

NEW ENGLAND FISHERY MANAGEMENT Council

Skates

I. STATUS

1. Meetings: The Council held two PDT meetings and a Skate Oversight Committee in late March. The purpose of these meetings were to review analyses of the skate catch and biomass time series to recommend a skate Allowable Biological Catch (ABC), catch targets, and total allowable landings (TAL). These recommendations were forwarded to the SSC for review. The Skate Oversight Committee also discussed and passed recommendations on measures to add to alternatives in Amendment 3. The SSC met on April 14 to approve skate ABCs and provide advice on setting TALs to account for uncertainty and risk.
2. Amendment 3 status: In June 2007, the Council approved measures and alternatives in Amendment 3 to rebuild winter and thorny skates. The PDT has analyzed the effect of most of the Amendment 3 measures (possession limits, size limits, gear restricted areas, etc.) on future catches, but they have not been analyzed as alternatives (sets of measures) and no economic analysis has been done pending the determination of the ABC and TALs to rebuild winter and thorny skates.

After the catch and landing limits are approved, the alternatives will be analyzed by the PDT and recommendations on alternatives and management specifications will be made to the Advisory Panel and Oversight Committee.

II. COUNCIL ACTION

1. Approve ABC and TAL recommendations for Amendment 3
2. Approve additional measures to be included and analyzed in Amendment 3 alternatives

III. INFORMATION

1. Amendment 3 decision document, April 2008
2. Allowable Biological Catch for Skate Complex; April 1, 2008 from Paul Howard
3. Skate ABC and TAL recommendations for Amendment 3; March 27, 2008 from Skate PDT
4. Additional Amendment 3 management measures; March 2008 from Skate PDT
5. Additional Category B DAS comments by Council staff, March 28, 2008
6. Summary of March 28, 2008 Skate Oversight Committee meeting
7. Summary of March 20, 2008 Skate PDT Committee meeting
8. Summary of March 27, 2008 Skate PDT Committee meeting

Amendment 3 Decision Document

List of measures and alternatives in Amendment 3

Table 1. Framework of alternatives approved for evaluation and inclusion in Amendment 3, using several appropriate goals to rebuild winter and thorny skates while preventing overfishing. All alternatives would augment existing DAS management and current skate regulations.

Approved management measures (Approved for analysis June 2007)	Management alternatives						Status quo
	1	2	3	4	5	6	
1. <u>Hard TACs (possibly by season/quarter, regional or triggers) and AMs for the wing and bait fisheries.</u> Catch, including discards, no possession of skates for the remainder of the fishing year, in small amount for incidental catch. Overages would be deducted from the next year's TAC. A trigger might cause an adjustment to a possession limit which applies to the fishery approaching a quota or catch limit.	X				X		
2. <u>A target TAC with an in-season trigger to change management measures (e.g. possession limit) as the monitored catch approaches the annual TAC.</u> The PDT should be asked to develop an annual adjustment mechanism that does not jeopardize rebuilding.		X		X		X	
3. <u>Establish winter skate possession limit</u> Dockside identification difficulties noted. Requires additional analysis of sea sampling data.	X		X				
4. <u>Reduce possession limit by x% for the wing fishery and establish whole skate (bait) fishery possession limit to achieve mortality reductions and prevent landings from exceeding the TAL.</u> The possession limit could be specified as a daily/trip limit or as a weekly maximum for each vessel, similar to the state summer flounder regulations or the federal scup fishery regulations (e.g. "aggregate landings program" enrollment). Mortality reductions for a wide range of wing and whole skate possession limits have been analyzed.	X	X			X	X	

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Management alternatives

	1	2	3	4	5	6	Status quo
Approved management measures (Approved for analysis June 2007)							
5. <u>Maximum size restriction during peak egg laying cycles</u> Possession of female skates whose total length is more than 31.5 inches (80 cm) would be prohibited from June 1 to August 31 while east of 71°W longitude. Possession of female skates whose total length is more than 18 inches (45.72 cm) would be prohibited from June 1 to August 31 and from November 1 to December 31 while west of 71°W longitude and north of 40°N latitude. For both little and winter skates, males and females are easily identified by the presence of alar spines on the outer perimeter of the wings of males. Thus during the above seasons, vessels would be prohibited from possessing skate or skate wings without alar spines when total length is greater than the maximum size.	X	X					
6. <u>Larger minimum mesh for skate fishery targeting large (winter) skate based on an analysis of selectivity from sea sampling data. Preliminary analysis shows little or no effect over range of meshes used by the fishery.</u>			X				
7. <u>Replace baseline review process with monitoring and skate management adjustment program</u> Details to be developed in draft amendment	X	X			X	X	
8. <u>Explore and encourage bycatch reduction through gear modifications and other means, via a IAC set aside research initiative.</u> To be modeled after existing programs, research priorities to be developed.	X	X			X	X	
9. <u>Closed area management to reduce mortality from fishing targeting skates.</u> Areas with the most effect for reducing winter and thorny skate mortality have been identified. Effects on catch and mortality have been analyzed with a two-bin model.	X	X	X	X	X	X	
10. <u>Gear restricted areas to reduce mortality from bycatch and incidentally landings.</u> See above for status of analysis	X	X	X	X	X	X	
Measure to be approved or reconsidered							

	Management alternatives						Status quo
	1	2	3	4	5	6	
Approved management measures (Approved for analysis June 2007)							
11. <u>ABC and TALs for skate complex fisheries</u> Catch thresholds and targets defined by median catch and catch/biomass ratios	X	X	X	X	X	X	
12. <u>Requirement to land skates in whole form</u> Concerns about safety, hold capacity and ice costs, product quality, and at shore processing and disposal costs.	X	X	X	X	X	X	
13. <u>Time area closures</u> See measure #9.	?	?	?	?	?	?	
14. <u>Maximum size restriction during peak egg laying cycles</u> Possession of female skates whose total length is more than 31.5 inches (80 cm) would be prohibited from June 1 to August 31 while east of 71°W longitude. Possession of female skates whose total length is more than 18 inches (45.72 cm) would be prohibited from June 1 to August 31 and from November 1 to December 31 while west of 71°W longitude and north of 40°N latitude. For both little and winter skates, males and females are easily identified by the presence of alar spines on the outer perimeter of the wings of males. Thus during the above seasons, vessels would be prohibited from possessing skate or skate wings without alar spines when total length is greater than the maximum size.	X	X					
Considered and rejected management measures							
15. <u>Requirement to land skates in whole form</u> Concerns about safety, hold capacity and ice costs, product quality, and at shore processing and disposal costs.							
16. <u>Annual catch limit specifications by individual species</u> Rejected due to insurmountable difficulties to ensure accurate identification and reporting by fishermen and processors.							
17. <u>Consolidate skate management into the Multispecies FMP</u> Deferred due to evolution of groundfish management							



#2

New England Fishery Management Council

50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
 John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

MEMORANDUM

DATE: April 1, 2008
TO: Scientific and Statistical Committee (SSC)
FROM: Paul Howard
SUBJECT: Allowable Biological Catch for Skate Complex

The Council requests the SSC to either approve the PDT recommendations, or recommend catches that are consistent with the objectives to rebuild skates and prevent overfishing based on the included skate data or other information. The SSC is requested to identify an ABC and provide advice about catch targets and landings limits to account for the considerable uncertainty in discard mortality, species composition, and other factors. Additionally, the SSC is requested to advise the Council on how to account for large uncertainties about discard mortality in setting a TAC or TALs.

Background information is attached with Skate PDT recommendations for Allowable Biological Catch (ABC) thresholds and catch and landings targets (TAL), intended to be consistent with an objective to rebuild winter and thorny skates and prevent overfishing. Their recommendation is to use the aggregate median catch or median catch/biomass ratio, whichever is less, to set the ABC threshold. The PDT furthermore recommended using an aggregate value of 80% of the median catch or 75% of the median catch/biomass to establish catch targets (TAC) and landings limits (TAL).

