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October 21, 2008



**VIA FEDERAL EXPRESS**

Mr. David Simpson, Chair  
Scallop Oversight Committee  
c/o New England Fishery Management Council  
50 Water Street, Mill 2  
Newburyport, MA 01950

**Re: Summary of Fisheries Survival Fund's Proactive Efforts to Minimize Harm and Interactions with Sea Turtles**

Dear Mr. Simpson:

We submit this letter on behalf of the Fisheries Survival Fund ("FSF") in connection with the New England Council's and, in particular, the Scallop Committee's efforts, pursuant to its unanimously-passed motion at its September 10, 2008, meeting to "explore options" to the first term and condition contained in the March 14, 2008, Biological Opinion for the Atlantic scallop fishery. That term and condition would require reductions in Mid-Atlantic access area trips and open area day-at-sea ("DAS") use during critical months from late spring to early fall each year.

As its representatives explained at that meeting, FSF agrees with the Scallop Committee's operating premise, set forth in a prior motion to the one quoted above, that the first Term and Condition is "not reasonable and prudent because it appears it would cause more than a minor change to the fishery ...." This latter motion passed the Committee by a 7:1 vote.

The Scallop PDT is set to meet on October 27 to consider what can practicably be done to, as the Endangered Species Act requires, "minimize [the] impact" of incidental turtle takes in the fishery.<sup>1</sup> In seeking to understand what is practicable to do next (if anything more), however, it is critical the Scallop Committee and Scallop PDT fully understand the level of effort that the

<sup>1</sup> We note the ESA requires the minimization of the *impacts* of takes in the present context, which should not necessarily equate with a goal of minimizing the number of takes as an absolute matter.

CC: DB (10/22), PMF

scallop fishing industry and its research partners have already undertaken over the past eight years to attempt to minimize the impact of takes by the scallop fishery on sea turtles, and especially in its dredge sector. Any fair and reasonable assessment of the practicability of new measures should start with an informed understanding of the efforts to date. NMFS's latest BiOp, however, significantly soft-peddles these efforts. (For example, after noting that "the serious injury and mortality rate of sea turtles interacting scallop dredge gear since implementation of the chain mat requirement *should be less*" than previously estimated, NMFS continues to use the outdated 64% mortality rate estimate for takes for lack of a better number.)

## **I. Background**

Prior to 2000, there were very few, if any, recorded interactions between scallop dredge gear and sea turtles. During the summer of 2000, however, scallop captains started to report seeing sea turtles where they had rarely, if ever, been seen before, some of which were coming up in the scallop dredges. Discussions among NMFS and industry members revealed the industry felt loggerhead turtle populations were increasing in the Mid-Atlantic area.

These interactions, however, were very limited. During 2001, NMFS observers recorded 11 encounters between sea scallop vessels and sea turtles in the Mid-Atlantic, out of 5,286 observed hauls. The observed takes, when expanded to overall fleet effort, provided an estimate of 95 turtles taken. In comparison, high observer coverage in recent years on Georges Bank has not uncovered any loggerhead turtle interactions. In 2002, over 20 turtle takes were reported for 72 observed trips into the Hudson Canyon Access Area ("HCAA"). In 2003, similar loggerhead turtle take rates were observed in other areas of the Mid-Atlantic as well.

Sea sampling reports that have been made public indicated that some of the turtles had been found wedged into forward parts of the dredge frame or in the bag where they had been damaged by rocks and/or the dredge frame when brought on deck. In addition, the turtle takes were being observed in a very limited geographical area compared to the range of the sea scallop fishery.

In response to this emerging issue, beginning in 2000 and continuing until the present, FSF and its technical and scientific consultants have worked diligently to direct their research objectives to those identified by NMFS as most critical for addressing its responsibilities under the Endangered Species Act. As we will show, many the elements of this cooperative research undertaken in conjunction with FSF correspond with research items that NMFS has included as "reasonable and prudent measures" in the series of biological opinions for the scallop fishery. Moreover, these collaborative efforts have evolved as new information and techniques have emerged.

## **II. Initial Focus on Educating Industry and Minimizing Harm**

In some of the earliest Endangered Species Act Biological Opinions for the scallop fishery, NMFS instituted the following RPMs:

NOAA Fisheries must ensure that guidance is provided to fishers in fishery to make them aware of sea turtle presence in fishing areas, advise them to not conduct tows where turtle are observed present at the surface, maintain <60 minute tow times, avoid damage to turtles possibly caught in dredge by lowering bag closer to deck before emptying and not dropping the dredge cutting bar on top of the catch. (Atlantic Sea Scallop BiOp, 2/24/2003.)

