

Atlantic States Marine Fisheries Commission

Spiny Dogfish and Coastal Shark Management Board

*February 9, 2012
1:00 p.m. – 3:30 p.m.
Alexandria, Virginia*

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

1. Welcome/Call to Order (*D. Simpson*) 1:00 p.m.
2. Board Consent 1:05 p.m.
 - Approval of Agenda
 - Approval of Proceedings from November 10, 2011
3. Public Comment 1:10 p.m.
4. 2011/2012 Spiny Dogfish Fishery Performance (*C. Vonderweidt*) 1:15 p.m.
5. Review Spiny Dogfish Overfishing Definition and TC Recommendations (*C. Vonderweidt*) 1:25 p.m.
6. 2011 SEDAR 21 Dusky, Sandbar, and Blacknose Assessment **Action** 1:40 p.m.
 - Assessment Overview (*G. Skomal*)
 - Technical Committee Review of Results (*G. Skomal*)
 - HMS Rulemaking to Implement SEDAR 21 Results (*K. Brewster Geisz*)
 - Technical Committee Management Recommendations (*G. Skomal*)
7. Upcoming HMS Shark Management Actions (*K. Brewster Geisz*) 2:50 p.m.
8. Review Shark Conservation Act of 2010 (*C. Vonderweidt*) 3:20 p.m.
9. Spiny Dogfish and Coastal Sharks TC Appointments (*C. Vonderweidt*) 3:25 p.m.
10. Other Business/Adjourn 3:30 p.m.

The meeting will be held at the Crowne Plaza Hotel Old Town, 901 N. Fairfax St, Alexandria, VA;
(703)-683-6000

Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015

MEETING OVERVIEW

Spiny Dogfish and Coastal Shark Management Board Meeting

Thursday, February 9, 2012

1:00 p.m. – 3:30 p.m.

Alexandria, Virginia

Chair: David Simpson (CT) Assumed Chairmanship: 08/10	Vice Chair: Vacant	Law Enforcement Committee Representative: Hanlon/Frampton
Spiny Dogfish Technical Committee Chair: Vacant	Spiny Dogfish Advisory Panel Chair: Vacant	Previous Board Meeting: November 10, 2011
Coastal Shark Technical Committee Chair: Greg Skomal (MA)	Coastal Shark Advisory Panel Chair: Lewis Gillingham	
Voting Members: ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NC, SC, GA, FL, NMFS, USFWS (16 votes)		

2. Board Consent

- Approval of Agenda
- Approval of Proceeding from November 10, 2011

3. Public Comment – At the beginning of the meeting public comment will be taken on items not on the Agenda. Individuals that wish to speak at this time must sign in at the beginning of the meeting. For agenda items that have already gone out for public hearing and/or have had a public comment period that has closed, the Board Chair may determine that additional public comment will not provide additional information. In this circumstance the Chair will not allow additional public comment on an issue. For agenda items that the public has not had a chance to provide input, the Board Chair may allow limited opportunity for comment. The Board Chair has the discretion to limit the number of speakers and/or the length of each comment.

4. Performance of the 2011/2012 Fishery (1:15-1:25 p.m.)

Background

- The 2011/2012 coastwide quota was set at 20 million pounds in both state and federal waters.
- The ASMFC Northern Region had a 3,000 pound maximum possession limit, closed on September 1, 2011, and preliminary landings indicate an overage of 1.2 million pounds. Overages were primarily a result of late reports and increased catch rates.
- The NMFS Period 1 (May – October) and Period 2 (November – April) fisheries closed on August 26, 2011 and January 13, 2012 respectively.

Presentations

- Performance of the 2011/2012 Fishery by C. Vonderweidt

<p>5. Review Spiny Dogfish Overfishing Definition and TC Recommendations (1:25-1:40 p.m.)</p>
<p>Background</p> <ul style="list-style-type: none"> • Spiny dogfish quotas have not been calculated based on the overfishing target and threshold values as defined in the Interstate Fishery Management Plan for Spiny Dogfish. This definition was adopted from the Mid-Atlantic Fishery Management Council's (Council) FMP in 2002. • The Council updated their overfishing definition in Framework 2 and the Commission and Council definitions are now inconsistent. • The Spiny Dogfish Technical Committee recommends the Board initiate an addendum to update the Commission's overfishing definition (Briefing CD).
<p>Presentations</p> <ul style="list-style-type: none"> • Technical Committee recommendations by C. Vonderweidt
<p>Board actions for consideration</p> <ul style="list-style-type: none"> • Initiate addendum to update overfishing definition.

<p>6. 2011 SEDAR 21 Dusky, Sandbar, and Blacknose Assessment (1:40-2:50 p.m.)</p>
<p>Action</p>
<p>Background</p> <ul style="list-style-type: none"> • The SEDAR 21 benchmark assessment was completed in fall 2011. Dusky are overfished with overfishing occurring, sandbar are overfished with overfishing not occurring, Atlantic blacknose are overfished with overfishing occurring (Briefing CD). • The Technical Committee reviewed the assessment in January 2012 and recommend approving the results for management use (Briefing CD). • NMFS HMS will implement the SEDAR 21 results in Amendment 5.
<p>Presentations</p> <ul style="list-style-type: none"> • SEDAR 21 results and Technical Committee review by G. Skomal. • Update of Amendment 5 rulemaking by K. Brewster-Geisz • Technical Committee Management Recommendations by G. Skomal
<p>Board actions for consideration</p> <ul style="list-style-type: none"> • Accept results for management use

7. Upcoming HMS Shark Management Actions (2:50-3:20 p.m.)
<p>Background</p> <ul style="list-style-type: none"> HMS is developing several ongoing shark actions and would like Board members to comment on an initiative that considers catch shares in the Atlantic shark fisheries. HMS is currently in scoping for this action; the comment period closes March 31.
<p>Presentations</p> <ul style="list-style-type: none"> Upcoming HMS Shark Management Actions by K. Brewster Geisz

8. Review Shark Conservation Act of 2010 (3:20-3:25 p.m.)
<p>Background</p> <ul style="list-style-type: none"> The Shark Conservation Act was signed into law on January 4, 2011. (Briefing CD) Amends the Magnuson Stevens Act to prohibit removal of any fins (including the tail) at sea, possess a fin onboard that is not attached naturally to the carcass, transfer of a fin that is not attached naturally to the carcass, land a fin that is not attached naturally to the carcass. Provides exemption for individuals commercially fishing for smooth dogfish. Fishermen holding a valid state commercial fishing license and fishing within 50 nautical miles from shore can remove fins as long as the fin to carcass ratio does not exceed 12%. A proposed rule implementing the Act in federal waters has not been published. The ASMFC Coastal Sharks FMP requires that all shark fins remain naturally attached through landing. Addendum I allows state commercial fishermen to remove smooth dogfish fins from March – June annually provided the fin to carcass ratio does not exceed 5%. Dorsal fin must remain attached July – April.
<p>Presentations</p> <ul style="list-style-type: none"> Review Shark Conservation Act of 2010 by Chris Vonderweidt

9. Technical Committee Appointments (3:25-3:30 p.m.)
<p>Background</p> <ul style="list-style-type: none"> Holly White of North Carolina Department of Natural Resources was appointed to the Spiny Dogfish Technical Committee and Coastal Sharks Technical Committee. Tobey Curtis of the National Marine Fisheries Service was appointed to the Spiny Dogfish Technical Committee.
<p>Presentations</p> <ul style="list-style-type: none"> Technical Committee Appointments by C. Vonderweidt

10. Other Business/Adjourn

DRAFT

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**DRAFT PROCEEDINGS OF THE
ATLANTIC STATES MARINE FISHERIES COMMISSION
SPINY DOGFISH AND COASTAL SHARK MANAGEMENT BOARD**

**The Langham Hotel
Boston, Massachusetts
November 10, 2011**

These minutes are draft and subject to approval by the Spiny Dogfish & Coastal Shark Management Board. The Board will review the minutes during its next meeting.

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Adjournment 20

INDEX OF MOTIONS

1. **Approval of agenda by consent** (Page 1).
2. **Approval of proceedings of August 3, 2011 by consent** (Page 1).
3. **Move that the board accept the recommended technical committee quota of 35.694 as the quota for 2012/2013 and a daily quota of 4,000 pounds** (Page 7). Motion by Pat Augustine; second by Tom Fote.
4. **Amend the motion so that the daily limit would be 3,000 pounds and not 4,000 pounds.** (Accepted as friendly amendment) (Page 8). Motion by David Pierce; second by Ritchie White.
5. **Move to amend the quota to 30 million pounds** (Page 12). Motion by Ross; second by Doug Grout. Motion carried (Page 13).

ABOVE MOTIONS REWORDED ON PAGE 13: **Motion that the board set the quota at 30 million pounds for 2012/2013 and a daily trip limit of 3,000 pounds for the northern region.** Motion carried on Page 13.

6. **Move to approve Massachusetts de minimis request** (Page 14). Motion by Louis Daniel; second by Malcolm Rhodes. Motion carried (Page 14).
7. **Move to set a 33-fish non-sandbar large coastal shark possession limit for 2012** (Page 18). Motion by Louis Daniel; second by Pat Augustine. Motion carried (Page 18).
8. **Motion to adjourn by consent** (Page 20).

ATTENDANCE

Board Members

Terry Stockwell, ME, proxy for P. Keliher (AA)
 Dennis Damon, ME, proxy for P. White (GA)
 Doug Grout, NH (AA)
 Ritchie White, NH (GA)
 Dennis Abbott, NH, proxy for Rep. Watters (LA)
 David Pierce, MA, proxy for P. Diodati (AA)
 William Adler, MA (GA)
 Sarah Peake, MA (LA)
 Bob Ballou, RI (AA)
 Rick Bellavance, RI, proxy for Rep. Martin (LA)
 David Simpson, CT (AA)
 Lance Stewart, CT (GA)
 Rep. Craig Miner, CT (LA)
 James Gilmore, NY (AA)
 Pat Augustine, NY (GA)
 Byron Young, NY, proxy for Sen. Johnson (LA)
 Peter Himchak, NJ, proxy for D. Chanda (AA)
 Tom Fote, NJ (GA)
 Adam Nowalsky, NJ, proxy for Asm. Albano (LA)

Roy Miller, DE (GA)
 Stew Michels, MD, proxy for D. Saveikis (AA)
 Tom O'Connell, MD (AA)
 Bill Goldsborough, MD (GA)
 Russell Dize, MD, proxy for Sen. Colburn (LA)
 Steve Bowman, VA (AA)
 Jack Travelstead, VA, Administrative Proxy
 Cathy Davenport, VA (GA)
 Louis Daniel, NC (AA)
 Mike Johnson, NC, proxy for Rep. Wainwright (LA)
 Bill Cole, NC (GA)
 Robert Boyles, SC (LA)
 Malcolm Rhodes, SC (GA)
 Spud Woodward, GA (AA)
 John Duren, GA (GA)
 Aaron Podey, FL, proxy for J. McCawley (AA)
 Wilson Laney, USFWS
 Bob Ross, NMFS

(AA = Administrative Appointee; GA = Governor Appointee; LA = Legislative Appointee)

Ex-Officio Members

Greg Skomal, Technical Committee Chair

Staff

Vince O'Shea
 Bob Beal

Mike Waine
 Christopher Vonderweidt

Guests

Paul Rago, NMFS

The Spiny Dogfish and Coastal Shark Management Board of the Atlantic States Marine Fisheries Commission convened in the Wilson Ballroom of the Langham Hotel, Boston, Massachusetts, November 10, 2011, and was called to order at 1:14 o'clock p.m. by Chairman David Simpson.

CALL TO ORDER

CHAIRMAN DAVID SIMPSON: Let's get started with the Shark Board.

APPROVAL OF AGENDA

CHAIRMAN DAVID SIMPSON: The first item is to approve the agenda. Any changes or additions to the agenda? We are thinking about switching the order of Item 6 and 7, if that's okay.

APPROVAL OF PROCEEDINGS

CHAIRMAN DAVID SIMPSON: The next agenda item is approval of the proceedings of the last meeting. Any issues with that? Not seeing any, we'll consider those approved.

PUBLIC COMMENT

CHAIRMAN DAVID SIMPSON: Is there any public comment? I understand there was one person who wanted to speak. Are there any comments from the public on items not on the agenda?

MR. JOHN WHITESIDE: Mr. Chairman, my name is John Whiteside. I'm an attorney from Mickelson Barnet in New Bedford, Massachusetts, representing the Sustainable Fisheries Association, which is a collection of processors who process spiny dogfish. We are here advocating that the trip limit going forward be maintained at 3,000 pounds a trip. We are also advocating that the TAL be 30 million pounds as opposed to the recent vote by the Mid-Atlantic Council of 35,694,000.

The reason for both of those positions; number one is for dealing with the 3,000 pound trip limit would be to extend the season and have a steady supply that is coming in that we can process and distribute. We believe that would benefit both the harvesters and would maintain price much better than if we had in essence like a derby

where we would have these high trip limits and landings would create a glut. Secondly, as far as the TAL that has been proposed, we are suggesting –

MR. PETER HIMCHAK: I'm sorry, Mr. Chairman, these are items on the agenda in the specification-setting process, so I would request that this gentleman save his comments on trip limits and the TAL until we have a vote on the specifications.

CHAIRMAN SIMPSON: Fair enough; was there anything else that's not on the agenda?

MR. WHITESIDE: Not to that; thank you.

2012/2013 SPINY DOGFISH SPECIFICATIONS

SSB AND REFERENCE POINT UPDATE

CHAIRMAN SIMPSON: Okay, thanks; it was a good point. If there is no other public comment, then we're into Agenda Item 4, the setting of the 2012/2013 spiny dogfish specifications. We have an update from Dr. Paul Rago on that.

DR. PAUL RAGO: Thank you, David. It's nice to be here; it's nice to see a lot of old friends and hopefully not too many old enemies or anything, but it is a pleasure always to address the Atlantic States Marine Fisheries Commission. I realize that at this time of the meeting that it is often a period of highly inefficient e-mail processing for everybody and marginally paying attention to things.

What I've done is to try to put the bottom-line numbers right up front and then we can get back to your other business. The first item here is that the stock is not overfished and overfishing is not occurring. We do have a problem with terminology. It's like describing a healthy person as not obese and overeating is not occurring, but the population as a whole is relatively stable.

While we do expect the stock to decline in response to the birth dearth, which I'll talk about later, it's likely to remain well above the overfishing threshold over the next few years given appropriate management. Some good news; in 2010 the discards declined while landings remained about constant, so therefore overall catch was slightly lower.

There were a number of changes since I last spoke with you with respect to the Fmsy proxy that was done in response or in conjunction with the Mid-Atlantic Fishery Management Council SSC, and the median or F or Fmsy proxy is 0.24. Under that, the OFL, the overfishing limit, is roughly 25,000 metric tons with a confidence interval of about 18,000 to 31,000 metric tons. That is the last bullet there.

And then at the recommended 35 percent – 35th percentile the Fmsy proxy using a P-star like approach, that catch limit; that is landings plus discard is roughly 19,000 metric tons. In terms of overall objectives today, first I want to just update about some basic information on the landings and discards, estimate fishing mortality rate and the biomass estimates for 2010, try to characterize some of the uncertainty in stock size and fishing mortality rates, and give you a little bit of insight into some the long-term behavior of the population, what we're anticipating under the current stock dynamics, and then talk about the overfishing limit and recommendations that Chris will elaborate on when we get to the actual technical committee meetings.

The Bmsy proxy was revised and reviewed in 2010. Last year in Charleston I spoke to you about those changes. The biomass reference point associated with that was 160,000 metric tons and the threshold is half of that at 79,000 metric tons. Now, these are values that should be compared to the stochastic estimate of stock size, which is an improved method for estimating rather than just looking at the simple point estimates of abundance.

The Fmsy proxy was again revised and we tried to make the estimation of that property consistent with the projection methodology, so there was a slight change from I believe it was 0.39 to 0.25; 2.439; if you believe all the digits, and that value is primarily a difference between going from an equilibrium model to a stochastic projection model. A summary of those reports and also decisions by the Mid-Atlantic SSC are available.

MR. CHRISTOPHER VONDERWEIDT: They're on the CD.

DR. RAGO: Okay, good, you've got everything. Okay, the 35th percentile of the Fmsy proxy is 0.177, so that is kind of a starting point for estimating catch. In terms of landings, as I said,

landings increased about 31 percent, from 4,100 tons in 2008 to 5,300 tons in 2009. In 2010 the landings were about 5,400 metric tons, which is just about the same as in 2009. Strikingly, Canadian landings have declined to only 6 metric tons in 2010. This is down from about 1,500 metric tons in previous years.

As you know, one of the key considerations in terms of setting actually landings limits or targets is related to some of the assumptions related to both landings of Canada and then also discards, which are next. In 2010 the total otter trawl fleet discards were about the same at about 5,600 metric tons. Sink gill nets, however, continued to drop and were at their lowest level since 1999.

The estimated total discards declined by about 33 percent in 2010; and then total dead discards, which are a function of the survival rates that we apply to each of those discard quantities, declined by a comparable amount. Overall there was about a 16 percent decline in overall catch between 2009 and 2010.

One of the other important actions here, this graph shows the relationship between a discard-to-landings ratio over time. The top line shows total discards to landings and the bottom line, the open circles, show the relationship of dead discard estimates to landings. One of the things that you can see is that during the period of the very intense fishery in the mid to late nineties that ratio dropped significantly.

With imposition of management measures that ratio increased sharply, has been declining, and in 2010 the ratio was below 1. As to the directed fishery begins to become more prominent and it becomes less of a discard-oriented fishery, we expect this to continue to decline although it's difficult to say given the array of changes that have occurred in all of the various management measures.

Some of you may have heard of sectors. That was another deadpan joke. Okay, biological composition of the catch; overall landings are dominated by females. This trend has persisted in the EEZ since the fishery began. The sex ratio of discarded fish is similarly dominated by females. Most of this is related to the propensity or the vast majority of the landings are coming from inshore areas as opposed to offshore and at

the shelf break where most of the males are concentrated.

We did have the benefit of having some data forwarded to us by Steve Correia and also from Dan McKiernan about some gill net samples and also longline trips for Massachusetts. Most of these trips were kind of concentrated in the third quarter. We haven't really been able to put them in the context of the overall estimates we have from our samples and from our observer data bases, but the ratio of females to males in 2010 was about 57 to 43 whereas in most of NMFS port samplings we're seeing about 86 to 14 percent.

It does indicate that there are likely to be some major changes occurring within the fleet over the next few years, and some of these are predictable and others are not. Overall, still discard rates are high. About 75 percent of the mortality that occurs on male dogfish is still coming from discard and about 35 percent of the total mortality imposed on females.

It is an issue but I think there are a lot of positive trends in terms of the overall rate of decline in that quantity. The survey highlights; we typically present the information in terms of a nominal survey footprint, and this is what led to the debates on 200,000 metric tons versus 190,000 metric tons and so forth.

One of the reasons we keep this in here is it does provide a framework or a context in which we can make comparisons over time. It does provide an easily understood and in terms of communication to others it does seem to be useful. Using this so-called stochastic method for total stock estimation, the population increased – you know, it was insignificantly different, 3 percent increase.

It's about 169,000 metric tons, which is above the spawning stock biomass value of about 159,000 metric tons. There is a very strong likelihood that the stock size is above overall the biomass reference point of the 159,000 metric tons. In 2011 recruitment was good. It was the eighth highest in the series and roughly in the upper quintile for 20 percent of the observed population.

Fishing mortality; they're expressed as the total catch divided the exploitable biomass of females. The exploitable biomass of females is a function

of the size composition of the catch; so as selectivity changes over time, that has profound implications as to what fraction of the stock biomass is available for exploitation.

With the typical focus on larger fish, that means that there is a smaller fraction of the total resource which is available and subject to the fishing mortality rate. Overall F in 2010 is about 0.1, and that is roughly about 40 percent or 38 percent of the overfishing proxy. We used a model projection to kind of characterize the expected behavior of the resource; and because of the longevity of this species and because of its much different behavior than most finfish, it is we think reasonable to look at that aspect of its stock dynamics.

I'll show a graph which compares the behavior of the resource under the Fmsy proxy with the 35th percentile, which was the recommendation of the Mid-Atlantic SSC. There is a strong sort of payback effect due to the low recruitment that occurred between 1997-2003, and this causes some long-term oscillations in population and size composition, which have important implications not only for the future but should have some bearing or influence on the short-term dynamics.

And then kind of another general principle is that the amplitude of the oscillations can be dampened by modifying the fishing mortality rates. This graph goes and just makes some quick comparisons between the SSB. The set of blue lines represent varying percentiles of the biomass trajectories. The center line is the median and the upper and lower bounds of a given color represent the 5th to 95th percentiles of the stock dynamics.

The important thing is that in the short run whether you fish at the Fmsy proxy or the recommended 0.177 level, the resource has behaved similar and is expected to – the stock size should be decreasing as the scarcity of pups that were born during that period sort of work their way through the population structure. This model uses a density-independent approach.

It's not incorporating the limiting factors of the stock recruitment relationship, and it's basically here for exposition. It's just to show and for a comparative basis that there are long-term differences; but in terms of the short-term dynamics, all of them are characterized by that.

You will notice that the oscillations that occur, the dip that occurs under the 0.177 measure is much less exaggerated than you would see with the fishing mortality rate at Fmsy. And if you really want it to bounce, you can overfish it and it will really oscillate wildly there.

In terms of taking those forecasts and incorporating some of the uncertainty associated with them, this is just adding in the measures of uncertainty associated with catch, landings, spawning stock biomass and that percent. The landings show a slight decline over time; again declining to about 2020 and then bouncing up and staying in about the 12,000 metric range.

There are a lot of tables in the report that kind of have all these basic properties there. If you fish at a lower rate – again, just emphasizing both the uncertainty and its consequences for landings – you can see a much more stable, long-term stream of landings, which seems to be a desirable trait with relatively little oscillations over time.

The general conclusions – again, this is more or less repeating what I had at the beginning there – it's not overfished and overfishing is not occurring. The population is relatively stable and we do expect it to remain above the overfishing threshold although your risk of going below that increase with the harvest policy. These OFLs under 0.24 and 0.177 are roughly 25,000 and 19,000 metric tons.

I think it's important to emphasize that this is a manageable resource. I think the declines that have occurred in terms of overall catch in recent years and in terms of total discards, they are evidence of sound management. This is a resource that should provide a stable year-round fishery. With appropriate kinds of management, it certainly can avoid that risk of falling into that hole again. That's all I have. I'll be happy to entertain questions if there are any.

CHAIRMAN SIMPSON: That's a great presentation, Paul, thanks. Any questions for Paul?

MR. JACK TRAVELSTEAD: Thanks, Paul, and I appreciate your sense of humor, too; it has been a long week. I'm looking at a report that was included in our package, a memo from Jim Armstrong to the Joint Dogfish Committee, and it's speaking to the potential commercial quota of almost 36 million pounds. Toward the end of

the report he says a lower quota than that in 2012 would leave more mature female dogfish in the water and would likely result in more consistent subsequent year quotas than if the entire calculated 2012 commercial quota is landed.

Then he goes on to say the identified commercial quota is therefore identified as an upper limit based on OFL, ABC and expectations about other sources of removals in 2012. I'm wondering if you agree with that. Is there a sense of concern that if we went with a high quota like 35.6 – I mean, I know that's calculated right, but will we be better off going with a lower quota and keep some fish in the water?

DR. RAGO: Well, I think as a general statement and perhaps sort of a motherhood statement, that if you redline the population and take as much as you possibly can, you run into – you increase the risk on it. Now, whether that's good or bad depends on other management objectives that this group and the councils have to consider.

I think as a matter of general principle that it is not good to rapidly increase on stocks, because as I said many of the factors associated with these projections, both with respect to landings and discard patterns, are a function of fishing behavior, which is basically the behavior of an individual firm in terms of how they respond to economic incentives, so it's possible that those assumptions that are associated with, say, gill nets or trawl behavior and so forth will likely change with the change of other things in the mix. I guess the short answer is I think that should be considered an upper bound and that measures below that, if economically viable, should be considered by this group.

DR. WILSON LANEY: Paul, with regard to recruitment you indicated that the recruitment for 2010 I think was the eighth highest in the time series, but in terms of recruitment have we yet reached a point that we were at in terms of recruitment prior to that drought that we experienced due to the overfishing of the large females? I guess this is related to Jack's question basically about would we be better off and would we reach a recruitment level that was occurring before the fishery developed if we leave more females in the water.

DR. RAGO: We are doing well, so to speak. The average recruitment over the past five years has been, for the sake of argument call it a four.

In the past we did have instances of consistent recruitment probably on the order of five or six, for the sake of argument. We did establish as part of the exercise to determine the SSB proxy or the Bmsy proxy that the average size of the females is an important determinant of both pup size and success of recruitment.

To the extent that fishing behavior changes and modifies that average size of the population or the average size of the females, you can have or it would be expected to have a reduced survival rate of those offspring. Anything that changes that can be a negative. Under the context or the way the model is currently structured and the estimates we have, it should be able to handle it.

Now, as I said, the uncertainty associated with changes in fishing behavior have huge impacts on whether or not you still see the increasing average size of females, which is what we have been seeing, and also whether you see the increasing average size of the pups, which is another factor which we have been seeing in our surveys.

MR. HIMCHAK: We had this presentation and this discussion a couple of weeks at the Mid-Atlantic Council, and we had the PDT recommend a quota of 35.6 million metric tons. Then the technical committee comes out with the same recommendation, and then what we're doing now is we're trying to quantify risk or what is more conservative or what is more risk averse. We're trying to quantify uncertainty.

I spoke in favor of the higher quota at the Mid-Atlantic Council because at that time the only thing we were talking about was the stability of the fishery. I didn't know quite how to explain that to our fishermen that we would go with a lower quota. If you consider a lower quota of 30 million pounds versus 35.6 million pounds – do I have the units correct? I'm getting confused here. I do, okay, million; no, they're not metric tons.

So, my math is a little better than my memory. The difference of 6 million pounds to New Jersey fishermen comes to about 460,000 pounds that they lost; 6 million pounds based on our percentage of the coastal allocation. I took the average price per pound of the Season 1 and Season and I multiplied that times 460,000 pounds, and I come up \$211,000; and then our gill net fleet, which is the only gill netting

activity we have left is pretty much out of Barnegat Light, so we're talking about no more than 20 people.

So, basically, the difference between the two quotas – and again do we pick the high number or the low number – I would have to tell these 20 fishermen – this is the real impact to them – is that they lost the potential for making an additional \$11,000 apiece at a time when they've lost weakfish, shad and river herring. They don't get much on bluefish and they get monkfish and spiny dogfish and maybe some smooth dogfish. That's the dilemma I have.

CHAIRMAN SIMPSON: I'll just say similar to the timing of what gets said when, I think you're into more comment than question, so I don't think Paul can respond to your argument about the financial impacts.

MR. HIMCHAK: No, but I'm talking about – I'm arguing in favor of the higher quota that we seem to be arguing against, the established quota already by the Mid-Atlantic Council.

CHAIRMAN SIMPSON: Right, but that's not Paul's decision; it's ours. Any other questions for Paul? Chris, you've got the technical committee recommendations?

TECHNICAL COMMITTEE RECOMMENDATIONS

MR. VONDERWEIDT: There is currently no chair of the Spiny Dogfish Technical Committee, so I'm going to give the report. The technical committee met jointly with the Mid-Atlantic Fishery Management Council's Monitoring Committee on September 22nd. The SSC met on September 21st, so there is very quick turnaround between the meetings. I think that's what Paul is referring with the series of quick and random e-mails that kind of came through, so just something to be aware of.

Paul went over that the stock is not overfished, biomass has exceeded the target for the last four years, and overfishing is not occurring. The quota calculation basically is pretty simple. It's the total harvest based on the fishing mortality rate; and from there the estimated dead discards are removed, the estimated Canadian landings are removed, and the estimated recreational landings are moved. Then you get X million pounds.

This is the way it has been done for at least the last five years. One slightly complicating factor, but I don't think it's as complicated as it may seem, is with the Reauthorized Magnuson-Stevens Act the monitoring committee is now required to follow the ABC recommendations of the SSC; however, the technical committee is not. We don't have OFL, ABC, ACL, ACT or anything of that in our plans.