Thus, the PDT is recommending an ABC of 18,940 mt assuming that 25% of discards do not survive (Table 1, Document #1). TALs based on 75% of the median catch/biomass value would allow for landings of 6,701 mt for the wing fishery and 3,128 mt for the whole/bait skate fishery. If a 50% discard mortality rate is assumed, the values would be a 30,569 ABC with a wing TAL equal to 8,227 mt and a whole/bait skate TAL of 4,031 mt.

Due to uncertainties in species identification in landings and discards and problems caused by monitoring catches of individual species, the PDT is recommending setting limits based on historic splits between discards, landings in the wing fishery, and landings in the whole/bait fishery. The PDT analyzed discard mortality ranges between 25 and 50 percent, which it believes to be a reasonable assumption, based on anecdotal observation and recent literature on skate discard mortality (see Documents 5 to 7).

Andy Applegate, PDT chair, will make a brief presentation to the SSC and be available to answer any of your questions concerning the PDT's recommendations.

Background Information

Following the SSC meeting in November 2007, the Council explored with the Northeast Fisheries Science Center convening a group to do a quick assessment of skates. There are however unresolved problems with an analytical, MSY-based assessment and presently there are insufficient resources to work on a skate assessment. On the other hand, the Council is obligated by the Magnuson Stevens Act to prepare a plan amendment that will address the overfished status determinations and set catch limits.

In lieu of a formal assessment, the PDT explored the relationships between catch and changes in skate biomass to identify catch limits that improved the prospect of biomass rebuilding. Following the advice of the SSC, the PDT explored various moving averages and lags described in Document #3, using existing landings and discard data from SAW44. The data were however too noisy to identify reasonable relationships between high catch and declines in biomass (and vice versa) at the species level (Document #3). Even in recent years, nearly 60% of landings were reported as unidentified species.

The PDT tried to reduce the noise in the data by allocating landings to species based on the ratio of exploitable trawl survey biomass in each three digit statistical area and trimester (Document #4). All landings reported by VTR were allocated to a species composition characteristic of the trawl survey in that area and time. Later, the PDT used the same method using total survey biomass to apportion the discards to species before calculating the catch limits based on median catches for each species (Document #2).

Biomass increases tended to be more frequent and higher when catches were historically below the median value for winter and thorny skate. For winter skate, biomass increased 8 of 11 times, for an average increase of 28% when the catch was below the median (Figure 1, Document #2). When the catch was below 80% of the median value, biomass increased 5 out of 5 times, with an average annual increase of 51%. Most (17 of 22 years) of the annual biomass changes for the thorny skate were declines, but the declines were less negative (6 of 10 years, +6%) when catches were below the median. For the other five skate species, there was either no relationship between the level of catch and changes in biomass, or counter intuitively the largest catches had the largest increases in biomass.

The PDT applied a 25 and 50% discard mortality rate to the TAL calculations, because skate discard mortality has not been studied in US fisheries and this seemed to be a reasonable range based on anecdotal observation. Some recent studies in foreign waters suggest that 50% of discarded skates do not survive.

Since estimated total discards have declined substantially in recent years and an assumption of a 50% discard mortality rate would attribute a greater proportion of the historic catch to discards, the current catches are lower compared with the historic median values. Thus the 50% discard mortality assumption is actually the more liberal of the range (Figure 1, Document 1). With a 50% discard mortality assumption, total catches have declined and 2006 catch is among the lowest of the time series. The ABC would be 30% higher than the 2006

catch. Conversely, total estimated catch with a 25% mortality assumption are nearly flat and the median value (recommended as an ABC) is 4 percent lower than the 2006 catch.

The PDT also used three options to split the historic catch into discards and landings components to estimate TALs for the wing and whole/bait skate fisheries (Document #2). A period from 1989-2006 represents the entire time series and of the three options has the largest share allocated to discards. This option would allocate a conservative limit to the directed fishery and incidental landings, with a liberal limit to account for discards. A second option would use the average split between landings and discards for 1994-2007, after the Georges Bank closed areas and effort control programs began. The last period from 2004-2006 encompassed a period when discards declined after skate plan implementation and directed skate fisheries began increasing. Choosing this option would create more liberal landings limits (TALs), but more conservative limits on discards. There would be no effect on total catch or ABC.



#3

New England Fishery Management Council

50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

MEMORANDUM

DATE: March 27, 2008
TO: Skate Oversight Committee and Council Science and Statistical Committee
FROM: Skate PDT
SUBJECT: Skate ABC and TAL recommendations for Amendment 3

The PDT offers the following advice related to setting skate ABCs and ACIs to prevent overfishing and rebuild winter and thorny skates. These recommendations are based on the March 26, 2008 memo titled "Application of catch/biomass regressions to estimate catch limits to rebuild winter and thorny skates".

- The TAC limit should take into account uncertainty about discard mortality and its effect on trends in catch
- The TAC and TAL thresholds should take into account uncertainty about species composition of the landings and the appropriate split between landings and discards
- Setting limits using catch vs. catch/biomass ratio – Using a catch/biomass is more risk adverse because it automatically adjusts the limit when biomass declines, but may be capped at the TAC based on historic catch when biomass increases.
- Lack of relationship between catch and changes in biomass could occur due to catches being well below appropriate reference points or because there is insufficient contrast in catch and biomass during the time series, or simply there are inaccurate assumptions about species composition.
- However, lacking other information, the PDT believes that median catch levels are appropriate limits for species that are not overfished and a lower percentage of the time series is appropriate for setting catch limits for overfished species.

Using catch vs. catch/biomass

Catch/biomass is a better parameter for setting limits when stock biomass is low, but catch would be more appropriate as stock biomass increases.

Using discard mortality assumptions

A higher assumption of discard mortality results in a more liberal catch limit because it affects the amount of historic catch when discards were higher than they were in 2006. Therefore, a lower assumption of discard mortality results in more conservative estimates of TAC.

The only study of skate discard mortality occurred in 2006 in Canadian waters on winter skate for trawl gear. This study estimated discard mortality to be around 50%. The PDT realizes that discard mortality varies with conditions, species, and gear, so the PDT assumed a range of discard mortality equal to 25 to 50%.

Using various discard/landings splits (time period)

Because discards were historically higher than they were in 2006, using a longer time period to determine the split results in more liberal discard limits and more conservative landings limits when the longest time period (1989 to 2006) is applied.

Using splits between wing and whole skate landings to derive TALS (used 2004-2006)

Use of a more recent time series allocates a higher proportion of the TAL to the wing fishery because recent landings in this fishery have been increasing.

Consensus advice

The median catch or catch/biomass values should be used to establish a skate ABC and the 75/80% of median values should be used to set annual catch limits as risk-adverse targets. The PDT does not recommend setting ABCs for individual species due to significant problems with species identification in landings and discards. These problems appear to have a low probability of immediate resolution. Landing skates in whole form would resolve some of the species identification issues, but raises other industry concerns about safety, ice and processing costs, and disposal. Such a measure could however promote more full utilization of the resource.

Because Table 7 reflects more recent trends in lower discards, the PDT recommends using this as the basis for setting skate TACs and TALs. Therefore, the Council should consider setting an aggregate skate TAC of 18,940 mt, a wing TAL of 6,701 mt, and a whole/bait TAL of 3,128 mt. The TALs are based on a target derived from 75% of the median catch/biomass ratio of the time series. As stock biomass increases, the limit and targets based on catch median would become the more conservative value and be used in lieu of those based on the catch/biomass ratio.

Table 1. PDT recommendations for ABCs and wing and whole TALs highlighted in boldfaced, outlined values.

