



**Mid-Atlantic Fishery Management Council**  
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## MEMORANDUM

**Date:** September 21, 2023  
**To:** Council  
**From:** Karson Cisneros, Staff  
**Subject:** Joint Sturgeon Bycatch Framework Action

On Tuesday, October 3, the Council will review the Joint Monkfish and Dogfish Committee and FMAT/PDT recommendations and approve the range of alternatives to be considered for the joint framework action to reduce the bycatch of Atlantic Sturgeon. This joint action with the New England Fishery Management Council was initiated in response to recommendations made by the Atlantic Sturgeon Bycatch Working Group, as described in the [Action Plan to Reduce Atlantic Sturgeon Bycatch in Federal Large Mesh Gillnet Fisheries](#). Final action for both Councils is scheduled for April 2024. Materials listed below are provided for the Council's consideration of this agenda item.

- 1) Joint Monkfish and Spiny Dogfish Committee meeting summary from September 20, 2023 *(to be posted once available)*
- 2) Staff memo to the Joint Monkfish and Spiny Dogfish Committee dated September 13, 2023
- 3) FMAT/PDT meeting summary from September 7, 2023
- 4) NMFS Summary on Data Loggers



## MEMORANDUM

**DATE:** September 13, 2023

**TO:** Joint Monkfish and Dogfish Committee

**FROM:** Karson Cisneros, Robin Frede, and Jenny Couture, co-chairs of the Sturgeon Bycatch Fishery Management Action Team/Plan Development Team (FMAT/PDT)

**SUBJECT:** **Considerations for the Range of Alternatives for the Sturgeon Framework Action**

The NEFMC and MAFMC are working on joint actions to reduce interactions with sturgeon by the monkfish and spiny dogfish gillnet fisheries. The attachment details development of the action, including recommendations by the FMAT/PDT and the NEFMC and MAFMC.

### Committee Meeting Objectives

- 1) Review updated information presented by staff on enforcement considerations and FMAT/PDT recommendations.
- 2) Refine range of alternatives as appropriate.

### MAFMC June Meeting Outcomes

The MAFMC planned to adopt a range of alternatives at its June meeting. During the June 6-8 MAFMC meeting, the NMFS Regional Administrator shared a previously unknown finding that the amount of sturgeon caught in the gillnet fishery in the most recent 5-year period had exceeded the allowed levels under the Endangered Species Act (ESA). This overage triggers a requirement to develop a new Biological Opinion (BiOp) that will address sturgeon bycatch in gillnet fisheries. The new BiOp will be developed alongside this action, however the outcomes and timeline are unknown, and the Councils are still held to the timeline of the previous 2021 BiOp.

The MAFMC discussed the range of alternatives and recommended that 1) dogfish remain in the framework action and 2) the dogfish and monkfish committee should further discuss alternatives related to soak time restrictions and 10-minute square areas with new information provided by enforcement.

## NEFMC June Meeting Outcomes

At its June meeting, the NEFMC approved the range of alternatives for the monkfish fishery with the understanding that alternatives will be further refined by the Joint Monkfish and Dogfish Committee with input from Office of Law Enforcement and the Coast Guard. The NEFMC also recommended retaining spiny dogfish as part of this action (< 7" mesh size) per the MAFMC's recommendation.

## Next Steps

Based on input from the Joint Committee with invited enforcement representatives, if the MAFMC approves the narrowed range of alternatives for the spiny dogfish and monkfish fisheries during its October meeting and the NEFMC approves the range of alternatives for the spiny dogfish fishery during its December meeting, then the full suite of alternatives for both fisheries can be approved by both Councils by December. Following this approval, the FMAT/PDT will analyze the alternatives and prepare a final action document. In March 2024, the joint Spiny Dogfish and Monkfish Advisory Panel and the joint Spiny Dogfish and Monkfish Committee will meet to recommend preferred alternatives for final action. The NEFMC and MAFMC are scheduled to take final action at their April meetings.

## Enforcement Considerations

The FMAT/PDT used the Sturgeon Action Plan as a basis for developing a range of alternatives for the monkfish and dogfish fisheries to reduce sturgeon bycatch. Measures were also added by the joint Monkfish and Dogfish Committee at their May 2023 meeting. Staff reached out to enforcement representatives from the Coast Guard and Office of Law Enforcement before the June Council meetings for preliminary feedback based on concerns with soak time restrictions and how to draw small closure/restricted areas raised at the May Committee meeting. Some of these measures may not be able to be enforced, as described below. The Joint Committee is encouraged to weigh in on the following considerations as well.