However, we do have metrics that correspond with kind of the major ones of the Mid-Atlantic Council and all the councils, really. What was provided to the monitoring committee was an ABC recommendation. They took the OFL, which corresponds with Fmsy, which is the proxy or is the metric that has been used every year; you take away scientific uncertainty and then you get the acceptable biological catch.

To generate ABC from OFL, the SSC used a P-star of 40 percent method from the Omnibus Amendment – it is described in a paper by Shertzer et al – and this generated an ABC equals 20,352 metric tons, using that approach. What does that mean as far as the equation that I showed a second ago?

Well, this ABC is equivalent to the technical committee's metric of total harvest. It's what amount of removals from the population are acceptable for a sustainable fishery, and then you take away the discards and the recreational catch. To generate the total harvest, last year the technical committee and the monitoring committee used F 75 percent of the target. That was before the Omnibus Amendment was in place.

The technical committee was generally comfortable with a P-star 40 percent approach used by the SSC. They noted that using this approach will minimize the recruitment deficit from 1997-2003, which will need to be paid back. However, as Paul mentioned, it will remain well above threshold, and I think in some of the runs it actually remains above the target.

In addition, the technical committee supports consistent state and federal quotas, so setting total harvest based on the SSC's recommendations would allow for consistent state and federal quotas. They agreed with consistent with the monitoring committee to set the ABC or total harvest at 20,352 metric tons. Members of the technical committee also asked

for a little bit more information on the P-star method. They have since received that paper by Shertzer et al.

Now that we have the total harvest amount, we need to account for dead discards. In 2010 and 2011, last year they used 2009 discards, so they just used the last year's discard number. Before that a proportion of the total catch was used. However, in retrospect the proportion of the catch was showing to overestimate dead discards.

In addition, the fishery seems to have entered a new stanza was the buzz word of the day where you probably remember that the technical committee and monitoring committee hypothesized that Amendment 16 would significantly reduce discards because of the trawl fishery is where a large portion of the spiny dogfish discards are from. That was actually implemented in 2010, so you can compare it and see what impact it.

With the implementation of the sectors which allow for higher possession limits, with the higher possession limits there is less room on the boat to keep species like dogfish that bring less money, and there is also reduced groundfish harvest levels so there are fewer trips as well. In 2010 the discards dropped 31 percent.

The technical committee and the monitoring committee agreed that since the last year of 2010 under Amendment 16 represents this new stanza and discards prior that do not reflect the current fishery, the 2010 level of 4,081 metric tons is most appropriate as an estimate of dead discards. The part of the equation is Canadian landings. We have also entered kind of a new stanza under Canadian landings that began after 2008.

Where in 2008 the Canadian landings were 1,572 metric tons and then they dropped to 113 in 2009 and 6 metric tons in 2010, there were some processors at the meeting who informed the technical committee and monitoring committee that the Canadian catch is usually smaller males just based on the biology of the dogfish that are found in their waters.

As a result these smaller fish are harder to process, they're less valuable; compounded by a drop in European demand which has resulted in dealers are no longer interested in buying Canadian dogfish, so essentially Canadian

processors are not buying dogfish. They said that the last two Canadian processors have closed.

The technical committee and monitoring committee agreed that 2009 and 2010 represent the new stanza in the Canadian fishery, so the most appropriate method to estimate the landings in the future would be to take the average of the two years under that chapter of management. The final consideration was the recreational landings. Generally they have a very small impact on the fishing mortality rate.

The technical committee used the most recent landings in 2009, which is 34 metric tons. They agreed that approach seems fine to move forward being that there is a small impact overall on F. Their recommendation there was 21 metric tons. If you add all that up, it comes out to 35.6 million pounds, and that is the technical committee's quota recommendation for the 2012/2013 fishing season.

Regarding possession limits, there was no recommendation. The technical committee and monitoring committee noted that this is a policy decision. The real biological consideration here is dead discards, and there is evidence of dead discards with high possession limits with low possession limits. There have been no studies to really flush out what this means. As a reminder, we're currently under 3,000 pounds in the 2011/2012 fishing season.

The question today as far as setting specifications is whether to take action today or wait until February. Just as Paul mentioned and Jack alluded to in the memo from Jim is that the Mid-Atlantic Council recommended a 35.694 million pound quota with 4,000 pound possession limits.

The New England Fishery Management Council will discuss this next week and make a recommendation. However, at this point we don't know what that is. In addition, NMFS has not proposed a dogfish quota yet. Potentially the board could postpone until February and then still implement the specifications by the May 1 fishing season start. Thank you.

CHAIRMAN SIMPSON: Good, I'm glad you added that part. Pat.

MR. PATRICK AUGUSTINE: Great report; very clear; very concise; very thorough, so I'm ready to make a motion. **That's my motion that the board accept the recommended technical committee quota of 35.694 as the quota for 2012/2013 and a daily quota of 4,000 pounds.** If you need me to describe why, I will do that.

CHAIRMAN SIMPSON: Okay, we have a motion and a second by Tom. Discussion on the motion. David.

DISCUSSION OF 2012/2013 SPECIFICATIONS

DR. DAVID PIERCE: David or maybe it was Chris suggested that one option would be to wait until the New England Council takes action. I don't believe that is necessary. The Mid-Atlantic Council has already acted on recommendations from the scientific advisors that provide them with such valuable advice.

Paul Rago has given, as he always has, a great presentation describing the status of the stock and the levels of catch, the quota specifically that would correspond to a fairly conservative fishing mortality rate that would still ensure that we keep well above the threshold relative to our being overfished. That is shown, of course, in one of the slides.

This makes a great deal of sense. ASMFC I've always said should be in the lead with regard to spiny dogfish management and therefore we need not wait until the New England Council meets. I'm rather confident that the New England Council will also adopt this particular quota. The Dogfish Committee has met in both councils and this is their view as well. I support this particular quota. However, I do have a question about the landing limit.

I know there is no recommendation from the technical committee regarding the landing limit, but I have spoken with a number of processors regarding whether continuing with 3,000 or whether going to 4,000 makes more sense. The advice I get from them is that there is a need to extend the season for as long as possible.

By making it 4,000, the extension of the season isn't as long as it otherwise would be. This concern about too many dogs coming because of everyone fishing for dogs at that 4,000, that could have an effect on price. They suggest that

this board consider the continuation of the 3,000 pound quota daily trip limit with the primary reason being to extend the season. **I would move to amend the motion so that the daily limit would be 3,000 pounds and not 4,000 pounds.**

CHAIRMAN SIMPSON: That was a motion to amend to 3,000 by Dr. Pierce; is there a second to that? Ritchie White seconded. Comment on the amendment. Pat.

MR. AUGUSTINE: A clear comment on that one would be the answer would be no; short and long answer; not facetiously, but let's look at where we're going. The stock is in good shape. The fishermen are now fishing. They have another product to bring to market. They're going to catch them, they're going to discard them.

Let's go back and look at the total number of discards that were presented up there and that occur in this fishery. It's rather ludicrous again to have good product back in the ocean being of only value to whatever is there. Whenever we are out of sync with the Mid-Atlantic, we end up having to do some more iterations later on, so logically it doesn't make sense.

If we go in with 4,000, be consistent, we are at the lead because we're the second group that is supporting 4,000, and then let the New England Fishery Management Council decide which way they want to go. If they indeed decide to go to something less, they'll have to take it up with the Mid-Atlantic because I'm sure that those councils don't want to be out of sync again because we know what happens when that happens. So in no uncertain terms could I and I don't think my constituency from New York could support going from 4 to 3,000. We cannot support this amendment.

MR. VONDERWEIDT: I just wanted to point out that is only for the northern region quota. New York would have your own quota that you can specify, so New York would not be bound by the 4,000 or 3,000 possession limit, because under the most recent addendum it established state quotas where states can put in whatever possession limits they want.

MR. AUGUSTINE: To that point, Mr. Chairman, it still doesn't make any difference

whether we are bound by it or not. I think it's inconsistent.

MR. G. RITCHIE WHITE: Mr. Chairman, I would agree with Dave. We have heard from processors as well. There is no sense in catching fish that you can't sell if they come too fast. Extending the season also lowers dead discards, so there is an advantage to that as well.

DR. LOUIS DANIEL: I have a couple of comments, Mr. Chairman, thank you. The 4,000 pounds is only for the northern region so that does not have an impact on the southern states; that's good. There was some comment made to me yesterday about some real concerns about going much over 4,000 pounds, and so I just want to go ahead and be on the record now to indicate that I don't think we should go any higher than 4,000. States can do what they want with their quotas in the southern region, but he made a good point that could bring in the bigger boats and take away from the small boat fishery that it is currently. I don't think that's something that we would want to see, but that was a pretty sharp comment from the audience yesterday.

I'll support this motion, the whole thing, but if we go to the 36 million pounds, there is going to be payback later. There is going to be a decline, so there is going to be a one-year bonanza and then we're going to have to start cutting back. The fishermen want it now; that's cool; no problem, but just recognizing that there is going to be some payback and some reductions in harvest in subsequent years.

MR. WILLIAM A. ADLER: A little bit of clarification here; the total poundage is for the whole coast and the trip limit is only for the northern region? I thought that was everywhere.

MR. VONDERWEIDT: Up until Addendum III, Bill, the trip limit was for everybody, but Addendum III implement state shares, and as part of that the states in the southern region can put in whatever possession limit they want for their state share.

MR. HIMCHAK: Mr. Chairman, I support the move to amend and the initial motion. Could we perfect it maybe to read "move to amend the motion to be a 3,000 daily trip limit in the northern region" to avoid confusion in the future. Also, I wanted to point out that the 4,000 pound trip limit from my understanding, this would

apply in federal waters in the southern region or people fishing with a federal spiny dogfish permit, so the state could set a different possession limit up to 4,000 pounds, I believe; but if you're fishing under the terms of a federal spiny dogfish permit, in our case it's 4,000 pounds.

CHAIRMAN SIMPSON: Okay, there was a suggestion to perfect this; is everybody okay with that? Ritchie, are you okay with the perfection; so "in the northern region" as it says; thanks. Okay, any other comments on this before we take it up? Bob Ross.

MR. BOB ROSS: NMFS would also support the amendment to the motion to lower it to a 3,000 pound daily trip limit in the northern region. We also mirror concerns identified by North Carolina relative to the overall quota, but we'll go there next. Thank you.

MR. HIMCHAK: That was my next question, Mr. Chairman. In the e-mail that we received from Bob Beal on November 2nd, it says, "However, NMFS has indicated that they may not be able to support this increasing quota," and there is no reason given. I don't recall any discussion at the Mid-Atlantic Council in opposition from NMFS on selecting this higher quota. I'm kind of like, you know, it's like what was the purpose of the e-mail and NMFS is not supporting an increasing quota, and I don't know why.

CHAIRMAN SIMPSON: Okay, since that was something of a question for NMFS, I'm going to go back to Bob.

MR. ROSS: I believe if you look at the record at the Mid-Atlantic Council, there was an alternate motion to lower the quota to 30 million pounds. NMFS supported that action. NMFS voted against the 36 million pound quota at the Mid-Atlantic Council. Again, the logic there was future concerns about aggressive initial increases in the quota versus long-term impacts as we know the total biomass will decline. The lower the quota now; the lower the dip in the future.

CHAIRMAN SIMPSON: Bob, could I ask when would the rule come out from NMFS?

MR. ROSS: Normally we would await the determination by the councils and commission to go forward with our rulemaking, so it's my

assumption we will take action after the New England Council does their specifications assuming there are specifications by the commission today – recommendations today.

CHAIRMAN SIMPSON: All right, so if we make a decision now – there are, of course, three bodies that feed into this and then a fourth one that tells us frankly how it's going to be. If we were to take an action today and it wasn't consistent with what the final rule is on the federal level, then it would require a revisit in February and a two-thirds majority, am I right, to override the decision we might make today, just to lay out to people – and we're seeing disagreements so I'm glad I brought that up. David.

DR. PIERCE: Yes, dogfish in many ways is a strange beast, certainly the way it is managed, and this can be checked, of course, and I'm sure it will be, but if both councils agree on what the number should be and if corresponds with what the monitoring committee has recommended, then NMFS cannot disagree and cannot implement anything different from that number.

Going back in time, I know for a fact that not too long ago both councils had the same number, the monitoring committee had a different number and the Service went with the monitoring committee number because they could. There was disagreement. Here we have all three potentially on the same page; so with the New England adopting this particular motion relative to the quota – and I assume that will happen – the Service will not be able to implement anything different from what the three agree to, so we will not have to revisit this issue.

CHAIRMAN SIMPSON: Okay, thanks. Bill Adler.

MR. ADLER: Mr. Chairman, here we go! Once again if we pick on something and NMFS decides they want something different, let them change their mind instead of always us meeting and changing our mind to what they want. Our partners, remember.

MR. ROBERT BALLOU: Mr. Chairman, I just want to make sure I understand the potential impacts of these motions on Rhode Island. Do I understand correctly that regardless of which motion is adopted, Rhode Island, as a member of

the northern region, could adopt whatever possession limit it sees fit? No?

CHAIRMAN SIMPSON: No, up to.

MR. BALLOU: Up to so up to the limit, so what we're talking about is an upper limit here and states can go below that. Thank you.

DR. PIERCE: Just one other thing; in terms of our being aggressive and somehow putting ourselves in a difficult situation down the road, I would say that we're not being as aggressive as we could be, and that aggression would be, frankly, inappropriate. We could certainly adopt the upper bound for the median catch at the F 0.177. That's the value that has been offered up by the technical people for us to use for the setting of the quota.

I look at the 90 percent confidence interval and it goes from 13,596 to 23,308. The upper bound is 42 million pounds. We're not going with the upper bound of 42 million pounds. We're going basically in between the thirteen five and the twenty-three three. So, we could be more aggressive, we're not being more aggressive. We're taking I suggest a very conservative approach that is very consistent with the scientific information provided to us by all of our advisors, the technical committee, the monitoring committee, the SSC, so we're really on safe ground.

CHAIRMAN SIMPSON: Okay, thanks. We're running up against our scheduled time limit. Tom.

MR. THOMAS FOTE: What I want to do is shorten it. After the discussion, I will accept that as a friendly amendment so we don't have to vote twice; just combine the two if Pat is agreeable.

CHAIRMAN SIMPSON: **Is everyone happy with that concept as a friendly amendment? Pat.**

MR. AUGUSTINE: Yes, my cohorts in crime would be in favor of – rather than me voting against my own motion, **I will now vote for the motion, but, please, yes, make the change and substitute the “three” for the “four”, and I think we're on the same page.** Thank you, Thomas.

CHAIRMAN SIMPSON: That was a time saver; thank you, Tom. Vince.

EXECUTIVE DIRECTOR JOHN V. O'SHEA: Mr. Chairman, now that this is basically the main motion that you're about to vote on, the comment was raised I think by North Carolina about this is a decision to take the fish now rather than take the fish later. This also means – and I haven't heard anybody mention it – that this represents a 75 percent increase in last year's quota on a fish that's worth thirty cents a pound.

I haven't heard anybody say that they have any information regarding what the market impacts are doing or would be in reaction to this. We did hear from Chris that the Canadians stopped fishing because the European market has collapsed. So in addition to catching next year's and the year's after fish I'm just wondering if anybody has looked at what the price is that you're going to get next year for these fish. Thank you.

CHAIRMAN SIMPSON: It sounds like they're worth more than scup. Pat.

MR. AUGUSTINE: To that point, there is an economic concern here. We're also concerned about the cost of commercial fishermen, what it costs them for fuel, and between what they get per pound and what it costs to get it is another issue, but even more importantly I must remind you all we are single-species managing and what the heck do these fish eat? They've got to eat something; so if the stock is not overfished and overfishing isn't happening, go for it.

MR. TRAVELSTEAD: I made the motion at the Mid-Atlantic for the 30 million pound quota, and, of course, it failed. I'm not inclined to do that here today. I think it would just be a waste of time, but there were some folks in the audience that I hope you'll hear from before we do vote on this.

CHAIRMAN SIMPSON: Yes, and I did intend to do that. I think we're about to vote; so before we do that, I want to see if there is anyone in the audience who wanted to speak. You essentially made your points, but if you could sort of recap on that it would be great.

MR. WHITESIDE: Again, Attorney John Whiteside of Mickelson and Barnet in New Bedford representing the Sustainable Fisheries

Association, which are the spiny dogfish processors. I had already made my point about our position is the 3,000 pound trip limit and the 30 million pound TAL. I wanted to address one specific thing, and that was the math that was done earlier regarding the potential that fishermen would lose \$11,000 each per year.

That would assume that the price remains constant; and with this substantial increase in the TAL, there is no reason for us to anticipate that the price would hold anywhere near what it is now. We would anticipate just simple supply and demand, that there would be as corresponding significant drop in the price.

That is one factor that we would like you to consider. Secondly is the soft landing and to soften the landing that is about to occur. In looking at Paul Rago's work and all of the other scientific data that I've reviewed, there is going to be a steep decline in the stocks starting in 2013 going forward. Thank you.

DR. LANEY: I was just going to say, Mr. Chairman, that the Fish and Wildlife Service would have a hard time supporting the motion with the 35.694 million pounds for many of the reasons that you've heard. I think we have an opportunity before us today not only to address the concerns of the industry, which have just been articulated, but to address economic concerns here from a market standpoint, but also to address the biological concerns.

Having been out there on the Cooperative Winter Tagging Cruise and watched those large females decline in the stock and watch our captures of pups go to zero during that seven-year stanza of low recruitment, I have a difficult time. Even though I am on the technical committee and I understand the rationale behind that 35.6, I could support a substitute motion for 30.

MR. STEVE BARNDOLLAR: Steve Barndollar from Sea Trade International. We have been processing both smooth and spiny dogfish since the early nineties; first in Portland, Maine, and New Hampshire, and in New Bedford, Massachusetts. We made a motion as four processors and have written a letter and recommended that the quota, as you heard, or the TAL be at 30 million and not 35.6 and 3,000 or 4.

I'm less concerned with the daily trip limit than I am with the overall – and the reason being that our markets are affected dramatically by what is going on in Europe. All the fish is exported, as you know, and the back market in Europe with both the currency differences, but primarily the German flap and back market because of the NGO activity in Europe is a lot stronger than it is in this country.

I don't know if we can sell 35.6 million processed pounds; I really don't. The fin and tail market is declining with what is happening on the west coast; again NGO activity from processed tails and fins. Even though they come in on the carcass, that market is declining. Belly flaps are about 4.5 to 5 percent of the total yield on the market; fins and tails are about 3 percent. This has a dramatic effect on a fish that we're selling into Europe right now at a dollar fifty-five a pound delivered on frozen backs.

Our air freight costs have gone up dramatically, forty or fifty cents a point in the last year, so the fresh market which carried a lot of the U.S. Export Market, those markets have declined. Seventy-eight percent increase – that's what the numbers are – is huge. We are applying for and spending over a hundred thousand dollars on MSE certification to try to retain or get back that German market.

There is some availability or some demand from Russia right now, but just on the backs and not from the flaps. If we cannot obtain the MSE certification – and it's going to take another six or eight months to find if we can – sending this message on optimal harvest of the stock and then possibly facing a decline in two or three years down the road on the adult females I think sends a less than a reliable, sustainable message to that community.

If that certification doesn't come and the west coast processors in Vancouver have it, which is largely a longline fishery – they have it now – we'll lose a good part of our export market. I could see next summer prices dropping from a boat price right now of twenty to twenty-two cents a pound down by five to eight cents a pound just based on excess capacity.

I recommend more caution. It's rare that the industry asks for less fish and NMFS support. It has always been the other way around. At the New England Council we'll certainly try to get

vote support for that position from the gill net fleet, some trawlers. But that 5 million pounds left in the ocean would go part of the way towards sending that environmental community that we're trying to make this a sustainable, well-managed fishery and not look at it as a bonanza both for the fishermen and the processors. Thank you.

CHAIRMAN SIMPSON: I appreciate your input. Were there any other comments? Bob.

MR. ROSS: **I would like to propose a substitute motion, identical except 30 million pounds; substitute 30 for 36.**

CHAIRMAN SIMPSON: Is there a second for that? Doug Grout seconds. Brief discussion on that? David.

DR. PIERCE: Obviously, Steve Barndollar getting to the microphone and expressing their point of view is a bit of a surprise to me. However, I understand his concerns. I would just suggest that indeed we have heard from a very prominent processor of dogfish, and I have always given what the processors have said a lot of credibility, and it has had a lot of influence on the way in which I have moved forward with dogfish.

However, I feel a little bit uneasy hearing just from a processor and not from all the fishermen who would be affected by the lowered quota and potentially by the shorter season with a lower amount of poundage. While I respect his point of view, I would not want to support the lowered amount, number one, because it is supported with the science and it is a decision that would be, let's say, more favored by the fishermen, and there are many of them.

REPRESENTATIVE SARAH K. PEAKE: I would like to support the point of view that Dr. Pierce has just expressed. I don't want to go home and tell my fishermen who on a good day you could walk on snowshoes across Cape Cod Bay because the dogfish are so thick there; that we had 35.6 million on table and we left 5.6 million pounds of quota here because the processors say they can't find a market.

My marketing experience has told me when you have a reliable source of a product, the demand for something like a food product can increase. I would hope that the processors are working for

the betterment of the fishing community. There are fishermen who have endured years of low, low, really unsustainable quota with dogfish and now we're finally able to get it back up to a level. I would hope that the substitute motion is defeated and we can go back and pass the original motion us.

DR. LANEY: Dr. Pierce, you indicated earlier that you had the number for the upper bound; do you have the number for the lower bound as well?

DR. PIERCE: Yes, it's around the 30 million pound point, which is why I decided to go in the middle, consistent with the advice given to us by our technical people.

MR. HIMCHAK: Mr. Chairman, I guess here is the appropriate time to bring up my economic analysis, and I can assure you that when I used the price per pound I used to low end of the spectrum. Our fishermen get about twice as much in Season 2 as they do in Season 1. When I calculated the difference, I picked a low ball. I do not support the substitute. Thank you.

DR. DANIEL: I don't know why I keep arguing for a quota I don't want, but I guess my concern, after listening to the processors, is what if they call us up and say you don't send us anymore? Then we're going to be in a scrape and the folks at the tail end of the fishery are going to probably be the ones that lose out. I mean, that's just another thought to put out there.

MR. AUGUSTINE: As the final comment on it, it sounds like we're going to be held hostage; and if you think that's what fishery management is all about, you better resign from the board. This is about science. It's about making sound decisions that are put forth by the technical committee and the stock assessment people.

Why do we have to sit here and be threatened that there is a possibility that this might happen and that might happen? It's either incumbent upon the fishermen to restrict the amount of fish they bring in or work closely with the processors to time your landings. It's not incumbent upon this board to bend to the wind and fit every situation and every special interest group that comes along – and I don't mean to be respectful, sir, but this is where we are.

We try not to bend to the environmental group, we try not to bend to those that are way over here or way over there. We take their concerns into account, but at the end of the day we've got to man up and say we've heard you and now we have to move forward. I would like to end debate by calling the question, Mr. Chairman.

MR. DOUGLAS GROUT: Since I seconded this motion, I did feel a need to explain the reason I seconded this motion. I looked at this as with a 30 million pound quota we are increasing the amount of fish that our fishermen are allowed to harvest this year. The science did show that if we harvest at a lower rate we won't be seeing quite as much of a decline in the quota in the future. Given that combined with the fact that with that high of a quota there may be some price decrease on this. There may be economic advantages over the long term in setting a quota at 30 million for this year. That's the reason I supported the second and will vote for this motion.

CHAIRMAN SIMPSON: I think good points have been made all around. Are you ready to caucus on this? The motion is move to amend the quota to 30 million pounds. Motion by Mr. Ross; second by Mr. Grout.

(Whereupon, a caucus was held.)

CHAIRMAN SIMPSON: Okay, are we ready? All those in favor raise your hand, I see seven in favor; opposed same sign, five opposed; any abstentions, three abstentions; any null votes, one null. **The motion passes seven, five, three, one for 30 million pounds.** This rolls up to be the main motion, is that right, and would include the 3,000 pound trip limit. Are you ready for that question?

We need to make the perfection that it's no longer the technical committee's recommendation. **That was for 35.6, so it should read move the board set the quota at 30 million pounds for 2012/2013 and a daily trip limit of 3,000 pounds for the northern region. That's the motion as amended. All in favor raise your hand, 7; opposed, 5; any abstentions, 3; null votes. 1. The motion passes.** Dr. Pierce.

DR. PIERCE: I have on motion to make. I just wanted to point out that the vote of the board makes it quite easy now for the New England

Council to know what it needs to do since really ASMFC controls how dogfish will be landed; the amount and the way in which they are landed. When the decision is conveyed to the New England Council, our debate will be relatively short.

CHAIRMAN SIMPSON: Okay, the next agenda item is 5; Consider Massachusetts De Minimis Proposal for Coastal Sharks. Chris has some information.

MASSACHUSETTS DE MINIMIS PROPOSAL FOR COASTAL SHARKS

MR. VONDERWEIDT: Mr. Chairman, I'll try and be quick. Massachusetts has submitted a de minimis proposal, which would exempt them from the current 33 non-sandbar large coastal shark possession limit. As a review, our fishery management plan doesn't actually establish criteria for de minimis but allows exemptions based on a case-by-case basis. They're evaluated by the technical committee whether implementation is necessary for the attainment of the FMP's objectives and conservation of the resource.

Like I said before, they asked for an exemption from the LCS possession limit. That's the non-sandbar large coastal sharks species group which consists of silky, tiger, blacktip, spinner, bull, lemon, nurse, scalloped hammerhead, great hammerhead and smooth hammerhead sharks. As pointed out in the – well, the letter from Massachusetts notes that this is an unnecessary regulatory burden because currently Massachusetts has no active fishery in state waters, and there are minimal landings since 1950.

Those landings are shown there. There is 4 pounds of nurse shark, 14pounds of tiger shark, 414 pounds of blacktip shark all in different years. In addition, they have implemented a number of other measures which kind cover any loopholes that might be opened here. The technical committee unanimously feels that it's unnecessary. The large coastal shark possession limit is unnecessary for the attainment of the FMP's objectives and conservation of the resource.

In particular the federal dealer permit allows landings to be counted, so anybody who wants to serve as a dealer in Massachusetts waters needs a

federal dealer permit. All the landings get counted; that's kind of an important part. The other part is that this is a quota-managed species and Massachusetts state waters are closed when the federal quota has been harvested. The fish get counted; the state waters close when the quota is harvested; and in addition the fins and the tails must remain attached naturally to the carcass through landing, which aids identification of the species; so unanimous support. Thank you.

DR. DANIEL: I would like to recommend approval of Massachusetts de minimis request.

CHAIRMAN SIMPSON: And I see a second from Dr. Rhodes. Any discussion? Any objection? Pat.

MR. AUGUSTINE: Does the National Marine Fisheries Service or Highly Migratory Species see any issue that might possibly come up to affect their reporting? From what was described, it appears not, but could we hear from the Highly Migratory Species Group if they would like to pass judgment on this.

MS. KARYL BREWSTER-GEISZ: Thanks, Pat. We don't have any issues with accepting this request.

CHAIRMAN SIMPSON: **I think we're going to pass that without objection.** There seemed to be none. We're going to flip-flop the next two items. We're going to have an update on the HMS Rulemaking and Amendment. Karyl is going to take that.

UPDATE ON THE HMS RULEMAKING AND AMENDMENT 5

MS. BREWSTER-GEISZ: I just wanted to give an update on some of the major rulemakings we are doing right now along with just making you aware of what else is going on in the world of federal shark management. We have a couple of amendments going on right now regarding sharks.

The first amendment, Amendment 5 is as a result of the recent shark assessments. Then we have two other things going on; Amendment 6 regarding catch shares. This is the first time I think that this board has had a chance to comment on the proposed season and

specifications before that actually closes. Then we have a number of other actions going on.

Amendment 5, we had new stock assessments this year for scalloped hammerhead, dusky, sandbar and blacknose sharks. These changed the status determination criteria – well, status determinations for some of these stocks requiring us to do an amendment to rebuild and prevent overfishing.

We announced the scalloped hammerhead change in determination in April, so under Magnuson we are required to have a rebuilding plan in place by April 28, 2013, so two years from last April. Right now we are in our scoping phase. This is the phase where we are essentially brainstorming issues and options and trying to come up with some good, potential measures to rebuild some of these stocks.