Species	25% discard mortality				50% discard mortality			
	Catch Median	80% of medi	Catch/biomass * 04-06 t Median	75% of me	Catch Median	80% of medi	Catch/biomass * 04-06 t Median	75% of me
Barndoor	192	154	2,399	1,799	290	232	3,127	2,345
Clearnose	264	211	308	231	521	417	568	426
Little	11,207	8,965	9,594	7,195	17,524	14,019	16,062	12,046
Rosette	15	12	26	19	26	21	50	37
Smooth	23	18	24	18	33	26	35	26
Thorny	94	75	46	34	155	124	66	49
Winter	10,879	8,703	7,905	5,929	17,422	13,938	11,951	8,963
Total	22,674	18,139	20,302	15,226	35,971	28,777	31,858	23,893
Discards	6,517	5,214	5,835	4,377	16,062	12,849	14,225	10,669
Prohibited species	278	223	2,222	1,667	430	344	2,905	2,179
Legal species	6,239	4,991	3,613	2,710	15,632	12,506	11,320	8,490
	0.28	0.28	0.20	0.20	0.44	0.44	0.40	0.40
Allowable landings	16,156	12,925	14,466	10,850	19,909	15,927	17,633	13,224
Prohibited species	31	25	247	185	48	38	323	242
Legal species	16,126	12,900	14,220	10,665	19,861	15,889	17,310	12,982
Wings	11,232	8,985	8,935	6,701	13,881	11,105	10,969	8,227
Change from 2007	-20%	-36%	-37%	-52%	-1%	-21%	-22%	-42%
Whole	4,925	3,940	4,170	3,128	6,028	4,823	5,374	4,031
Change from 2007	3%	-17%	-13%	-34%	26%	1%	13%	-16%
TAL	16,156	12,925	13,105	9,829	19,909	15,927	16,343	12,258
Discards	6,517	5,214	5,835	4,377	16,062	12,849	14,225	10,669
TAC	22,674	18,139	18,940	14,205	35,971	28,777	30,569	22,927
Change from 2006	14%	-8%	-4%	-28%	53%	23%	30%	-2%

Figure 1. Recommended targets and catch thresholds with 25% (upper) and 50% (lower) discard mortality assumptions.

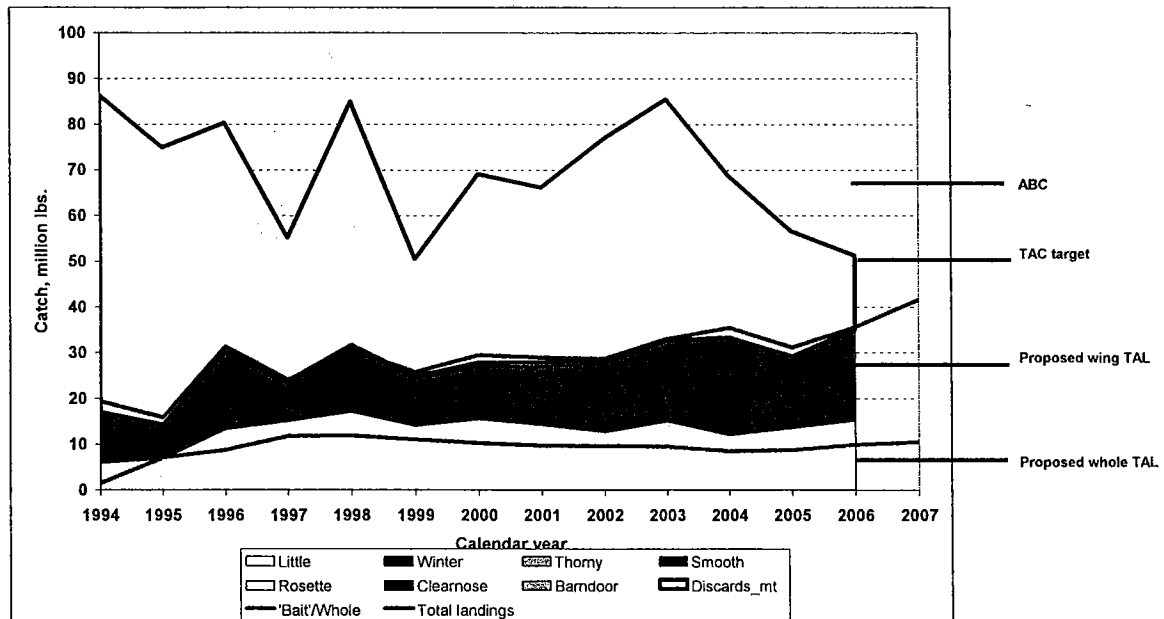
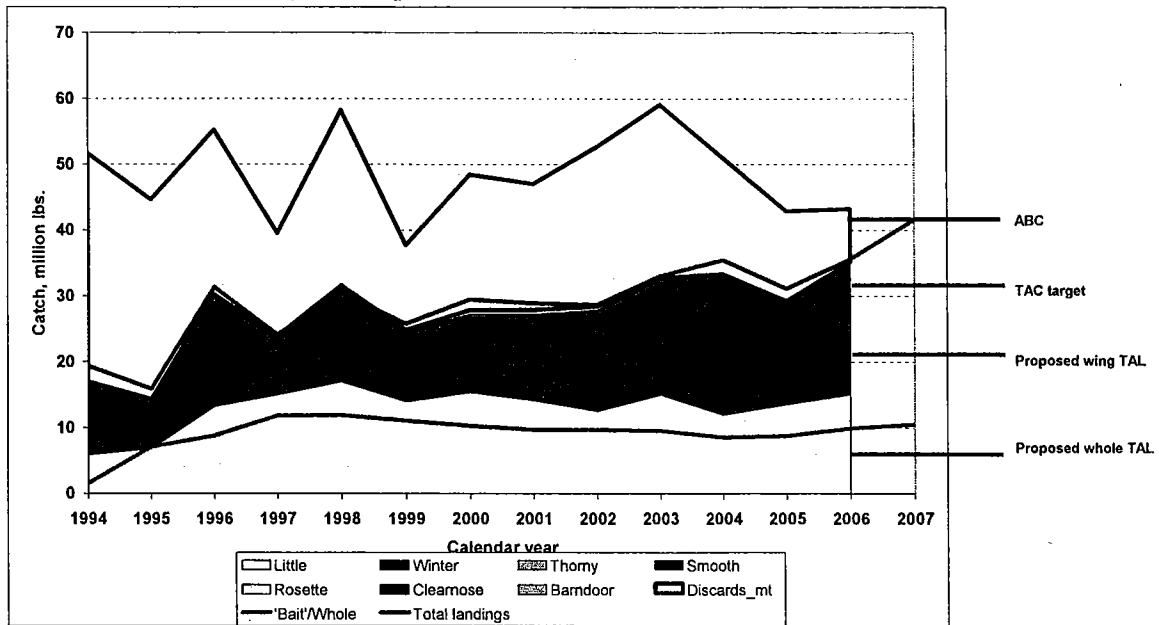


Table 1. Annual skate landings (live weight) and PPI adjusted price per pound by fishery

Year	Category		Data		Total Landings, lbs.	Total Average Price, adj.
	Whole		Wings			
	Landings, lbs.	Average Price, adj.	Landings, lbs.	Average Price, adj.		
1983	373,950	\$0.15	1,571,917	\$0.03	1,945,867	\$0.05
1984	150,041	\$0.07	1,681,600	\$0.04	1,831,641	\$0.04
1985	150,658	\$0.05	1,532,173	\$0.03	1,682,831	\$0.03
1986	578,942	\$0.04	1,595,004	\$0.05	2,173,946	\$0.05
1987	192,786	\$0.09	2,981,071	\$0.05	3,173,857	\$0.05
1988	163,493	\$0.09	4,496,366	\$0.05	4,659,859	\$0.05
1989	9,177,882	\$0.04	5,609,003	\$0.06	14,786,885	\$0.04
1990	11,029,297	\$0.05	14,108,553	\$0.07	25,137,850	\$0.06
1991	11,176,676	\$0.04	13,806,255	\$0.06	24,982,931	\$0.05
1992	12,920,030	\$0.04	14,692,968	\$0.09	27,612,998	\$0.07
1993	12,183,798	\$0.04	16,264,182	\$0.11	28,447,980	\$0.08
1994	1,550,700	\$0.06	17,812,760	\$0.21	19,363,460	\$0.19
1995	7,124,507	\$0.16	8,786,264	\$0.17	15,910,771	\$0.16
1996	8,778,715	\$0.12	22,554,671	\$0.18	31,333,386	\$0.16
1997	11,836,722	\$0.08	12,291,942	\$0.14	24,128,664	\$0.11
1998	11,886,620	\$0.05	18,601,005	\$0.14	30,487,625	\$0.11
1999	11,086,256	\$0.05	14,672,037	\$0.13	25,758,293	\$0.10
2000	10,293,975	\$0.06	19,159,174	\$0.13	29,453,149	\$0.11
2001	9,704,035	\$0.07	19,221,075	\$0.11	28,925,110	\$0.10
2002	9,693,394	\$0.07	18,974,985	\$0.12	28,668,379	\$0.10
2003	9,543,292	\$0.07	23,536,196	\$0.12	33,079,488	\$0.11
2004	8,539,686	\$0.07	26,895,535	\$0.15	35,435,221	\$0.13
2005	8,770,169	\$0.10	22,343,993	\$0.18	31,114,162	\$0.15
2006	9,958,860	\$0.09	25,662,683	\$0.22	35,621,543	\$0.18
2007	10,523,652	\$0.09	31,044,120	\$0.24	41,567,772	\$0.20
2008	1,108,785	\$0.09	2,653,307	\$0.25	3,762,092	\$0.20