NOAA Fisheries must provide adequate guidance to all fishers participating in fishery prior to start of each FY so any incidental sea turtle take is handled w/due care, observed for activity, and returned to water. (Atlantic Sea Scallop BiOp, 2/23/2004).

These RPMs and terms and conditions were addressed by the production of a wheelhouse card that was distributed to each vessel in the limited access scallop fleet. The card was designed and produced as a joint effort of the FSF, Coonamesett Farm, VIMS, and Sea Grant.

Education in methods of handling a turtle so as to avoid injury has achieved positive benefits for sea turtles. During the season and area of turtles, after the dredge is hauled back to the block and is in the air, crewmen are instructed to look to see if there is a turtle in the dredge or bag before dumping it on deck. If a turtle is observed, the captain and crew are to use the other side's tackle to bring the bale over to the other side of the vessel and use that side's tackle on the club stick to gently dump the contents of the bag without ever dropping the dredge or bag on deck. This or similar protocols prevent crushing of turtles by the gear. Captains and crew are also instructed in means of resuscitating turtles to enhance their survival. However, it was recognized that in order to better mitigate harm, the better approach was to prevent turtles from entering the bag and being brought on deck in the first place.

## **III. The Second Phase Focused on Gear Design Solutions**

As part of the next phase of research and means by which to minimize the impact and harm of incidental interactions between scallop gear and sea turtles, NMFS promulgated the following RPMs:

NOAA Fisheries must reduce the capture of sea turtles in the scallop dredge fishery by requiring modifications of scallop gear at times and in areas where sea turtle interactions are likely to occur. (Atlantic Sea Scallop BiOp, 12/15/2004.)

NMFS must continue to investigate and implement gear modifications for the scallop dredge and trawl gear to reduce sea turtle capture .... (Atlantic Sea Scallop BiOp, 9/18/2006, 3/14/2008.)

The development of concepts to minimize turtle interactions with sea scallop dredges, however, had already long since begun, with research instituted as soon as the scallop industry's technical representatives heard of the potential problem early in the decade.

More specifically, FSF recognized that if the industry did not help develop solutions, the management process could impose less than optimal management responses. For instance, these responses could impede scallop rotational management efforts and objectives, then under consideration, such as by redirecting a large amount of scallop dredge effort into less-productive areas, thereby increasing dredge bottom time and the potential for bycatch and habitat interactions. In addition, such a management response could end up redirecting effort onto Georges Bank, which is facing its own groundfish-related conservation issues.

To achieve the objective of excluding turtles from scallop gear, a modification to increase the number of up and down chains between the sweep, ticklers, and dredge frame was developed and tested. This has the effect of preventing the bag from draping below the frame during hauling and setting, when pelagic interactions with sea turtles could occur. Furthermore, this chain mat could prevent a turtle from entering the bag of the dredge where it can be subject to potential forced submergence, agitation with its contents, and being brought aboard where the greatest potential for harm exists.<sup>2</sup>

As a matter of dredge operation, when a sea turtle encounters the standard (i.e., unchained) dredge, it either passes beneath the dredge frame (bale) or over the top of the dredge. If the sea turtle passes under the dredge frame on a dredge that is not equipped with turtle chains, it stands a good chance of being caught in the dredge bag. The concept was essentially to add additional rock chains, which were in routine use in areas of Georges Bank to keep boulders from entering the dredge. However, rock chains had not been in general use in the Mid-Atlantic where sea turtle encounters occur since they negatively affect dredge performance and add extra expense to install and maintain.

The turtle chain mat, therefore, was constructed with much lighter chains, made of stronger steel, rigged in a grid so that there is no opening through which loggerhead turtles of the size typically encountered can pass. The effectiveness of this gear was tested extensively, and it has proven through research to be extremely effective in minimizing the impact of incidental takes. This

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<sup>2</sup> Information on the turtle chain mat design can be found in "Industry Trials of a Modified Sea Scallop Dredge to Minimize the Catch of Sea Turtles" by Bill DuPaul, Dave Rudders, and Ronald Smolowitz. VIMS Marine Resource Report No. 2004-11. A vessel card entitled "Rigging of Turtle Chains" was produced and distributed to fishermen. The chains were found to be 100% effective in keeping turtles out of the dredge bag when deployed correctly.

fact is recognized in the 2008 Atlantic Sea Scallop BiOp, which states that turtle chains are “expected to reduce the likelihood that a turtle will be seriously injured or killed as a result of coming in contact with scallop dredge gear given that the use of chain mats on scallop dredge gear will (1) Reduce the likelihood that turtles who encounter the gear on the bottom will enter the dredge bag and be at further risk of injury and death, and (2) reduce the likelihood that turtles who encounter the gear in the water column will enter the dredge bag and be subsequently injured or killed.”