- **Gillnet soak time restrictions** for dogfish and monkfish permit holders
  - For fisheries where VMS is not currently required, can soak time restrictions or maximum amount of time gear can be in the water be feasibly enforced?
  - How would sunrise and sunset soak time restrictions work?
  - What would be required to reasonably include soak time restrictions as part of the monkfish and dogfish range of alternatives?
  - Would data loggers or another technology (VMS, etc.) be required to enable enforceability of soak time restrictions?

### Summary of enforcement concerns:

- Coast Guard: Soak times are not feasible without something like electronic monitoring.

- Office of Law Enforcement: soak times are most likely unenforceable, especially in fisheries with limited VMS use; could have soak time restriction for daylight hours only (e.g., sunrise to sunset only provision in specific location, time); problematic in the monkfish fishery given longer soak time use further from shore.

Data loggers as a tool for enforcement: Council and GARFO staff spoke with Carrie Upite and Ellen Keane (GARFO Protected Resources Division) on August 22<sup>nd</sup> and provided the following input:

- Technology has progressed since the 2015 Matzen, et al. paper, cited in the Sturgeon Action Plan
- NMFS had additional funding to develop this tool and effort is planned for implementation on trawl vessels for possible sea turtle measures.
- Theoretically, the technology should also apply to gillnet gear, however, no initial testing has occurred. For example, additional information needs to be researched on how to secure the data logger to the gillnet gear, the housing for the data logger, and how the data loggers handle longer soaks. Tradeoffs between data collection frequency with data quantity and storage issues need to be considered as well.
- It is not viable to implement a requirement to use data loggers as part of this sturgeon action given the action timeline (final action expected in April 2024).
- Council staff and the FMAT/PDT recommend use of data loggers in gillnet gear as a research recommendation.

- **Area based restrictions or closures** around hotspot sturgeon bycatch areas: statistical areas are large and seem overly restrictive. Two alternatives to spatially define area-based restrictions/closures include 1) 10-minute squares or 2) straight lines that approximate the shoreline (targeting a range out to 6 or 9 miles offshore). Some of the regions of interest are in Southern New England, New Jersey, and the Delaware/Maryland/Virginia area.
  - Between these two alternative approaches, is one more enforceable?
  - Is there a minimum area size for closures or restrictions preferred by enforcement?
  - Are there any comments that should be considered for an approach using statistical areas?

Summary of enforcement concerns:

- Coast Guard: If there are distinct areas, the Coast Guard can enforce those areas.
- Office of Law Enforcement: a single polygon with straight lines would be preferable to areas drawn by 10-minute squares. This would likely require multiple conjoined 10-minute squares and may create areas with more

than four sides which is harder to enforce than straight line approximating the shoreline.

Other enforcement concerns:

- If closures are implemented and there are only short periods to fish, this can lead to safety issues where vessels may go out in worse conditions.
- Need to be clear which mesh sizes restrictions should be applied to.

### FMAT/PDT Recommendations

The FMAT/PDT met on September 7, 2023 to discuss the range of alternatives and provide further input for the Joint Committee to consider. The team discussed the need to refine the range of alternatives for analysis while maintaining several types of measures to address sturgeon bycatch. The FMAT/PDT ultimately recommended the following range of alternatives for the Committee and Councils' consideration (see meeting summary for detailed discussion and rationale):

#### *Spiny Dogfish Action*

Alternatives would be applied to mesh sizes of 5 inch and greater to accurately capture the dogfish fishery. The range of alternatives includes a variety of time/area restrictions or closures to address sturgeon bycatch hotspot areas.

#### **Restriction options to be applied to selected time and area options (developed based on information provided in the Sturgeon Action Plan)**

1. Soak time restrictions
  - a. No overnight soaks
2. Closures

#### **Area options (developed based on the figures provided in the Sturgeon Action Plan)**

1. Smaller areas than statistical areas using straight lines that approximate the shoreline to encompass NJ, DE, MD, and VA hotspots (estimating 6-9 miles offshore)

#### **Time options (developed based on observer data on sturgeon takes on spiny dogfish targeted trips)**

1. NJ hotspot
  - a. November 1 – December 31
  - b. April 1- 30
  - c. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b
2. DE/MD/VA hotspots
  - a. December 1 – January 31
  - b. March 1-31
  - c. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b

### ***Monkfish Action***

Alternatives would be applied to vessels using a Monkfish day-at-sea (DAS) using gillnet gear.