We hope to have a pre-draft ready for our advisory panel to review in March of 2012; proposed rule and EIS next summer; followed by the EIS and final rule April of 2013. Stock status; scalloped hammerhead was determined to be overfishing with overfishing occurring. This was an assessment that was done outside our Southeast Data Assessment and Review Process, but the National Marine Fisheries Service did review it and decided it was appropriate to use that stock assessment for management.

Under the assessment it looks like the total allowable catch for scalloped hammerheads needs to be reduced by about 700 sharks to just under 3,000 sharks per year. For dusky sharks this was the first time we had done the assessment under the SEDAR process. It was an update of the 2006 assessment, and it did find the dusky sharks were still overfished and unfortunately overfishing is still occurring despite the fact that they have been prohibited for quite a number of years.

According to the assessment we need to reduce fishing mortality by about 62 percent. The bright point of this assessment, if it is a bright point, indicates it will not take 400 years to rebuild. It will only take about 90 years to rebuild; quite an improvement. Sandbar sharks was the bright point of the assessment. This was an update of the previous assessment.

There are still overfished but overfishing is not occurring, and that's the first time we've had that

result for sandbar, so that's good news. It also indicates that the stock can be rebuilt under the current rebuilding timeframe. Blacknose sharks were split into two separate stocks, an Atlantic stock and a Gulf of Mexico stock. For Atlantic it came out that it was overfished with overfishing, and it looks like they could rebuild by the year 2043 with a total allowable catch of just over 7,000 sharks.

Blacknose sharks; the model was unable to fit some of the trends and so the scientists rejected it and we have an unknown status for Gulf of Mexico. Just to make sure you know, the full presentation we're giving at the scoping meetings is in your notebook, but I'm giving a very brief presentation here because we don't have the time to go through all of it.

For scalloped hammerheads we have quite a number of issues. This is a species of shark that is often misidentified with the other hammerhead sharks. It is not a species that people actually direct on so it is bycatch. It's also a species that is often brought to the boat dead. The bottom longline fishermen have about 90 percent mortality at the boat and gill net fishermen about 70 or 75 percent mortality at the boat.

It's not something that can be easily avoided. They do keep it if they catch it but they're not fishing for it actively. So looking at what we could do, there is the potential for gear restrictions. In our shark research fishery now we do have specific gear restrictions that do not seem to cause any problems in terms of catching the catch limit, but the number of hooks is limited to 500 and the fishermen still are able to catch the 33 fish.

Soak time; there is some evidence that a soak time of less than four hours can increase at-vessel survival. Time area closures for both commercial and recreational we're looking at to see if that's a possibility. Gear tending is another possibility particularly if we wanted to go with some sort of gear restrictions. For the shark fishery a lot of the bottom longline fishermen tend to leave the bottom longline in the water after they catch a trip, bring the trip limit in, and then go back out and continue fishing that gear, so the gear can continually be in the water.

Obviously, any sharks caught on that would be dead after a few hours, so that's something we

are looking at and have had support from our advisory panel members for gear-tending requirements. Linking the individual quota for scalloped hammerheads to the large coastal quota; we have done that with that blacknose and small coastal sharks and have had mixed reviews, so we are asking the question here whether people want to do that.

Bag limit and trip limits for commercial and recreational; recreational right now is already limited to one shark. And then gear technology; we have weak hooks in place right now in the Gulf of Mexico for bluefin. There is some evidence it might work for sharks though not a lot of evidence. There is also some evidence though it hasn't been tested a lot about electro-positive metals in the hooks.

The hooks tend to be pretty expensive, though, and those tend to avoid sharks. Prohibiting similar to what was put in place by ICCAT for the pelagic longline fishery, so it would be prohibiting bottom longline and gill netters from retaining scalloped hammerheads. The other idea we had would be to include scalloped hammerhead in our current shark research fishery. Right now it's just the sandbar.

We do research on all sorts of species but those are the only people who can keep sandbar sharks and so would they be the only people who could keep scalloped hammerheads? We're looking at this closely and we see a lot of issues in regard to the scalloped hammerhead. We'd love to have ideas from this body along with anybody else.

The next slide will be dusky sharks. As I mentioned, this continues to be overfished with overfishing occurring despite the fact that they are prohibited. We need to reduce fishing mortality by 62 percent. Looking at similar measures as we just did for the scalloped hammerheads; their at-vessel mortality is slightly better than scalloped hammerhead but still not great. Again, we're looking for any suggestions.

Sandbar shark; overfished but no longer has overfishing occurring. It appears from the stock assessment that our current management measures are working and we have a 70 percent probability of rebuilding within our current rebuilding timeframe of 2070. We are asking if people feel we need to take any additional measures or change any of the existing measures.

Blacknose sharks, as I mentioned, this is now split into two stocks. I believe the only stock this group would really be interested in is the Atlantic one, which is overfished with overfishing. We would need to reduce the total allowable catch, which right now is 19,200 sharks for the both the Atlantic and Gulf. The TAC would now need to be 7,300 for the Atlantic, so we're looking at ways of doing that.

As I mentioned earlier, we had mixed comments regarding our linking of the blacknose quota to the small coastal shark quota; so what that linkage means is that if the blacknose quota is taken, the small coastal shark fishery is also closed and vice versa, so whether or not people still feel we should continue doing that along with reconsidering the recreational size and bag limit. The comment period for scoping ends at the end of this year, December 31st. If you have any comments or any thoughts, feel free to either call me or submit the comments online.

Amendment 6, I believe we are actually on the agenda next time to give a much larger presentation on Amendment 6. I basically just wanted to let you know we are looking at catch shares for the shark fishery in case that changes your ideas about we should do in Amendment 5. The comment period currently ends March 1st although we are thinking of extending that to ensure that we can have time to meet with all the regional fishery management councils during the scoping period.

The 2012 proposed shark specifications; this is our rule where we set the quotas and the opening dates for the following year. Opening dates right now for the shark research, the small coastal and pelagic fisheries, on or about January 1. That has to do with how soon and how quickly we can actually get this rule in place. To be honest, January 1 at this point is fairly optimistic, which means the fisheries will close until we have this final rule out.

The porbeagle shark fishery; right now they are about at 160 percent of the 2011 quota. We often get porbeagles continuing to be reported. If that happens and they happen to reach next year's quota before next year even occurs, they will not be opening at all. In any case, they will be opening at a reduced level next year. Their base quota is 1.7 metric tons. That is give or take about 30 sharks, so it doesn't very many porbeagles before they go over.

Gulf of Mexico; similar to last year we proposed March 1st. For the Atlantic non-sandbar large coastals, we are proposing opening either on the effective date of our electronic dealer reporting system or on July 15th, whichever comes first. Chris wanted to make sure I mentioned the possession limits, and that's the whole point behind this effective being so nebulous.

We have a 33-shark trip limit for non-sandbar large coastal sharks. That's just our baseline level. We have the flexibility within our regulations to reduce that in order to slow the quota as we go through. We have a continual pressure between the southern fishermen, say, in Florida and the more northern fishermen in North Carolina because large coastal sharks happen to be in Florida early in the year and happen to be in North Carolina in the summer, in the middle of the year.

Last year we had the comment that we should open it in January and when about half of the quota is taken we would reduce the trip limit zero; and then come July open it again for the North Carolina fishermen; not really open it, just increase the trip limit. We do like that idea. We'd like to have that in place but it is dependent on more real-time reporting, so it's dependent upon when we get the electronic dealer reporting system in place.

The comment period on this rule ends November 30th; and once again you can submit comments electronically. We have a number of other actions going on right now. We have the Atlantic Non-sandbar Large Coastal Fishery closing November 15th. We just announced that this week, so it is new information.

The electronic dealer reporting would require all federally permitted shark, swordfish and BAYS tunas – that is Bigeye, Albacore, Yellowfin and Skipjack tunas – to report electronically. We had the proposed rule out last summer and are currently working on a final rule along with finishing implementation of the actual system. We're going to start doing workshops to teach dealers how to use the system come December.

We have a rule regarding VMS, changing all of our current vessel monitoring system units to electronic ones along with requiring fishermen tell us when they're about to leave and come back and what gears they are using. That final rule should be coming out soon. I know another

action we are working on that is a lot of people's minds, the Shark Conversation Act Rule. This would be the rule that implements the savings clause in the Shark Conservation Act.

The savings clause has a lot of language regarding an exemption for smoothhound sharks where they could remove the fins up to 12 percent fin-to-carcass ratio. We're working on that rule. As part of the rule we are also reconsidering the current smoothhound shark quota. The quota was established in Amendment 3.

If you look at the landings for 2009 and 2010 and what has been coming in so far for 2011, the current landings exceed what we put in place for the quota, so we are looking at increasing that quota. The other news for all of you who have already read your Federal Register for today, we have published a rule delaying smoothhound shark measures. We are delaying it until we have the Shark Conversation Act Rule in place, so they are delayed indefinitely.

Next year the quota will not go in place; the permits will not go in place. You don't need to worry about what the fishermen are going to do and when we close the fishery quite yet. Other actions; we are asking for a lot of nominations and applications. The 2012 Shark Research Fishery; applications are due November 30th. If you want to participate in assessments, we have the Gulf of Mexico blacktip assessment coming up next year.

Nominations to be part of our SEDAR Pool are actually due November 23rd. I don't know why it says December 30th. We seem to be very date challenged lately. And then if you want to be on our advisory panel, nominations are due December 5th. That's it; so if you have any questions, you can always reach me or check out our webpage. Thank you.

CHAIRMAN SIMPSON: I was going to say I lost track of how many comment deadlines there were. I had three of them and it kept going. There are a lot of comment deadlines in there by a complicated group of species, and I know nothing about any of them except for spiny and smooth dogfish. Go ahead.

MR. ADAM NOWALSKY: For the VMS requirements, was there going to be funding available for fishermen to replace those systems

or would that be, of course, borne entirely by the fishermen?

MS. BREWSTER-GEISZ: Yes, fishermen can start replacing those units not and receive \$3,100 to replace those units.

DR. DANIEL: Karyl, I have a couple of comments and questions. If you could go back in the presentation to the 2012 specifications, I want to make sure that I understand this correctly. I understand the issues with the Florida and the North Carolina fishery. We keep saying July 15th and that that could provide North Carolina some opportunity. We're closed off North Carolina. I'm still not happy about that, and I want to get it fixed.

It's January through August 1st and we've been asking for two weeks, just those two weeks since it's July 15th, and I really want to see that go out in these scoping opportunities. That needs to go in there. We've been a good player, we've been a good partner in this thing. I really want to see you move on those two weeks.

One of the concerns I have is if this electronic dealer reporting system goes into play in March or April and it's opened when we're closed, will there be those controls in place that you talked about like saving some fish for the later time when North Carolina, Virginia and maybe South Carolina have an interest in perhaps catching some sharks? That's my first question.

MS. BREWSTER-GEISZ: In regard to the North Carolina closure, yes, unfortunately this year you would miss the two weeks, but Amendment 5 will probably require us to go back and look at that time area closure in regard to dusky and scalloped hammerheads. It will be looked at again and we will make sure to keep your comment in mind because we've been hearing it for the past several years. We are not ignoring you.

DR. DANIEL: Oh, I know, I won't let you, but what about if it opens early? I mean, if it opens before July the 15th, will Florida be able to catch all the fish?

MS. BREWSTER-GEISZ: If it opens before July 15th, we already have the measures in place for us to reduce and increase that trip limit. An eDEALER would allow us to keep track of the quota so we would reduce the trip limit all the way down to zero if needed to prevent Florida

from catching it before the fish arrive up in the northern areas.

DR. DANIEL: Okay, I hope that is what happens.

MR. FOTE: I haven't seen a good list like this put together with all the deadline dates. If you could e-mail that out to all the commissioners, so basically it would give us a good reference point. I get the HMS News but with every e-mail I get, a lot of times I don't read it so I don't keep track, but a nice chart like this once in a while that would show us all the deadlines would really be helpful.

CHAIRMAN SIMPSON: Okay, anything else on the presentation; questions or anything? Louis.

DR. DANIEL: Karyl, the Shark Conservation Act I think is what it's called and implementing the clause that allows for smooth dogfish to be processed at sea; I'm hearing some comments that there is a move afoot to try to – that there may be a loophole in that and that there may be a move to try to take out that exemption. Has that risen to your level?

MS. BREWSTER-GEISZ: I have not heard a recent rumor in regard to that. I will say part of the reason we've been delaying this so long is the savings clause has some very interesting language in it and trying to understand what it was trying to do and how that language is supposed to work took us a long time and a lot of conversations with staffers who helped draft it.

DR. DANIEL: Okay, that would have a big issue with the ASMFC Plan if that exemption were not followed up on with the law that was passed to allow that exemption for smooth dogs. That would have a huge negative impact. I think it's the only shark that we would be allowed to process at sea, but because of the identification issues and because of the work that we did on the carcass-to-fin ratios, it's like 12 percent as opposed to some of the earlier. You might recall some of those discussions about a year or so ago. I think my other questions are related to the dogfish quotas, and so I'll wait until we get into that discussion.

CHAIRMAN SIMPSON: Anything else? All right, thanks, Karyl. That brings us to number

six and Greg is going to help us with that, the 2012 Coastal Shark Specifications.

2012 COASTAL SHARK SPECIFICATIONS

MR. GREG SKOMAL: The technical committee met in October to discuss 2012 specifications. As a quick review, this board is charged with setting smooth dogfish quotas and then possession limits for smooth dogfish, large coastals, small coastals and pelagic species. Over the last two years the board has set a 33-fish large coastal shark limit, which is consistent with federal specifications.

We discussed this unfortunately before the federal specifications were out, which didn't come out until October 31st, and our meeting was early October. We recommended continuing the 33-fish large coastal shark possession limit for 2012. Because it worked well in 2009 and 2010, we didn't see anything warranting a change, and, of course, it was consistent with federal specifications.

We also agreed that we would review the specifications when they came out, but they came out so late that we haven't had time to do that. As Karyl just noted, it looks like the 33-fish possession limit is going to stay in force and therefore we don't change our recommendation. The opening date, of course, has already been discussed when the eDEALERS online are July 15th. **The action to be taken by the board now is just to approve or not approve a 33-fish large coastal shark – non-sandbar large coastal possession limit.**

DR. DANIEL: **So moved.**

CHAIRMAN SIMPSON: I have a motion from Louis; seconded by Pat Augustine. Any discussion? Thirty-three is no change from where we have been. The motion is to set a 33-fish non-sandbar large coastal shark possession limit for 2012. Motion by Dr. Daniel; second by Mr. Augustine.

This all got so complicated we just banned it all in Connecticut. I couldn't keep up with it. Is there any other discussion? Is there any objection? **Seeing none, we will consider that done.** Okay, we're going to jump to Agenda Item 9 now and have Chris help us discuss the

Proposed Smooth Dogfish Quota and Recent Landings.

PROPOSED 2012 FEDERAL SMOOTH DOGFISH QUOTA AND RECENT LANDINGS

MR. VONDERWEIDT: When the agenda was put together, we didn't have the proposal to delay implementation of Amendment 3 and the smooth dogfish quota wasn't available. Depending on this discussion, Agenda Item Number 8 could possibly be delayed because there will be no smooth dogfish quota. Maybe it would make sense to do this one first.

Louis had asked that this get added to the agenda. In Amendment 3 Final Rule the proposed base quota is 715.5 metric tons, which was calculated by taking the maximum annual landings 1998-2007 plus a two standard deviation increase with the intent to allow the fishery to continue at current levels.

If you look at landings since 2007, 2008, 2009 and 2010, the green line in the middle there is what the base quota of 715.5 metric tons or 1.5 million pounds would be, and you can see that in 2009 it would be a small reduction and in 2010 it would about a 40 percent reduction. I think Louis just wanted this highlighted.

If you use the same formula where you look at the maximum annual landings from 1997-2010, so you just add the most recent years, the updated quota would go from 1.5 million to 3.7 million with the maximum annual landings plus two standard deviation increase, and that is what that blue line is up there at 3.7. With that, hopefully that covers enough to get the discussion started.

DR. DANIEL: Thanks, Chris, you did a good job with this. I've talked with HMS. I think Karyl and I talked about this. It was not NMFS intent to reduce the fishery. The intent was to maintain the current fishery, and the current fishery has grown a little bit. What I would like to do, and I think this might be the more appropriate thing to do is simply send a letter to NMFS from maybe Vince or the chairman requesting that they take this into consideration.

We've got a letter drafted that basically goes through and asks that those recalculations be done with the more current information that will

result in that blue-line quota as opposed to the big reduction. I think that's consistent with what we're trying to do here with smooth dogfish. I guess we could circulate that letter or do something. I'm sure everybody is going to want to see the letter before they vote on it. It's fairly short, but I'm not going to read it to you. Maybe if we could get that out to the board and maybe try to get some kind of – I don't know how you want to do it – an e-mail poll or something.

CHAIRMAN SIMPSON: Bob, can you help us?

MR. ROBERT E. BEAL: Yes, if Louis has draft language we can circulate that to the board. If there are no objections on that language or if we can negotiate wording changes through the board and everybody is happy with it, we can send the letter under Vince's signature, I think.

CHAIRMAN SIMPSON: Is that okay, Pat; does that sound more efficient?

MR. AUGUSTINE: Yes, my concern was that if there was time to do it; otherwise, we go with a motion that says we preliminarily approve of supporting the 2012 federal smooth dogfish quota of 715.5 metric tons based on the reaction of the board to Dr. Daniel's letter. I'm not sure what would be more appropriate because we have looked at approving a letter before and then the content came out completely different or there was a different twist to it. Could we do that; what would the board feel more comfortable with? I would like to see it as a motion, preliminarily approval and move forward with it and we've already covered ourselves then.

CHAIRMAN SIMPSON: I think rather than preliminarily approve something we haven't seen, I think it would good to just it circuit it around to the board. I don't hear a lot of discord over the concept; so I think if we're good with the wording, I think it would be more efficient to handle it that, if that's all right.

MR. AUGUSTINE: As long as we have time.

DR. DANIEL: If Chris will go back to that report, the previous slide I think it was, that is essentially what the letter requests right there is instead of using the 1998-2007 landings, which you can see there are all well down low, and the intent of NMFS when they set the green line – I

think it's green – was to maintain the fishery, and you can see that has not happened.

Our proposal is to use those later two years, the standard deviation above and beyond that, to give us some more flexibility, and that's what the letter requests NMFS to do instead of the 1998-2007 landings. If we can get that circulated around and then maybe –

CHAIRMAN SIMPSON: So does it boil down to just add the last two years on that into the average and then do the two standard deviations from that; is that what it is?

DR. DANIEL: Yes, what the letter is it just indicates the 715.5 is not a good number and to prevent reductions to the fishery we request that the 2012-based quota be recalculated using the most recent landings with a 1.39 whole weight conversion factor of the maximum annual landings plus two standard deviations or around 1680 metric tons. Thank you for considering this request. Basically it just says use the most recent iteration and do the two standard deviations and that gives us that higher quota that doesn't result in a 40 percent reduction in the fishery.

CHAIRMAN SIMPSON: Okay, so that's essentially it. Pete.

MR. HIMCHAK: I understand where Louis is coming from; however, Amendment 3 went through the federal rulemaking process and it has set a quota for 2012 of 1.5 million pounds. I recognize what you're trying – you don't impact the fishery as it currently exists, but I guess the question to NMFS is can they accommodate a change to 3.7 million pounds in an annual quota on the basis of a letter from this board or do they have to go through the rulemaking process to change a quota?

MS. BREWSTER-GEISZ: We do need to go through a rulemaking process to change the quota. That's what we were doing in the Shark Conservation Act. As I explained before, we published today a final rule which delays indefinitely our smoothhound shark measures, so there will be no quota going into place in 2012.

Not to bore everybody with the ins and outs of federal rulemaking, but in this particular case for the Shark Conservation Act the Office of Management and Budget found the rule to be

significant. What they mean by "significant" is they actually want to review the rule before it is proposed. Even once NMFS finishes its portion of the rulemaking, it will not be proposed until OMB finishes its review as well. It's going to be a little while before we even have a proposed rule out there.

CHAIRMAN SIMPSON: Okay, thanks. So we have the essence of it and I think we have a way forward. Anything else on that? The next agenda item is actually whether to initiate Addendum II, which would address smooth dogfish quotas. Given what we just heard, is there a need to do that or discuss it or do we just move on to the next item? Does anyone want to work on that now, discuss that now or move to the next item? Pete.

MR. HIMCHAK: Well, I guess because I've been such a proponent of this addendum, the urgency is lost. Chris did a fantastic job of setting the plate for developing percent quotas; but if we don't have to do it for a couple of more years, then the landscape of the landings may change and the options may change and the percentages may change. I guess we put this draft addendum on the back burner and see what develops with HMS.

CHAIRMAN SIMPSON: Right, thanks, Pete, that's perfect. All right, we are onto 10 now, Review of the Spiny Dogfish Technical Committee membership.

REVIEW OF THE SPINY DOGFISH TECHNICAL COMMITTEE MEMBERSHIP

MR. VONDERWEIDT: This is just an update. The Commonwealth of Massachusetts has appointed Greg Skomal, who is the Coastal Sharks Technical Committee Chair, to the Spiny Dogfish Technical Committee. It's just an update. Thank you.

ADJOURNMENT

CHAIRMAN SIMPSON: Is there anything else for this board? All right, that's it. We were behind by half an hour and now we're 15 minutes ahead so that's good. Thank you.

(Whereupon, the meeting was adjourned at 3:12 o'clock p.m., November 10, 2011.)

Atlantic States Marine Fisheries Commission

Spiny Dogfish Technical Committee

December 19, 2011

Review of the Spiny Dogfish Fishing Mortality Reference Points

Present: Holly White (NC DMR), Angel Willey (MD DNR), Jim Armstrong (MAFMC), Scott Newlin (DE DFW), Matt Cieri (ME DMR), Toby Curtis (NMFS), Carly Bari (NMFS), Eric Schneider (RI DFW), Wilson Laney (USFWS), Greg Skomal (MA DMF) and Chris Vonderweidt (ASMFC Staff).

The Spiny Dogfish Technical Committee (TC) met to review the overfishing definition for spiny dogfish and make recommendations to the Spiny Dogfish & Coastal Sharks Management Board (Board). The call was convened because spiny dogfish quotas have not been calculated based on the overfishing target and threshold values as defined in the Interstate Fishery Management Plan for Spiny Dogfish (FMP). Annual quotas have been set to achieve a lower fishing mortality rate (F) than the target or threshold F values. The Mid-Atlantic Fishery Management Council (Council) updated their overfishing definition in 2009 as part of Framework Adjustment 2 to the Spiny Dogfish Fishery Management Plan (Framework 2). Accordingly, updating the ASMFC overfishing definition may be necessary to establish an F_{target} that maintains the SSB_{target} and reconciles differences between the Council and ASMFC reference points for this complementarily managed species. The TC met in September 2011 but there was insufficient time to review fishing mortality reference points at that time.

The call began with ASMFC staff presenting the TC with the history of the ASMFC overfishing definition and review of the Council's current definition (see attached memo for more detail). In 2002, the ASMFC adopted the Council's target, threshold, and rebuild fishing mortality rates in the ASMFC FMP. The FMP defines the target fishing mortality rate as "allows for the production [of] 1.5 female pups per female [that] recruit to the spawning stock biomass" and the threshold as "allows for the production of 1 female pup per female that will recruit to the spawning stock biomass". Rebuild is not defined in the ASMFC FMP but was defined in the Council plan as "allowing for the production of 2 female pups per female that recruit to the SSB". Initial values were $F_{target} = 0.082$, $F_{threshold} = 0.11$, and $F_{rebuild} = 0.03$. These estimates were most recently updated in the Northeast Fisheries Science Center's (NEFSC) 2010 Biological Reference Points for Spiny Dogfish Report to be $F_{threshold} = 0.325$ and $F_{target} = 0.207$.

In 2009, Framework 2 revised the Council's status determination criteria to define $F_{threshold}$ as " F_{MSY} (or a reasonable proxy thereof) as a function of productive capacity, and based upon the best scientific information consistent with National Standards 1 and 2" and does not include a F_{target} value. The August 2011 NEFSC's Estimation of an F_{MSY} Proxy Reference Point for Spiny Dogfish report calculated F_{MSY} as 0.2439.

The TC unanimously recommends the Board initiate an addendum to update the overfishing definition consistent with the best available science and Council's $F_{threshold}$ definition. The TC and Monitoring Committee calculate quotas using an F rate as a starting point and inconsistent $F_{threshold}$ s add to the likelihood of inconsistent state and federal quotas for this complementarily managed species. The TC recommends establishing a less rigid definition based on F_{msy} or a reasonable proxy that allows for adaptive management based on the best available science (Option B below). The TC is in favor of establishing a F_{target} and came up with four possible options that could be included in an addendum. TC

members agreed that F_{targets} provide a metric to measure the performance of management measures that accounts for the current status of a population and recent recruitment (as opposed to comparing landings to a quota). A loose definition (Option D below) could complement the federal plan.

Specifically the TC recommends the following options for $F_{\text{threshold}}$ and F_{target} :

$F_{\text{threshold}}$

- A. Status quo: Allows for the production of 1 female pups per female that recruit to the spawning stock biomass. Currently 0.207.
- B. Consistent with Framework 2 definition: F_{MSY} (or a reasonable proxy thereof) as a function of productive capacity, and based upon the best available science. Currently 0.2439

F_{target}

- A. Status quo: Allows for the production [of] 1.5 female pups per female [that] recruit to the spawning stock biomass.
- B. $F_{\text{target}} = 75\%$ of $F_{\text{threshold}}$
- C. $F_{0.1}$: F level where the slope of the yield curve is 10 % of the slope at $F = 0.0$
- D. The TC will recommend an F_{target} when making annual quota recommendations.

Atlantic Blacknose Shark Assessment Summary

The Summary Report provides a broad but concise view of the salient aspects of the stock assessment. It recapitulates: (a) the information available to and prepared by the Data Workshop; (b) the application of those data, development and execution of one or more assessment models, and identification of the most reliable model configuration as the base run by the Assessment Process (AP); and (c) the findings and advice determined during the Review Workshop.

Stock Status and Determination Criteria

Results showed that the stock was overfished (SSF_{2009}/SSF_{MSY} of 0.43 to 0.64, all below MSST) and therefore subject to rebuilding. The base model estimated an overfished stock and that overfishing was still occurring at a level similar to that when the stocks were treated as a single unit. Current F values over all sensitivities also indicated that the stock was subject to overfishing (F_{2009}/F_{MSY} of 3.26 to 22.53).

Table 1. Summary of stock status determination criteria.

Criteria	Recommended Values from SEDAR 21	
	Definition	Value*
M (Instantaneous natural mortality; per year)	Arithmetic mean of the age-specific values of M used for the baseline run	0.20
F_{2009} (per year)	Apical Fishing mortality in 2009	0.38
F_{MSY} (per year)	Fishing Mortality at MSY	0.08
N_{MSY} (numbers)	Abundance at MSY	153,709
SSF_{2009} (numbers)	Spawning stock fecundity** in 2009	58,049
SSF_{MSY} (numbers)	Spawning Stock Fecundity at MSY	96,809
MSST (numbers)	$(1-M)*SSF_{MSY}$	77,447
MFMT (per year)	F_{MSY}	0.08
MSY (numbers)	Maximum Sustainable Yield	24,495
F_{Target} (per year)	$75\%F_{MSY}$	0.06
Biomass Status	$SSF_{2009}/MSST$	0.75
Exploitation Status	F_{2009}/F_{MSY}	5.02

* Values presented are from the Review Workshop base model configuration but it is important to note that that the Review Panel recommended all runs in the addendum be considered equally plausible

** SSF is spawning stock fecundity (sum of number at age times pup production at age)

Stock Identification and Management Unit

- After considering the available data, the working group concluded that blacknose sharks inhabiting the U.S. waters of the western North Atlantic Ocean (including the Gulf of Mexico) should be considered two separate stocks; one in the U.S. waters of the western North Atlantic Ocean (referred to in the document as South Atlantic Bight) and one in the Gulf of Mexico.
- Since SEDAR 13, tagging efforts have increased and there is still a lack of exchange between the Gulf of Mexico and South Atlantic Bight.
- While genetic information still doesn't provide data to discriminate distinct stocks, the continued lack of exchange between the two basins and the difference in reproductive cycle (1 year vs. 2 year) led the group to conclude that the stocks should be split.