As the Committee is aware, after the chains were proven effective through cooperative research, FSF petitioned NMFS to make their use mandatory in the Mid-Atlantic. Ultimately, NMFS did so, extending their use in both area and time beyond those in which such encounters are likely. FSF participants have accepted, and, indeed, advocated for this requirement, despite the inconvenience and costs associated with these chains’ installation and maintenance, and the harvesting inefficiencies their use entails.

#### **IV. Ongoing Research Designed to Meet Other RPMs**

NMFS identified a series of other information needs and research priorities necessary to better understand the nature, location, and effects of interactions between the scallop fishery and sea turtles. FSF and its technical partners have engaged in a series of cooperative research initiatives, sometimes along with NMFS, under the scallop research set-aside program, designed to meet these RPMs. These priorities and a summary of the research, both completed and ongoing, are described below.

**A.      *“NMFS must continue to investigate and implement gear modifications for the scallop dredge and trawl gear to reduce ... severity of the interactions.”***  
**(Atlantic Sea Scallop BiOp, 9/18/2006, 3/14/2008.)**

To address this objective, work is ongoing in the design, redesign, and testing of a prototype “turtle excluder scallop dredge” or “turtle-scallop dredge.” This is a new concept for construction of the dredge frame to keep turtles from snagging on top or being trapped underneath the dredge as it is towed along the sea floor. The turtle excluder dredge is also designed to prevent turtles from becoming caught up in the dredge frame as it is being deployed or retrieved. Although such encounters are less likely to occur than pelagic encounters, as much of the scallop fishery operates at depths where water temperatures are inhospitable to sea turtles, the relative number of turtle encounters that take place while the dredge is on the sea floor as compared to those occurring up in the water column (during setting and haul back) is still unknown.<sup>3</sup>

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<sup>3</sup> As noted below, however, FSF and its scientific partners are engaged in research designed to answer this question as well.

The turtle excluder dredge, designed by Coonamessett Farm, departs from the standard dredge design in that the cutting bar is moved forward of the depressor plate so that instead of confronting a vertical structure, a sea turtle (or large barndoor skate or groundfish) encounters an upward sloping structure. The design increases the width of the depressor plate and extends the struts, at twelve inch spacing, between the depressor plate and the forward positioned cutting bar. All the structural bars running from the bale to the dredge have been removed allowing any turtle that gets under the bale to escape before encountering the cutting bar. Thus, a sea turtle could not get trapped in this space and, if encountered on the bottom, can be deflected over the dredge rather than getting trapped beneath.

Some tests of this new dredge (and modifications made based on experience) have been completed, and more work to better understand its effects on turtles, bycatch of other species, and scallop harvest is being planned. In particular, it is important to learn how well this dredge performs under commercial fishing conditions. The work thus far has been quite encouraging, in terms of reducing finfish bycatch as well as protecting turtles.

**B. “NOAA Fisheries must conduct video work to investigate how sea turtles interact with scallop fishery gear.” (Atlantic Sea Scallop BiOp, 12/15/2004.)**

A series of research projects, briefly described below, have been undertaken to address this RPM. Initially, researchers tried to use dredge mounted cameras to view underwater interactions between scallop dredges and sea turtles. However, the first two projects described below were not successful in observing any turtle interactions. This led to a change in strategy identified in the third project; instead of following the dredge, researchers opted to follow the turtles using Remotely Operated Vehicles (“ROV”).

**1. Ronald Smolowitz, Chelsea Harnish, David Rudders, and Henry Milliken, “Turtle-Scallop Dredge Interaction Study” (November 2005):**

Three days of video operations on the *F/V Kathy Ann* monitored 16 paired scallop tows with tow times ranging from 15-49 minutes in duration. The tow path was kept short by using turn around tows. The tow path was covered with previously frozen scallop viscera as well as the fresh shucked viscera. No turtles were sighted during the entire trip.

During this project, however, researchers developed the video techniques and tools needed to visually document the interaction of sea turtles with the dredges, or at least, document a feeding behavior associated with the scallop fishery. The interaction between the fishery and sea turtles seems to be a very rare event, at least based on observed takes.

**2. Ronald Smolowitz, Matt Weeks, and Henry Milliken, "Turtle-Scallop Dredge Interaction Study 2005 Field Season" (June 2006):**

This was the second project designed both to discover the nature of interactions between sea turtles and scallop gear, as well as to test the efficacy of the turtle excluder dredge. On the first trip, no turtles were observed either at the surface or with dredge-mounted video cameras during the 6 days on the water. After 34 successful tows (37 total paired tows), the excluder dredge caught 173.3 bushels of scallops while the standard dredge caught 178.6 bushels. The experimental dredge was an early prototype that had a center bale bar and two additional remaining bale bars between the bale and the dredge frame during the first 19 tows of the first trip. On tow 20, two bale bars were removed leaving only the center bar. No significant differences in scallop catches were observed between the two dredges with the various changes though the tow numbers were small when the data was un-grouped.

