the Scallop FMP to regulate what vessels can do in other fisheries there would have to be a link to how that activity impacts the scallop resource – i.e. if that fishing activity negatively impacts scallop bycatch. The Council agreed with the Scallop Committee that the Interspecies Committee should discuss this issue in terms of whether it should continue to be pursued, or if the burden of potential effort shifts should rest on those FMPs, or if an Omnibus action is needed. The Chair of the Council explained that if there is time, the Interspecies Committee will discuss this issue at the meeting on Feb 18 and report back to the Scallop Committee.

Interspecies Committee discussion on this issue:

The Interspecies Committee met on February 18, 2009 and recommended that the Scallop Committee move this to considered and rejected section. Primary reason – no legal authority to manage other fisheries unless there is a link to scallop conservation.

Background analyses on permits and landings of other species of LA scallop vessels

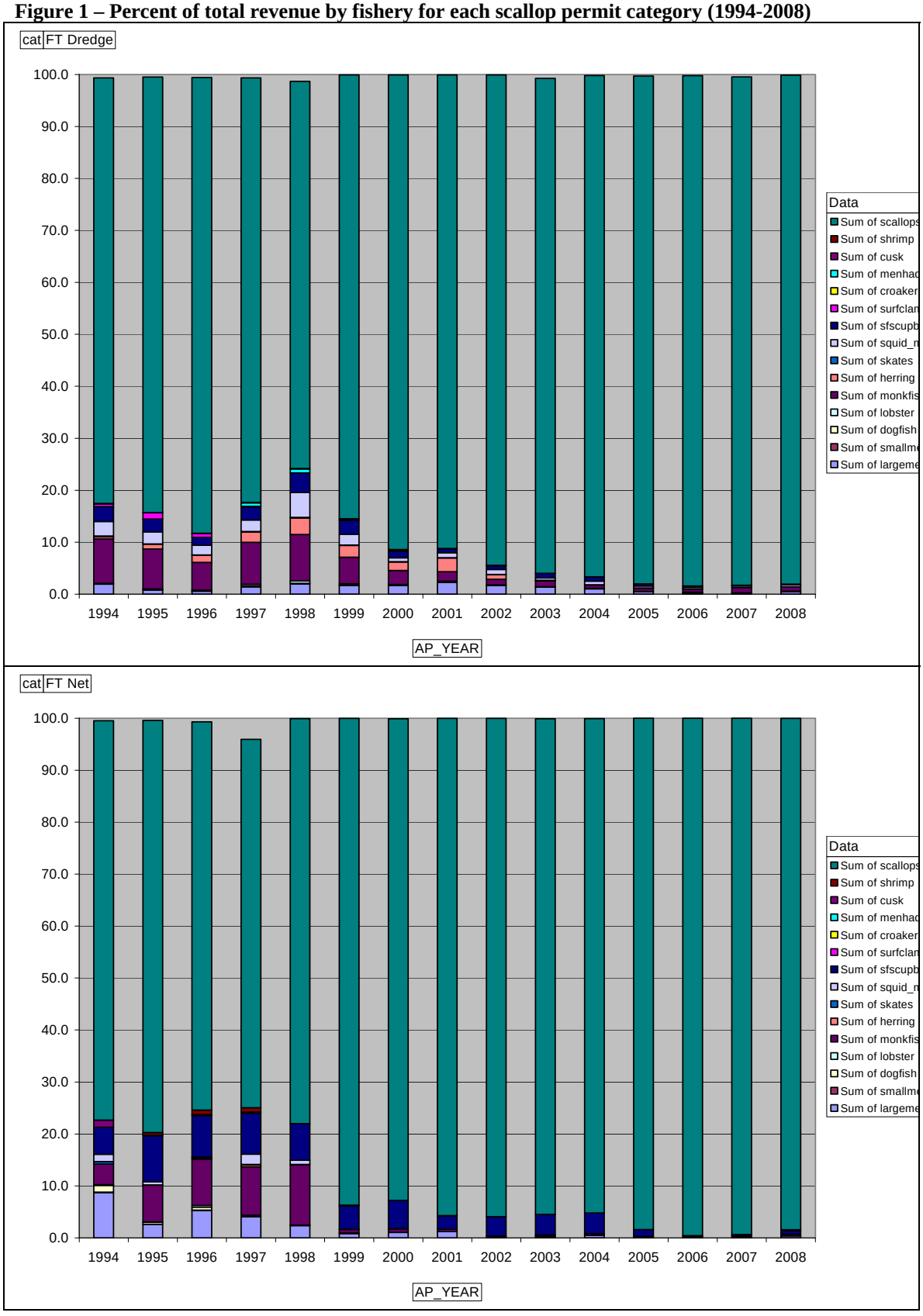
Table 1 – Number of LA vessels with permits in other FMPs and % of total LA permits with each permit type