Stock Life History

- There are currently no natural mortality estimates for blacknose shark available based on direct empirical data.
- It was determined that the *maximum* of the four life history invariant methods for estimating natural mortality discussed at the Data Workshop (Hoenig [1983], Chen and Watanabe [1989], Peterson and Wroblewski [1984], and Lorenzen [1996]), be used as the estimate of M.
- Due to the low sample sizes of younger individuals in the growth model from the South Atlantic Bight and larger animals from the Gulf of Mexico, the working group chose to adopt the combined growth model to describe both areas.
- Observed maximum age of blacknose sharks is 14.5 years for females and 20.5 years for males. The working group agreed that it was reasonable to assume a maximum age of 20.5 years for females as well.
- The reproductive periodicity in the Gulf of Mexico is considered to be annual while the periodicity is considered biennial in the South Atlantic Bight.
- A litter size of 5 should be adopted for both regions. This value represents the median of all data available on blacknose shark fecundity.

Assessment Methods

The state-space, age-structured production model (ASPM) was used as the primary assessment modeling approach. The ASPM has been used extensively for assessing shark stocks domestically (including the sandbar and blacknose sharks) and under the auspices of ICCAT since 2002. The ASPM allows incorporation of many of the important biological (mortality, growth, reproduction) and fishery (selectivity, effort) processes in conjunction with observed catches and CPUE indices (and length and age compositions if available).

- The year of virgin conditions was set to 1950
- The stock-recruit relationship was assumed to be a Beverton-Holt function

- The base case model configuration downweighted the catches for certain periods, giving them ½ of the weight of catches in more recent years, on the rationale that they were either estimated or generally less well known.
- One further model specification is the degree to which the model-predicted values matched catches versus indices. Given that the estimated stock status did not vary much based on the alternate weighting between catch and indices, it was decided to proceed by placing relatively more confidence in the catch series.

Assessment Data

- Commercial landings were decomposed into three separate gears: bottom longlines, nets, and lines, by taking the product of the annual landing estimates and the proportional gear composition for the South Atlantic
- Annual recreational catch estimates are the sum of estimates reported in the MRFSS (fish landed [A] and discarded dead [B1]), and Headboat survey (fish landed).
- Dead discards from the commercial shark bottom longline fishery are estimated using the annual dead discard percentage observed in the Shark Bottom Longline Observer Program in the South Atlantic multiplied by the annual commercial landings of blacknose sharks caught on longlines in the South Atlantic.
- Dead discards from the commercial shrimp trawl fishery in the South Atlantic are included. The pre-TED and post-TED series were imputed as a single series into the model to address poor-fit issues
- Length-frequency information from animals caught in scientific observer programs, recreational fishery surveys, and various fishery-independent surveys was used to generate age-frequency distributions through age-length keys
- The Index WG of the DW recommended the use of seven indices: four fishery-independent series (NMFS LL SE, SCDNR Historical Red drum longline, GADNR Red drum longline, and UNC longline) and three fishery-dependent series (the BLLOP and DGNOP commercial observer program indices and the CFL Gillnet logbook-based commercial index), all of which were standardized by the respective authors through GLM techniques
- Life history inputs to the model include age and growth, as well as several parameters associated with reproduction, including sex ratio, reproductive frequency, fecundity at age, maturity at age, and month of pupping, and natural mortality.

Catch Trends

- Catches of blacknose shark in the US south Atlantic were dominated by catches from the gillnet fishery, followed by the commercial bottom longline and the shrimp fishery bycatch.
- The gillnet fishery is the dominant fishery in the south Atlantic, but large sporadic catches of blacknose shark have been recorded in the recreational fishery as well.

Fishing Mortality Trends

- Fishing mortality started low and progressively increased until the peak in 1994, which again corresponded to the decline in catches from 1994 to 1995 and a matching peak in effort and F in the commercial gillnet fleet in 1994.
- After 1995, fishing mortality and effort oscillated but were more in line with the corresponding catches in each fleet.
- Total fishing mortality did not exceed the estimated F_{MSY} of 0.074 until 1993, after which it remained above F_{MSY} .
- Fishing mortality was dominated by the shrimp fleet until 1994, after which the commercial gillnet fleet dominated

Stock Abundance and Biomass Trends

- All model trajectories show very little depletion until 1987, corresponding to low catches, effort and estimated F in the historic and early modern period.
- Coinciding with progressively increasing catches, effort and F until the mid-1990s, all trajectories declined more steeply from about 1988 to 1994, followed by a precipitous decline from 1994 to 1995. This decline coincides with the sharp decline in catches from 1994 to 1995.
- After the mid-1990s, the rate of decline decelerates despite the increase in catches possibly in response to the lack of a clear trend in most indices in those years.
- The first three age classes made up about 50% of the population in any given year and mean age by year varied little (min=4.4, max=7.0).
- The age distribution in 1995 and 1996 appeared disrupted, with proportionally more age-1 animals in the population in those years and thereafter than in the preceding 1950-1994 period.

Projections

- Projections for blacknose shark only vary for biomass and fishing mortality in the F-based scenarios.
- The target year for rebuilding ranged between 2033 and 2086 depending on the state of nature of the stock.
- Most scenarios suggested that fishing mortality needed to be reduced by about an order of magnitude in order to meet rebuilding targets.
- The low productivity scenario was the most extreme, and was meant more to bookend the states of nature on the lower end of the life history spectrum.
- Projections of the high productivity scenario suggested that a reduction of fishing mortality of about 82% percent would be sufficient to rebuild the stock to MSY levels within the projected rebuilding time frame.

Scientific Uncertainty

- Likelihood profiling was performed to examine posterior distributions for several model parameters and to provide probabilities of the stock being overfished and overfishing occurring.
- Uncertainty in data inputs and model configuration was examined through the use of sensitivity scenarios. Eight alternative runs, along with retrospective analyses were also examined.
- The reviewers identified four additional sensitivity analyses to provide verification that the results of the assessment were robust to assumptions about underlying stock productivity and assumed level of removals.
- An issue of concern regarding the indices of relative abundance is that many show interannual variability that does not seem to be compatible with the life history of sharks suggesting that the GLMs used to standardize the indices did not include all factors to help track relative abundance or that the spatial scope of sampling is too limited to allow for precise inference about stock-wide trends.
- The uncertainty associated with biological parameters was only investigated through the scenario with a U-shaped natural mortality curve and resulted in a much higher degree of overfishing.
- The estimation of selectivities externally to the model may not have captured the uncertainty associated with the sample size used to fit age-length curves, the computation of the age-length key, and subsequent transformation of lengths into ages to produce age-frequency distributions to which selectivity curves were fitted.

Significant Assessment Modifications

The Review Panel modified the Base run put forth by the Assessment Panel. The modification entailed that the UNC series is fit less well by use of a weight in the data input.

Sources of Information

All information was copied directly or generated from the information available in the final Stock Assessment Report for SEDAR 21: HMS Atlantic Blacknose shark.

Table 2: Life history inputs used in the assessment. All these quantities are treated as constants in the model. (Table 2.4 from the Assessment Process Report)

Age	Proportion	
	mature	M
1	0.0000	0.2089
2	0.0005	0.2089
3	0.0099	0.2089
4	0.1751	0.2089
5	0.8191	0.2089
6	0.9897	0.2051
7	0.9995	0.2009
8	1.0000	0.1979
9	1.0000	0.1957
10	1.0000	0.1941
11	1.0000	0.1930
12	1.0000	0.1922
13	1.0000	0.1915
14	1.0000	0.1911
15	1.00000	0.19076
16	1.00000	0.19051
17	1.00000	0.19033
18	1.00000	0.19019
19	1.00000	0.19009
20	1.00000	0.19002
Sex ratio:	1:1	
Reproductive frequency:	2 yr	
Fecundity:	5 pups	
Pupping month:	June	
L_{inf}	104.3 cm FL	
k	0.3	
t_0	-1.71	
Weight vs length relation:	$W=0.00000165L^{3.34}$	

Table 3: Catches of blacknose shark by fleet in numbers. Catches are separated into six fisheries: commercial longline, commercial gillnet, commercial lines, recreational, shrimp bycatch, and commercial bottom longline discards. The value in red (nets, 1995) indicates a change introduced with respect to what was reported in the SEDAR21 DW Report. (*Table 2.1 from the Assessment Process Report*)

Year	Commercial landings			Recreational	Shrimp bycatch	Bottom LL discards
	Bottom longlines	Nets	Lines			
1950	0	0	0	0	1567	0
1951	0	0	0	0	1671	0
1952	0	0	1	0	1773	0
1953	0	0	1	0	1873	0
1954	0	0	1	0	1971	0
1955	0	0	2	0	2067	0
1956	0	0	2	0	2162	0
1957	0	0	2	0	2254	0
1958	0	0	3	0	2345	0
1959	0	0	3	0	2434	0
1960	0	0	4	0	3128	0
1961	0	0	4	0	2215	0
1962	0	0	4	0	2667	0
1963	0	0	5	0	3014	0
1964	0	0	5	0	3231	0
1965	0	0	5	0	2832	0
1966	0	0	6	0	2659	0
1967	0	0	6	0	3082	0
1968	0	0	6	0	3137	0
1969	0	0	7	0	3628	0
1970	0	0	7	0	3039	0
1971	0	0	7	0	3110	0
1972	0	0	8	0	4569	0
1973	0	0	8	0	3888	0
1974	0	0	8	0	3536	0
1975	0	0	9	0	2876	0
1976	0	0	9	0	3108	0
1977	0	0	9	0	3287	0
1978	0	0	10	0	3690	0
1979	0	0	10	0	3605	0
1980	0	0	11	0	2101	0
1981	397	0	11	0	2536	120
1982	794	0	11	0	2387	239
1983	1191	0	12	119	2174	359
1984	1587	0	12	844	2239	479
1985	4096	0	12	172	2036	599
1986	4916	0	13	0	2144	718
1987	5735	1144	13	59	2082	838
1988	6554	2288	13	4668	1682	958
1989	7374	3433	14	0	1693	1077
1990	8193	4577	14	2400	1956	1197
1991	9012	5721	14	8	2236	1317

1992	9831	6865	15	551	2249	1437
1993	10651	8010	15	0	2126	1556
1994	11470	9154	15	170	1963	1676
1995	5434	11838	0	0	2021	564
1996	6125	14573	763	1	2188	156
1997	14082	26004	45	1	2493	580
1998	5617	14428	20	974	2548	0
1999	5458	20685	29	733	2375	637
2000	10249	32154	0	3346	2335	9318
2001	4177	28525	15	31	2535	2517
2002	3071	18340	124	537	2846	3071
2003	7358	12482	85	709	2258	2453
2004	3958	7942	34	30	2047	1319
2005	612	12208	254	0	1501	184
2006	2736	11498	14	476	1279	456
2007	705	12035	77	3368	1137	163
2008	3963	19097	139	2	863	90
2009	9792	19292	146	1070	1025	0

Table 4: Estimated total and fleet-specific instantaneous fishing mortality rates by year. (Table 3.9 from the Assessment Process Report)

Year	Total F	Fleet-specific F					
		Com-BLL	Com-GN	Com-L	Rec	Shrimp	BLL-Disc
1950	0.003	2.9624E-07	4.4109E-07	2.19E-07	2.768E-07	0.0029667	2.962E-07
1951	0.009	2.9624E-07	4.4109E-07	1.152E-06	2.776E-07	0.0088394	2.962E-07
1952	0.015	2.9624E-07	4.4109E-07	2.086E-06	2.785E-07	0.014712	2.962E-07
1953	0.021	2.9624E-07	4.4109E-07	3.019E-06	2.793E-07	0.0205846	2.962E-07
1954	0.026	2.9624E-07	4.4109E-07	3.952E-06	2.801E-07	0.0264573	2.962E-07
1955	0.032	2.9624E-07	4.4109E-07	4.885E-06	2.81E-07	0.0323314	2.962E-07
1956	0.038	2.9624E-07	4.4109E-07	5.819E-06	2.818E-07	0.0382019	2.962E-07
1957	0.044	2.9624E-07	4.4109E-07	6.752E-06	2.827E-07	0.0440755	2.962E-07
1958	0.050	2.9624E-07	4.4109E-07	7.685E-06	2.835E-07	0.049949	2.962E-07
1959	0.056	2.9624E-07	4.4109E-07	8.618E-06	2.843E-07	0.0558195	2.962E-07
1960	0.062	2.9624E-07	4.4109E-07	9.552E-06	2.852E-07	0.0616931	2.962E-07
1961	0.068	2.9624E-07	4.4109E-07	1.049E-05	2.86E-07	0.0675666	2.962E-07
1962	0.073	2.9624E-07	4.4109E-07	1.142E-05	2.869E-07	0.0734371	2.962E-07
1963	0.079	2.9624E-07	4.4109E-07	1.235E-05	2.877E-07	0.0793107	2.962E-07
1964	0.085	2.9624E-07	4.4109E-07	1.329E-05	2.885E-07	0.0851842	2.962E-07
1965	0.091	2.9624E-07	4.4109E-07	1.422E-05	2.894E-07	0.0910577	2.962E-07
1966	0.097	2.9624E-07	4.4109E-07	1.515E-05	2.902E-07	0.0969283	2.962E-07
1967	0.103	2.9624E-07	4.4109E-07	1.608E-05	2.911E-07	0.1028018	2.962E-07
1968	0.109	2.9624E-07	4.4109E-07	1.702E-05	2.919E-07	0.1086753	2.962E-07
1969	0.115	2.9624E-07	4.4109E-07	1.795E-05	2.927E-07	0.1145459	2.962E-07
1970	0.120	2.9624E-07	4.4109E-07	1.888E-05	2.936E-07	0.1204194	2.962E-07
1971	0.126	2.9624E-07	4.4109E-07	1.982E-05	2.944E-07	0.1262929	2.962E-07
1972	0.132	3.0907E-07	4.60712E-07	2.075E-05	2.953E-07	0.1321635	3.09E-07
1973	0.103	3.0997E-07	4.60978E-07	2.386E-05	2.984E-07	0.1032873	3.099E-07
1974	0.094	3.1037E-07	4.60302E-07	2.389E-05	2.988E-07	0.0939316	3.103E-07
1975	0.076	3.1054E-07	4.59094E-07	2.689E-05	2.989E-07	0.0762271	3.105E-07
1976	0.083	3.1029E-07	4.57998E-07	2.687E-05	2.987E-07	0.0827029	3.103E-07
1977	0.088	3.1038E-07	4.58008E-07	2.689E-05	2.988E-07	0.0877703	3.104E-07
1978	0.099	3.1072E-07	4.58828E-07	2.991E-05	2.992E-07	0.098948	3.107E-07
1979	0.097	3.1136E-07	4.59944E-07	2.997E-05	2.998E-07	0.0966735	3.113E-07
1980	0.056	3.125E-07	4.59401E-07	3.3E-05	3.001E-07	0.0557176	3.124E-07
1981	0.069	0.00123633	4.57834E-07	3.295E-05	2.995E-07	0.0675007	0.0003731
1982	0.067	0.00248481	4.57578E-07	3.298E-05	3E-07	0.063536	0.0007453
1983	0.063	0.00374771	4.57865E-07	3.607E-05	0.0003576	0.0578962	0.0011234
1984	0.069	0.00503307	4.59053E-07	3.622E-05	0.0025533	0.0598201	0.0015073
1985	0.063	0.00635376	4.60558E-07	3.644E-05	0.0005222	0.05445	0.0018981
1986	0.068	0.00769433	4.63221E-07	3.967E-05	3.055E-07	0.0575936	0.0022895
1987	0.078	0.00909269	0.009789167	4.004E-05	0.0001817	0.0563649	0.0027001
1988	0.095	0.01067493	0.020311999	4.092E-05	0.014939	0.0458795	0.0031659
1989	0.095	0.01240549	0.031749148	4.526E-05	3.238E-07	0.0468324	0.003658
1990	0.126	0.01426379	0.044308711	4.66E-05	0.0080575	0.0552591	0.0041972
1991	0.144	0.01638271	0.058247736	4.836E-05	2.765E-05	0.0645699	0.0048003
1992	0.166	0.0187643	0.073541645	5.401E-05	0.0019868	0.0665627	0.0054764
1993	0.181	0.0212489	0.089123327	5.672E-05	3.786E-07	0.0645909	0.00622
1994	0.203	0.02395189	0.109435326	5.993E-05	0.0006793	0.0618369	0.007078

1995	0.177	0.02400751	0.085088373	4.203E-07	4.202E-07	0.0650554	0.0024779
1996	0.204	0.02799709	0.09846107	0.0033411	4.379E-06	0.0738896	0.0007144
1997	0.334	0.06675254	0.175797006	0.000215	4.782E-06	0.0882109	0.0028922
1998	0.213	0.02782712	0.090805923	0.000103	0.0049401	0.0892297	5.416E-07
1999	0.242	0.02716786	0.11900042	0.0001548	0.0038555	0.0885705	0.0035184
2000	0.405	0.05294096	0.189110306	5.952E-07	0.018679	0.0940215	0.0499481
2001	0.370	0.0275593	0.212674847	0.0001012	0.0002092	0.1124811	0.0172508
2002	0.365	0.02276006	0.175858452	0.0009091	0.0039218	0.1388551	0.0230667
2003	0.334	0.05878575	0.134740837	0.0006769	0.0056287	0.1133771	0.0203453
2004	0.228	0.03258309	0.079299135	0.0002815	0.0002483	0.1041893	0.0113011
2005	0.198	0.00524053	0.107684115	0.0020979	8.323E-07	0.0816781	0.001602
2006	0.205	0.02294342	0.103413618	0.0001188	0.0039959	0.0706862	0.004029
2007	0.206	0.00633192	0.106997968	0.0006699	0.027349	0.0634431	0.0014943
2008	0.262	0.03603702	0.173369889	0.0012717	1.835E-05	0.0506802	0.0008677
2009	0.421	0.10571916	0.23882012	0.0015068	0.011049	0.0640605	1.093E-06

Table 5: Predicted abundance (numbers), total biomass (kg), and spawning stock fecundity (numbers) of blacknose shark for the base run. (*Table 3.8 from the Assessment Process Report*)

Year	N	SSF	B
1950	460560	257894	2211819
1951	460457	257894	2211571
1952	460168	257893	2210777
1953	459727	257876	2209368
1954	459165	257787	2207338
1955	458493	257588	2204701
1956	457714	257284	2201464
1957	456837	256904	2197698
1958	455868	256455	2193420
1959	454814	255942	2188637
1960	453683	255372	2183415
1961	452480	254746	2177769
1962	451212	254068	2171733
1963	449885	253346	2165358
1964	448503	252580	2158650
1965	447066	251773	2151620
1966	445588	250932	2144341
1967	444065	250058	2136798
1968	442504	249152	2129024
1969	440907	248220	2121039
1970	439278	247262	2112864
1971	437619	246281	2104505
1972	435933	245280	2095995
1973	434219	244256	2087310
1974	433610	243217	2081214
1975	433258	242175	2076743
1976	433385	241272	2074421
1977	433134	240881	2072355
1978	432703	240769	2070239
1979	431966	240836	2067358
1980	431450	240741	2064653
1981	432353	240460	2065295
1982	432160	239658	2062891
1983	431514	238715	2058266
1984	430417	237873	2050944
1985	428136	236076	2037181
1986	426295	234454	2025589
1987	424086	232721	2012649
1988	419592	230104	1989689
1989	408940	223058	1931478
1990	400976	217985	1891020
1991	388426	209869	1826286
1992	376064	202491	1764621
1993	361332	193401	1689587
1994	345707	183507	1609464
1995	328018	172286	1519024
1996	316874	163448	1456967

1997	303095	154334	1385897
1998	273327	138269	1240129
1999	264690	130661	1189079
2000	252447	122841	1128577
2001	220328	104826	968096
2002	201373	95860	884109
2003	187333	87303	816078
2004	174106	78147	745872
2005	170277	74610	725351
2006	167976	74478	719728
2007	164255	73698	701842
2008	160370	72120	681761
2009	152057	68365	644442

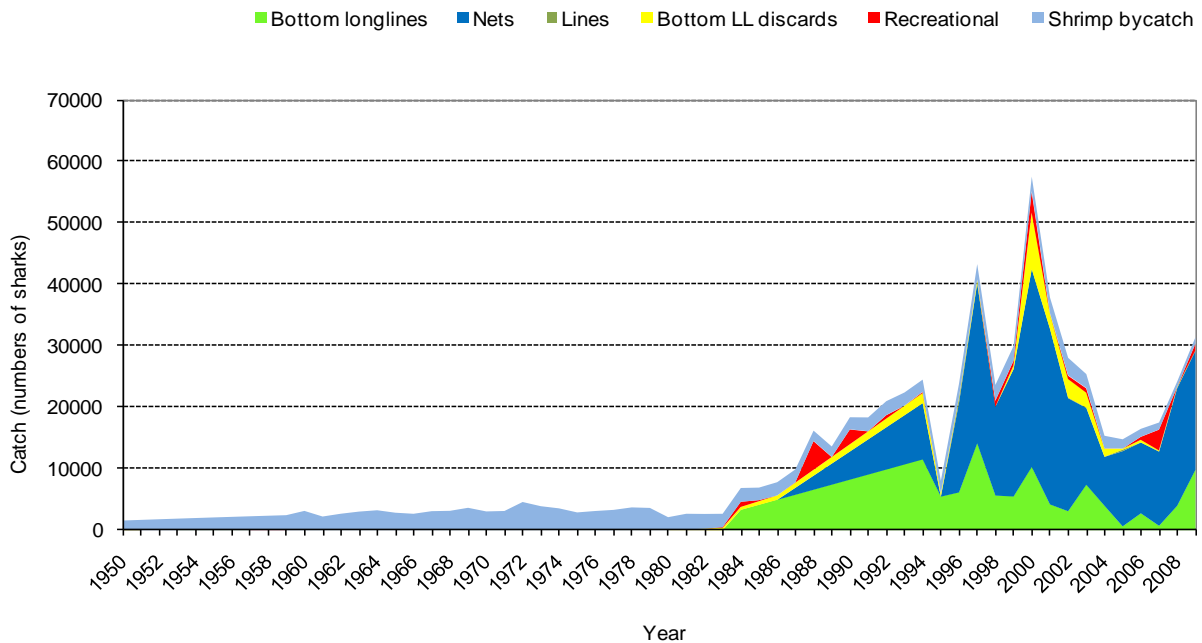


Figure 1: Catches of blacknose shark by fleet. Catches are separated into six fisheries: commercial longline, commercial gillnet, commercial lines, recreational, shrimp bycatch, and commercial bottom longline discards. The commercial lines series is not visible in the figures due to its small magnitude. (Figure 2.1 from the Assessment Process Report)

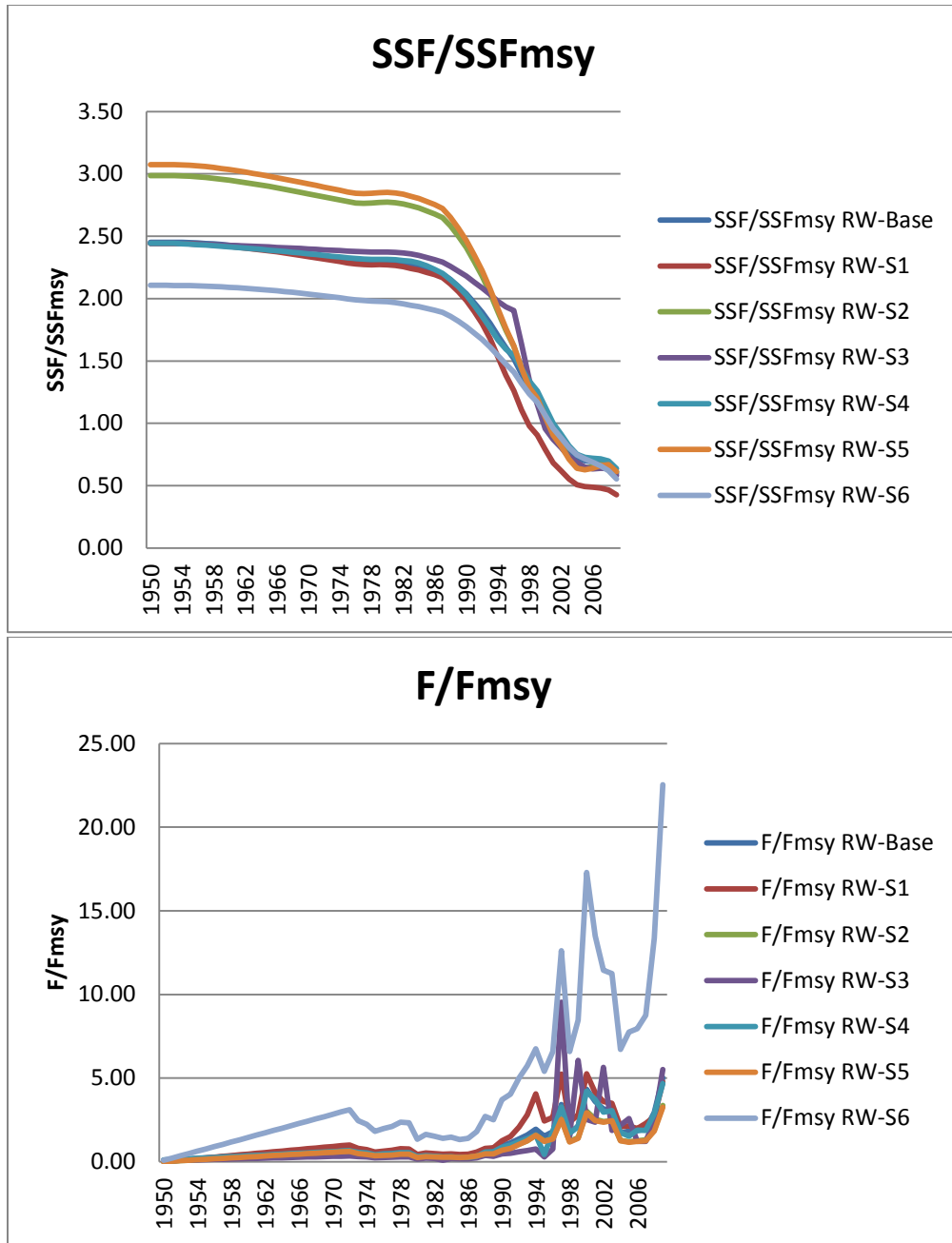


Figure 2 Scenarios selected to explore the range of model outputs for blacknose shark at the Review Workshop. Base and six others are shown below: RW-1 inv-CV weighting, RW-2 1-yr reproductive cycle, RW-3 modified high catch, RW-4 modified low catch, RW-5 high productivity, and RW-6 low productivity. Two time series trajectories are shown: relative biomass, and relative fishing mortality. (Figure 2 from the Addendum)