A second trip was similarly unsuccessful in encountering any turtles, although further modifications to the excluder dredge were tested for comparisons with respect to scallop catch and bycatch rates compared to the standard dredge. The results were fairly encouraging with respect to both measures, although more testing will be needed to determine if the experimental dredge has promise for commercial use, bycatch minimization, and minimizing the impact of incidental turtle takes.

**3. Sea Turtle/Scallop Fishery Interaction Study, NOAA Grant # NA06NMF4540263, Start Date: July 1, 2006 by Coonamessett Farm, Inc., In Collaboration with VIMS Sea Grant Program, MIT Sea Grant Program, Viking Village Fisheries, and NEFSC. Final report in preparation.**

Researchers made a determination before undertaking further field work, to try to approach from a different perspective: that of better understanding sea turtle behavior. They chose an ROV to attempt to track the sea turtles. The September 2007 trip collected data on loggerhead turtle spatial distribution but not on their behavior and location within the water column. After the September trip, there was an evaluation of the difficulties encountered.

A second trip, undertaken on June 16, 2008, successfully applied new tracking improvements. Many hours of video were taken of sea turtles. The video and tracking equipment was able to record the depths at which turtle observations were made, how often turtles went to the surface, what they were feeding on and how, avoidance behaviors in reaction to sharks and vessels, and much more. Only one turtle was observed to have traveled to the bottom, to a depth of 60 meters. The final project report is in preparation.

- C. *NMFS must review available data to determine whether there are areas (hot spots) within the action area where sea turtle interactions with scallop gear are more likely to occur. (Atlantic Sea Scallop BiOp 9/18/2006, 3/14/2008.) NMFS must determine the extent to which sea turtle interactions with scallop gear occurs at the bottom or in the water column and the effect on sea turtles struck by scallop gear. (Atlantic Sea Scallop BiOp 3/14/2008.)***

In regards to the approach of using separation between scallop gear and turtles, there is very little data on the actual precise geographic location of the turtles in real-time and little understanding of their bottom foraging capabilities on sea scallop grounds (temperature and turtle species behavior are key). Some turtles continue to migrate through the scallop grounds as the season progresses; others seem to remain in one area for the season.

On-going and proposed research using an ROV and oceanographic sampling in conjunction with sea turtle tracking (described above) will hopefully shed light on the location of the turtles geographically and the amount of time they spend at the surface and on the sea floor.

- D. *NMFS must quantify the extent to which chain mats reduce the number of serious injuries/deaths of sea turtles that interact with scallop dredge gear. (Atlantic Sea Scallop BiOp 3/14/2008.)***

There are a number of ways to quantify the effectiveness of chain mats in reducing potential injury to turtles during towing of the standard New Bedford dredge. The key cause of potential injury once the possibility of turtles getting caught in the dredge bag is eliminated by the use of the turtle chains, is the possibility of a standard dredge running over a turtle on the seafloor. Thus, in order to be able to quantify the amount of serious injury and death avoided by use of the chain mat (and thus get a realistic estimate of potential fatal takes that is utterly lacking in the current scallop fishery BiOp), researchers need to be able to estimate the percentage of takes that occur on the sea floor as opposed to in the water column.

A contract has been issued by the NEFSC to Coonamessett Farm, Inc., to study this issue. The planned experimental design uses two paired dredges, one standard dredge and one turtle excluder dredge. This study is based on the increasingly reasonable premise that the turtle excluder dredge is highly effective in preventing turtles from getting under the cutting bar and directed into the bag in a benthic encounter. If this holds true, a comparison of the two dredge types, without turtle chains, would yield an estimate of the number of catches that occur on the bottom.



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Since 2000, the scallop industry has been cooperatively working toward science-based solutions to the sea turtle issue, consistent with NMFS's Biological Opinions to date. In contrast to the RPMs that have helped focus research efforts, the Terms and Condition to limit Mid-Atlantic fishing in warm weather months that is currently under re-consideration by the Scallop PDT and Committee represents little more than a guess. Going forward, we would urge the Committee to build on existing cooperative research efforts, and focus on solutions that do not undermine the tremendous strides the Council has made toward pioneering scallop rotational management.

Sincerely,

A handwritten signature in blue ink, appearing to be "David E. Frulla", with a long horizontal flourish extending to the right.

David E. Frulla  
Shaun M. Gehan  
Andrew E. Minkiewicz

Attorneys for the Fisheries Survival Fund