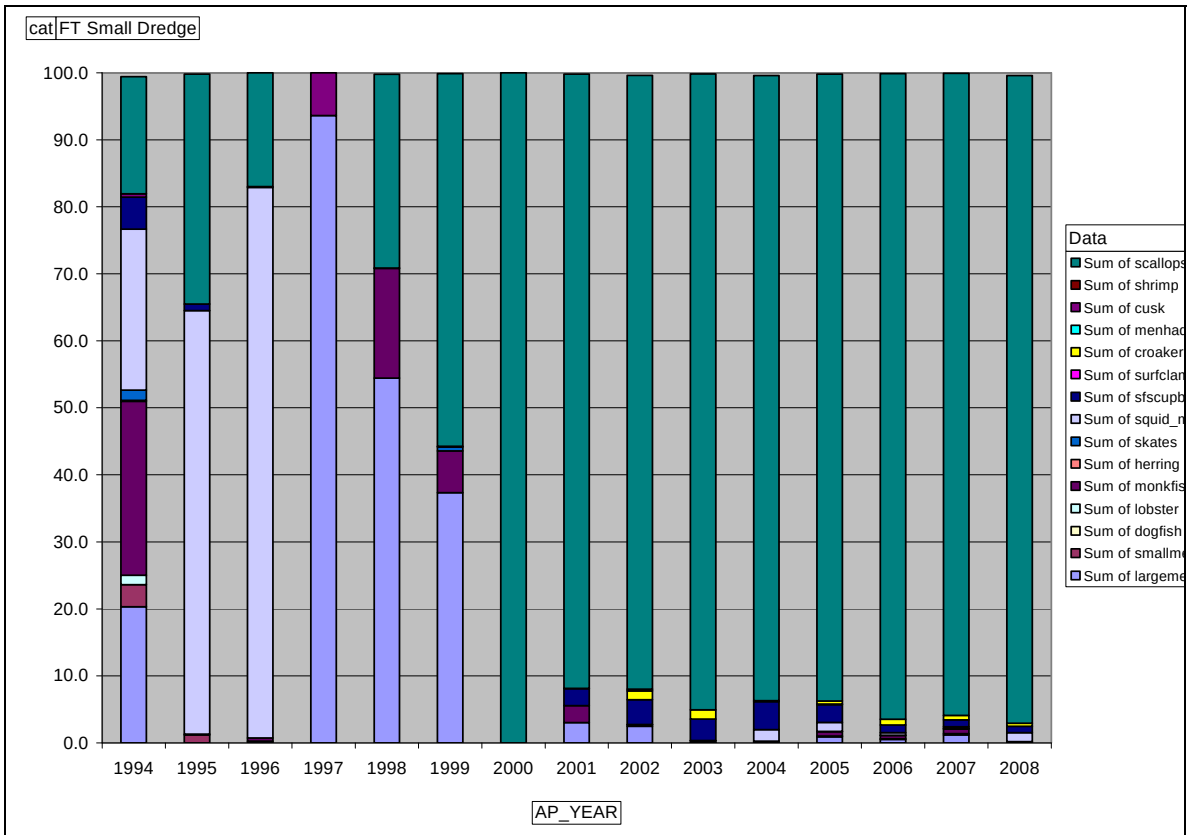
Fishery Management Plan	Number of permits in 2008	% of Limited Access scallop permits which hold
Black Sea Bass	140	41
Bluefish	313	91
Dogfish	328	95
Herring	276	80
Lobster	222	64
Monkfish	337	98
Multispecies	325	94
Ocean Quahog	274	79
Red Crab	260	75
Scallop LA General Category	141	41
Scup	132	38
Skates	301	87
Squid-Mackerel- Butterfish	320	93
Summer Flounder	293	85
Surf Clam	276	80
Tilefish	293	85

Table 2 – Number of permits and % of LA vessels with those permits by category

Cat	Description	# permits held by LA vessels total	Percentage within plan
1	LOLIGO/BUTTERFSH-MORATORIUM-2008	5	2
2	SQUID/MACK/BUTT-CHART/PARTY-2008	0	0
3	SQUID/BUTTERFSH-INCIDENTAL-2008	25	8
4	ATLANTIC MACKEREL - 2008	264	83
5	ILLEX SQUID - MORATORIUM - 2008	26	8
	total	320	100
A	SCALLOP-LAGC-IFQ - 2008	40	28
B	SCALLOP-LAGC-NGOM - 2008	17	12
C	SCALLOP-LAGC-INCIDENTAL - 2008	84	60
	total	141	100
1	SUMMER FLOUNDER-COMMERCIAL-2008	293	100
2	SUMMER FLOUNDER-CHART/PARTY-2008	0	0
	total	293	100

Figure 1 – Percent of total revenue by fishery for each scallop permit category (1994-2008)