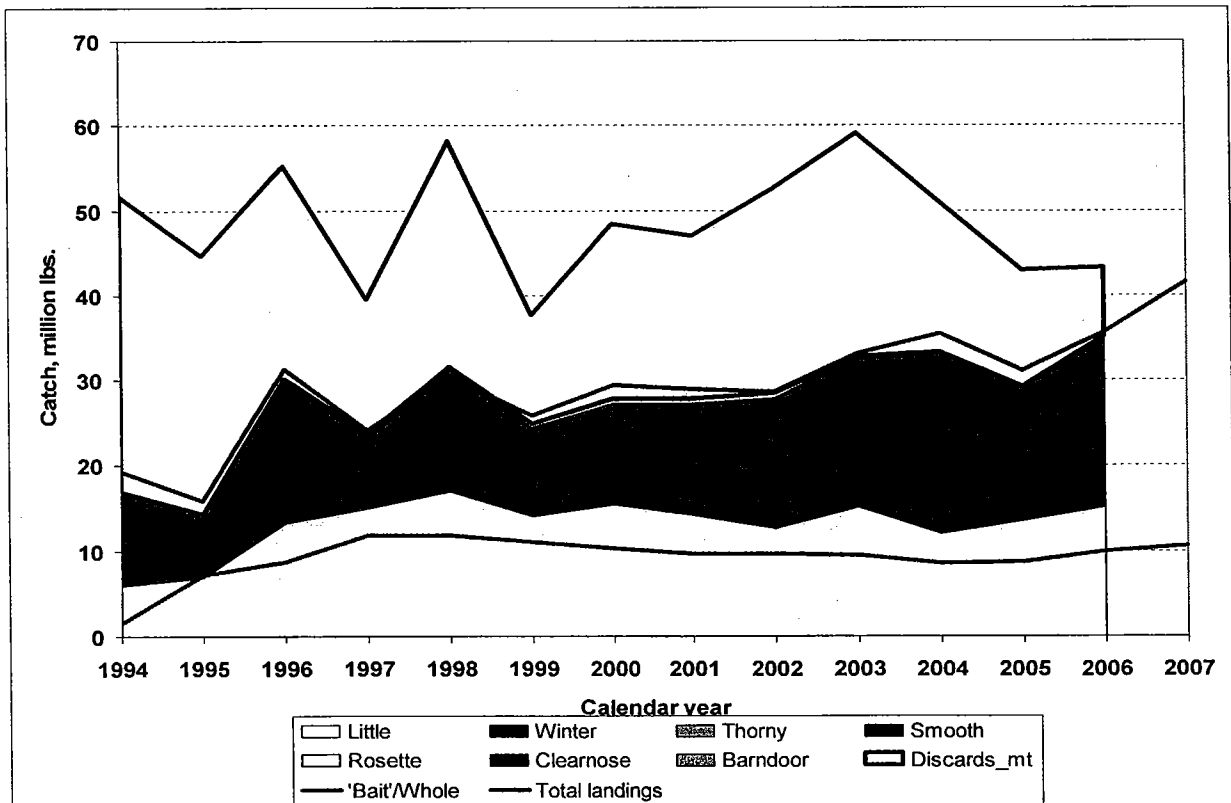
Table 2. Annual skate landings (live weight) and PPI adjusted price per pound by fishery, trawl gear only.

Year	Category		Data		Total Landings, lbs.	Total Average Price, adj.
	Whole		Wings			
	Landings, lbs.	Average Price, adj.	Landings, lbs.	Average Price, adj.		
1983	370,829	\$0.15	1,494,765	\$0.03	1,865,594	\$0.06
1984	143,479	\$0.08	1,612,361	\$0.04	1,755,840	\$0.04
1985	134,978	\$0.05	1,455,653	\$0.03	1,590,631	\$0.03
1986	563,217	\$0.04	1,540,812	\$0.05	2,104,029	\$0.05
1987	160,452	\$0.10	2,891,559	\$0.05	3,052,011	\$0.05
1988	155,553	\$0.10	4,409,383	\$0.05	4,564,936	\$0.05
1989	9,158,534	\$0.04	5,471,209	\$0.06	14,629,743	\$0.04
1990	11,014,515	\$0.04	13,984,536	\$0.07	24,999,051	\$0.06
1991	11,165,649	\$0.04	13,459,308	\$0.07	24,624,957	\$0.05
1992	12,905,009	\$0.04	14,084,667	\$0.09	26,989,676	\$0.07
1993	12,179,290	\$0.04	14,085,343	\$0.11	26,264,633	\$0.08
1994	1,140,180	\$0.05	14,720,399	\$0.21	15,860,579	\$0.20
1995	6,371,136	\$0.14	6,365,181	\$0.17	12,736,317	\$0.16
1996	8,647,449	\$0.12	19,889,383	\$0.18	28,536,832	\$0.16
1997	10,464,464	\$0.08	8,986,078	\$0.14	19,450,542	\$0.11
1998	11,733,123	\$0.05	14,115,219	\$0.14	25,848,342	\$0.10
1999	10,768,004	\$0.05	11,408,569	\$0.14	22,176,573	\$0.10
2000	10,111,459	\$0.06	15,161,973	\$0.13	25,273,432	\$0.10
2001	9,518,956	\$0.07	14,367,473	\$0.12	23,886,429	\$0.10
2002	9,038,331	\$0.07	12,274,966	\$0.12	21,313,297	\$0.10
2003	7,287,875	\$0.07	15,318,553	\$0.12	22,606,428	\$0.11
2004	8,293,485	\$0.07	15,282,976	\$0.15	23,576,461	\$0.12
2005	6,879,155	\$0.09	10,839,514	\$0.19	17,718,669	\$0.15
2006	8,847,923	\$0.08	10,309,562	\$0.22	19,157,485	\$0.16
2007	9,830,888	\$0.09	11,733,212	\$0.25	21,564,100	\$0.18
2008	853,845	\$0.09	687,725	\$0.27	1,541,570	\$0.17

Table 3. Annual skate landings (live weight) and PPI adjusted price per pound by fishery, gillnet gear only.