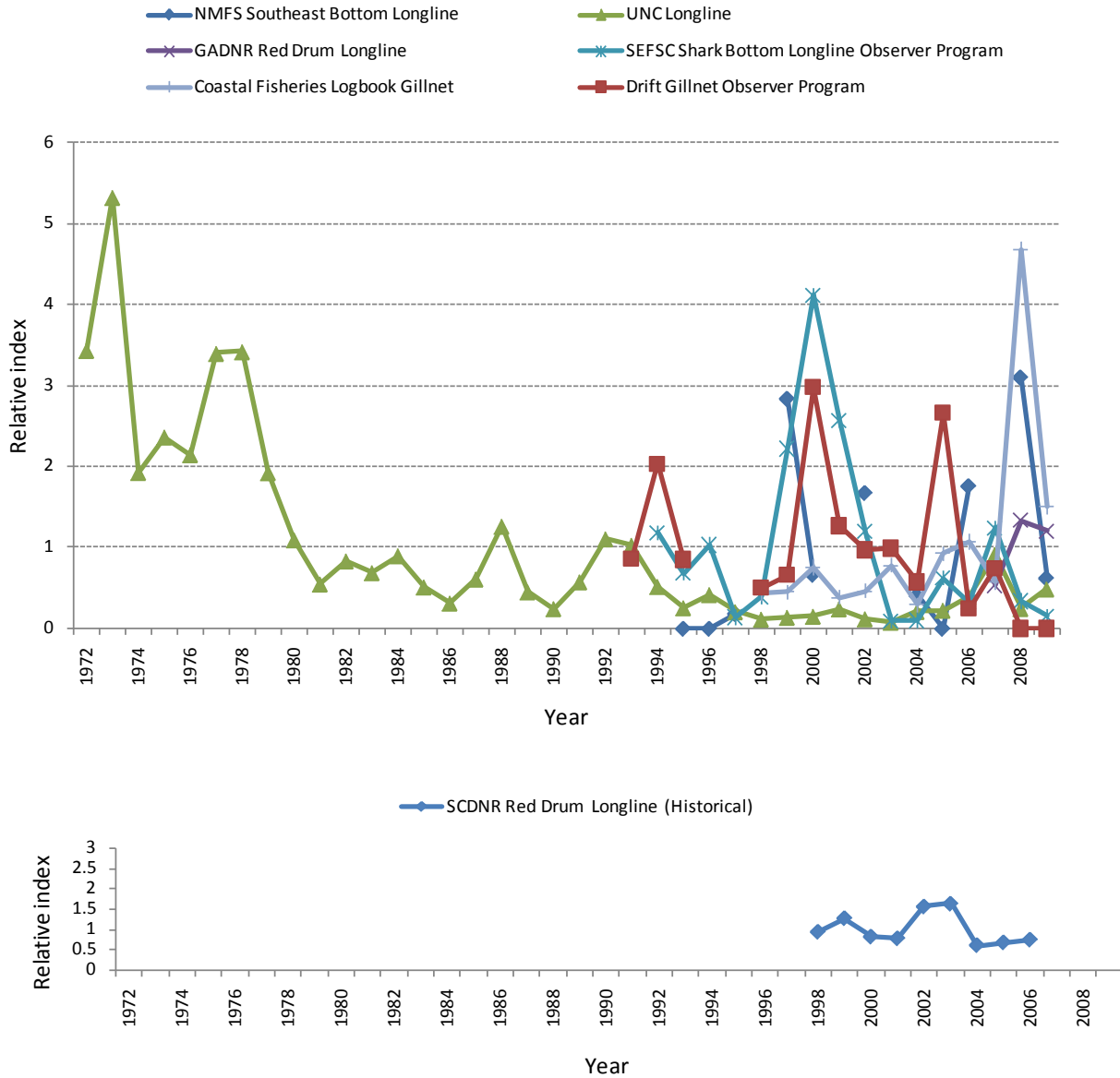


Figure 3: Indices of relative abundance used for the baseline scenario. All indices are statistically standardized and scaled (divided by their respective mean and a global mean for overlapping years for plotting purposes). The SCDNR Historic red drum series is shown separately in the lower panel because there were no years of overlap with the other series to be displayed on the same scale. Note that the earliest series starts in 1972. (Figure 2.4 from the Assessment Process Report)

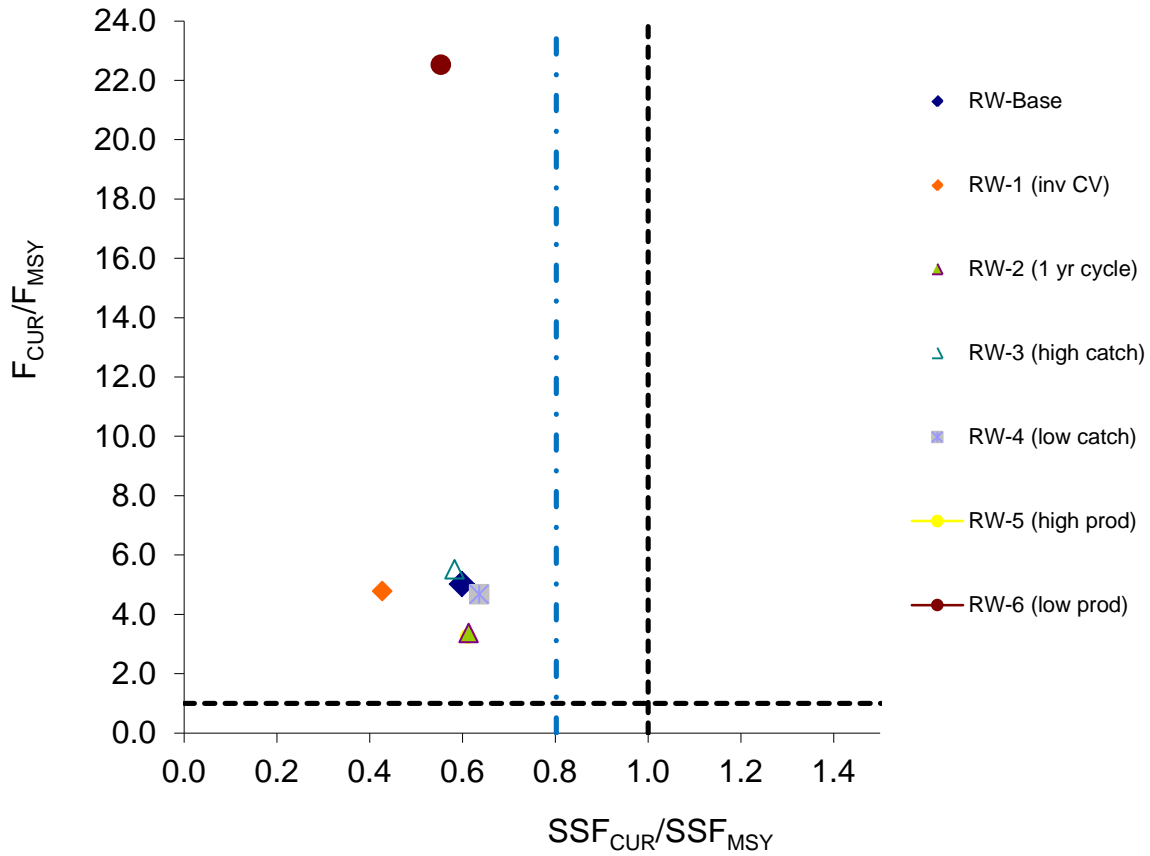


Figure 4: Phase plot summarizing stock status in 2009 for the seven scenarios selected to explore the range of model outputs for Atlantic blacknose shark at the Review Workshop. Base and six others are shown below: RW-1 inv-CV weighting, RW-2 1-yr reproductive cycle, RW-3 modified high catch, RW-4 modified low catch, RW-5 high productivity, and RW-6 low productivity. (Figure 1 from the Addendum)

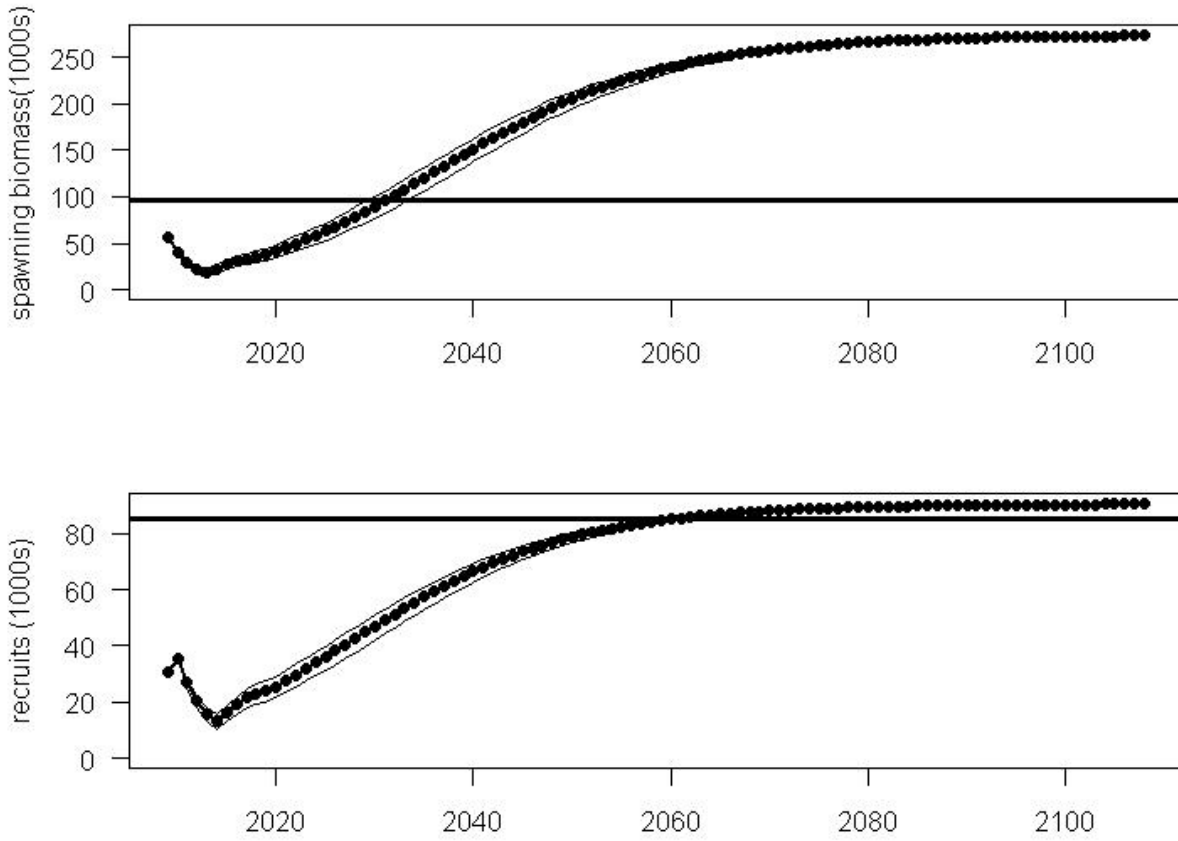


Figure 5: Base model projections for the spawning stock fecundity and recruitment estimates for the Frebuild 70 scenario. Frebuild70 is the fishing mortality permitted in order to attain a 70% probability of recovery by the rebuilding year. The heavy dotted line is the median and the thin lines are the 70% and 30% quantiles. The solid horizontal line is the SSF_{m_{sy}} or the R_{msy}. Where the horizontal line is absent for recruitment, the projection does not reach the R_{msy} during the projection time period. (Figure 3 from the Addendum)

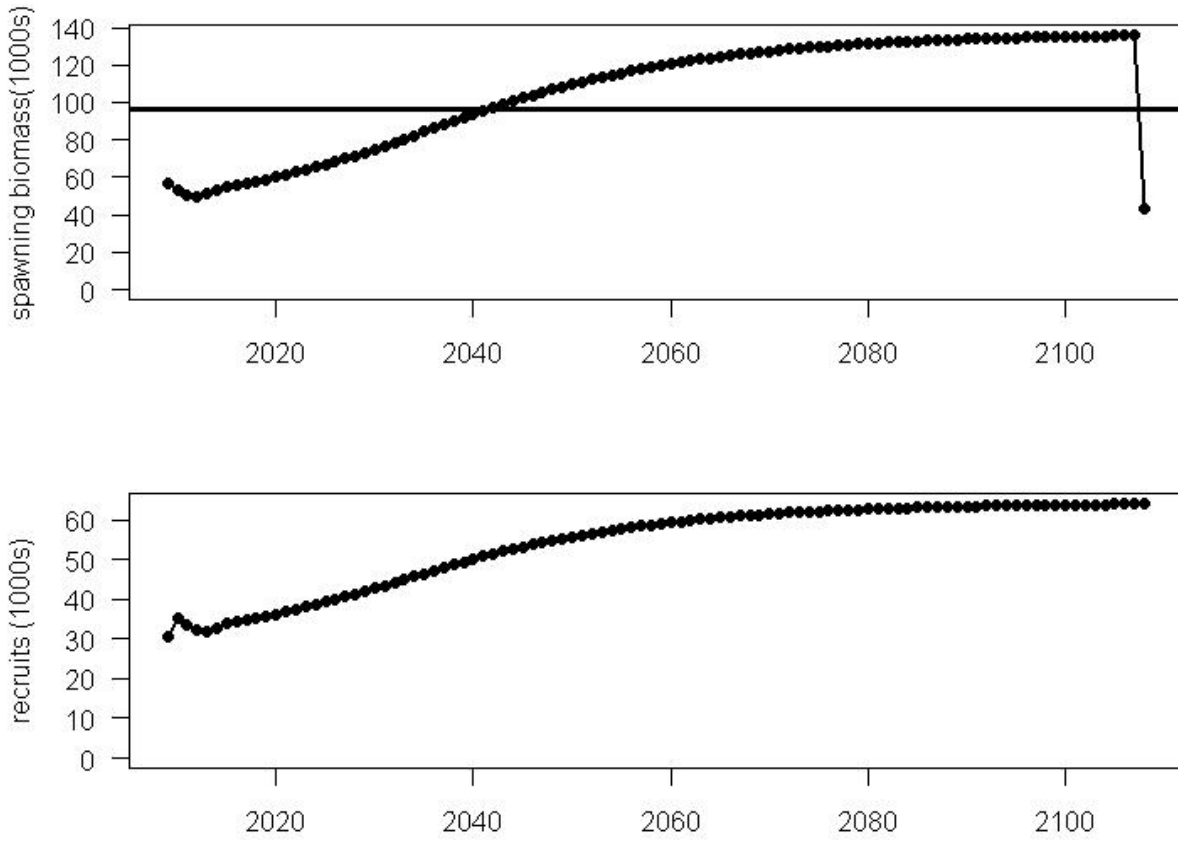


Figure 6: Base model projections for the spawning stock fecundity and recruitment estimates for the TACrebuild70 scenario under the base case model assumptions. The TACrebuild 70 is the total allowable catch permitted to attain recovery by the rebuilding year. The heavy dotted line is the median and the thin lines are the 70% and 30% quantiles. The solid horizontal line is the SSF_{msy} or the R_{msy}. Where the horizontal line is absent for recruitment, the projection does not reach the R_{msy} during the projection time period. (Figure 4 from the Addendum)

DUSKY SHARK ASSESSMENT SUMMARY

The Summary Report provides a broad but concise view of the salient aspects of the stock assessment. It recapitulates: (a) the information available to and prepared by the Data Workshop; (b) the application of those data, development and execution of one or more assessment models, and identification of the most reliable model configuration as the base run by the Assessment Process (AP); and (c) the findings and advice determined during the Review Workshop.

Stock Status and Determination Criteria

Assessment results indicated that the dusky shark stock was overfished (SSB₂₀₀₉/SSB_{MSY} of 0.41 to 0.50) and therefore subject to rebuilding. Current F values over all sensitivities also indicated that the stock was subject to overfishing (F₂₀₀₉/F_{MSY} of 1.39 to 4.35).

Table 1. Summary of stock status determination criteria.

Criteria	Recommended Values* from SEDAR 21	
	Definition	Value*
M (Instantaneous natural mortality; per year)	Value used for MSST calculations	0.0666
F ₂₀₀₉ (per year)	Apical Fishing mortality in 2009	0.055
F _{MSY} (per year)	F _{MSY}	0.035
SSB ₂₀₀₉ /SSB ₀	Relative Spawning stock biomass	0.15
SSB _{MSY} (relative to virgin)	Relative SSB _{MSY}	0.35
SSB _{MSST} (relative to virgin biomass)	(1-M)*SSB _{MSY}	0.33
MFMT (per year)	F _{MSY}	0.035
F _{OY} (per year)	F _{OY} = 75% F _{MSY}	0.026
Biomass Status	SSB ₂₀₀₉ /MSST	0.47
Exploitation Status	F ₂₀₀₉ /F _{MSY}	1.59

* Values presented are from the base model configuration but it is important to note that that the Review Panel recommended all runs in the addendum be considered equally plausible

Stock Identification and Management Unit

After considering the available data, the Data Workshop Life History working group concluded that dusky sharks in the U.S. waters of the western North Atlantic Ocean (including the Gulf of Mexico) should be considered a single stock. Genetic data indicate no significant differentiation between the Gulf of Mexico and western North Atlantic Ocean and tag-recapture data showed a high frequency of movements between basins.

Species Distribution:

The dusky shark, *Carcharhinus obscurus*, is a common coastal and pelagic shark that inhabits warm temperate and tropical coastal waters of the western North Atlantic, ranging from southern New England to the Caribbean and Gulf of Mexico to southern Brazil. It avoids areas of lower salinity and is rarely found in estuarine environments.

Stock Life History

- As there are currently no natural mortality estimates for dusky shark available based on direct empirical data, the Data Workshop Life History Working Group was concluded that the range of survivorship estimates by age to be used for priors would be based on Peterson and Wroblewski and Lorenzen estimates without using the Lorenzen-Hoenig hybrid because the models for Lorenzen and Hoenig produced similar results.
- The values of *M* recommended by the Life History WG resulted in a negative population growth rate when used in a life table (where fishing mortality was set to zero). The Assessment Panel agreed that rather than taking the *average* of the Hoenig, Peterson and Wroblewski, Chen and Watanabe, and Lorenzen methods, the *maximum* of the four methods mentioned was used instead.
- The most recent information on the age and growth of dusky shark is a 1995 publication in the journal *Fishery Bulletin* and was recommended for use in the assessment. However, maximum observed age for females in that study was 33 years. Current data from through a single tag recapture indicates a maximum age of approximately 39 years.
- Data on reproduction suggested a 3-year reproductive cycle consisting of a 2-year gestation period and a 1-year resting period. Litter sizes ranged from 3–12 embryos.

Assessment Methods

- Without accurate knowledge of the magnitude of total catches and discards, it is not possible to estimate absolute abundance levels for the population. An alternative modeling methodology appropriate to these situations is to re-scale the model population dynamics as proportional to virgin (unexploited) conditions. This approach is known as an Age-structured Catch Free Model (ASCFM).
- The model started in 1960 and ended in 2009, with the historic period covering 1960-1974, the first modern period spanning 1975-1999, and the second modern period spanning 2000-2009.
- Estimated model parameters were pup (age-0) survival, catchability coefficients associated with indices, a parameter representing the slope of the relationship between PLL effort and fishing mortality for the period 1960-1979, additional variance parameters for each index, relative depletion in 1975, and fishing mortality in the modern periods.

- Fishing mortality starting in 1980 was modeled using a correlated random walk and so are not ‘full’ parameters. Pup survival was given an informative lognormal prior with median=0.81 (mean=0.85, mode=0.77), a CV of 0.3, and was bounded between 0.50 and 0.99.
- The minimum spawning stock threshold (MSST) is typically calculated as $(1-M)*SSB_{MSY}$ when absolute biomass is estimable. Although only relative estimates are possible here (i.e., SSB_{2009}/SSB_{MSY}), it is still possible to calculate SSB_{2009}/SSB_{MSST} as $SSB_{2009}/((1-M)*SSB_{MSY})$.

Assessment Data

- Length-frequency information from animals caught in scientific observer programs, recreational fishery surveys, and various fishery-independent surveys were used to generate age-frequency distributions through age-length keys and generate selectivity curves for different gear types.
- Five indices were used in the base model run: two fishery-independent series (VIMS LL, NELL) and three fishery-dependent series (the commercial BLOP and PLOP observer indices and the recreational LPS). Two additional fishery-independent indices were recommended for use in sensitivity runs: UNC LL and NMFS Historical LL.
- Life history inputs used in the assessment include age and growth, several parameters associated with reproduction, including sex ratio, reproductive frequency, fecundity at age, maturity at age, month of pupping, and natural mortality. The ASCFM uses most life history characteristics as constants (inputs) and others are estimated parameters, which are given priors and initial values.
- Relative effort series for the three fleets (bottom longline, pelagic longline, and recreational) are used to determine a single, annual weighted selectivity vector for modeling fishing mortality

Catch Trends

Commercial and recreational dusky shark catch information was compiled by the Data Workshop (see Data Workshop Report) but was deemed highly uncertain, primarily due to misreporting and misidentification, and not used in the assessment.

Fishing Mortality Trends

Fishing mortality was low from 1960 through the early 1980s, and then is estimated to have ramped up to unsustainably high levels in the 1990s, and to have declined following prohibition of dusky landing in 2000. The moratorium on dusky catch appears to have been an effective management tool in this regard, although terminal estimates of fishing mortality still indicate the stock is undergoing overfishing.

Stock Abundance and Biomass Trends

- Recruitment is predicted to have remained at roughly virgin levels until 1990, after which it declined slightly.
- Declines in spawning stock biomass are estimated to be partially compensated for by increases in pup survival (i.e., density dependent recruitment).
- All abundance trajectories show relatively little depletion until the late 1980s; by 2009 depletion in spawning stock biomass is estimated to be around 85%. The ASCFM predicted an increasing abundance (in numbers) from 2004-present, but a continued decrease in biomass. This apparent contradiction is attributable to decreasing number of older (and heavier) sharks even while the numbers of younger fish are increasing.

Projections

Projections were started in 2009 and run until the year 2108. All projections used 10,000 Monte Carlo bootstrap simulations with initial values pulled from a multivariate normal distribution. Moments of the bootstrap runs were summarized using quantiles, with median used for the central tendency, and 30th percentile used as the criterion for whether a projection had a 70% chance of rebuilding by 2108. Each projection was summarized with respect to landings (dressed weight and numbers), recruitment, and mature spawning stock biomass.

- The F_{current} projection scenario used a modal apical F of 0.055, and indicated a low probability of stock recovery by 2108.
- The F_0 scenario resulted in recovery from overfished status near the year 2050.
- The F_{msy} scenario utilized a modal F of 0.035, and indicated that the probability of the stock rebuilding to MSY levels was less than 50% .
- The F_{target} scenario, which reduced F to 0.028 in an effort to ensure that the probability of overfishing in any given year (p^*) was less than 30%, still did not provide a large enough reduction in F to recover the stock by 2108.
- Reducing F to 0.027 (as in the $F_{\text{rebuild50}}$ scenario) was enough result in a 50% chance of rebuilding the stock; however, F had to be reduced to 0.023 (as in the $F_{\text{rebuild70}}$ scenario) to achieve a 70% probability of rebuilding the stock by 2108. In practice, the F_{max} scenario yielded identical results to the $F_{\text{rebuild70}}$ scenario.
- While the Fixed Removals scenario suggested reducing annual removals to a preset level of 21,200 lbs. (gutted weight) per year would be sufficient to rebuild the stock with 70% probability by 2108, several of the runs resulted stock collapse (e.g., when terminal biomass and productivity were sampled from the lower tails of their distributions).

Scientific Uncertainty

- Likelihood profiling was used to quantify uncertainty in terminal stock status, terminal fishing mortality, and productivity parameters for the base run and for several sensitivity runs. This procedure could also be used to estimate the probability that the stock was overfished or that overfishing was occurring given a specific model configuration.

- Uncertainty in data inputs and model configuration was examined through the use of sensitivity scenarios and retrospective runs. Eleven alternative runs were conducted in addition to the baseline run. Retrospective analyses, in which the model was refit while sequentially dropping the last three years of data to look for systematic bias in key model output quantities over time, were also conducted.
- A total of seven additional sensitivity analyses were run during the Review Workshop to provide verification that the results of the assessment were robust to assumptions about underlying stock productivity, choice of selectivity curves, choice of indices, and index weighting. Time series plots were produced for runs considered by reviewers to have encapsulated uncertainty in assessment results (High M, U-shaped M, High productivity, and Low Productivity).
- The greatest source of uncertainty about dusky sharks is clearly the amount of human induced removals (e.g., discards) that are occurring. Improving the reliability of removal data would help assessment modeling immensely.
- Estimates of stock status seemed to be quite robust to changes in life history parameters such as productivity and natural mortality.
- Estimates of stock status seemed most sensitive to including different groups of indices or to different ways of weighting indices.

Significant Assessment Modifications

The Review Panel requested seven additional sensitivity runs but no significant changes to the base model configuration were required.

Sources of Information

All information was copied directly or generated from the information available in the final Stock Assessment Report for SEDAR 21: HMS Dusky shark.

Table 2: Life history inputs used in the assessment. All these quantities are treated as constants in the model. (Table 2.4 of the Assessment Workshop Report)

Age	Proportion mature	M
1	0.00	0.104
2	0.00	0.104
3	0.00	0.104
4	0.00	0.104
5	0.00	0.104
6	0.00	0.098
7	0.00	0.092
8	0.00	0.088
9	0.00	0.084
10	0.00	0.080
11	0.00	0.077
12	0.00	0.074
13	0.00	0.072
14	0.00	0.070
15	0.01	0.068
16	0.02	0.066
17	0.05	0.064
18	0.13	0.063
19	0.28	0.061
20	0.51	0.060
21	0.74	0.059
22	0.88	0.058
23	0.95	0.057
24	0.98	0.056
25	0.99	0.055
26	1.00	0.054
27	1.00	0.053
28	1.00	0.052
29	1.00	0.052
30	1.00	0.051
31	1.00	0.048
32	1.00	0.048
33	1.00	0.048
34	1.00	0.048
35	1.00	0.048
36	1.00	0.048
37	1.00	0.048
38	1.00	0.048
39	1.00	0.048
40	1.00	0.048
Sex ratio at birth:		1:1
Reproductive frequency:		3 yr
Pupping month:		June
Gestation period:		12 months
Fecundity:		7.13 pups
L_{inf}		350.3 cm FL
k		0.039
t_0		-7.04
Weight vs length relation:		$W=0.000032415L^{2.7862}$
maturity ogive:		$a=-19.76, b=0.99$

Table 3: Apical instantaneous fishing mortality rates by year. (*Table 3.5 from the Assessment Workshop Report*)

Year	Total F
1960	0.003
1961	0.003
1962	0.006
1963	0.007
1964	0.010
1965	0.010
1966	0.007
1967	0.006
1968	0.007
1969	0.009
1970	0.010
1971	0.014
1972	0.014
1973	0.014
1974	0.014
1975	0.020
1976	0.019
1977	0.019
1978	0.016
1979	0.012
1980	0.014
1981	0.017
1982	0.022
1983	0.029
1984	0.038
1985	0.051
1986	0.068
1987	0.092
1988	0.121
1989	0.156
1990	0.188
1991	0.212
1992	0.225
1993	0.229
1994	0.232
1995	0.237
1996	0.254
1997	0.287
1998	0.335
1999	0.385
2000	0.385
2001	0.333
2002	0.249
2003	0.171
2004	0.116
2005	0.083
2006	0.064
2007	0.054
2008	0.049
2009	0.056

Table 4: Predicted relative recruitment (numbers), abundance (numbers), total biomass (kg), and spawning stock biomass (kg). All estimates are presented relative to virgin levels. (Table 3.4 in *Assessment Workshop Report*)

Year	Rec	N	B	SSB
1960	1	1	1	1
1961	0.999951	0.998682	0.99921	0.999533
1962	0.99984	0.99731	0.998315	0.998757
1963	0.999654	0.994484	0.996476	0.997603
1964	0.999377	0.991575	0.994436	0.996036
1965	0.999	0.987221	0.991381	0.994032
1966	0.998517	0.983065	0.988229	0.992083
1967	0.998045	0.980735	0.985988	0.990335
1968	0.997621	0.97913	0.984104	0.988484
1969	0.997171	0.977176	0.981979	0.986243
1970	0.996625	0.974156	0.979173	0.983564
1971	0.995969	0.970786	0.976056	0.980355
1972	0.995179	0.965986	0.971978	0.976593
1973	0.994249	0.961134	0.967683	0.972518
1974	0.993235	0.956628	0.963417	0.968183
1975	0.992149	0.952375	0.959156	0.96317
1976	0.990884	0.945623	0.953303	0.957519
1977	0.989446	0.939929	0.947826	0.951703
1978	0.987953	0.934718	0.942461	0.945862
1979	0.98644	0.931074	0.937885	0.940277
1980	0.98498	0.929087	0.934242	0.934502
1981	0.983456	0.926132	0.929824	0.927964
1982	0.981714	0.921662	0.924322	0.920448
1983	0.979689	0.915072	0.917222	0.911471
1984	0.977237	0.9056	0.90777	0.900485
1985	0.974188	0.892397	0.895292	0.886936
1986	0.97035	0.87438	0.878923	0.869936
1987	0.96541	0.85013	0.857326	0.847257
1988	0.958596	0.817544	0.827446	0.817789
1989	0.949334	0.776492	0.789928	0.781932
1990	0.937392	0.727994	0.74518	0.739792
1991	0.922319	0.675232	0.694753	0.693271
1992	0.904215	0.623427	0.643046	0.645458
1993	0.883781	0.576536	0.593565	0.598539
1994	0.861648	0.535644	0.547865	0.553494
1995	0.838149	0.499891	0.505969	0.51039
1996	0.813259	0.467576	0.467093	0.468497
1997	0.786442	0.435832	0.429433	0.426537
1998	0.756545	0.401737	0.390986	0.383609
1999	0.722238	0.364273	0.350945	0.340164
2000	0.682937	0.325586	0.310673	0.299319
2001	0.640916	0.293626	0.275734	0.264761
2002	0.600735	0.272261	0.249197	0.237908
2003	0.566043	0.261757	0.231432	0.2179
2004	0.537919	0.259197	0.220403	0.202705
2005	0.515107	0.261073	0.213653	0.190506
2006	0.495799	0.264839	0.209418	0.180153
2007	0.478666	0.269008	0.206642	0.171011
2008	0.462931	0.272728	0.204682	0.162742
2009	0.448179	0.275546	0.20314	0.155