#### **Restriction options to be applied to selected time and area options (developed based on information provided in the Sturgeon Action Plan)**

1. Gear restrictions: low profile gillnet as defined in draft alternatives document
  - a. Only applicable to NJ hotspot
2. Closures

#### **Area options (developed based on the figures provided in the Sturgeon Action Plan)**

1. Smaller areas than statistical areas, using straight lines that approximate the shoreline to encompass hotspots (estimating 6-9 miles offshore)

#### **Time options (developed based on observer data on sturgeon takes on monkfish targeted trips)**

1. Southern New England
  - a. May 1-31
  - b. June 1-30
  - c. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b
2. NJ hotspot
  - a. December 1-31
  - b. May 1- 31
  - c. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b
  - d. For low profile gear in NJ hotspot (e.g., not soak time restriction): year-round

## Previous Outline of the Preliminary Range of Alternatives as Recommended by the Joint Dogfish and Monkfish Committee in May 2023

### ***Spiny Dogfish Action***

Alternatives would be applied to either 1) mesh size 7 inch or greater only or 2) apply to mesh 5 inch and greater (to the extent possible separating out by mesh size category).

The range of alternatives includes a variety of time/area restrictions or closures to address sturgeon bycatch hotspot areas.

#### **Restriction options to be applied to selected time and area options**

3. Soak time restrictions
  - a. No overnight soaks
  - b. Maximum of 24 hour soaks
  - c. Maximum of 48 hour soaks
  - d. Maximum of 72 hour soaks
4. Closures

#### **Area options**

2. Statistical area groups
  - a. NJ hotspot: 612, 614, and 615
  - b. DE/MD/VA hotspots: 621, 625, and 631
3. Smaller areas within statistical areas identified in 1a and 1b, using 10-minute squares to encompass NJ, DE, MD, and VA hotspots (estimating 6-9 miles offshore)
4. Smaller areas within statistical areas identified in 1a and 1b, using straight lines that approximate the shoreline to encompass NJ, DE, MD, and VA hotspots (estimating 6-9 miles offshore)

#### **Time options**

3. NJ hotspot
  - a. November 1 – December 31
  - b. April 1- 30
  - c. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b
4. DE/MD/VA hotspots
  - a. December 1 – January 31
  - b. March 1-31
  - c. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b

### ***Monkfish Action***

Alternatives would be applied to vessels using a Monkfish day-at-sea (DAS) using gillnet gear.

#### **Restriction options to be applied to selected time and area options**

3. Gear restrictions: low profile gillnet as defined in draft alternatives document

- a. Only applicable to NJ hotspot
- 4. Soak time restrictions
  - a. Maximum of 48 hour soaks
  - b. Maximum of 72 hour soaks
- 5. Closures

**Area options**

- 2. Statistical area groups
  - a. Southern New England: 539
  - b. NJ hotspot: 612, 614, and 615
- 3. Smaller areas within statistical areas identified in 1a and 1b, using 10-minute squares to encompass hotspots (estimating 6-9 miles offshore)
- 4. Smaller areas within statistical areas identified in 1a and 1b, using straight lines that approximate the shoreline to encompass hotspots (estimating 6-9 miles offshore)

**Time options**

- 3. Southern New England
  - a. May 1-31
  - b. June 1-30
  - c. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b
- 4. NJ hotspot
  - a. December 1-31
  - b. May 1- 31
  - c. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b
  - d. For low profile gear in NJ hotspot (e.g., not soak time restriction): year-round



## MEETING SUMMARY

### **Sturgeon Bycatch Fishery Management Action Team (FMAT) / Plan Development Team (PDT)**

Webinar

September 7, 2023

1:00 – 4:00 p.m.

#### ***Agenda***

The Fishery Management Action Team/Plan Development Team (referred to as Team) met to discuss 1) the draft alternatives, 2) updates on data loggers to use for enforcement purposes, 3) updates from GARFO on the re-initiation of the Biological Opinion and how Council and GARFO staff can work together, 4) further data needs, and 5) other business. This meeting was closed to the public due to the discussion of confidential data at various points in the meeting.