Year	Category Data					
	Whole		Wings		Total Landings, lbs.	Total Average Price, adj.
	Landings, lbs.	Average Price, adj.	Landings, lbs.	Average Price, adj.		
1983	1,843	\$0.07	21,477	\$0.03	23,320	\$0.03
1984	1,742	\$0.05	20,903	\$0.04	22,645	\$0.04
1985	1,555	\$0.05	43,120	\$0.02	44,675	\$0.02
1986	2,574	\$0.09	21,478	\$0.04	24,052	\$0.05
1987	6,562	\$0.12	30,531	\$0.03	37,093	\$0.05
1988	2,912	\$0.10	30,510	\$0.05	33,422	\$0.05
1989	3,649	\$0.13	25,930	\$0.05	29,579	\$0.06
1990	3,474	\$0.14	21,958	\$0.05	25,432	\$0.06
1991	3,323	\$0.16	131,304	\$0.06	134,627	\$0.06
1992	5,590	\$0.19	492,162	\$0.08	497,752	\$0.08
1993	575	\$0.16	1,591,803	\$0.08	1,592,378	\$0.08
1994	12,063	\$0.24	2,268,134	\$0.18	2,280,197	\$0.18
1995	35,270	\$0.12	2,041,812	\$0.16	2,077,082	\$0.16
1996	107,673	\$0.17	2,278,407	\$0.16	2,386,080	\$0.16
1997	1,304,636	\$0.08	2,228,798	\$0.12	3,533,434	\$0.11
1998	4,112	\$0.08	3,247,715	\$0.12	3,251,827	\$0.12
1999	261,736	\$0.09	2,893,688	\$0.12	3,155,424	\$0.11
2000	138,305	\$0.09	3,805,776	\$0.12	3,944,081	\$0.12
2001	181,366	\$0.11	4,769,828	\$0.10	4,951,194	\$0.10
2002	637,677	\$0.11	6,576,680	\$0.12	7,214,357	\$0.12
2003	2,207,900	\$0.06	7,957,523	\$0.12	10,165,423	\$0.11
2004	167,645	\$0.13	6,502,181	\$0.14	6,669,826	\$0.14
2005	263,858	\$0.20	6,827,738	\$0.16	7,091,596	\$0.16
2006	344,825	\$0.25	10,044,657	\$0.21	10,389,482	\$0.21
2007	243,799	\$0.23	12,894,601	\$0.23	13,138,400	\$0.23
2008	51,251	\$0.19	727,814	\$0.25	779,065	\$0.25

Figure 1. Trend in landings, estimated landings species composition, and discards, 1994-2007.



**New England Fishery Management Council**

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MEMORANDUM

DATE: March 2008
TO: Skate Oversight Committee
FROM: Skate PDT
SUBJECT: Additional Amendment 3 management measures

Two fishery management issues have been identified that have caused or could lead to substantial increases in skate landings and mortality. One issue is the apparent increase in effort by vessels targeting skates while operating under a Multispecies DAS. The second issue is the potential ability of sector-enrolled vessels to transfer their groundfish allocation to other sector vessels and use their Multispecies DAS allocations to fish for skates and other non-groundfish species.

Skate landings in 2007 increased by 5.9 million pounds or 17%. Ninety percent of this increase occurred in the wing fishery, which increased by 21% compared with 2006. The increase was split evenly between vessels using trawls and gillnets to land skate wings. Skate wing landings by vessels using gillnets increased by 28% to 12.9 million pounds and by vessels using trawls increased by 14% to 11.7 million pounds.

Vessels landing skate wings must do so on either a Multispecies A DAS, a Multispecies B DAS, a monkfish DAS, or a scallop DAS. Vessels landing skates for bait must also fish on a DAS, unless they are fishing in an exemption area or with exempted gear under a Bait Skate Letter of Authorization (LOA). Vessels participating in the LOA program may only land whole skates having a total length less than 23 inches and are exempt from possession limits. Most of the recent landings increase appears to be occurring from vessel fishing on either a Multispecies A or B-regular DAS.

The Multispecies B DAS program was extended by Multispecies Framework 42, which allocates a maximum of 3,500 DAS to Multispecies vessels to “provide opportunities to target healthy stocks without threatening stocks for which a mortality reduction is required.” Framework 42 defined Category B DAS as those which would be “used to target healthy groundfish stocks – that is, stocks that are not overfished and that are not subject to overfishing.” So far in fishing year 2007, only 510 Category B-regular DAS had been used to target skates and other species.

Furthermore, Framework 42 established significant gear restrictions on the use of Category B DAS. Vessels using trawls must use a haddock separator net, which probably catches few skates. This leaves gillnets as one of the few viable gear types to target skates while

using a Category B DAS. Reportedly, some groundfish gillnet vessels are also using Category B DAS to set multispecies gillnets, since they land no groundfish on that part of the trip. Other vessels also use Category B DAS to fish for specific groundfish.

Until now, this policy allowed multispecies vessels to use the B DAS to target skates with gillnets. But winter skate has recently become overfished and allowing non-trawl vessels to use B DAS to target winter skate (often targeted to land skate wings, but also caught in the skate bait fishery) may be inconsistent with the policy described in Framework 42.

To address the increasing skate landings and policy inconsistency, the PDT recommends that the Oversight Committee consider adding one or both of the following management measures to the Amendment 3 document. Doing so may require the skate amendment to also become a framework adjustment to the Multispecies FMP, but this action would create a low amount of added work.

- a) Set an incidental skate possession limit for vessels fishing on a Multispecies B DAS (e.g., 250, 500, or 1000 lbs. whole weight per trip).

Rationale: This measure would reduce skate and groundfish mortality on B DAS by vessels fishing for skates, which would then be required to use a Multispecies A DAS to fish. Other vessels could continue using a Monkfish or Scallop DAS to fish for skates. This would also make the B-regular DAS skate possession limit consistent with the policy for only using this program to target healthy fish stocks.

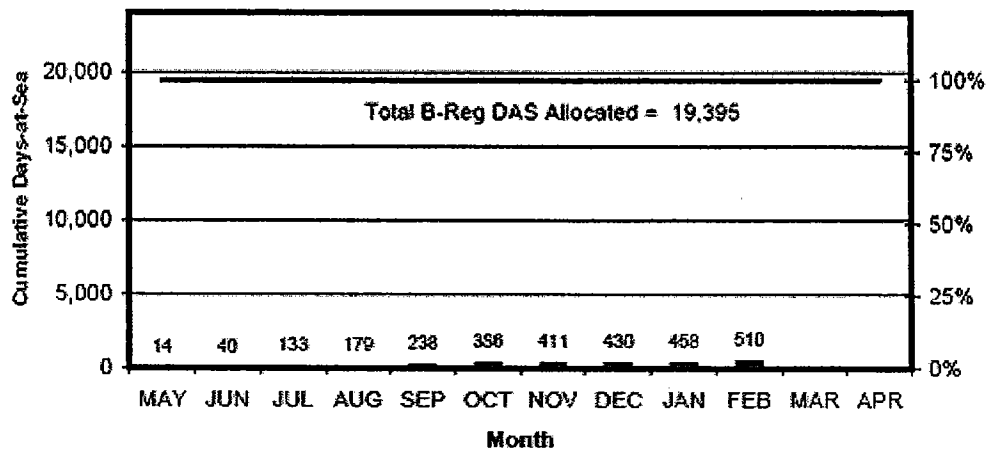
- b) Allow vessels to fish for skates on a B DAS subject to a skate possession limit established to achieve the Skate FMP objectives, including rebuilding winter and thorny skates.

Rationale: If the skate FMP includes a TAL which restricts skate fishing and limits mortality, it would not matter which type of DAS were used to target skates.

More than a dozen sector applications are being considered for approval in Multispecies Amendment 16. Most allow the baseline groundfish allocations to be fished by other sector-enrolled vessels under a sector quota. Some sectors may be exempt from DAS requirements, while others may be able to use their Multispecies DAS allocations to fish for skates and other species. If this is the case, groundfish sectors could create a significant effort shift to target skates. The effect is very similar to a permit consolidation where the donating vessel is later used to target species which are not managed by a limited access program.