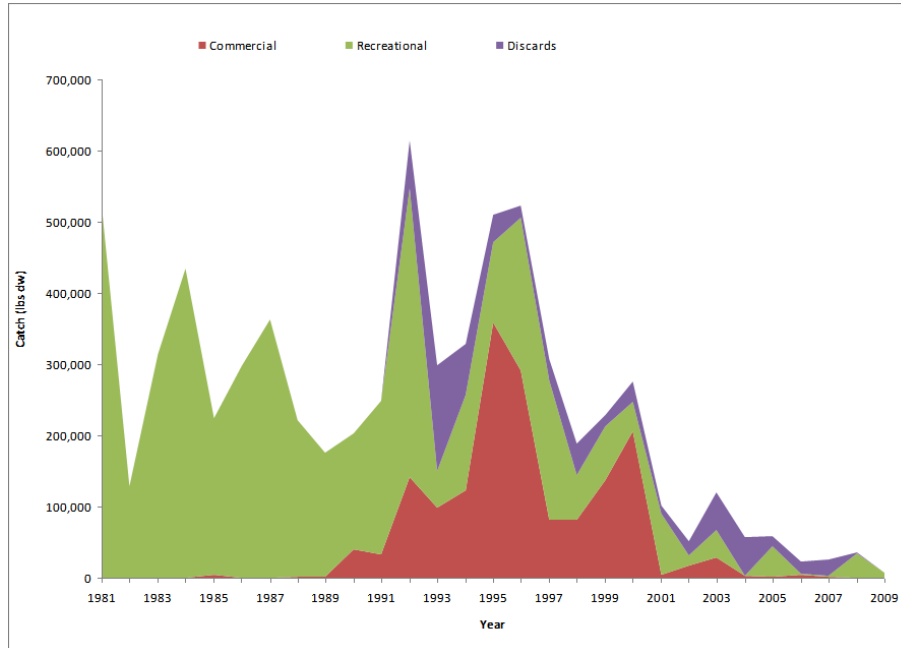


Figure 1: Total catches of dusky shark (in pounds dressed weight), 1981-2009. (Figure 1 of the Data Workshop Report)

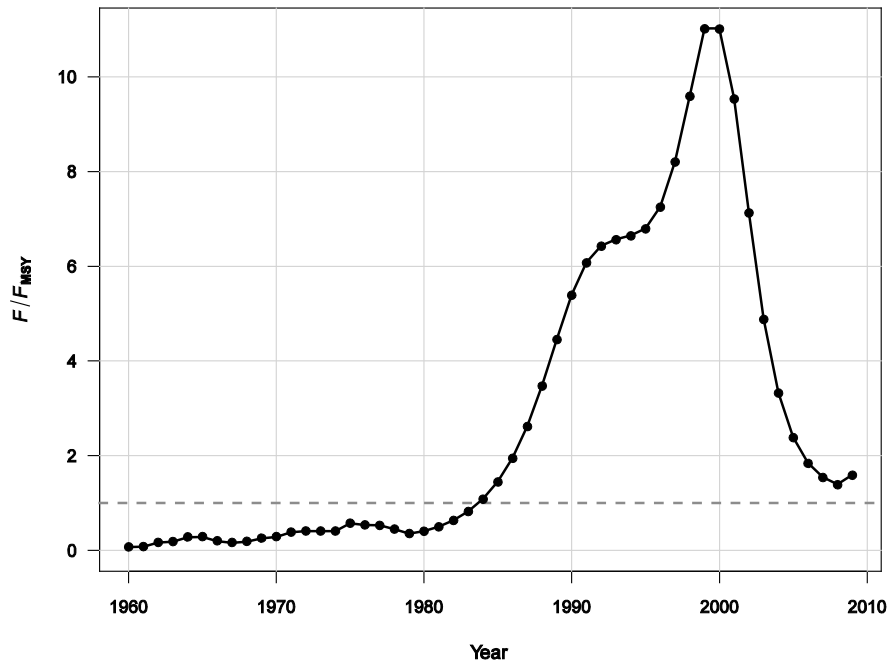


Figure 2: Apical fishing mortality relative to MSY levels for dusky sharks, 1960-2009. The base ASCFM indicated that overfishing has been occurring since 1984 (although there is considerable uncertainty about whether overfishing occurred during the last several years of the time series). (Figure 3.14 in the Assessment Workshop Report)

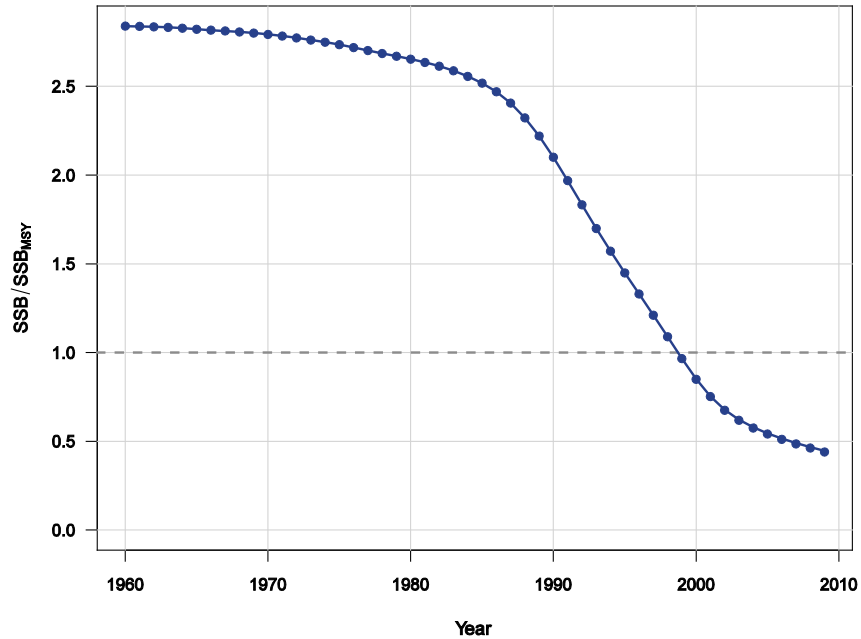


Figure 3: Spawning biomass relative to MSY levels over time from the base ASCFM model for dusky sharks. (Figure 3.13 from the Assessment Workshop Report)

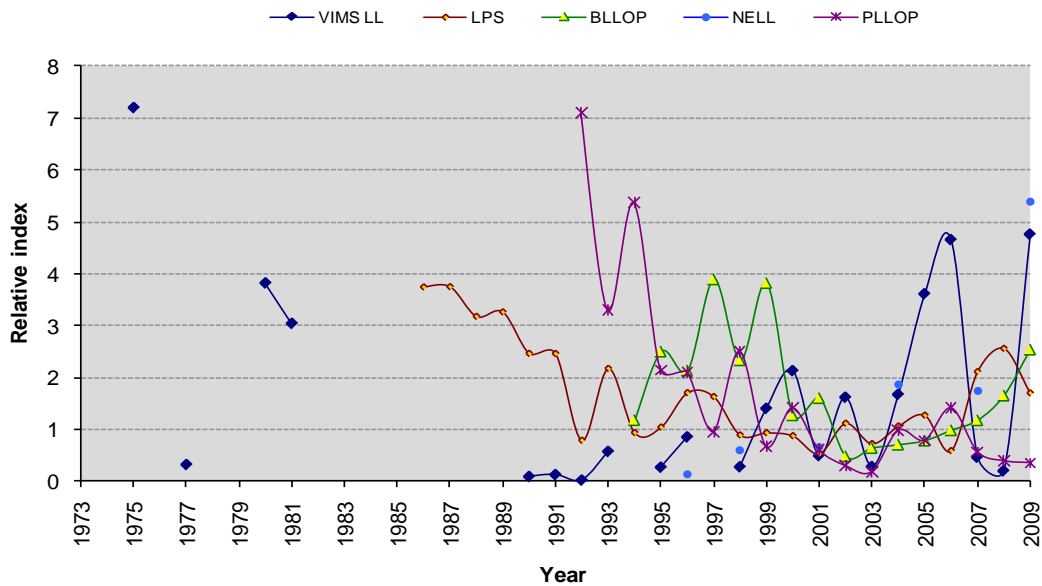


Figure 4: Baseline indices of relative abundance used for dusky shark. All indices are statistically standardized and scaled (divided by their respective mean and a global mean for overlapping years; except NMFS Historic LL). (Figure 2.3 from the Assessment Workshop Report)

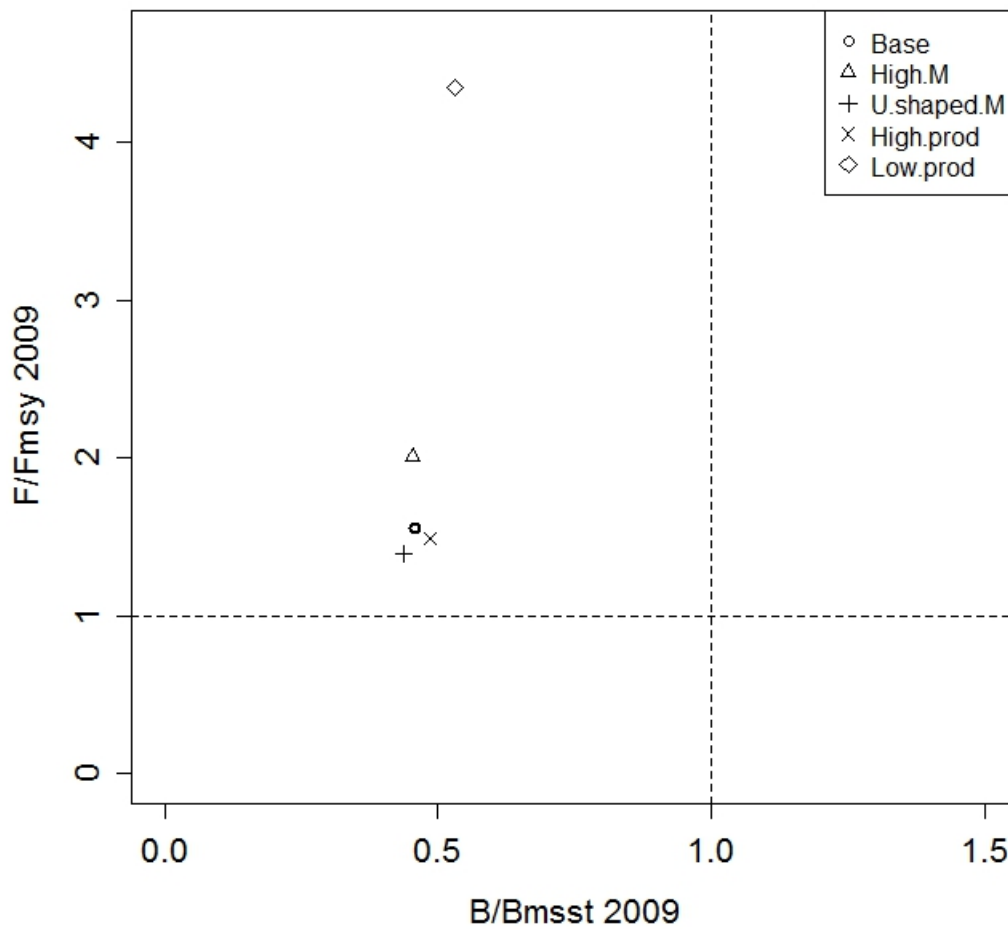


Figure 5: A phase plot summarizing stock status of dusky sharks in the terminal year of the assessment model according to various base and sensitivity runs selected by the Review Panel. Points to the left of the vertical dashed line indicate runs in which the stock is estimated to be overfished; points above the horizontal black line indicate runs in which overfishing is estimated to have occurred. (Figure 6 from the Review Workshop Report)

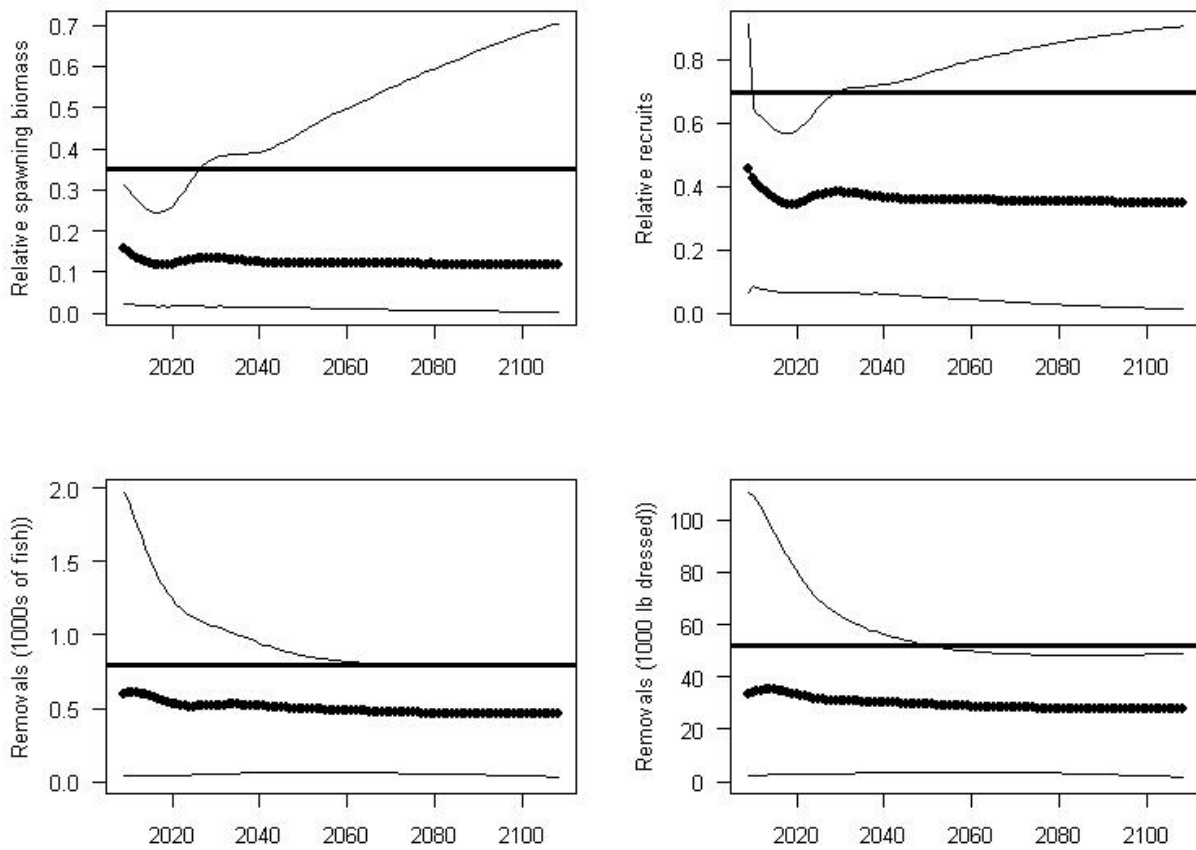


Figure 6: Results for the F_{current} projection scenario, 2009-2108. The heavy dotted line gives the median projection, while thin solid lines give 95% uncertainty bounds. The horizontal line represents the corresponding value that would be anticipated at MSY. (Figure 3.16 from the Assessment Workshop Report)

SEDAR 21: SANDBAR SHARK ASSESSMENT SUMMARY

The Summary Report provides a broad but concise view of the salient aspects of the stock assessment. It recapitulates: (a) the information available to and prepared by the Data Workshop; (b) the application of those data, development and execution of one or more assessment models, and identification of the most reliable model configuration as the base run by the Assessment Process (AP); and (c) the findings and advice determined during the Review Workshop.

Stock Status and Determination Criteria

Assessment results showed that the stock was overfished and therefore subject to rebuilding. Current F values over most sensitivities indicated that the stock was not currently subject to overfishing (F_{2009}/F_{MSY} 0.29 to 0.93). However, the low productivity scenario indicated overfishing (F_{2009}/F_{MSY} of 2.62).

Table 1. Summary of stock status determination criteria.

Criteria	Recommended Values from SEDAR 21	
	Definition	Value*
M (Instantaneous natural mortality; per year)	Arithmetic mean of the age-specific values of M used for the baseline run	0.136
F_{2009} (per year)	Apical Fishing mortality in 2009	0.013
F_{MSY} (per year)	F_{MSY}	0.021
N_{MSY} (numbers)	Abundance at MSY	1,928,165
SSF_{2009} (numbers)	Spawning Stock Fecundity** in 2009	312,890
SSF_{MSY} (numbers)	Spawning Stock Fecundity at MSY	477,590
MSST (numbers)	$(1-M)SSF_{MSY}$	412,638
MFMT (per year)	F_{MSY}	0.021
MSY (numbers)	Maximum Sustainable Yield	160,643
F_{Target} (per year)	$75\%F_{MSY}$	0.016
Biomass Status	SSF_{2009}/SSF_{MSST}	0.76
Exploitation Status	F_{2009}/F_{MSY}	0.62

* Values presented are from the base model configuration but it is important to note that that the Review Panel recommended all runs in the addendum be considered equally plausible

** SSF is spawning stock fecundity (sum of number at age times pup production at age)

Stock Identification and Management Unit

After considering the available data, the Data Workshop Life History working group decided that sandbar sharks occurring in the U.S. waters of the western North Atlantic Ocean (including the

Gulf of Mexico) should be considered as a single stock. Genetic data indicate no significant differentiation between the Gulf of Mexico and western North Atlantic Ocean (thus gene flow likely occurs between the two areas) and tag-recapture data showed a high frequency of movements between basins.

Species Distribution:

The sandbar shark is a common inshore and offshore coastal-pelagic species that occurs in warm temperate and tropical waters mostly on the continental and insular shelves. In the western North Atlantic, it ranges from southern New England to the Caribbean and Gulf of Mexico to southern Brazil. The largest nursery area for sandbar sharks is reported to be in the Chesapeake Bay, with known smaller nursery areas along the east coast of the US in Delaware, Virginia, South Carolina, and Florida, and also in the Gulf of Mexico. Sandbar sharks are known to migrate large distances, with seasonal north-south migrations off the US eastern coast and into the Gulf of Mexico.

Stock Life History

- There are currently no natural mortality estimates for sandbar shark available based on direct empirical data, therefore the Data Workshop Panel concluded that the range of survivorship estimates at age to be used for priors were to be based on Peterson and Wroblewski and Lorenzen estimates without using the Lorenzen-Hoenig hybrid.
- A 2.5 year reproductive cycle was incorporated in the base model configuration, providing a balance between the biennial and triennial reproductive periods discussed.
- Given there is a positive relationship between maternal age and litter size, the Data Workshop Panel recommended using this relationship instead of an average litter size estimate for all age classes. The sex ratio of embryos was not significantly different from 1:1 for all data sources discussed.
- Three-parameter von Bertalanffy growth curves were fitted to male and female sandbar shark data separately and growth parameters were estimated as male $L_{\infty} = 172.97 \pm 1.30$ cm FL, female $L_{\infty} = 181.15 \pm 1.45$ cm FL, male $k = 0.15 \pm 0.005$, female $k = 0.12 \pm 0.004$, male $t_0 = -2.33 \pm 0.19$, and female $t_0 = -3.09 \pm 0.16$.
- The oldest aged sandbar shark was a 27 year old female.

Assessment Methods

The state-space, age-structured production model (ASPM) was used as the primary assessment modeling approach. The ASPM allows incorporation of many of the important biological (mortality, growth, reproduction) and fishery (selectivity, effort) processes in conjunction with observed catches and CPUE indices (and age compositions if available).

- The base case model configuration downweighted the historical catches (1960-1980), giving them ½ of the weight of catches from 1981-2009, on the rationale that they were less well known (as was done in the last assessment in 2006).
- The model started in 1960 and ended in 2009, with the historic period covering 1960-1980, and the modern period spanning 1981-2009.
- Estimated model parameters were pup (age-0) survival, virgin recruitment (R_0), catchability coefficients associated with catches and indices (q_i), and fleet-specific effort (e_i).
- Virgin recruitment was given a uniform prior distribution ranging from 1000 to 10 billion individuals, whereas pup survival was given an informative lognormal prior with median=0.81 (mean=0.85, mode=0.77), a CV of 0.3, and bounded between 0.50 and 0.99. The mean value for pup survival matched closely that derived using life-history based methods.

Assessment Data

- Commercial landings were split into a Gulf of Mexico and an Atlantic component.
- Recreational annual catch estimates are the sum of estimates reported in the MRFSS (fish landed [A] and discarded dead [B1]), Headboat survey (fish landed) and Texas Parks and Wildlife Department survey (fish landed).
- Catches of sandbar sharks caught in the states of Tamaulipas and Veracruz in Mexico, assumed to have come from the USA, were as reported in the previous assessment until 2000 and came from online fisheries statistics from Conapesca for 2001-2009.
- Eleven indices were included in the base assessment: eight fishery-independent series (VIMS LL, NELL, NMFS Coastspan age-1+ LL, GA Coastspan LL, SC Coastspan LL, SCDN Historic red drum LL, PCGN, and NMFS SE LL) and three fishery-dependent series (the commercial BLLOP and PLLOP observer indices and the recreational LPS).
- Length-frequency information from animals caught in scientific observer programs, recreational fishery surveys, and various fishery-independent surveys was used to generate age-frequency distributions through age-length keys.
- The life history inputs used in the assessment included age and growth, as well as several parameters associated with reproduction, including sex ratio, reproductive frequency, fecundity at age, maturity and maternity at age, and month of pupping, and natural mortality. The ASPM uses most life history characteristics as constants (inputs) and others are estimated parameters, which are given priors and initial values.

Catch Trends

- The commercial landings of sandbar sharks increased overall from 1981 to a peak in 1994 (126,300 sharks) and steadily declined thereafter.
- Although sandbar sharks were caught in a variety of different gear types, since 1987 the majority of landings occurred in longline and gillnet fisheries.

- Landings of sandbar sharks were reported in the North Atlantic (Maine to New Jersey), Mid-Atlantic (New Jersey to Virginia), South Atlantic (North Carolina to east coast of Florida) and Gulf of Mexico (west coast of Florida to Texas) regions.
- The majority of sandbar shark landings from 1987 to 2009 occurred in the Gulf of Mexico (53%) and in the South Atlantic (31%) regions with a minority of landings in the Mid-Atlantic (16%). Most landings were along the east and west coasts of Florida and in North Carolina.

Fishing Mortality Trends

Fishing mortality was very low in 1960-1981 in accordance with very reduced catches and effort during that period. Starting in 1982, fishing mortality widely oscillated but always exceeded the estimated F_{MSY} of 0.021. Fishing mortality dropped below F_{MSY} in 2008 and 2009 in accordance with reduced catches imposed by management and increasing trends of some of the indices.

Stock Abundance and Biomass Trends

- All trajectories show little depletion from 1960 to 1982 (a few years later for SSF), corresponding to very reduced catches, effort and estimated F in the historic period, and a marked decline until 2007, followed by stabilization until 2009.
- Decreasing biomass and abundance in 1983-2007 correspond to increased catches and possibly declining trends in the early years of some indices, whereas the stabilization in the last few years of data likely corresponds to reduced catches and increasing tendencies for some of the indices in those years.
- The first six age classes made up about 50% of the population in any given year and mean age by year varied very little (min=6.80, max=7.73).
- The ASPM does not model age 0s and thus no predicted age-0 recruits are produced, only the estimated virgin number of age-1 recruits. The predicted virgin recruitment (R_0 ; number of age 1 pups) was 563,000 animals.
- The predicted steepness was 0.29 and the maximum lifetime reproductive rate was 1.64. The estimated pup (age-0) survival was 0.84 (see next section for further discussion on pup survival).

Projections

A new projection methodology was used to better incorporate the uncertainties observed in the stock assessment model. The method uses a multivariate normal bootstrap around pup survival, fishing mortality and spawning stock biomass to project stock status under various fishing and catch scenarios.

- The target year for rebuilding ranged between 2047 and 2360 depending on the state of nature of the stock. When excluding the low productivity scenario (RW-4), which seems

unrealistic, the rebuilding year ranged between 2047 and 2083, thus it was lower than for the previous assessment (2070), except for S6 (3-yr cycle).

- All scenarios suggested that fishing mortality needed to be reduced with respect to the 2009 level to meet rebuilding targets with a 70% probability, except for scenarios RW-1 (high catch) and RW-3 (high productivity), likely due to the fact that these two scenarios modeled the stock as more productive.
- The TAC-based projections to meet rebuilding targets with 70% probability mirrored the general trends of the F-based projections. The three scenarios with higher inferred productivity (S5, RW-1, and RW-3) resulted in higher estimates than the current TAC.
- The results over all scenarios ranged from 168 to 522 mt whole weight (using a dressed to whole weight conversion ratio of 2.0) or 84 to 261 mt dressed weight.
- The low and high productivity scenarios were meant to encapsulate all the other scenarios by pushing the lower and upper bounds on the life history parameters. For projection purposes, both scenarios are unlikely to represent a true state of nature.

Scientific Uncertainty

- Uncertainty in parameter estimates was quantified by computing asymptotic standard errors for each parameter.
- Likelihood profiling was performed to examine posterior distributions for several model parameters and to provide probabilities of the stock being overfished and overfishing occurring.
- Uncertainty in data inputs and model configuration was examined through the use of sensitivity scenarios. Sixteen alternative runs, along with retrospective analyses were also examined.
- The reviewers identified four additional sensitivity analyses to run to provide verification that the results of the assessment were robust to assumptions about underlying stock productivity and assumed level of removals.
- Reviewers also requested that projections be run for several of the sensitivity runs, noting that the uncertainty will be underestimated if only one of several equally plausible “states of nature” is used for projection purposes.

Significant Assessment Modifications

The Review Panel requested four additional sensitivity runs but no significant changes to the base model configuration were required. Additionally, the Review Panel requested that projections be undertaken for sandbar stocks using a method similar to that applied to dusky shark. This differed from the ProBox2 methodology presented in the Assessment Workshop Report. This method was applied and results can be found in the Addendum of the Final Stock Assessment Report.

Sources of Information

All information was copied directly or generated from the information available in the final Stock Assessment Report for SEDAR 21: HMS Sandbar shark.