#### ***Meeting attendance***

Team members included: Karson Cisneros (Co-Chair), Jenny Couture (Co-Chair), Robin Frede (Co-Chair), Sharon Benjamin, Jason Boucher, James Boyle, Jason Didden, Lynn Lankshear, Ashleigh McCord, Bridget St. Amand, and Spencer Talmage.

#### ***Joint Monkfish/Dogfish Framework to Reduce Atlantic Sturgeon Bycatch***

The co-chairs reviewed the meeting agenda and meeting outcomes from the Mid-Atlantic and New England Fishery Management Councils' June meetings which included inclusion of spiny dogfish (< 7" mesh) as part of this action and to solicit feedback from the Office of Law Enforcement and the Coast Guard to narrow the range of alternatives based on enforceability considerations. Staff also reviewed an outline of the tentative timeline for the action. The goal of the FMAT/PDT meeting was to receive any update from GARFO on the re-initiation process of the Sturgeon Biological Opinion, discuss how Council and GARFO staff can work together on developing this Council framework action including sharing data and other pertinent information, and to identify any other considerations for alternative development. The Team also discussed data loggers as an enforcement tool for any soak time restrictions and concluded with a discussion on further data needs for alternative development and future analyses.

#### ***General Discussion on Council framework action, timeline, re-initiation of Biological Opinion***

A GARFO team member noted there was no additional update regarding timing of the re-initiation of the Biological Opinion. He shared guidance to keep a reasonable range of alternatives, which should be broad enough to encompass several types of measures to enable a broad suite of tools to reduce sturgeon

bycatch. Removing any alternatives based on inability to enforce should be clearly documented with a clear rationale. The measures that are harder to enforce but result in a meaningful reduction in sturgeon bycatch should be retained. The overall focus of this action is to reduce sturgeon bycatch in order to meet the reasonable and prudent measures of the Biological Opinion. The team discussed the need to balance capturing a broad range of measures while also keeping the action timeline on track in terms of analysis workload and a spring 2024 deadline for final action. They also discussed that the measures need to be feasible so if there is good clear information that something isn't going to be enforceable, achieve a conservation benefit, or the outcome is unlikely to be what was envisioned by the action, those measures should be removed.

### **Monkfish:**

*Alternatives recommended for inclusion by the FMAT/PDT:*

1) Closures

- *Rationale:* The team discussed the importance of continuing to include multiple types of measures to address sturgeon bycatch, including the use of small time/area closures.

2) Gear restrictions: low profile gillnet gear in New Jersey (NJ) hotspot region

- *Rationale:* Fishermen have provided mixed feedback on the use of low-profile gear in the monkfish gillnet fishery. Some have spoken in favor of it as an option to reduce sturgeon bycatch while many have said it is not viable. The team discussed that low profile gear has been tested specifically in the NJ area and studies show that this gear can reduce sturgeon bycatch in this area. To maintain multiple types of measures in the action, the team recommended including low profile gear within the range of alternatives for monkfish to be applied for specific bycatch hotspot areas, namely NJ. The gear restriction is not included for the Southern New England (SNE) hotspot area due to lack of testing in this region. The team recommended retaining the low-profile gear requirements in the NJ hotspot area as part of the range of alternatives and recommended additional discussion by the Joint Monkfish and Dogfish Advisory Panel and Committee to better understand feasibility of implementation. Given the gear has not been tested for the dogfish fishery or in SNE, the team recommended adding this to the team's research recommendations.

3) Area options (would apply to closures and gear restrictions)

Area alternative 3: Smaller areas that encompass SNE and NJ hotspots, using straight lines that approximate the shoreline to encompass hotspots (estimating 6-9 miles offshore).

- *Rationale:* The team discussed that this polygon approach that approximates the shoreline may allow more flexibility to fully capture hotspots. They discussed that the hotspot maps will need to be updated through 2022 (data are currently through 2020) and this may shift edges. This method was preferred over the 10-minute square approach by enforcement due to the potential for an area boundary with more than four sides if an odd number of squares captures a hotspot. The team felt that both methods are valid, however they are meant to achieve the same goal of creating a small area around a hotspot, so selecting one over the other is recommended rather than analyzing both. They discussed that the 10-minute square approach could be adapted to create four smooth sides, however based on the increased flexibility of the parallel lines to shore approach, it was selected as the better option. They also discussed that some buffer may be warranted to help prevent shifting effort or account for sturgeon seasonal behavior. Sturgeon are found offshore in late fall and winter and come

inshore and move up from the south to NJ estuaries. In the fall they move out to deeper waters but do not track south. Because of this, in the springtime a nearshore closure may capture the hotspot and in winter a broader area may be needed.