To address this potential effort shift to target skates in groundfish sectors, the Skate PDT is requesting policy advice from the Oversight Committee on potential management measures to include in the Amendment 3 document, consistent with the Council's sector policies. Since effort controls in the open access skate fishery are largely tied to DAS, potential measures would have to account for skate fishing effort by vessels in sector programs with or without DAS allocations, as compared to non-sector vessels. The Skate PDT will need to identify potential approaches that will minimize incentives for groundfish sector vessels to target skates, and allow for sufficient monitoring of skate catch that may not be linked to a DAS. Again, this may require a joint skate/groundfish action, or it may require the measures to be included in the Multispecies Amendment 16 sector policy alternatives.

b. B - Regular DAS Used, May 2007 - April 2008





#5

New England Fishery Management Council

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

MEMORANDUM

DATE: March 28, 2008
TO: Skate Oversight Committee
FROM: Andrew Applegate
SUBJECT: Additional Category B DAS comments

Listed below are some relevant comments by Tom Nies on the Category B DAS issue as it relates to the ability of vessels to target skates:

"While I don't know all the data seen by the skate PDT, this memo does not present any convincing evidence that effort has increased on multispecies DAS to **target** skates. Cat B DAS use, according to NERO, was only about 500 DAS in CY 2007. Contrary to what this memo says, FW 42 did adopt measures that make it impossible to legally target skates on a B DAS while using trawl gear – there is a gear requirement and a 500 pound trip limit – so any increase in skates by trawl gear on a DAS is likely on a Cat A DAS (or outside the FMP, as in state waters). There is not a similar restriction for gillnets, so the increase could be on B DAS but again – not many B DAS are being used. As for gillnets, this memo does not examine the possibility that the increase is in part due to a state waters gillnet fishery. There have been some permitting changes made recently which may affect the ability of vessels to move back and forth between the federal and state waters fishery; I can't recall when they were implemented.

The memo does not examine whether discard practices have changed. An increasing number of groundfish trip limits, rising fuel prices, and changes in skate prices may have increased the incentive to retain skates. Landing distributions might show whether this is the case – are there more really large skate trips, or just a lot more little ones? A quick look at observer data for CY 2002 – 2007 (11 months) shows that the ratio of skates discarded to skates kept (live weight, wings converted) declined from 2.38 in 2002 to 1.6 in 2007. For gillnet gear, the change is even more dramatic, with the discard rate declining by nearly two thirds (from .358 to .115). The same trend does not appear if skates discarded are compared to total kept catch, so I'm not sure what to make of this.

It would also be possible to examine the idea that skate targeting might increase under sectors. One existing sector – the fixed gear sector – uses gillnets and it would be relatively simple to compare the skate landings of sector members before and after sector implementation. Interpretation might be difficult, as it could be changes are due to something other than sector formation.

B Reserve DAS can only be used in SAPs. They cannot be used in the B Regular DAS program, which I think is the focus of the memo. I don't believe there is any indication that the use of B DAS (regular or reserve) in SAPs is leading to an increase in skate mortality at least, it is not described as such in the memo.

At present there are three SAPs. One uses hook gear only (CAI Hook Gear Haddock SAP); so skates could be caught in that SAP, but not many boats participate. The second (in 2007) used only the haddock separator trawl and had a skate limit. In 2008, it may allow the eliminator trawl and longline gear as well, but both should have the same skate limit (we will see how the regs turn out). The third SPA has not been open since 2004, but if opened could have skate catches as it is a trawl SAP in CA II (flounder net required). SO of the SAPs, from a skate point of view the one to worry about the most – the CAII YTF SAP – is unlikely to open for a few more years (my guess is FY 2010 at the earliest) and will have a limit on the number of trips when it does."

New England Fishery Management Council
Skate Committee
Meeting Summary
March 28, 2008

The Skate Committee met in Revere, MA to continue development of Amendment 3 to the Skate Fishery Management Plan. Committee members present were Mr. John Pappalardo, (Chair), Mr. Mike Leary (Vice-Chair), Mr. Terry Stockwell, Mr. Doug Grout, and Mr. Jim Ruhle. Staff members supporting the meeting were Mr. Kellogg (NEFMC), Mr. Tobey Curtis, Mr. Mark Grant, and Ms. Allison McHale (NMFS - NERO). About ten others attended the meeting.

The meeting focused on recommendations for allowable biological catch, annual TACs and management measures for Amendment 3.

Acceptable biological catch (ABC), annual catch limits and monitoring

The Committee discussed the PDT recommendations for ABC and TAL recommendations (March 27, 2008 Memo from the PDT to the Committee). The memo recommended that the median catch or catch/biomass values should be used to establish a skate ABC and the 75/80% of the median values should be used to set annual catch limits as risk-averse targets. This recommendation would result in an ABC of 18,940 mt assuming that 25% of discards do not survive. Total allowable landings levels (TALs) based on 75% of the median catch/biomass value would be 6,701 mt for the wing fishery and 3,128 mt for the whole/bait skate fishery. If a 50% discard mortality rate is assumed, the values would be a 30,569 mt ABC with a wing TAL equal to 8,227 mt and a whole/bait skate TAL of 4,031 mt.

The recommendation was based on an analysis of relationships between changes in biomass in response to changes in catch and catch-biomass ratios for all species. In developing recommendations the PDT also noted the following:

- The TAC limit should take into account uncertainty about discard mortality and its effect on trends in catch
- The TAC and TAL thresholds should take into account uncertainty about species composition of the landings and the appropriate split between landings and discards
- Setting limits using catch vs. catch/biomass ratio – Using a catch/biomass is more risk-averse because it automatically adjusts the limit when biomass declines, but may be capped at the TAC based on historic catch when biomass increases.
- Lack of relationship between catch and changes in biomass could occur due to catches being well below appropriate reference points or because there is insufficient contrast in catch and biomass during the time series, or simply there are inaccurate assumptions about species composition.
- However, lacking other information, the PDT believes that median catch levels are appropriate limits for species that are not overfished and a lower percentage of the time series is appropriate for setting catch limits for overfished species.

Depending on assumptions about the mortality rate for skate discards, the PDT recommended annual TALs would result in reductions from 2007 levels ranging from 42–52% in the wing fishery and 16-34% in the whole skate fishery.

After discussing the level of landings reductions required to meet the TALs, Committee members expressed concern over the uncertainty about the discard mortality. Mr. Ruhle suggested that the Council should not move forward with any action for skates until the 2007 data can be used. He added that the NEAMAP survey & industry showed much different trends in the abundance and corresponds with what the industry sees on the grounds. Mr. Curtis explained that he was not sure when 2007 biomass and discards data would be available and that 2007 discard information from the observer program would take much longer to develop. Mr. Curtis also noted that the NEAMAP survey primarily samples Mid-Atlantic and Southern New England waters, which does not cover the range of winter and thorny skates (Georges Bank and Gulf of Maine).

The Committee and others present also asked questions about the discard mortality rates that were used in the PDT analysis. Mr. Curtis explained that last summer the PDT had reviewed the information that was available. There were only three papers that mentioned skates discard rates. The most relevant (Benoit, 2006) estimated discards of winter skate in the southern Gulf of St. Lawrence from in groundfish and shrimp fisheries, in 1971-2004. The paper concluded that “The results of three studies (one recent and two previously published) suggest that the mortality rate of these discarded skate is likely at least 50%.”

Mr. Curtis also explained that the PDT based the lower end of the range for discard mortality on anecdotal information it heard from fishermen and Advisory Panel members. Mr. Curtis noted that the purpose of the study was to estimate total winter skate discards and not specifically to determine discard mortality rates. In response to a question from a committee member, he added that the skates had been out of the water for one to two hours before they were discarded. In response to another question, Mr. Curtis explained that there was no information on discard mortality rates specific to gill nets.

Mr. Ruhle commented that in today’s trawl fishery, the mortality is significantly lower in the last five years because of the use of conveyor belts. If the time on the deck was not carefully measured it would have an effect on the discard survival rate. He suggested that the Committee advise the SSC that it had concerns about the uncertainty over discard mortality rates. If all data for 2007 are not available, Mr. Ruhle asked that whatever 2007 data is available should be used.

As a result of the Committee’s discussion, Mr. Stockwell made the following motion, seconded by Mr. Ruhle:

- 1. That the committee recommend forwarding the PDT recommendations for SSC consideration & that the SSC analyze a range of discard rates including both the 25 and 50% mortality rates in recommending an ABC for skates. Also that the SSC consider 2007 data in order to accommodate the effects of framework 42 and reductions in the fluke fishery.*

The motion passed unanimously.

Later in the day, Mr. Ruhle expressed concern about the survey data used to determine skate status and the ABC recommendations. He stated that the sweep of the Yankee-36 net that has been used in the spring and fall trawl surveys in the past continually rises off the bottom and therefore produces inconsistent results. He added that if the inshore (NEAMAP) survey revealed a different trend there is going to be a problem. Mr. Pappalardo explained that the Council would hear a presentation about the NEAMAP survey on the first day of its April 15-17 meeting.