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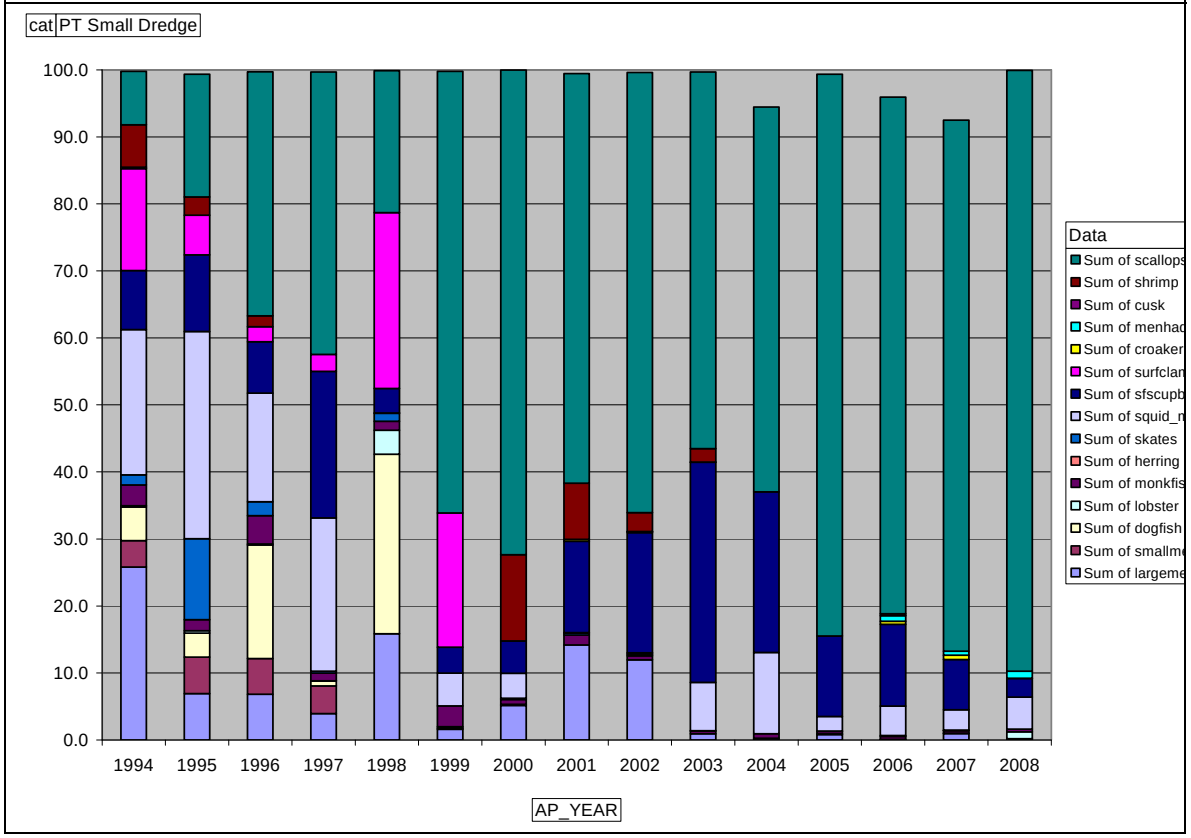
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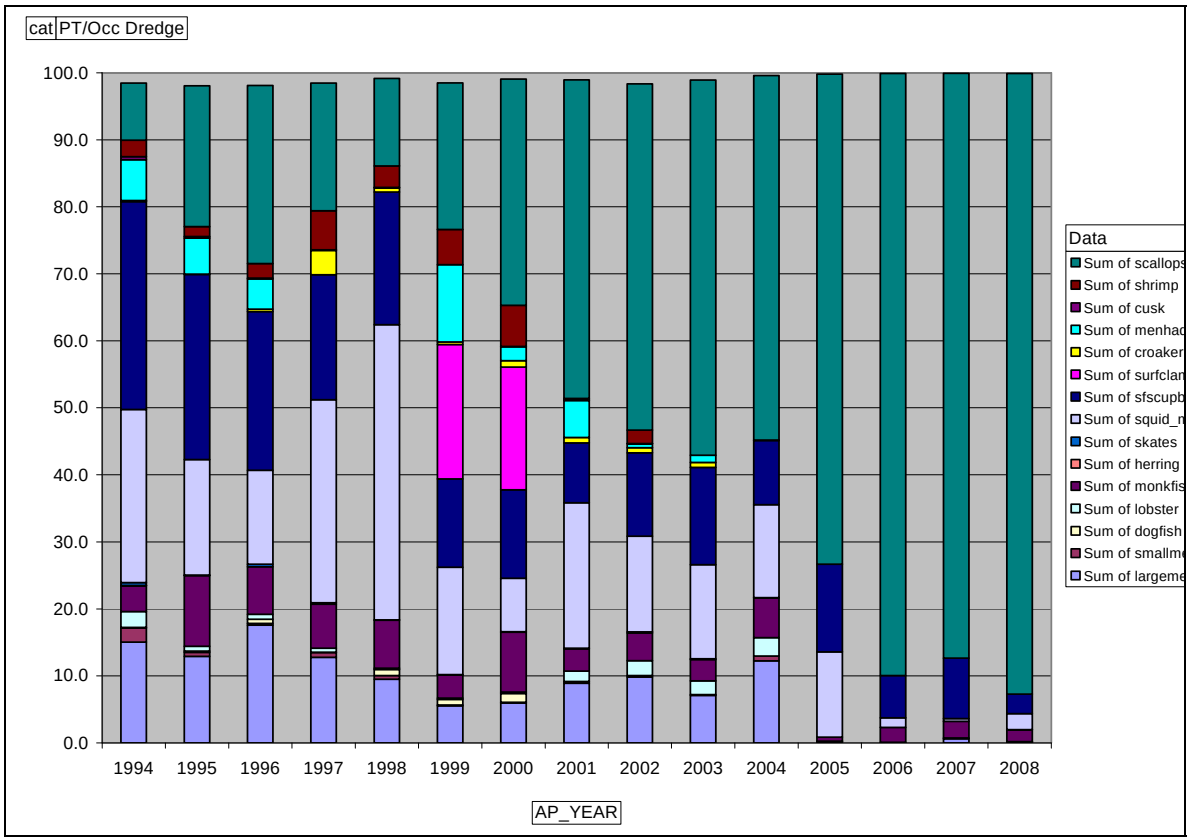
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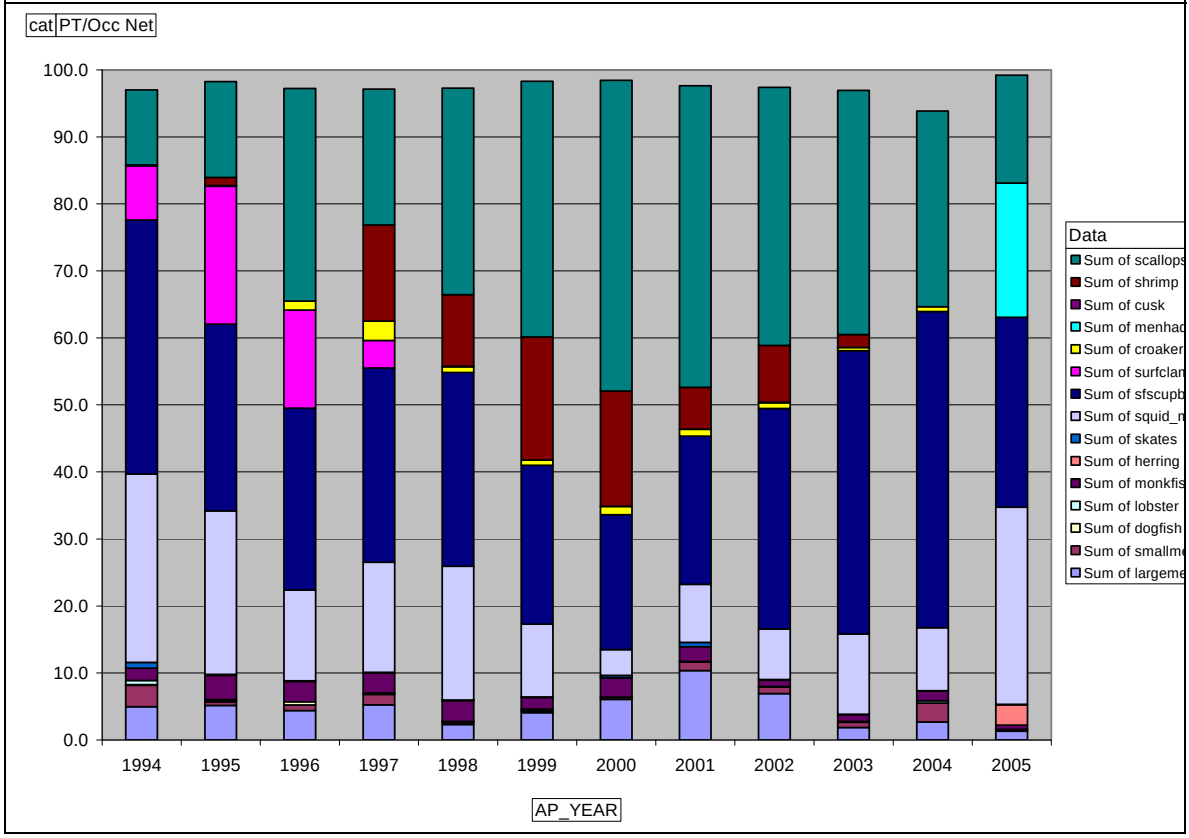
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Issue #2: Revising the ownership cap provision for vessels that lease DAS and/or access area trips