Table 2: Life history inputs used in the assessment. All these quantities are treated as constants in the model. (Table 2.4 from the Assessment Workshop Report)

Age	Proportion mature	Proportion maternal	M	Fecundity
1	0.00035	0.0024	0.15431	4.2488
2	0.00068	0.0036	0.15431	4.5079
3	0.00131	0.0054	0.15431	4.7670
4	0.00253	0.0082	0.15431	5.0261
5	0.00487	0.0124	0.15431	5.2852
6	0.00935	0.0186	0.15431	5.5443
7	0.01788	0.0279	0.15431	5.8034
8	0.03393	0.0417	0.15323	6.0625
9	0.06346	0.0618	0.14812	6.3216
10	0.11562	0.0908	0.13116	6.5807
11	0.20141	0.1313	0.13116	6.8398
12	0.32730	0.1863	0.13116	7.0989
13	0.48418	0.2575	0.13116	7.3580
14	0.64424	0.3443	0.13116	7.6171
15	0.77746	0.4430	0.13099	7.8762
16	0.87079	0.5464	0.12942	8.1353
17	0.92858	0.6460	0.12806	8.3944
18	0.96166	0.7343	0.12688	8.6535
19	0.97975	0.8071	0.12586	8.9126
20	0.98940	0.8637	0.12497	9.1717
21	0.99448	0.9057	0.12419	9.4308
22	0.99713	0.9356	0.12351	9.6899
23	0.99851	0.9566	0.12291	9.9490
24	0.99923	0.9709	0.12239	10.2081
25	0.99960	0.9806	0.12193	10.4672
26	0.99979	0.9871	0.12153	10.7263
27	0.99989	0.9914	0.12117	10.9854
Sex ratio				
at birth:		1:1		
Reproductive				
frequency:		2.5 yr		
Pupping month:		June		
Age vs litter size				
relation:		pups = 0.2591*age + 3.9897		
L _{inf}		181.15 cm FL		
k		0.12		
t ₀		-2.33		
Weight vs length				
relation:		W=0.000010885L ^{3.0124}		

Table 3: Catches of sandbar shark by fleet in numbers. Catches are separated into four fisheries: commercial landings + unreported commercial catches in the GOM, commercial landings + unreported commercial catches in the ATL, recreational + Mexican catches, and menhaden fishery discards. (*Table 2.1 from the Assessment Workshop Report*)

Year	Com+Un (GOM)	Com + Un (SA)	REC+MEX	Menhaden discards
1960	59	25	65	504
1961	119	51	129	504
1962	178	76	194	504
1963	237	102	259	504
1964	297	127	323	504
1965	356	152	388	504
1966	415	178	453	504
1967	475	203	517	504
1968	534	228	582	504
1969	593	254	647	504
1970	653	279	711	504
1971	712	305	776	504
1972	771	330	841	504
1973	831	355	905	504
1974	890	381	970	504
1975	949	406	1035	504
1976	969	414	1036	504
1977	1033	442	1079	504
1978	1236	529	2310	504
1979	1807	773	25366	504
1980	3018	1291	97983	504
1981	4650	1990	138933	696
1982	4650	1990	45401	713
1983	5024	2149	426979	705
1984	6861	2936	68135	705
1985	6373	2727	75593	635
1986	18908	6918	134151	626
1987	54132	19851	37438	653
1988	78241	46440	72789	635
1989	104839	55874	34532	670
1990	87469	34971	68479	653
1991	88900	7781	44428	505
1992	69488	31105	43450	444
1993	45201	26777	32922	452
1994	86311	39963	23411	486
1995	49038	35360	35206	445
1996	32126	33419	46817	444
1997	21190	20275	49315	452
1998	32264	30391	41846	435
1999	18087	35212	27329	479
2000	16781	20544	17794	409
2001	26185	21998	42127	383
2002	27572	28788	13062	374

2003	23663	21567	9252	365
2004	18472	20667	7395	374
2005	14109	19265	6126	374
2006	22096	20022	5059	374
2007	6068	10845	10638	374
2008	668	1485	7324	374
2009	2705	1281	7026	374

Table 4: Estimated total and fleet-specific instantaneous fishing mortality rates by year. (*Table 3.13 from the Assessment Workshop Report*)

Year	Total F	Fleet-specific F			Menhaden disc
		Com+Un (GOM)	Com + Un (SA)	REC+MEX	
1960	0.00016	0.00002	0.00001	0.00003	0.00013
1961	0.00030	0.00006	0.00004	0.00017	0.00013
1962	0.00044	0.00011	0.00006	0.00031	0.00013
1963	0.00058	0.00015	0.00009	0.00045	0.00013
1964	0.00072	0.00019	0.00011	0.00059	0.00013
1965	0.00086	0.00023	0.00014	0.00072	0.00013
1966	0.00101	0.00028	0.00017	0.00086	0.00013
1967	0.00115	0.00032	0.00019	0.00100	0.00013
1968	0.00129	0.00036	0.00022	0.00114	0.00013
1969	0.00143	0.00041	0.00024	0.00128	0.00013
1970	0.00157	0.00045	0.00027	0.00142	0.00013
1971	0.00171	0.00049	0.00029	0.00156	0.00013
1972	0.00185	0.00053	0.00032	0.00170	0.00013
1973	0.00200	0.00058	0.00034	0.00184	0.00013
1974	0.00214	0.00062	0.00037	0.00198	0.00013
1975	0.00228	0.00066	0.00039	0.00212	0.00013
1976	0.00242	0.00071	0.00042	0.00226	0.00013
1977	0.00256	0.00075	0.00045	0.00239	0.00013
1978	0.00270	0.00079	0.00047	0.00253	0.00013
1979	0.00284	0.00084	0.00050	0.00267	0.00013
1980	0.00299	0.00088	0.00052	0.00281	0.00013
1981	0.00319	0.00092	0.00055	0.00295	0.00019
1982	0.03147	0.00247	0.00147	0.03128	0.00019
1983	0.11148	0.00273	0.00161	0.11141	0.00019
1984	0.05108	0.00377	0.00221	0.05086	0.00020
1985	0.05654	0.00360	0.00210	0.05636	0.00018
1986	0.09998	0.01079	0.00537	0.09931	0.00018
1987	0.04807	0.03186	0.01597	0.02936	0.00020
1988	0.08935	0.04901	0.04001	0.05560	0.00020
1989	0.12463	0.07083	0.05332	0.02778	0.00022
1990	0.10083	0.06380	0.03662	0.05619	0.00022
1991	0.07743	0.06798	0.00910	0.03907	0.00018
1992	0.09286	0.05572	0.03682	0.04012	0.00017
1993	0.07254	0.03834	0.03394	0.03203	0.00018
1994	0.12910	0.07559	0.05302	0.02418	0.00020
1995	0.09653	0.04609	0.05009	0.03834	0.00020
1996	0.08070	0.03150	0.04885	0.05478	0.00021
1997	0.06348	0.02169	0.03068	0.06188	0.00022
1998	0.08074	0.03375	0.04663	0.05568	0.00023
1999	0.07637	0.02010	0.05586	0.03810	0.00026
2000	0.05355	0.01932	0.03394	0.02594	0.00023
2001	0.06846	0.03087	0.03723	0.06163	0.00022
2002	0.08490	0.03405	0.05049	0.02038	0.00023
2003	0.07068	0.03043	0.03993	0.01465	0.00023
2004	0.06467	0.02466	0.03970	0.01197	0.00024
2005	0.05830	0.01959	0.03840	0.01014	0.00025
2006	0.07207	0.03065	0.04107	0.00864	0.00026
2007	0.03205	0.00883	0.02293	0.01817	0.00026
2008	0.01323	0.00103	0.00326	0.01297	0.00026
2009	0.01305	0.00395	0.00275	0.01257	0.00027

Table 5: Predicted abundance (numbers), total biomass (kg), and spawning stock fecundity (numbers) of sandbar shark for the base run. (*Table 3.12 from Assessment Workshop Report*)

Year	N	B	SSF
1960	4,136,052	88,307,548	1,157,184
1961	4,135,480	88,294,090	1,157,010
1962	4,134,619	88,274,185	1,156,732
1963	4,133,523	88,249,192	1,156,395
1964	4,132,124	88,217,597	1,155,981
1965	4,130,510	88,180,897	1,155,490
1966	4,128,645	88,138,044	1,154,922
1967	4,126,575	88,089,966	1,154,274
1968	4,124,267	88,035,502	1,153,528
1969	4,121,738	87,975,820	1,152,724
1970	4,119,018	87,911,547	1,151,850
1971	4,116,115	87,842,350	1,150,900
1972	4,113,000	87,767,679	1,149,871
1973	4,109,733	87,689,191	1,148,772
1974	4,106,229	87,604,799	1,147,593
1975	4,102,552	87,516,177	1,146,338
1976	4,098,701	87,423,467	1,145,037
1977	4,094,689	87,326,255	1,143,642
1978	4,090,482	87,224,521	1,142,178
1979	4,086,122	87,119,246	1,140,667
1980	4,081,608	87,010,124	1,139,070
1981	4,076,893	86,896,459	1,137,423
1982	4,071,819	86,773,595	1,135,623
1983	4,025,192	86,137,310	1,130,645
1984	3,882,774	84,458,374	1,123,653
1985	3,834,516	83,300,472	1,115,474
1986	3,784,642	82,110,607	1,107,222
1987	3,671,804	79,837,404	1,086,772
1988	3,603,422	76,582,667	1,034,921
1989	3,442,693	71,293,576	946,597
1990	3,269,287	65,311,505	837,586
1991	3,088,063	60,884,602	758,891
1992	2,949,985	57,897,374	704,227
1993	2,805,026	54,684,577	644,964
1994	2,692,431	52,540,571	603,754
1995	2,530,868	48,700,128	536,991
1996	2,391,551	46,166,875	494,628
1997	2,259,984	44,116,196	464,346
1998	2,154,324	42,800,641	449,447
1999	2,041,650	40,720,368	425,258
2000	1,954,665	38,982,212	405,796
2001	1,894,891	37,912,155	397,026
2002	1,806,557	36,256,021	383,467
2003	1,740,611	34,525,532	365,366
2004	1,688,826	33,268,064	353,121
2005	1,645,191	32,247,512	343,206

2006	1,608,720	31,436,577	335,358
2007	1,565,308	30,383,263	323,068
2008	1,541,327	30,139,700	322,934
2009	1,539,102	30,431,026	330,902

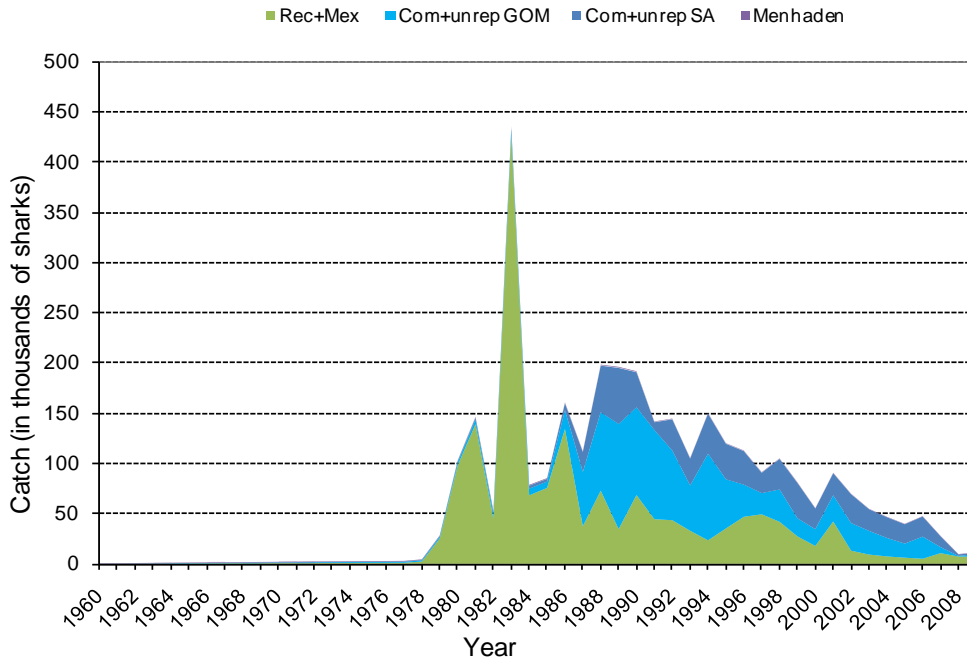


Figure 1: Catches of sandbar shark by fleet. Catches are separated into four fisheries: commercial landings + unreported commercial catches in the GOM, commercial landings + unreported commercial catches in the ATL, recreational + Mexican catches, and menhaden fishery discards (this last series does not show up in the figure due to its small magnitude). (Figure 2.1 from the Assessment Workshop Report)

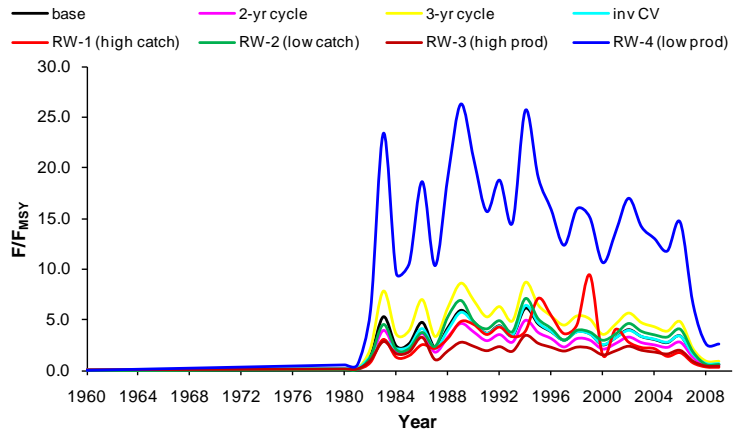
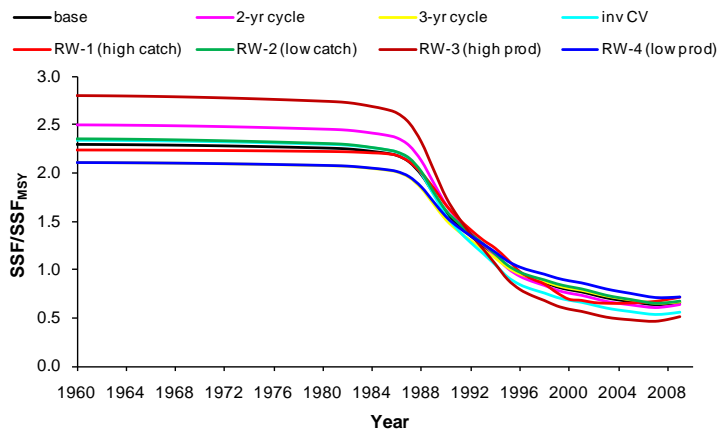
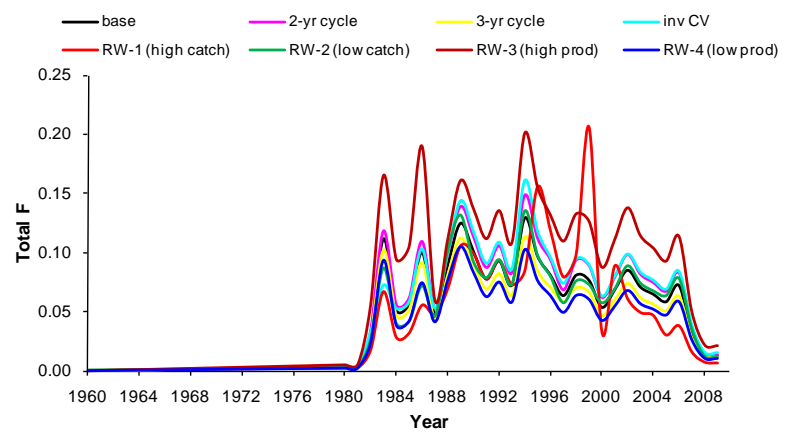
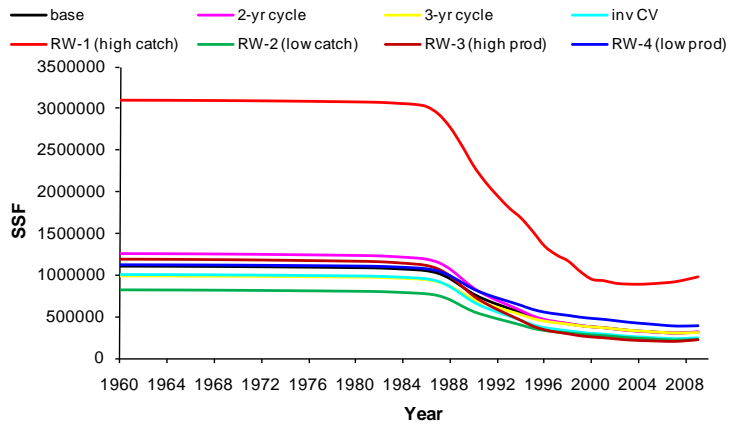


Figure 2: Scenarios selected to explore the range of model outputs for sandbar shark at the Review Workshop. Base is baseline scenario; S1 is inverse CV weighting; S5 is 2-year reproductive cycle; S6 is 3-year reproductive cycle; RW-1 (high catch) is modified high catch; RW-2 (low catch) is modified low catch; RW-3 (high prod) is high productivity; RW-4 (low prod) is low productivity. Four time series trajectories are shown: SSF (spawning stock fecundity; top left panel), total apical F (top right panel), relative biomass (bottom left panel), and relative fishing mortality (bottom right panel). (*Figure 6.2 in the Addendum*)

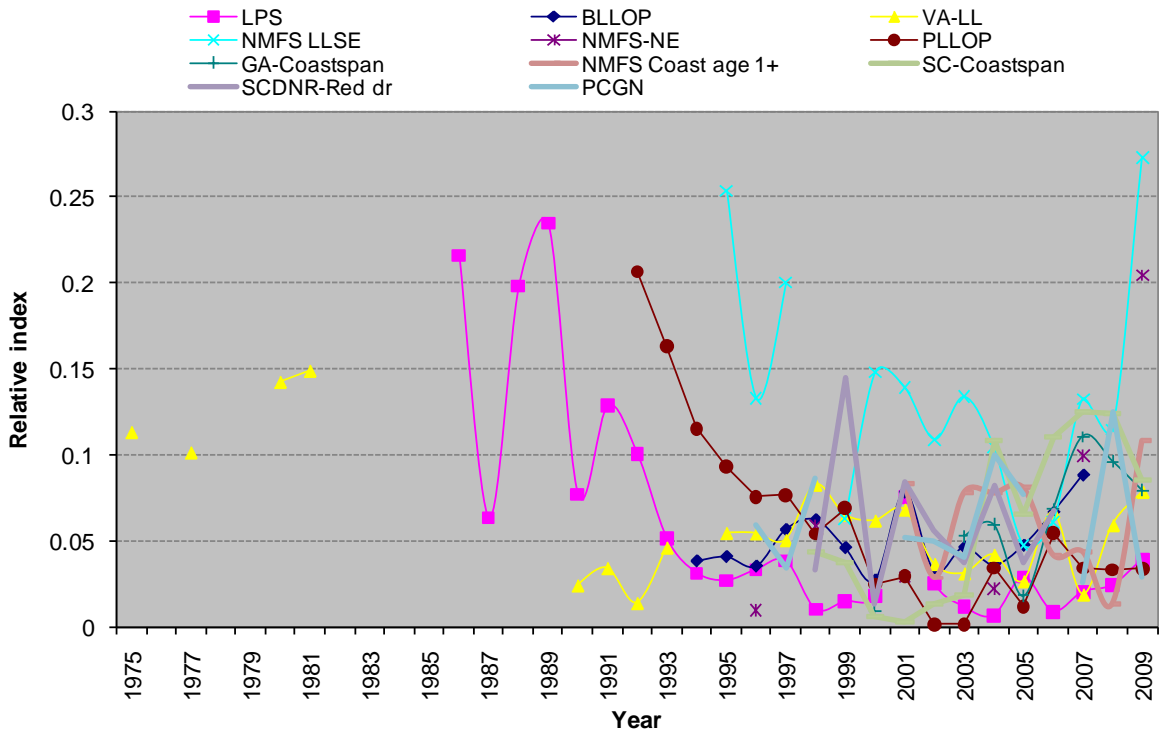


Figure 3: Indices of relative abundance used for the baseline scenario. All indices are statistically standardized and scaled (divided by their respective mean and a global mean for overlapping years for plotting purposes). (Figure 2.8 from the Assessment Workshop Report)

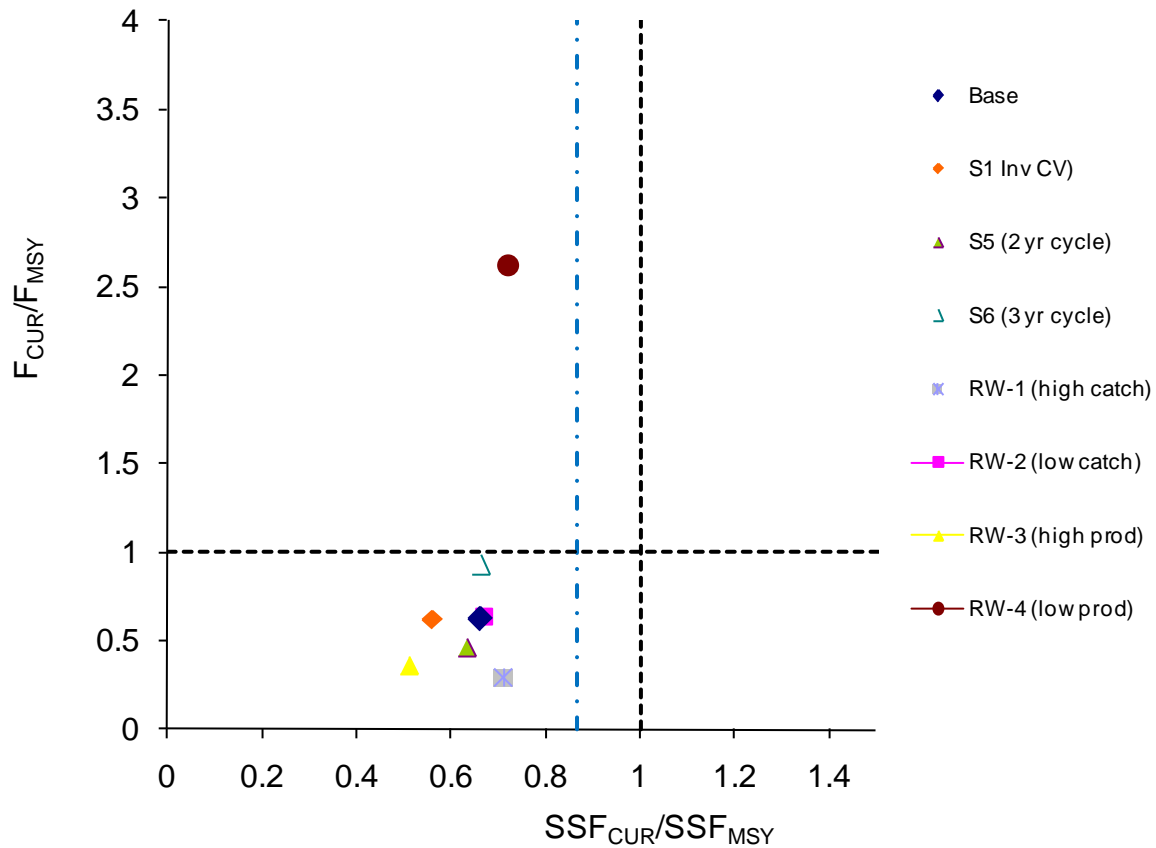


Figure 4: Phase plot summarizing stock status in 2009 for original base run and scenarios selected to explore the range of model outputs for sandbar shark at the Review Workshop. Base is baseline scenario; S1 is inverse CV weighting; S5 is 2-year reproductive cycle; S6 is 3-year reproductive cycle; RW-1 (high catch) is modified high catch; RW-2 (low catch) is modified low catch; RW-3 (high prod) is high productivity; RW-4 (low prod) is low productivity. The vertical dashed line denotes MSST $((1-M) \cdot \text{SSF}_{\text{MSY}})$ (Figure 6.1 from the Addendum)

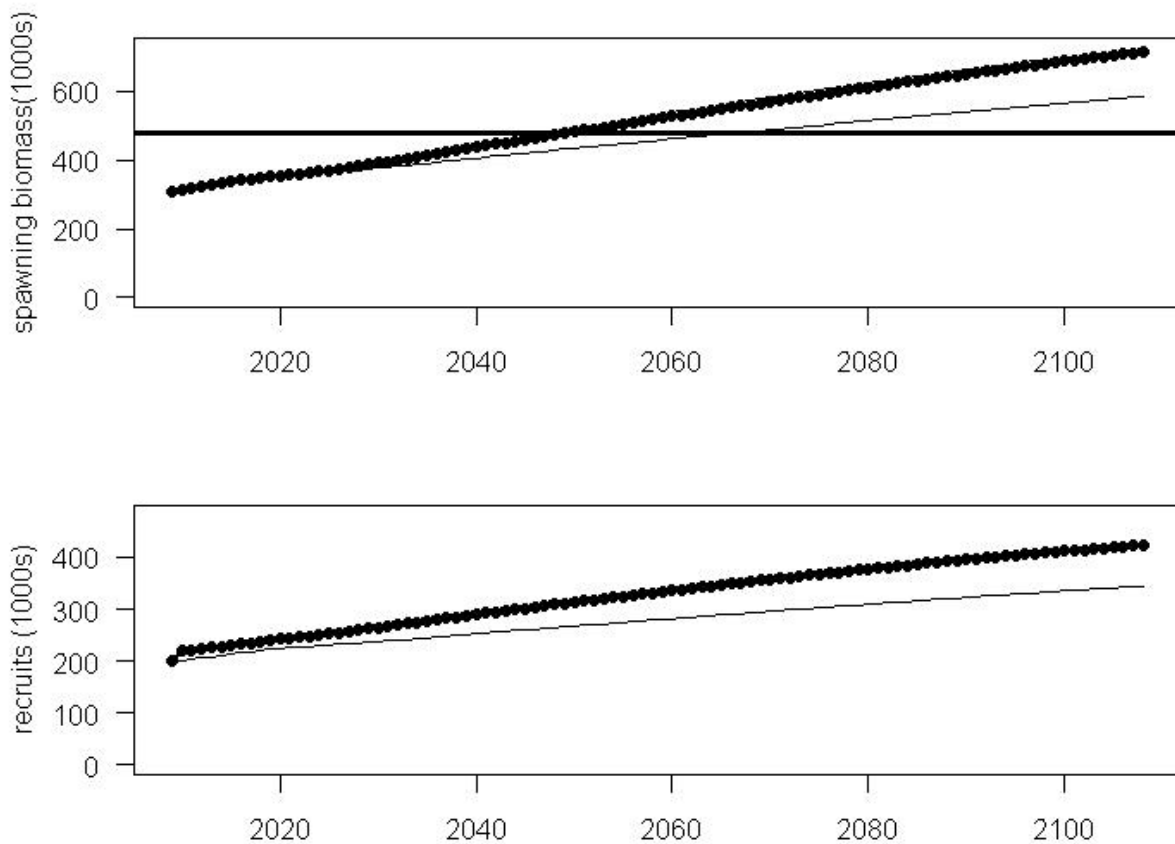


Figure 5: Base model projections. The top panel is the spawning stock fecundity and recruitment estimates for the Frebuild 70 scenario. Frebuild70 is the fishing mortality permitted in order to attain a 70% probability of recovery by the rebuilding year. The bottom panel is the spawning stock fecundity and recruitment estimates for the TACrebuild70 scenario under the base case model assumptions. The TACrebuild 70 is the total allowable catch permitted to attain recovery by the rebuilding year. The heavy dotted line is the median and the thin lines are the 70% and 30% quantiles. In this case the median and 70% quantiles overlap. The solid horizontal line is the SSFmsy or the Rmsy. Where the horizontal lines are absent for recruitment, the projection does not reach the Rmsy during the projection time period.

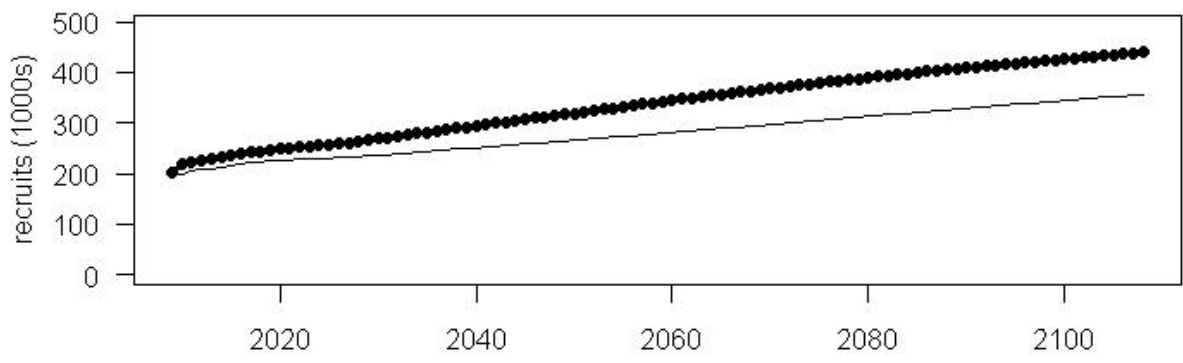
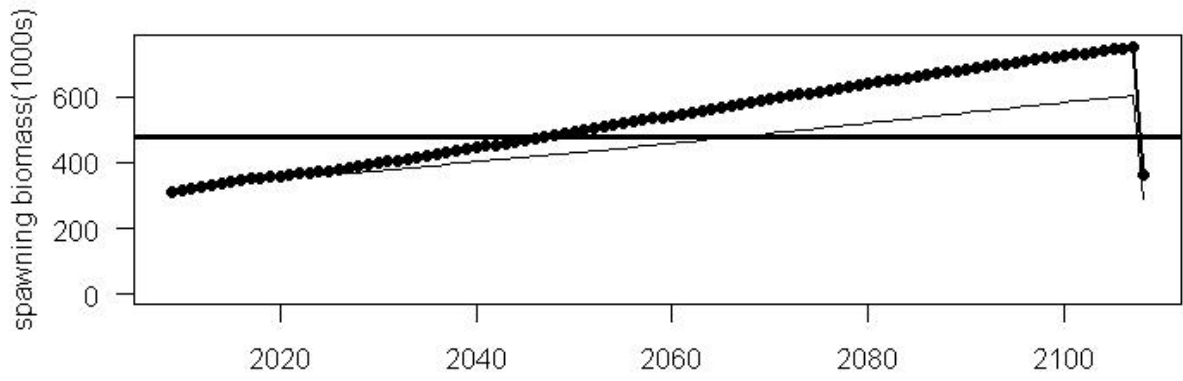


Figure 5. (Continued)

Atlantic States Marine Fisheries Commission

Coastal Sharks Technical Committee

Review of SEDAR 21 Dusky, Sandbar, and Blacknose Assessment

January 11, 2012

Present: Greg Skomal (MA DMF, Chair) Carolyn Belcher (GA CRD, VC), Julie Neer (SAFMC), Holly White (NC DMF), Bryan Frasier (SC DNR), Brent Winner (FWC), Angel Willey (MD DNR), Eric Schneider (RI DFW), Matt Gates (CT DEP), Karyl Brewser-Geisz (NMFS HMS), Scott Newlin (DE DFW), and C. Vonderweidt (ASMFC Staff).