Discussion of Annual Catch Limits (ACLs) and Accountability Measures (AMs)

The Committee discussed the two approaches for ACLs and AMs identified by the PDT: 1) Hard TACs with overage deductions in subsequent years and 2) Target TACs with in-season triggers to management measures. In answer to a question about to what extent NMFS would be able to track a quota for skates, Mr. Curtis explained that it would be limited to monitoring just landings during the fishing year but not discards, although it would be possible to use assumed rates of discards and discard mortality as is done for bluefish.

Mr. Pappalardo noted that the Committee had discussed a target TAC with triggers but added that the option of possibly expanding gear restricted areas was new and could cause some concern. Mr. Leary commented that he would be very wary of using the survey to pinpoint the location of skates because skates move around so much. Another committee member suggested that the PDT should consider developing an option that would use different time/area closures to control discards now that VMS is available. One suggestion was that a time area closure might be useful to control discards in the bait fishery. Another Committee member pointed out that the bait fishery primarily caught little skate but there are times when there is a higher mix of winter with little skate and therefore there might be a time when the bait fishery could be restricted to reduce mortality on winter skate. When the Committee returned to the issue of accountability measures later in the day, it discussed and agreed that accountability measures should minimize the disruption of other fisheries.

The Committee took no action with respect to the options for ACLs and AMs presented by the PDT at this time.

Review of Amendment 3 Management Measures

Mr. Curtis reviewed the management alternatives that the Council and Committee had so far approved. Mr. Curtis explained that the PDT recommended reconsideration of the requirement that skates be landed in whole form which the committee had earlier considered but rejected on the recommendation of the Advisory Panel because many dealers handling wings do not have adequate processing facilities and there are no disposal restrictions for processing skates at sea. The reason for the PDT recommendation was to improve species identification which is extremely difficult unless skates are whole. As a result of the discussion, Mr. Stockwell made the following motion, seconded by Mr. Ruhle:

2. *That management measure 10 requiring the landing of whole skates be moved from considered but rejected to above the line to be considered as a possible alternative.*

The motion passed unanimously.

Several members of the committee expressed concern over a provision in management measure 4 prohibiting the possession of skates or wings without alar spines when total length is greater than the maximum size. Mr. Leary commented that it would be impractical to inspect skates for alar spines while at sea and made the following motion which was seconded by Mr. Stockwell:

3. *That part of management measure 4, the prohibition of possessing skates or wings without alar spines, be moved to measures that have been "considered but rejected".*

The motion passed unanimously.

Also in light of the earlier discussion of using time area closures to control or reduce discards of winter and thorny skates, Mr. Ruhle made the following motion seconded by Mr. Stockwell:

4. *To include time/area closures as a management measure.*

The motion passed unanimously.

Landing of Skates on A or B DAS

Mr. Curtis explained that the PDT had discussed the issue of skates landed on groundfish DAS. Multispecies Framework 42 included a policy that Category B DAS should not be used to target species that were overfished which raises the question of whether targeting of winter skates should be allowed on a B DAS. The PDT memo on this issue stated that:

“To address the increasing skate landings and policy inconsistency, the PDT recommends that the Oversight Committee consider adding one or both of the following management measures to the Amendment 3 document. Doing so may require the skate amendment to also become a framework adjustment to the Multispecies FMP, but this action would create a low amount of added work.

a) Set an incidental skate possession limit for vessels fishing on a Multispecies B DAS (e.g., 250, 500, or 1000 lbs. whole weight per trip). **Rationale:** This measure would reduce skate and groundfish mortality on B DAS by vessels fishing for skates, which would then be required to use a Multispecies A DAS to fish. Other vessels could continue using a Monkfish or Scallop DAS to fish for skates. This would also make the B-regular DAS skate possession limit consistent with the policy for only using this program to target healthy fish stocks.

b) Allow vessels to fish for skates on a B DAS subject to a skate possession limit established to achieve the Skate FMP objectives, including rebuilding winter and thorny skates. **Rationale:** The skate FMP includes a TAL which restricts skate fishing and limits mortality, it would not matter which type of DAS were used to target skates.”

Mr. Pappalardo noted that boats would be prohibited from using B DAS for the four species that are in trouble (thorny, winter, little and smooth skates), but added that there are questions about what the regulations are. He also pointed out that the potential exists for a groundfish sector to free up vessels to target skates and was concerned about possible redirection of effort on skates within a sectors. Currently a boat has to use up a DAS to target skates unless it's fishing in a skate exemption area or with exempted gear in the bait fishery under a letter of authorization.

Mr. Leary suggested that it would not make sense to have different limits on A and B DAS because of the way B DAS flip in to A DAS if a catch limit is exceeded.

Mr. Rule commented that if skates were allocated to sectors, it might take a different set of qualifying years than used in other fisheries because the skate market has changed. Mr. Pappalardo responded that it will be difficult to tell how to deal with this issue until decisions are made about allocating to sectors in the Multispecies FMP. The Committee agreed that the PDT should investigate potential qualifying periods for skate allocation.

He also noted that the PDT memo of dated June 28, 2007 on the effects of Framework 42 on skate landings needs to be updated.

The committee made no recommendations with respect to the PDT options.

#7

Skate Plan Development Team
DRAFT Meeting summary
Gloucester, MA
March 20, 2008

Attendance: Tobey Curtis, Scott Olszewski, Walter Anoushian, Andy Applegate, Steve Correia (MA DMF), John Pappalardo, Emily Bryant (NERO), Bonnie Spinazzola (AOLA), Chris Gurshin (Normandeau Associates), Fiona Harper (SMAST), and Dave Borden.

Summary:

The PDT took up two issues on the agenda: developing Allowable Biological Catch (ABC) and catch limit recommendations, and a discussion of potential management measures to restrict targeting of winter skate on a Multispecies Category B DAS. A potential loophole in the Multispecies Sector Program could also allow vessels to use Multispecies DAS to target skates when they are allowed to target groundfish under a member vessel's sector allocation. This issue was discussed and included in a memo to the Oversight Committee.

The PDT reviewed an analysis conducted by Andrew Applegate, examining the relationship between catch and subsequent changes in winter, thorny, and little skate biomass. A first cut using existing landings and discard data assembled by region and market category as an index of catch for a particular species (e.g. wing landings in MA and Southern New England representing winter skate catch) was not very informative. Various moving averages and lags between catch and biomass were explored. The most promising relationship was a three year moving average of catch vs. a three year change in biomass. But for the most part, there were few meaningful correlations, possibly due to poor quality data.

A second set of landings data were developed, allocating landings to species based on the proportion of exploitable skate biomass in the trawl survey tows in the three digit statistical areas where fishing occurred (as reported on vessel trip reports). These data improved the correlation between catch and changes in biomass, particularly for winter and thorny skates.

Steve Correia was also interested in changes in mean length and abundance as an indicator of stock status. Mr. Applegate showed how mean length of winter skate has been relatively stable, except for two periods. The first period of declining mean length occurred in the early 1980's and was accompanied by an abundance increase, indicative of one or more strong year classes. In contrast, mean winter skate length declined since 2003, but was not accompanied by an abundance increase. The PDT interpreted this as a sign of overexploitation. While the graphs were informative, Steve Correia preferred to see more traditional box and whisker charts.

The PDT noted that there was considerable uncertainty in species composition of the catch data and variability in the survey biomass data. Taken together the information for the skate stock complex was a classic data poor situation. Furthermore, there seemed to be poor contrast in the time series and the pending change to a new survey gear would add additional

uncertainty to future results. These types of analyses would be difficult to see a reliable relationship with good data.

One of the problems with species identification in the landings data was that much of the skate wings are cut at sea, making species identification more difficult (identifying morphometric characteristics include body shape, spots and thorns on the body and tail, and clasper length). As a means to improve classifying landings by species, the PDT thought that a requirement to land skates in whole form should be reconsidered by the Oversight Committee for Amendment 3. The measure had previously been rejected by Advisors and the Oversight Committee due to concerns about safety, hold capacity and ice costs, product quality, and at shore processing and disposal costs.