The PDT discussed that the ownership cap provisions are not specific enough, particularly the way they are worded. It was decided that several PDT members should try to draft more specific language for the Committee to consider.

Alternative is described in Section 3.3.3.4 on page 53

Issue #3: Additional provisions for vessels that lease DAS and/or access area trips

Section 3.3.3.5 on page 53

- The PDT noted that there are some inconsistencies in the leasing alternative section that should be cleaned up, specifically whether leasing between gear types is permitted. The PDT expressed reservation about allowing stacking between gear categories. There are significant differences in LPUE between small and large dredge vessels, so the PDT discussed that the Committee should clarify if vessels from different categories should stack/lease, and if so specific adjustments may need to be considered because the allocations and restrictions for some permit types are very different.
- In addition, the PDT suggested that for CPH vessels, an FPA should be applied as well. Since CPH permits are not attached to vessels they will not fit in the HP/GRT tables, so the PDT suggests that the most precautionary approach would be to consider all CPH permits in the lowest HP/GRT category. Therefore, if an active vessel leases or purchases effort from that permit, the maximum FPA would be applied for the transaction. A PDT member expressed reservation about fairness – perhaps the active vessel could lease or purchase effort equivalent to the HP/GRT category the CPH originated from.
- Committee may want to spend more time reviewing the GF leasing program to make sure all issues are covered

Issue#4: Allow LAGC permit and/or quota to be split from other permits on that vessel

The Committee has been requested to consider an alternative that would split a LACG permit and/or quota from other permits on a vessel to help the fishery gain the benefits of quota management. The Council discussed this idea at the February Council meeting and passed a motion directing the Scallop Committee to develop an option further.

Motion 14a. The motion was perfected to read:

to direct the committee to develop an alternative in Amendment 15 to allow a limited access general category IFQ permit to be split from other permits held by the same vessel and transferred independently. Also, consider allowing permit splitting of Northern Gulf of Maine general category permit.

The motion, as perfected, ***carried*** *on a show of hands (9/5/0).*

On February 18 the Interspecies Committee discussed this issue as well, and passed a motion for the Scallop Committee to further consider an option that was not limited to "permit splitting" – but consider allowing just the IFQ to be separated from a vessel – not the permit.

Section 3.4.2.5 has been inserted into A15 as a placeholder. The information below has been provided to help the Committee consider this alternative. Questions have come up about the intent of the IFQ permit developed in Amendment 11 as well as the actual constraints that exist in terms of what permits are connected to IFQ permits. Therefore, the following section extracts key sections of Amendment 11 that describe the original intent of this permit and available info about what permits are connected to these vessels.

Final Amendment 11 to the Atlantic Sea Scallop Fishery Management Plan (FMP)

Purpose and Need

To help focus this amendment during its development, the Council approved policy guidance at the January 2006 Council meeting. This guidance was used during scoping to help define the scope of issues that would be considered during the amendment. Some of this policy guidance has been changed related to statements about overfishing because based on an updated assessment completed in 2006, overfishing is no longer occurring. The policy guidance reads:

> *Amendment 11 will focus on addressing capacity in the general category fishery by considering measures that will better control fishing mortality by this component of the fishery. Specifically, the amendment will consider limited entry and implementation of a hard total allowable catch (hard TAC) to prevent overfishing. This amendment will not consider measures that maintain the general category fishery as an open access fishery with input controls as the only mechanism to manage general category effort (i.e. possession limits and crew restrictions).*

Vision Statement

The Council recognizes that the general category scallop fishery has changed since development and implementation of Amendment 4 in 1994. While some of the participants are the same, many have changed and fishing behavior has evolved with time. The general category scallop fishery has been and still is very diverse. This component of the fishery is prosecuted by vessels of different size and gear types. For example, some general category vessels fish for scallops full-time but only seasonally, another component of the fleet lands scallops above incidental levels while fishing for other species, and some are full-time day boat vessels that target scallops year round.

This action will implement measures that will control capacity and mortality in the general category scallop fishery. In order to accommodate this diverse fleet, this amendment will consider a range of measures that take these differences into account. Specifically, this action is considering a limited entry program, a hard TAC and other management measures to control capacity and mortality.

The overall intent of this action is to stabilize capacity and prevent overfishing from the general category fishery, and in doing so, the Council's vision of this general category fleet from this point forward is to maintain the diverse nature and flexibility within this component of the scallop fleet. Specifically, the Council intends to consider measures that will control mortality from this component of the fleet, but preserve the ability for vessels to participate in the general category fishery at different levels. This Council recognizes the importance of this component of the fishery for small fishing communities, as a component of overall catch for some individual vessel owners, and the value this "dayboat" scallop product has in the scallop market. Overall, the Councils' vision of the general category fishery after Amendment 11 is implemented is a fleet made up of relatively small vessels, with possession limits to maintain the historical character of this fleet and provide opportunities to various participants including vessels from smaller coastal communities.

Description of permit splitting alternative

The consistency amendment established a measure that requires limited access permits issued to a vessel to stay together with the vessel as a "package." They may not be split apart and distributed among other vessels by making a vessel replacement because that would increase overall fleet capacity. Therefore, all limited access permits must be treated as a "package" for the purposes of vessel replacement or for the purposes of limited access permit retention when a vessel is sold or transferred. The general category scallop limited access program will adopt this restriction upon implementation of Amendment 11; therefore, a vessel could not sell a limited access general category permit separately from other limited access permits the vessel may have.