- 4) Time options (would apply to closures and gear restrictions)
  - (a) Southern New England
    - i) May 1-31
    - ii) June 1-30
    - iii) For closures: 1, 2, 3, or 4 week periods within timeframes in a-i and a-ii
  - (b) NJ hotspot
    - i) December 1-31
    - ii) May 1- 31
    - iii) For closures: 1, 2, 3, or 4 week periods within timeframes in b-i and b-ii
    - iv) For low profile gear in NJ hotspot: year-round
- *Rationale:* The team did not recommend changes to the previously recommended time options for gear restrictions or closures for monkfish alternatives. The time periods currently included in the range of alternatives were developed using observer data on sturgeon takes on monkfish targeted trips through 2022 so will likely not need to be updated.

**Other Monkfish Considerations:** The team noted that regulations for protected species (e.g., harbor porpoise) should be evaluated to inform any closures. Prior input from the Coast Guard included a caution to avoid only having short periods to fish between any closures given that can lead to safety issues with going out in worse conditions and potentially a race to fish. The team also recommended using updated data (when available) to determine which measures would apply to this federal Council action and which would be a recommendation to ASMFC for a state action.

*Alternatives recommended for removal from range of alternatives:*

- 1) Soak time restrictions
  - *Rationale:* The team discussed that soak times that are greater than 24 hours may not result in a reduction in sturgeon bycatch overall because it does not necessarily reduce the amount of gillnet effort or chance for interaction with sturgeon. For example, a fisherman may haul in their gear and immediately reset the gillnet back into the water. Longer soak times have been associated with increased sturgeon mortality, however the goal of the action is to reduce the bycatch of sturgeon overall, not the bycatch mortality. The team noted that a shorter than 24-hour soak time is not feasible for the monkfish fishery given the locations and processes of the fishery. In addition, prior input from the Coast Guard and OLE noted that soak times are most likely unenforceable, especially in fisheries with limited Vessel Monitoring System use.
- 2) Management area option #1 statistical areas
  - *Rationale:* The team discussed that statistical areas are very large and low-profile gear restrictions and/or closure would likely have a substantial impact to the monkfish fishery.
- 3) Management area option #2 10-minute square
  - *Rationale:* The rationale for removing the 10-minute square approach is described in more detail under the area options to be included above. The team thought the parallel lines to

shore approach created more flexibility to encompass the bycatch hot spots than the 10-minute square approach.

### **Spiny dogfish:**

*Alternatives recommended for inclusion by the FMAT/PDT:*

1) Soak time restrictions: no overnight soaks

- *Rationale:* based on preliminary data analysis based on observer data, restricting soak times to daytime only would likely achieve sturgeon bycatch reduction and would allow the spiny dogfish fishery to continue to operate within a hotspot area, as opposed to an area closure. The team discussed that this was the only soak time restriction that seemed likely to reduce sturgeon interactions because nets would be removed from the water overnight. They also noted that this soak time restriction was likely more enforceable than soak times of 24 hours or greater.

2) Closures

- *Rationale:* The team discussed the importance of continuing to include multiple types of measures to address sturgeon bycatch, including the use of small time/area closures.

3) Area options (would apply to soak time options and closures):

Area alternative 3: Smaller areas that encompass NJ and DE/MD/VA hotspots, using straight lines that approximate the shoreline to encompass hotspots (estimating 6-9 miles offshore).

*Rationale:* As described under number 3 for monkfish above, the team discussed that this polygon approach that approximates the shoreline may allow more flexibility to fully capture hotspots. They discussed that the hotspot maps will need to be updated through 2022 (data are currently through 2020) and this may shift edges. This method was preferred over the 10-minute square approach by enforcement due to the potential for an area boundary with more than four sides if an odd number of squares captures a hotspot. The team felt that both methods are valid, however they are meant to achieve the same goal of creating a small area around a hotspot, so selecting one over the other is recommended rather than analyzing both. They discussed that the 10-minute square approach could be adapted to create four smooth sides, however based on the increased flexibility of the parallel lines to shore approach, it was selected as the better option. They also discussed that some buffer may be warranted to help prevent shifting effort or account for sturgeon seasonal behavior. Sturgeon are found offshore in late fall and winter and come inshore and move up from the south to NJ estuaries. In the fall they move out to deeper waters but do not track south. Because of this, in the springtime a nearshore closure may capture the hotspot and in winter a broader area may be needed.