Even with this measure, the PDT felt that setting landings limits by fishery (wing vs. whole or bait) was the best approach at this time. Although the wing fishery targets winter skates, trawlers in the wing fishery catch and land little skate, while vessels targeting skates for bait catch and land a mix of little and winter skate (seasonal variation). Furthermore, there is a possibility that little skates could become overfished or subject to overfishing when the 2007 status update is available.

The PDT thought that the analysis should be extended to other skate species, with the median catch and catch/biomass results combined as an aggregate stock complex limit, with TALs by fishery and possibly region. The PDT recommended splitting the TAC and TAL a historic split between discards and landings for three time periods: 1989-2006, 1994-2006, and 2004-2006.

The PDT discussed whether an adaptive approach would have merit. The PDT noted that it may take many years to see whether the stocks were responding as expected to catch limits. Since the catch cannot be tied to an exploitation rate in lieu of an F target, the PDT cannot estimate rebuilding potential. It might be useful to re-evaluate the status and progress toward rebuilding in three to four years, using several indicators of stock condition. Some of the indicators that the PDT thought could be useful include the changes in the survey biomass indices [including the spring, winter, fall, and NEMAP surveys (particularly for clearnose and little skates)], changes in length frequency, recruitment, the amount of exploitable biomass, changes in the geographic distributions, and discard rates.

The PDT recognized that the limit on landings would be more effective at controlling mortality than the TAC, due to difficulties in controlling discards. It was thought that a precautionary approach could address the accountability issues, preventing total catch from exceeding the ABC. It was unclear whether the recent trend in declining discards was real, or a transient event, possibly due to changes in scallop fishing activities, multispecies DAS restrictions, or reduced fishing in SA521 (scallop day fishing).

The PDT discussed the apparent recent increase in using multispecies DAS to target skates. Both gillnet and trawl landings in the skate wing fishery have increased. It appeared that gillnet activity increased on a Category B DAS and the trawl activity increased on an A DAS. On the other hand, only 3,500 B DAS may be used in the B-regular DAS program. The rest are

reserved for use in approved (non-skate) SAPs. So far in FY2007, only 510 B-regular DAS have been used, but it is unclear what proportion of those days was used to target skates or how much skate landings/catch they generated. The PDT thought that most of the B DAS skate fishing would be by vessels using gillnets to target skate wings, but there may be some B DAS use in the skate bait fishery.

The PDT decided to recommend that skate fishing in the wing fishery using Multispecies B DAS should be curtailed, by a low possession limit that would make it impossible to target skates. The PDT felt that Multispecies B DAS should not be available to target overfished skates or skates that are subject to overfishing. Such a change would be consistent with the policy of allowing B DAS fishing on healthy species.

A related issue discussed by the PDT was the effect on skate fishing by the evolving Multispecies sector policy. The eventual outcome is unclear, but it may be possible for vessels to transfer their groundfish baseline allocations to another member vessel, and then use the vessels Multispecies DAS allocations to target skates and other non-groundfish species. Although lower skate possession limits and increasing fuel prices might curtail this potential effort increase, using the DAS allocations to target skates would have no added opportunity cost to the vessel once the groundfish allocations are stripped away in a sector allocation.

The PDT discussed several approaches including setting low, incidental skate possession limits for groundfish DAS allocated to vessels enrolled in a sector, holding the Multispecies DAS in reserve while a vessel is enrolled in a sector, or prohibiting skate fishing by sector vessels using DAS. It wasn't clear whether this issue should be addressed in Amendment 3 or in a Multispecies action.

The PDT discussed the need to develop a Skate Sector policy and the complications related to an evolving groundfish sector policy. Tobey Curtis volunteered to summarize the skate sector issues and define the potential baseline allocation scenarios.

#8

**Skate Plan Development Team
DRAFT Meeting summary
Gloucester, MA
March 27, 2008**

Attendance: Tobey Curtis, Scott Olszewski, Todd Gedamke, Andy Applegate, Mark Grant (NMFS), and Bonnie Spinazzola (AOLA).

Summary:

The primary purpose of the meeting was to review a complete analysis of catch and change in biomass relationships, select skate catch thresholds to achieve Amendment 3 rebuilding objectives, and recommend an ABC (threshold) as well as catch and landings targets that take risk and uncertainty into account. The recommendations in the form of a memo would be forwarded to the Scientific and Statistical Committee as well as the Skate Oversight Committee. This meeting was a follow-up to the previous week's PDT meeting, allowing time for additional analysis.

The PDT briefly discussed the effect Multispecies sectors could have on skate mortality. It was unclear how the sectors would account for non-groundfish catches. Mark Grant said that vessels in groundfish sectors may be exempt from DAS.

Andy Applegate presented the new work, including all seven species and aggregating the estimated catch thresholds for the skate complex.

One problem that arose in this analysis was appropriating the discard estimates by species. Otherwise the discard estimates would be used multiple times and the aggregate limits would be artificially high. Mr. Applegate used the proportion of survey biomass by statistical area to apportion the discards, based on the distribution of effort by vessels landing skates. This approach assumes that discards by vessels not landing skates has the same distribution of effort by vessels landing skates. An improvement would be to estimate discards differently, but there was no time to recreate what the Center did in the SAW 44 assessment report.

There is also an effect on estimated ABCs and TALs arising from the unknown skate discard mortality. The effect was shown using a range of 25 to 50% discard mortality, since this information is unknown in US fisheries. Some foreign literature suggested that discard mortality could be around 50%, but the PDT recognized that discard mortality is highly variable and depends on conditions.

The PDT decided to forward the range of TAC and TAL estimates to the SSC with advice about the ramifications of the two choices (or something in between). It also recommended forwarding relevant literature to the SSC for their consideration. A bit counter intuitive, the higher discard mortality rate was less conservative relative to recent catches. This occurs because with the higher discard mortality rate, discards represent a larger fraction of the catch and estimated discards have declined since 2003. Thus total catch has declined to below

the median values. With a 25% discard mortality rate, catches have been flat due to increasing skate landings.

There were also some questions about the knife edge exploitation pattern assumed to prorate the landings data by species. Based on sea sampling observations which have been analyzed, Mr. Applegate used a 40 cm cut for wing skate landings by vessels using trawls and dredges and 65 cm for vessels using gillnets. A 59 cm cut was applied to the whole/bait skate landings since 2003 because that is the legal maximum limit for vessels landing whole skates under a Bait Letter of Authorization.

The relationships between catch and changes in biomass were relatively good for winter skate, when 3 year moving averages were applied with no lag. Over the 22 year time series, low catches were more likely to result in an increase in biomass than high catches, as would be expected. The relationship was not as good for thorny due to a nearly monotonic decline in biomass for 17 of the 22 years in the time series. Correlations between catch and changes in survey biomass were worse for the other seven species, sometimes with high catches leading to increases in survey biomass and vice versa. The PDT attributed this to noisy data and uncertainties in species composition of the landings and discards.

The PDT applied the split between discards and landings over three historic periods. The greatest proportion of catch went to discards for the longest time period, 1989-2006. For the shorter 2004-2006 period, landings had increased and discards had declined relative to earlier periods. Thus using the latter period with a 25% discard mortality rate resulted in more liberal TALs than other choices.

The PDT decided to recommend using the 2004-2006 period to determine the TALs and their allocation between the wing and whole skate fisheries because those choices better reflected current conditions. It would, however, put more emphasis on containing discards at current levels to ensure that the total catch did not exceed the ABC.

The PDT also decided to recommend using catch medians as a threshold and 75% of the catch/biomass ratios as a target. A catch target using 80% of the median value was also recommended as biomass increased. Eighty percent was applied, because for some species there were no years when catches were below 75% of the median value.

A memo dated March 27, 2008 was prepared and included Table 7, which applied the discard/landings split over the 2004-2006 time period, showing the results for both of the discard mortality assumptions, 25 and 50%. These results were shown in relationship to a historic catch figures, showing whole skate landings, wing skate landings, and discards from 1989 to 2007.