Affected Environment – landings and permits held by gen cat vessels

Table 3 - Landed value for general category vessels homeported in New England by species

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006*
Scallops	0.3	0.4	1.2	1.0	1.0	0.8	0.7	2.6	1.7	2.3	3.1	7.5	10.3
Am. Plaice Flounder	7.6	7.4	7.3	6.2	6.0	4.4	5.2	5.1	4.3	3.0	2.2	1.6	1.9
Cod	17.7	14.5	14.1	12.5	13.5	11.8	13.8	16.8	15.0	12.7	10.2	7.9	8.0
Haddock	0.5	0.6	0.9	2.5	4.5	4.8	6.4	7.9	9.4	8.1	8.9	7.1	6.2
Herring	0.9	0.7	1.7	4.3	3.5	2.7	2.9	2.8	2.6	6.6	7.3	7.5	8.8
Lobster	3.4	4.1	4.9	4.8	4.2	6.0	5.9	4.9	4.9	5.3	7.0	15.4	11.7
Monkfish	9.2	12.3	12.0	11.5	11.7	18.1	19.8	16.6	14.6	14.5	12.6	13.5	11.7
Ocean Quahog	0.6	1.3	1.7	5.1	4.9	4.7	4.2	5.1	4.6	3.5	3.1	1.8	0.0
Shrimp (Pandalid)	5.3	8.1	6.7	5.6	1.9	2.4	0.9	0.4	1.0	0.4	0.6	0.3	0.2
Silver Hake	4.1	3.5	3.6	3.6	3.2	4.0	3.4	3.2	1.8	2.3	2.1	2.0	2.7
Squid (Loligo)	6.8	6.9	3.9	8.1	7.2	8.4	4.9	4.6	7.1	7.6	7.7	5.7	6.0
Summer Flounder	4.5	4.0	2.6	3.1	2.7	2.7	2.5	2.4	2.6	3.2	3.0	3.3	3.2
Winter Flounder	6.0	6.7	8.4	8.1	7.9	6.3	6.1	6.6	6.7	5.4	5.5	4.0	5.5
Witch Flounder	4.8	4.5	4.3	3.6	3.8	3.5	3.7	4.2	4.6	4.7	4.4	3.5	3.8
Yellowtail Flounder	5.0	3.7	4.6	4.5	6.0	5.3	7.6	6.3	6.5	5.8	5.3	3.6	3.0
Other	23.2	21.4	22.3	15.7	18.0	14.0	11.9	10.7	12.7	14.5	17.1	15.3	17.1

*Only shows species that accounted for at least 5% of landed value for active general category vessels (i.e. those landing at least one lb of scallops). Years are fishing years not calendar years; 2006 is year to date as of data run on Sept 27, 2006. Source: dealer weighout data.

Table 4 - Landed value for general category vessels homeported in Mid-Atlantic by species

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006*
Scallops	0.7	0.1	0.1	0.9	0.2	0.4	1.3	2.4	2.7	3.7	10.5	30.5	44.0
Monkfish	1.0	2.3	2.8	2.5	4.2	10.4	8.2	7.9	6.0	6.6	3.5	5.6	4.5
Ocean Quahog	21.8	17.6	16.7	8.7	6.7	5.8	7.0	9.8	15.0	16.9	14.1	7.7	0.0
Shrimp (Penaeid)	0.0	0.1	0.0	3.1	2.2	5.5	7.4	2.8	3.2	1.3	0.0	0.0	0.0
Silver Hake	4.8	8.6	9.5	9.9	9.8	5.2	4.7	5.2	3.4	3.2	2.5	1.4	1.7
Squid (Loligo)	11.2	12.0	8.7	17.1	14.7	15.4	12.8	9.0	7.3	5.8	5.5	5.2	5.7
Summer Flounder	8.0	7.4	8.5	8.2	8.4	7.9	7.6	6.0	8.6	9.7	10.5	9.2	8.4
Surf Clam	25.0	20.5	19.2	17.6	14.1	14.5	14.5	28.3	29.3	27.1	24.4	17.6	2.0
Other	27.4	31.3	34.5	31.9	39.7	35.0	36.4	28.6	24.5	25.7	29.1	22.8	33.6

*Only shows species that accounted for at least 5% of landed value for active general category vessels (i.e. those landing at least one lb of scallops). Years are fishing years not calendar years; 2006 is year to date as of data run on Sept 27, 2006. Source: dealer weighout data.

Table 5 - 2005 permits held by General Category scallop vessels

Plan	%	Plan	%	Plan	%
Bluefish	78.0	Lobster (LOI)	0.04	Scup	27.6
Black Sea Bass	27.1	Monkfish	76.4	Skates	64.9
Dogfish	76.7	Multispecies	78.5	Surf Clam	53.0
Summer Flounder	29.2	Ocean Quahog	51.8	Squid-Mackerel-Butterfish	73.9
Herring	61.7	Red Crab	41.6	Tilefish	53.7
Lobster (LO)	52.7				

Source: NE Permit Data.

Table 6 - General Category trip characteristics

% of scallop lbs. on a trip		No. of trips	No. of boats	Scallops	Fluke	Squid	Monkfish	Groundfish	Lobster	Ocean Quahog	All else	Tot. effort /Ave. crew
	Tot.	501	140	105,552	682,464	7,458	850,454	5,392,321	119,292	0	1,942,325	2,175
< 10%	Ave.			210.7	1362.2	14.9	1697.5	10763.1	238.1	0.0	3876.9	4.0
10 -	Tot.	110	32	24,481	26,706	144	6,726	14,368	174	17,184	41,760	468
25%	Ave.			222.6	242.8	1.3	61.2	130.6	1.6	156.2	379.6	3.0
25 -50	Tot.	130	43	50,057	34,923	1,300	5,315	15,595	203	1,920	13,943	445
%	Ave.			385.1	268.6	10.0	40.9	120.0	1.6	14.8	107.3	3.0
50% or	Tot.	18732	467	7,325,911	26,850	1,502	98,315	2,308	2,032	0	11,963	5,781
more	Ave.			391.1	1.4	0.1	5.3	0.1	0.1	0.0	0.6	3.0

Source: logbooks, year 2005. Note: only includes trips that landed at least 40 lbs of scallops. Percentage of scallops is in terms of pounds landed; effort refers to crew size multiplied by days absent; average by trip.