The Coastal Sharks Technical Committee (TC) met to review the 21st Southeast Data and Review Workshop (SEDAR 21) assessment of dusky, sandbar, and blacknose shark stocks and make management recommendations to the Spiny Dogfish & Coastal Sharks Management Board (Board) based on the assessment results. The meeting began with a review of current ASMFC and federal regulations that apply to these species followed by presentations of each assessment. The TC discussed the results and technical merits of each assessment before moving to management recommendations. Following the assessment review, NMFS Division of Highly Migratory Species (HMS) staff presented the TC with details of federal implementation of the SEDAR 21 results. The TC's discussions and recommendations are as follows.

Regulations That Apply to Dusky, Sandbar, and Blacknose Shark in State¹ and Federal² Waters:

Dusky Shark

State Recreational

- Recreational anglers are prohibited from possessing dusky sharks because they are prohibited in federal waters.

State Commercial

- Included in Prohibited Species Group.
- Commercial fishermen are prohibited from possessing sharks in Prohibited Species Group and, therefore, cannot possess dusky sharks.
- State display or research permit holders may harvest dusky sharks depending on the conditions of their permit. Permit holders must report shark weight, location caught, and gear type. Aquariums holding dusky sharks must report annually to state for the life of each shark. States must report all sharks taken by display or research permit holders in annual compliance reports.

Federal Commercial and Recreational:

Fishermen cannot retain dusky sharks in federal waters. Dusky sharks have been “prohibited” in federal waters since 2000.

¹ The following lists only include regulations that are required by the ASMFC. It does not include more-restrictive regulations that some states may have voluntarily implemented.

² The following lists only give a general overview of federal waters regulations. For greater detail see http://www.nmfs.noaa.gov/sfa/hms/Compliance_Guide/index.htm

Sandbar Shark

State Recreational

- Recreational anglers are prohibited from possessing sandbar sharks because they are prohibited in federal waters.

State Commercial

- Included in Research-Only Species Group.
- Commercial fishermen are prohibited from possessing sharks in Research-Only Species Group and, therefore, cannot possess sandbar sharks.
- State display or research permit holders may harvest sandbar sharks depending on the conditions of their permit. Permit holders must report shark weight, location caught, and gear type. Aquariums holding sandbar sharks must report annually to state for the life of each shark. States must report all sharks taken by display or research permit holders in annual compliance reports.

Federal Recreational

- Recreational anglers must release sandbar sharks.

Federal Commercial

- Commercial fishermen cannot retain sandbar sharks unless they apply and are selected to participate in the shark research fishery.
- The shark research fishery had a sandbar shark quota of 87.9 mt in 2011.

Blacknose Shark

State Recreational

- Anglers may catch sharks species that are not prohibited in the federal regulations. Blacknose are not prohibited in the federal regulations and can be landed by recreational fishermen.
- Fins must be attached naturally through landing.
- No minimum size limit.
- Rod & reel and handline are only permitted recreational gear types.
- One blacknose per vessel.
- One blacknose per shore angler.

State Commercial

- Included in Small Coastal Sharks Commercial Species Group (SCS) in FMP.
- Fishery for any species in SCS automatically opens and closes with federal waters fishery.
- Board can set possession limit annually, but has never set a SCS possession limit.
- State commercial license or permit is required.
- Federal dealer permit is required.
- Permitted commercial gear includes rod & reel, handlines, gillnets, trawl nets, shortlines, pound nets/fish traps, and weirs. Circle hooks and ID workshop attendance is mandatory for those using shortlines.
- Fins must remain attached.
- Exemption from all requirements with state display or research permit. Permit holders must report shark weight, location caught, and gear type. Aquariums holding blacknose sharks must report annually to state for the life of shark. States must report all sharks taken by display or research permit holders in annual compliance reports.

Blacknose Shark cont.

Federal Recreational

- One shark per vessel, can be a blacknose shark.
- 4.5' minimum fork length.
- Fin and head must remain naturally attached through landing.

Federal Commercial

- Combined blacknose quota for Atlantic and Gulf of Mexico (GOM) waters. Set at 19.9 mt (43,873 lb) in 2011 and was not exceeded based on preliminary data.
- Both the blacknose and small coastal shark fisheries close when landings reach or are projected to reach 80 percent of either quota.
- No trip limit.

SEDAR 21 Assessment Results and TC Review³

The TC recommends the Board accept the results of the SEDAR 21 assessment for management use.

Dusky Shark

The dusky shark was assessed as one stock (GOM and Atlantic) with an age-structured catch free model (ASCFM) in the absence of accurate knowledge of the magnitude of total catches and discards. The ASCFM re-scales the model population dynamics as proportional to virgin (unexploited) conditions. See the Dusky Shark Assessment Summary report or full assessment for more details.

The dusky shark stock is overfished (SSB_{2009}/SSB_{MSY} of 0.41 to 0.50) and the stock was experiencing overfishing (F_{2009}/F_{MSY} of 1.39 to 4.35) in 2009; $F_{MSY} = 0.035$ and F was 0.055 in 2009. Projections indicate that reducing F to 0.027 results in a 50% probability of rebuilding to SSB_{MSY} by 2108 (the rebuilding goal) and reducing F to 0.023 results in a 70% probability of rebuilding to SSB_{MSY} by 2108.

The TC agrees with the stock status findings and recommends the Board accept the results for management use. The majority of sensitivity analyses, including additional runs requested by the review panel, estimate that the dusky shark stock is overfished with overfishing occurring, thereby giving members confidence in the results. TC members offered the following comments:

- The stock is highly depleted and will not rebuild in 50 years even at $F = 0.0$.
- Longline post-release mortality may be as high as 80 to 90% for dusky. This would not show up in the catch free model but could slow rebuilding.
- When the next assessment is run, the assessment team should test the sensitivity of the results to different virgin biomass reference years.
- The high F rate is alarming on a prohibited species.
- The TC is unclear which sectors are responsible for the mortality.

Sandbar Shark

The sandbar shark was assessed as one stock (GOM and Atlantic) with a state-space, age structured production model (SPASM) that incorporates many of the important biological (mortality, growth, reproduction, etc) and fishery (selectivity, effort, etc) parameters with observed catches and catch per unit effort (CPUE) indices. See Sandbar Shark Assessment Summary report or full assessment for more details.

³ Stock status for coastal sharks is based on the ratio of SSB/SSB_{MSY} and F/F_{MSY} . A value < 1 for SSB/SSB_{MSY} indicates that a stock is overfished and a value greater than 1 for F/F_{MSY} indicates that overfishing is occurring.

The sandbar shark stock is overfished⁴ (SSF_{2009}/SSF_{MSST} of 0.76) and the stock was not experiencing overfishing in 2009 (F_{2009}/F_{MSY} of 0.62). Projections (under all realistic scenarios) estimate that the stock will be rebuilt between 2047 and 2083.

The TC is comfortable with the results of the sandbar assessment that the stock is overfished and overfishing is not occurring and recommends that the Board accept the results for management use. Members of the TC commented that the reduction in F coincides with 2009 management measures that established a research only quota for sandbar sharks and prohibited their retention for all non-research sectors.

Atlantic Blacknose Shark

The blacknose shark was assessed as two distinct stock units: GOM and Atlantic. The TC did not review the GOM stock assessment because the ASMFC does not manage those waters. The Atlantic blacknose shark assessment used a SPASM model similar to that used for sandbar. See Atlantic Blacknose Shark Assessment Summary report or full assessment for more details.

The Atlantic blacknose shark stock is overfished (SSF_{2009}/SSF_{MSY} of 0.43 – 0.64) and the stock was experiencing overfishing in 2009 ($F_{2009}/F_{MSY} = 3.26 – 22.53$). Projections estimate that the stock will rebuild between 2033 (high productivity scenario) and 2086 (low productivity scenario) and has a 0% probability of recovering by 2027 (the rebuilding goal).

The TC agrees with the results that the stock is overfished and overfishing is occurring and recommends the Board accept the results for management use. Members commented that bycatch estimation in the current model was a function of GOM shrimp trawl removals, which may not accurately reflect bycatch levels on the Atlantic coast and may not adequately reflect bycatch mortality (giving an optimistic estimation of F). The GOM shrimp trawl fishery has significantly reduced capacity (largely as a result of hurricane Katrina and the Gulf oil spill) in the past decade. Additionally, this fishery has also begun using bycatch reduction technologies such as TED's and Bycatch Reduction Devices (BRDs), which reduce blacknose shark bycatch.

NMFS Implementation of SEDAR 21 Results (Amendment 5)

Recognizing that the ASMFC Coastal Sharks FMP was designed to complement federal waters shark management, the TC requested NMFS HMS present their plan to implement the results of SEDAR 21. Karyl Brewster-Geisz presented the TC with details of the process, timeline, and current steps for implementation of the SEDAR 21 results. NMFS HMS will implement management measures based on the results of SEDAR 21 as part of Amendment 5 to the Consolidated HMS FMP. The comment period for scoping closed on December 31, 2011. HMS intends to prepare a pre-Draft in early 2012 with a Draft Environmental Impact Statement (DEIS) and proposed rule to be released around mid-2012. Final implementation of Amendment 5 is slated for early 2013.

NMFS HMS has accepted the SEDAR 21 results (dusky shark overfished with overfishing, sandbar shark overfished with no overfishing, and Atlantic blacknose shark overfished with overfishing), but has not drafted specific Amendment 5 management measures. The following list was presented to the TC regarding management challenges and options.

⁴ SSF is spawning stock fecundity (sum of number at age times pup production at age) and $MSST$ is minimum spawning stock size threshold.

Dusky Shark

General Challenges

- Prohibited from recreational and commercial retention, yet F needs to be reduced by 2/3 to meet rebuilding goals.
- High at-vessel mortality rates in the commercial bottom longline and gillnet fisheries
- Reported landings in recreational fisheries

Management Options

- Explore management options that minimize dusky shark interactions with fishing gear
- Soak time, longline length, number of hooks restrictions
- Gear tending requirements for bottom longline
- Time/Area closures
- Education/outreach to recreational fishery participants
- Employ gear technology to reduce mortality (electropositive metals, weak hooks)

Sandbar Shark

General Challenges

- Stock is still overfished, but the rebuilding timeframe has improved from the previous assessment
- Overfishing is no longer occurring, and the current TAC (220 mt) should allow for rebuilding to continue

Management Options

- Stock rebuilding should continue with the status quo TAC, so are additional management measures necessary?

Blacknose Shark (GOM and Atlantic)

General Challenges

- Previous stock assessment addressed one stock of blacknose shark. Most recent stock assessment split the population into two stocks; Atlantic and Gulf of Mexico
- Atlantic: Overfished with overfishing occurring. TAC rebuilding estimate of 7,300 sharks
- Gulf of Mexico: Assessment rejected due to lack of model fit with some data; therefore, the stock status remains unknown; no TAC estimate for Gulf of Mexico

Management Options

- Will need to set TACs and ACLs for both blacknose shark stocks
- How should quotas be set for each region with only a recommendation for the Atlantic?
 - Previous TAC (19,200) - Atlantic recommendation (7,300) = Gulf of Mexico TAC? (11,900)
 - Gulf of Mexico percentage of previous TAC (51%) = Gulf of Mexico TAC? (~9,800)
 - Should blacknose shark quota continue to be linked with the small coastal shark quota?

ASMFC Management Recommendations:

The TC agrees that additional ASMFC management measures are probably necessary to stop overfishing on Atlantic blacknose and dusky sharks. However, the TC does not recommend the Board initiate any measures until specific Amendment 5 measures are available. Once available, members of the TC agreed to review Amendment 5 and make management recommendations to the Board at that time.

Given that the ASMFC FMP is modeled after the federal FMP and a main objective is to promote coordinated regulations between state and federal waters, initiating management measures would be premature at this time. Waiting until the Amendment 5 management measures are known allows the ASMFC to decide if federal measures will be sufficient or if additional ASMFC measures are necessary.

Potential species-specific management measures are discussed below. The TC does not anticipate additional measures being necessary for sandbar shark.

Atlantic Blacknose

The F rate on Atlantic blacknose sharks should be reduced to stop overfishing and rebuild the stock. A quota reduction could achieve a sufficient F reduction without additional ASMFC management measures (state waters open and close with the federal fishery).

Dusky Shark

Dusky sharks are currently prohibited in state and federal waters and the overfishing appears to be the result of bycatch mortality and recreational harvest by anglers (who are unfamiliar with regulations and/or correct species ID). Bycatch reduction measures may be necessary to reduce F and rebuild the stock, but the source of bycatch mortality is unclear. Recreational angler education could help reduce F if recreational anglers understood the prohibited status of dusky sharks, the need to release these sharks unharmed, and proper species identification. TC members commented that states could conduct their own education and outreach as an interim measure while Amendment 5 is developed.

PUBLIC LAW 111-348—JAN. 4, 2011

SHARK AND FISHERY CONSERVATION ACT

Public Law 111–348
111th Congress

An Act

Jan. 4, 2011
[H.R. 81]

To amend the High Seas Driftnet Fishing Moratorium Protection Act and the Magnuson-Stevens Fishery Conservation and Management Act to improve the conservation of sharks.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. TABLE OF CONTENTS.

The table of contents for this Act is as follows:

Sec. 1. Table of contents.

TITLE I—SHARK CONSERVATION ACT OF 2010

Sec. 101. Short title.

Sec. 102. Amendment of the High Seas Driftnet Fishing Moratorium Protection Act.

Sec. 103. Amendment of Magnuson-Stevens Fishery Conservation and Management Act.

Sec. 104. Offset of implementation cost.

TITLE II—INTERNATIONAL FISHERIES AGREEMENT

Sec. 201. Short title.

Sec. 202. International Fishery Agreement.

Sec. 203. Application with other laws.

Sec. 204. Effective date.

TITLE III—MISCELLANEOUS

Sec. 301. Technical corrections to the Western and Central Pacific Fisheries Convention Implementation Act.

Sec. 302. Pacific Whiting Act of 2006.

Sec. 303. Replacement vessel.

**TITLE I—SHARK CONSERVATION ACT
OF 2010**

Shark
Conservation Act
of 2010.

16 USC 1801
note.

SEC. 101. SHORT TITLE.

This title may be cited as the “Shark Conservation Act of 2010”.

SEC. 102. AMENDMENT OF HIGH SEAS DRIFTNET FISHING MORATORIUM PROTECTION ACT.

(a) **ACTIONS TO STRENGTHEN INTERNATIONAL FISHERY MANAGEMENT ORGANIZATIONS.**—Section 608 of the High Seas Driftnet Fishing Moratorium Protection Act (16 U.S.C. 1826i) is amended—

(1) in paragraph (1)—

(A) in subparagraph (D), by striking “and” at the end;

(B) in subparagraph (E), by inserting “and” after the semicolon; and

(C) by adding at the end the following:

“(F) to adopt shark conservation measures, including measures to prohibit removal of any of the fins of a shark (including the tail) and discarding the carcass of the shark at sea;”;

(2) in paragraph (2), by striking “and” at the end;

(3) by redesignating paragraph (3) as paragraph (4); and

(4) by inserting after paragraph (2) the following:

“(3) seeking to enter into international agreements that require measures for the conservation of sharks, including measures to prohibit removal of any of the fins of a shark (including the tail) and discarding the carcass of the shark at sea, that are comparable to those of the United States, taking into account different conditions; and”.

(b) **ILLEGAL, UNREPORTED, OR UNREGULATED FISHING.**—Subparagraph (A) of section 609(e)(3) of the High Seas Driftnet Fishing Moratorium Protection Act (16 U.S.C. 1826j(e)(3)) is amended—

(1) by striking the “and” before “bycatch reduction requirements”; and

(2) by striking the semicolon at the end and inserting “, and shark conservation measures;”.

(c) **EQUIVALENT CONSERVATION MEASURES.**—

(1) **IDENTIFICATION.**—Subsection (a) of section 610 of the High Seas Driftnet Fishing Moratorium Protection Act (16 U.S.C. 1826k) is amended—

(A) in the matter preceding paragraph (1), by striking “607, a nation if—” and inserting “607—”;

(B) in paragraph (1)—

(i) by redesignating subparagraphs (A) and (B) as clauses (i) and (ii), respectively; and

(ii) by moving clauses (i) and (ii) (as so redesignated) 2 ems to the right;

(C) by redesignating paragraphs (1) through (3) as subparagraphs (A) through (C), respectively;

(D) by moving subparagraphs (A) through (C) (as so redesignated) 2 ems to the right;

(E) by inserting before subparagraph (A) (as so redesignated) the following:

“(1) a nation if—”;

(F) in subparagraph (C) (as so redesignated) by striking the period at the end and inserting “; and”; and

(G) by adding at the end the following:

“(2) a nation if—

“(A) fishing vessels of that nation are engaged, or have been engaged during the preceding calendar year, in fishing activities or practices in waters beyond any national jurisdiction that target or incidentally catch sharks; and

“(B) the nation has not adopted a regulatory program to provide for the conservation of sharks, including measures to prohibit removal of any of the fins of a shark (including the tail) and discarding the carcass of the shark at sea, that is comparable to that of the United States, taking into account different conditions.”

(2) **INITIAL IDENTIFICATIONS.**—The Secretary of Commerce shall begin making identifications under paragraph (2) of section 610(a) of the High Seas Driftnet Fishing Moratorium

Deadline.
16 USC 1826k
note.

Protection Act (16 U.S.C. 1826k(a)), as added by paragraph (1)(G), not later than 1 year after the date of the enactment of this Act.

SEC. 103. AMENDMENT OF MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT.

(a) IN GENERAL.—Paragraph (1) of section 307 of Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1857) is amended—

(1) by amending subparagraph (P) to read as follows:

“(P)(i) to remove any of the fins of a shark (including the tail) at sea;

“(ii) to have custody, control, or possession of any such fin aboard a fishing vessel unless it is naturally attached to the corresponding carcass;

“(iii) to transfer any such fin from one vessel to another vessel at sea, or to receive any such fin in such transfer, without the fin naturally attached to the corresponding carcass; or

“(iv) to land any such fin that is not naturally attached to the corresponding carcass, or to land any shark carcass without such fins naturally attached;”;

(2) by striking the matter following subparagraph (R) and inserting the following:

“For purposes of subparagraph (P), there shall be a rebuttable presumption that if any shark fin (including the tail) is found aboard a vessel, other than a fishing vessel, without being naturally attached to the corresponding carcass, such fin was transferred in violation of subparagraph (P)(iii) or that if, after landing, the total weight of shark fins (including the tail) landed from any vessel exceeds five percent of the total weight of shark carcasses landed, such fins were taken, held, or landed in violation of subparagraph (P). In such subparagraph, the term ‘naturally attached’, with respect to a shark fin, means attached to the corresponding shark carcass through some portion of uncut skin.”

Definition.

16 USC 1857
note.

(b) SAVINGS CLAUSE.—

“(1) IN GENERAL.—The amendments made by subsection (a) do not apply to an individual engaged in commercial fishing for smooth dogfish (*Mustelus canis*) in that area of the waters of the United States located shoreward of a line drawn in such a manner that each point on it is 50 nautical miles from the baseline of a State from which the territorial sea is measured, if the individual holds a valid State commercial fishing license, unless the total weight of smooth dogfish fins landed or found on board a vessel to which this subsection applies exceeds 12 percent of the total weight of smooth dogfish carcasses landed or found on board.

(2) DEFINITIONS.—In this subsection:

(A) COMMERCIAL FISHING.—The term “commercial fishing” has the meaning given that term in section 3 of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1802).

(B) STATE.—The term “State” has the meaning given that term in section 803 of Public Law 103-206 (16 U.S.C. 5102).

SEC. 104. OFFSET OF IMPLEMENTATION COST.

Section 308(a) of the Interjurisdictional Fisheries Act of 1986 (16 U.S.C. 4107(a)) is amended by striking “2012.” and inserting “2010, and \$2,500,000 for each of fiscal years 2011 and 2012.”.

TITLE II—INTERNATIONAL FISHERIES AGREEMENT

International
Fisheries
Agreement
Clarification Act.

SEC. 201. SHORT TITLE.

This title may be cited as the “International Fisheries Agreement Clarification Act”.

16 USC 1854
note.

SEC. 202. INTERNATIONAL FISHERY AGREEMENT.

Consistent with the intent of provisions of the Magnuson-Stevens Fishery and Conservation and Management Act relating to international agreements, the Secretary of Commerce and the New England Fishery Management Council may, for the purpose of rebuilding those portions of fish stocks covered by the United States-Canada Transboundary Resource Sharing Understanding on the date of enactment of this Act—

16 USC 1854
note.

(1) take into account the Understanding and decisions made under that Understanding in the application of section 304(e)(4)(A)(i) of the Act (16 U.S.C. 1854(e)(4)(A)(i));

(2) consider decisions made under that Understanding as “management measures under an international agreement” that “dictate otherwise” for purposes of section 304(e)(4)(A)(ii) of the Act (16 U.S.C. 1854(e)(4)(A)(ii)); and

(3) establish catch levels for those portions of fish stocks within their respective geographic areas covered by the Understanding on the date of enactment of this Act that exceed the catch levels otherwise required under the Northeast Multi-species Fishery Management Plan if—

(A) overfishing is ended immediately;

(B) the fishing mortality level ensures rebuilding within a time period for rebuilding specified taking into account the Understanding pursuant to paragraphs (1) and (2) of this subsection; and

(C) such catch levels are consistent with that Understanding.

SEC. 203. APPLICATION WITH OTHER LAWS.

Nothing in this title shall be construed to amend the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1851 et seq.) or to limit or otherwise alter the authority of the Secretary of Commerce under that Act concerning other species.

16 USC 1854
note.

SEC. 204. EFFECTIVE DATE.

(a) IN GENERAL.—Except as provided in subsection (b), section 202 shall apply with respect to fishing years beginning after April 30, 2010.

16 USC 1854
note.

(b) SPECIAL RULE.—Section 202(3)(B) shall only apply with respect to fishing years beginning after April 30, 2012.

Applicability.

TITLE III—MISCELLANEOUS**SEC. 301. TECHNICAL CORRECTIONS TO THE WESTERN AND CENTRAL PACIFIC FISHERIES CONVENTION IMPLEMENTATION ACT.**

Section 503 of the Western and Central Pacific Fisheries Convention Implementation Act (16 U.S.C. 6902) is amended—

(1) by striking “Management Council and” in subsection (a) and inserting “Management Council, and one of whom shall be the chairman or a member of”;

(2) by striking subsection (c)(1) and inserting the following:

“(1) EMPLOYMENT STATUS.—Individuals serving as such Commissioners, other than officers or employees of the United States Government, shall not be considered Federal employees except for the purposes of injury compensation or tort claims liability as provided in chapter 81 of title 5, United States Code, and chapter 171 of title 28, United States Code.”; and

(3) by striking subsection (d)(2)(B)(ii) and inserting the following:

“(ii) shall not be considered Federal employees except for the purposes of injury compensation or tort claims liability as provided in chapter 81 of title 5, United States Code, and chapter 171 of title 28, United States Code.”.

SEC. 302. PACIFIC WHITING ACT OF 2006.

(a) SCIENTIFIC EXPERTS.—Section 605(a)(1) of the Pacific Whiting Act of 2006 (16 U.S.C. 7004(a)(1)) is amended by striking “at least 6 but not more than 12” inserting “no more than 2”.

(b) EMPLOYMENT STATUS.—Section 609(a) of the Pacific Whiting Act of 2006 (16 U.S.C. 7008(a)) is amended to read as follows:

“(a) EMPLOYMENT STATUS.—Individuals appointed under section 603, 604, 605, or 606 of this title, other than officers or employees of the United States Government, shall not be considered to be Federal employees while performing such service, except for purposes of injury compensation or tort claims liability as provided in chapter 81 of title 5, United States Code, and chapter 171 of title 28, United States Code.”.

SEC. 303. REPLACEMENT VESSEL.

Notwithstanding any other provision of law, the Secretary of Commerce may promulgate regulations that allow for the replacement or rebuilding of a vessel qualified under subsections (a)(7) and (g)(1)(A) of section 219 of the Department of Commerce and

Related Agencies Appropriations Act, 2005 (Public Law 108-447;
188 Stat. 886-891).

Approved January 4, 2011.

LEGISLATIVE HISTORY—H.R. 81 (S. 850):

SENATE REPORTS: No. 111-124 (Commerce, Science and Transportation) accom-
panying S. 850.

CONGRESSIONAL RECORD:

Vol. 155 (2009): Mar. 2, considered and passed House.

Vol. 156 (2010): Dec. 20, considered and passed Senate, amended.

Dec. 21, House concurred in Senate amendment.





North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Beverly Eaves Perdue
Governor

Dr. Louis B. Daniel III
Director

Dee Freeman
Secretary

COPY

December 21, 2011

Christopher M. Vonderweidt
Fisheries Management Plan Coordinator
Atlantic States Marine Fisheries Commission
1444 Eye Street, NW, Sixth Floor
Washington, DC 20005

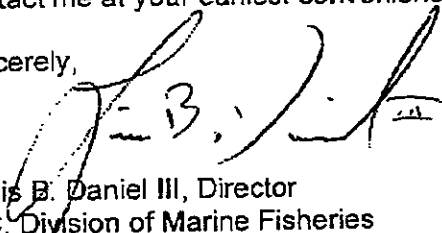
Dear Mr. Vonderweidt,

The purpose of this letter is to inform you that Ms. Holly White is replacing Mr. Clark Gray as North Carolina's member on the ASMFC Coastal Shark Technical Committee. Ms. White is in our Manteo field office and can be reached at the following address:

Ms. Holly White
NC Division of Marine Fisheries
P.O. Box 1965
Manteo, NC 27954
Phone: 252-473-5734
Holly.White@ncdenr.gov

Thank you for noting this change and sending future ASMFC coastal shark, smooth dogfish and spiny dogfish information to Ms. White. If further information is needed, please contact me at your earliest convenience.

Sincerely,



Louis B. Daniel III, Director
N.C. Division of Marine Fisheries

cc: Holly White, David Taylor

LBD/mc



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

DEC - 6 2011

John V. O'Shea
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland St., Suite 200 A-N
Arlington VA, 22201

Dear Vince:

Thank you for your willingness to help improve coordination on the management of the spiny dogfish fishery between Federal and state waters. We look forward to improving communication with your staff as described in your November 4, 2011, letter.

It has recently come to my attention that the Atlantic States Marine Fisheries Commission Technical Committee for spiny dogfish does not currently include a representative from NOAA Fisheries Service (NMFS). Although the Technical Committee typically meets in conjunction with Mid-Atlantic Fishery Management Council's Spiny Dogfish Monitoring Committee (which has NMFS representation), it may further improve coordination if NMFS staff also serve on the Technical Committee. Therefore, I would like to request that our lead policy analyst on the Spiny Dogfish Fishery Management Plan, Tobey Curtis, be formally added to the Spiny Dogfish Technical Committee. His background in shark biology and fisheries management would make him a helpful addition.

Please let me know if you have any questions or concerns with this request.

Sincerely,

Patricia A. Kurkul
Regional Administrator