From Framework 19

Table 7. Other Fishery Management Plan permits held FY 2006, by scallop fishing category

Scallop Permit Category	Bluefish	Black Sea Bass	Dogfish	Summer Flounder	Herring	Lobster	Multi-species	Monk-fish
General Category: VMS	80.1	25.3	80.5	34.9	69.1	48.8	75.8	85.5
Fulltime Dredge	88.5	31.2	94.9	84.2	73.1	65.2	94.5	98.8
Parttime or Occasional Dredge	66.7	66.7	66.7	66.7	33.3	100.0	100.0	66.7
Fulltime Small Dredge	96.3	57.4	96.3	85.2	87.0	57.4	100.0	98.1
Parttime Small Dredge	90.6	68.8	100.0	90.6	75.0	46.9	75.0	100.0
Fulltime Net	100.0	83.3	100.0	100.0	83.3	50.0	91.7	100.0

Scallop Permit Category	Ocean Quahog	Scup	Surf Clam	Red Crab	Skates	Tilefish	Squid-Mackerel-Butterfish
General Category: VMS	57.5	28.6	59.2	54.3	78.1	67.1	78.7
Fulltime Dredge	79.8	27.7	82.2	68.0	86.2	83.4	90.9
Parttime or Occasional Dredge	33.3	66.7	33.3	33.3	100.0	33.3	66.7
Fulltime Small Dredge	75.9	64.8	75.9	79.6	87.0	90.7	96.3
Parttime Small Dredge	75.0	68.8	75.0	78.1	78.1	84.4	96.9
Fulltime Net	58.3	75.0	58.3	83.3	83.3	91.7	100.0

From NERO website – info on current IFQ permit holders

This information is not complete and is expected to change as appeals are settled etc.
Currently there are 283 LAGC vessels with IFQ permits in the database.
There are an additional 56 vessels that have been awarded an LOA.
In addition, there are about 50 permits that have been issued a CPH for LACG IFQ. The majority of these do not have other permits associated with them.

Table 8 – Summary of LAGC IFQ permits issued in 2008 by state

	IFQ	NGOM	Incidental
	A	B	C
CT	6		
FL	*		
GA	*		
MA	85	41	101
MD	7		4
ME	21	40	8
NC	39		20
NH	8	9	5
NJ	81		61
NV	*		
NY	16		13
PA		*	
RI	5	*	31
VA	10		4
Grand Total	283	92	247

Table 9 – Summary of permits held by LAGC IFQ permitted vessels in 2008

	No	Yes	
Bluefish	33	250	88.3%
Lobster	124	159	56.2%
Black Sea Bass	184	99	35.0%
Dogfish	45	238	84.1%
Summer flounder	133	150	53.0%
herring	67	216	76.3%
monkfish	17	266	94.0%
Multispecies	56	227	80.2%
Ocean quahog	112	171	60.4%
Red Crab - open	106	177	62.5%
Scallop (LA)	243	40	14.1%
Scup	183	100	35.3%
Surf clam	112	171	60.4%
Skate	35	248	87.6%
Squid/Mack/Butterfish	46	237	83.7%
Tilefish	74	209	73.9%

Issue #5: Details of the fishing power adjustment (FPA) alternatives that would be applied for vessels that choose to stack or lease DAS

Amendment 15 is considering several alternatives to address excess capacity in the limited access scallop fishery and provide more flexibility for efficient utilization of the resource through various stacking and leasing alternatives. Amendment 15 includes several alternatives to prevent overall effort from increasing as a result of leasing and/or stacking. Concerns have been raised that if DAS and access area trips are sold or leased from vessels with lower fishing power to vessels with higher fishing power, overall effort will increase. Therefore, Amendment 15 includes several fishing power adjustment alternatives to address this concern; however identifying the appropriate way to define these adjustments and evaluate them is critical for preventing effort from increasing as a result of stacking and/or leasing.

The Committee has already approved an overall fishing power adjustment alternative for both stacking and leasing. However, the PDT is still developing the details. The PDT met on March 11 and made some progress described below. The advisors will meet in the future as well and the PDT will bring a more fully fleshed out FPA alternative to the Committee at a later date. This section only summarizes the progress made to date and the Committee can provide input.

In summary, the PDT recommends that the FPA have two adjustments: one that is specific to the vessels involved in the stack/lease, and a second adjustment that accounts for overall expected increases in LPUE when effort is stacked/leased. Specifically, the first adjustment would be applied based on groups vessels are in (~0-20% reduction); and the second adjustment would be applied to recognize that LPUE increases when DAS increase, and there are other factors that influence LPUE that we cannot model – e.g. reduction gear ratio, use of Kort nozzle, etc. (additional ~10-20%). The following pages describe the model used to develop these alternatives so far, and the potential groupings that could be considered. Again, this is a work in progress and the PDT will continue to modify these adjustments.

SIMULATION MODEL FOR ANALYSIS OF DAS TRANSFERS

A simulation model is developed to project the impacts of DAS transfers on total scallop landings with and without an adjustment for the fishing power of the trading vessels and increasing returns to DAS. This model will be used to evaluate the efficiency of various fishing power adjustments, vessel groups and adjustment for increasing returns in terms of keeping fishing mortality constant as a result of DAS leasing or permit stacking.

In the first step, simulation model estimates technological production function, outputs its coefficients and then calculates average adjustment factors using these coefficients for the vessels grouped according to their HP and GRT.

For the purposes of exposition, full time dredge vessels are grouped into 15 groups by their HP and GRT (Table 10).This grouping allows many vessels with similar characteristics and adjustment factors to be placed in the same group. In terms of HP, 7 groups are constructed starting with 600 HP and with including vessels up to 20% higher HP in the same group using the vessel replacement criteria for HP. The GRT grouping is consistent, however, with NMFS grouping for small, medium and large vessels.

Overall, the majority of the scallop vessels are large with a gross tonnage of 150 or larger, whereas only a few have a gross tonnage of less than 50. Therefore, subdividing vessels in the small GRT groups into more groups would leave only one or two vessels in each group.

Table 10 shows the adjustment factors for these group of vessels for fishing power, i.e., for HP and GRT only. Although, larger GRT groups could be subdivided into more subgroups, the examination of Table 10 shows that the incremental difference in the adjustment factors for HP and GRT is already quite small between these 15 groups, and having more groups would possibly have a marginal influence on the adjustment values.

Table 10. Adjustment factors for open area DAS leasing and/or permit stacking based on 2007 datat (Full-time dredge vessels only – excludes small dredge vessels)

HP	GRT	HP-GRT Group	Number of vessels	11	12	13	14	22	23	24	33	34	43	44	53	54	63	64
<600	<50	11	4	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
<600	50-99	12	8	0.974	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
<600	100-149	13	25	0.950	0.976	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
<600	>=150	14	7	0.949	0.975	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
600-719	50-99	22	4	0.936	0.961	0.985	0.986	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
600-719	100-149	23	21	0.924	0.948	0.972	0.973	0.987	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
600-719	>=150	24	16	0.914	0.938	0.962	0.963	0.976	0.989	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
720-863	100-149	33	24	0.900	0.924	0.947	0.948	0.961	0.974	0.984	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
720-863	>=150	34	54	0.885	0.908	0.931	0.932	0.945	0.958	0.968	0.984	1.000	1.000	1.000	1.000	1.000	1.000	1.000
864-1036	100-149	43	4	0.879	0.903	0.925	0.926	0.939	0.952	0.962	0.977	0.994	1.000	1.000	1.000	1.000	1.000	1.000
864-1036	>=150	44	27	0.869	0.892	0.914	0.915	0.928	0.940	0.950	0.966	0.982	0.988	1.000	1.000	1.000	1.000	1.000
1037-1243	100-149	53	5	0.860	0.883	0.905	0.906	0.919	0.931	0.941	0.956	0.972	0.978	0.990	1.000	1.000	1.000	1.000
1037-1243	>=150	54	33	0.848	0.871	0.893	0.894	0.906	0.918	0.928	0.943	0.959	0.965	0.977	0.986	1.000	1.000	1.000
1244-1492	100-149	63	2	0.840	0.862	0.884	0.885	0.897	0.909	0.919	0.934	0.949	0.955	0.967	0.977	0.990	1.000	1.000
1244-1492	>=150	64	10	0.833	0.855	0.876	0.877	0.890	0.902	0.911	0.926	0.941	0.947	0.959	0.968	0.982	0.992	1.000
>=1493	>=150	74	11	0.814	0.836	0.857	0.857	0.870	0.881	0.891	0.905	0.920	0.926	0.937	0.946	0.960	0.969	0.977

DAS LEASING SCENARIOS

Although permit stacking and leasing alternatives will provide flexibility of the vessels to adjust their effort to changes in the scallop biomass and/or in management measures, they could lead to an increase in fishing effort if DAS is transferred from a small vessel to a larger vessel with higher fishing power. The historical data on LPUE's for the full-time limited access fleet by vessel gross tonnage and horsepower indicate that average open area trip landings and LPUE is higher and the trip length is longer for the group of vessels with a higher gross tonnage and horsepower compared to the smaller vessels (Document 4, Tables 2 to 4). Thus, if a transfer of DAS took place from small full-time scallop boats to the larger boats either through permit stacking or DAS leasing, the scallop landings, mortality, and the capacity in the fishery could in fact increase.

In order to estimate extent of this increase in landings with and without adjusting DAS for the fishing power, a scenario analysis is conducted by transferring open area DAS from the vessels with horse power less than 864 HP --except if they had a gross tonnage of more than or equal to 150 GRT(See Table 11 for these groups). That is, DAS for all vessels in groups 33 and lower were set to zero. In addition, it was assumed that the largest vessels leased their DAS from the smallest vessels to magnify the differences between the LPUE of the buying and selling boats. Finally, this scenario is constructed so that the DAS transferred do not exceed twice of the DAS-used of the leasing vessel, which is consistent with the Amendment 15 proposed alternative that limits leasing and stacking to double of the DAS allocation.

Table 11 shows DAS per vessel before and after leasing. Column 3 shows number of DAS that will be available per vessel if no adjustment is made after leasing. Column 5 shows the number of DAS that could be used after it is adjusted for the fishing power of the vessels and by the adjustment factors shown in Table 10. Column 6 shows the DAS adjusted both for HP and GRT and for a 10% DAS adjustment to take into account the increasing average returns to DAS. Finally Column 5 shows total DAS that could be used after leasing and adjustments for fishing power and increasing returns to DAS.

The total transferred and used DAS after adjustments are shown in
Table 12. In this scenario, about 2723 days are transferred from smaller vessels and after adjustments 2273 days could be used by the larger vessels that leased DAS. As a result, overall DAS-used declines by 7.6% from 6395 days before leasing activity to 5945 days.

Table 11. Average open area DAS-used per vessel before and after leasing with and without adjustment for fishing power and increasing returns to DAS (2007)

HP-GRT Group	Number of vessels (Col.1)	DAS-used before leasing (Col.2)	After leasing				
			Unadjusted DAS (Col.3) (1+3)	Leased DA (unadjusted) (Col.4)	Leased DA (Adjusted for Fishing Power) (Col.5)	Leased DA (Adjusted for Fishing Power plus 10% DAS adjustment) (Col.6)	Adjusted DA (Adjusted for Fishing Power plus 10% DAS adjustment) (Col.7) (2+6)
11	3	27.4	0.0	0.0	0.0	0.0	0.0
12	7	26.6	0.0	0.0	0.0	0.0	0.0
13	20	29.4	0.0	0.0	0.0	0.0	0.0
14	6	28.3	0.0	0.0	0.0	0.0	0.0
22	3	31.7	0.0	0.0	0.0	0.0	0.0
23	19	32.3	0.0	0.0	0.0	0.0	0.0
24	13	26.2	0.0	0.0	0.0	0.0	0.0
33	22	29.4	0.0	0.0	0.0	0.0	0.0
34	50	29.7	49.4	19.8	19.3	17.4	47.0
43	4	19.5	19.5	0.0	0.0	0.0	19.5
44	23	30.8	57.4	26.7	25.1	22.6	53.4
53	5	25.9	45.0	19.0	17.5	15.7	41.6
54	25	31.6	55.1	23.5	21.0	18.9	50.5
64	7	30.0	54.2	24.2	21.2	19.1	49.1
74	9	30.4	60.2	29.9	24.7	22.2	52.6

Table 12. Total open area DAS-used before and after leasing with and without adjustment for fishing power and increasing returns to DAS (2007)

HP-GRT Group	Number of vessels (Col.1)	DAS-used before leasing (Col.2)	After leasing				
			Unadjusted DAS (Col.3) (1+3)	Leased DA (unadjusted) (Col.4)	Leased DA (Adjusted for Fishing Power) (Col.5)	Leased DA (Adjusted for Fishing Power plus 10% reduction) (Col.6)	Adjusted DA (Adjusted for Fishing Power plus 10% reduction) (Col.7) (2+6)
11	3	82.27	0.00	0.00	0.00	0.00	0.00
12	7	186.42	0.00	0.00	0.00	0.00	0.00
13	20	588.33	0.00	0.00	0.00	0.00	0.00
14	6	169.63	0.00	0.00	0.00	0.00	0.00
22	3	95.17	0.00	0.00	0.00	0.00	0.00
23	19	613.62	0.00	0.00	0.00	0.00	0.00
24	13	340.68	0.00	0.00	0.00	0.00	0.00
33	22	647.45	0.00	0.00	0.00	0.00	0.00
34	50	1482.87	2471.00	988.13	965.59	869.04	2351.91
43	4	78.12	78.12	0.00	0.00	0.00	78.12
44	23	707.65	1321.27	613.62	577.31	519.58	1227.22
53	5	129.61	224.77	95.17	87.36	78.62	208.23
54	25	789.93	1378.26	588.33	525.03	472.53	1262.46
64	7	209.88	379.51	169.63	148.72	133.85	343.73
74	9	273.53	542.22	268.69	222.12	199.91	473.44
	216	6395.16	6395.15	2723.56	2526.14	2273.52	5945.11

ESTIMATED SCALLOP LANDINGS WITH DAS LEASING, ADJUSTMENTS FOR FISHING POWER AND INCREASING RETURNS

The impacts of DAS leasing for a production function that exhibits increasing average returns to scale are analyzed in Table 14. Without any adjustment, transfer of DAS from small to large vessel would result in an increase of scallop landings by almost 9% and applying fishing power and a 10% DAS adjustment would keep the landings at almost pre-leasing levels. It must be pointed out that the data used in these simulations do not include all full-time vessels, only those 269 vessels which had trip DAS records matching with the recorded trips in the dealer data. The results are not expected to change significantly, however, if all full-time vessels are included in the simulation scenarios.

Table 13. Constant average returns to DAS: Total open area DAS-used before and after leasing with and without adjustment for fishing power (2007)

HP-GRT Group	Scallop lb. before leasing (Col.2)	After leasing – Constant average returns to DAS					
		Scallop landings after leasing (No adjustment) (Col.3)	% Change in landings with no adjustment	Scallop landings after leasing (after fishing power adjustment)	% Change in landings after fishing power adjustment	Scallop landings after leasing (after fishing power and 10% DAS adjustment)	Adjusted DA (Adjusted for Fishing Power plus 10% reduction) (Col.7) (2+6)
11	70,299	-	-100.0%	-	-100.0%	-	-100.0%
12	215,114	-	-100.0%	-	-100.0%	-	-100.0%
13	802,213	-	-100.0%	-	-100.0%	-	-100.0%
14	241,824	-	-100.0%	-	-100.0%	-	-100.0%
22	170,265	-	-100.0%	-	-100.0%	-	-100.0%
23	949,048	-	-100.0%	-	-100.0%	-	-100.0%
24	528,486	-	-100.0%	-	-100.0%	-	-100.0%
33	988,181	-	-100.0%	-	-100.0%	-	-100.0%
34	2,194,110	3,701,405.17	68.7%	3,622,839	39.44%	3,519,741	37.66%
43	127,939	127,938.76	0.0%	127,939	0.00%	127,939	0.00%
44	1,100,966	2,071,250.57	88.1%	1,999,146	44.93%	1,922,541	42.73%
53	228,932	396,852.11	73.3%	383,235	40.26%	367,663	37.73%
54	1,338,680	2,358,005.34	76.1%	2,228,443	39.93%	2,157,375	37.95%
64	349,675	614,138.06	75.6%	597,458	41.47%	558,361	37.37%
74	431,617	851,087.83	97.2%	782,109	44.81%	743,708	41.96%
	9,737,348	10,120,677.84	3.9%	9,741,168	0.04%	9,397,328	-3.62%

Table 14. Increasing returns to DAS: Total open area DAS-used before and after leasing with and without adjustment for fishing power (2007)

HP-GRT Group	Scallop lb. before leasing (Col.2)	After leasing – Increasing average returns to DAS			
		Scallop landings after leasing (No adjustment) (Col.3)	% Change in landings with no adjustment	Scallop landings after leasing (after fishing power and 10% DAS adjustment)	Adjusted DA (Adjusted for Fishing Power plus 10% reduction) (Col.7) (2+6)
11	93,145	-	-100.0%	-	-100.0%
12	230,541	-	-100.0%	-	-100.0%
13	778,767	-	-100.0%	-	-100.0%
14	225,263	-	-100.0%	-	-100.0%
22	125,936	-	-100.0%	-	-100.0%
23	852,786	-	-100.0%	-	-100.0%
24	482,194	-	-100.0%	-	-100.0%
33	926,009	-	-100.0%	-	-100.0%
34	2,226,251	3,809,158	71%	3,617,658	62.50%
43	111,779	111,779	0%	111,779	0.00%
44	1,093,692	2,099,793	92%	1,945,570	77.89%
53	196,978	353,768	80%	326,375	65.69%
54	1,268,185	2,276,426	80%	2,077,806	63.84%
64	345,589	643,511	86%	580,611	68.01%
74	462,034	950,537	105.7%	825,916	78.76%
Total	9,419,150	10,244,973	8.8%	9,485,714	0.71%