4) Time options (would apply to soak time options and closures)

(a) NJ hotspot

- i. November 1 – December 31
- ii. April 1 – 30
- iii. For closures: 1, 2, 3, or 4 week periods within timeframes in 1a and 1b

(b) DE/MD/VA hotspots

- i. December 1 – January 31
- ii. March 1-31
- iii. For closures: 1, 2, 3, or 4 week periods within timeframes in 2a and 2b

- *Rationale:* The team did not recommend changes to the previously recommended time options for soak time restrictions or closures for spiny dogfish alternatives. The time periods currently included in the range of alternatives were developed using observer data on sturgeon takes on spiny dogfish targeted trips through 2022 so will likely not need to be updated.

**Other Spiny Dogfish Considerations:** The team noted that regulations for protected species (e.g., harbor porpoise) should be evaluated to inform any closures. Prior input from the Coast Guard included a caution to avoid only having short periods to fish between any closures given that can lead to safety issues with going out in worse conditions and potentially a race to fish. The team also recommended using updated data (when available) to determine which measures would apply to this federal Council action and which would be a recommendation to ASMFC for a state action.

*Alternatives recommended for removal from range of alternatives:*

- 2) Management area option #1 statistical areas
  - *Rationale:* Statistical areas that contain the hotspots are very large and any soak time restriction and/or closure would likely have a substantial negative impact to the spiny dogfish fishery.
- 3) Management area option #2 10-minute square
  - *Rationale:* The rationale for removing the 10-minute square approach is described in more detail under the area options to be included for dogfish above. The team thought the parallel lines to shore approach created more flexibility to encompass the bycatch hot spots than the 10-minute square approach.
- 4) 24-, 48-, and 72-hour soak time restrictions
  - *Rationale:* The team discussed that soak times that are greater than 24 hours may not result in a reduction in sturgeon bycatch overall because it does not necessarily reduce the amount of gillnet effort or chance for interaction with sturgeon. For example, a fisherman may haul in their gear and immediately reset the gillnet back into the water. Longer soak times have been associated with increased sturgeon mortality, however the goal of the action is to reduce the bycatch of sturgeon overall, not the bycatch mortality. In addition, prior input from the Coast Guard and OLE noted that soak times are most likely unenforceable, especially in fisheries with limited Vessel Monitoring System use.

*Research recommendations*

Council and GARFO staff provided an update to the team on the use of data loggers based on Council and GARFO staff conversation with Carrie Upite (NMFS Protected Resources) and her team on August 22. Data loggers have currently been tested on trawl vessels but the technology could be applied to the gillnet fishery. The team recommended exploring future use of this tool as a research recommendation given the tool is not yet viable to enforce gillnet soak times as a management measure at this time. This tool would be helpful in enforcing soak time restrictions which would address sturgeon mortality. The goal of the current action is to reduce overall bycatch, however, if a future ESA issue required the reduction of sturgeon bycatch mortality, data loggers may become a useful tool.

As previously stated, the team also suggested testing the low-profile gillnet gear in the spiny dogfish fishery and in the Southern New England region given the prior testing occurred in the monkfish fishery in New Jersey.

#### *Dataset considerations*

The Team recommended compiling a single, comprehensive dataset for all FMAT/PDT members to use for future analyses. The group discussed several considerations when pulling the data:

- Filter data by the ratio of the number of hauls that encountered sturgeon and the total number of hauls. The total number of hauls is defined by the total number of hauls where monkfish and spiny dogfish are caught and recorded by the observer as either TARG1 or TARG2 species for gillnet trips with mesh size  $\geq 5''$  by week, overlaid by 10-minute squares. This approach will help account for any difference in observer coverage levels and will allow the FMAT/PDT to adjust management measures by other time intervals (e.g., monthly or by spring/fall) if weekly data pose confidentiality concerns. If there is time, the team recommended including the total number of sturgeon interactions by haul.
- Use TARG1 and TARG2 to define monkfish and spiny dogfish fisheries, as recorded by the observer. Monkfish and skate are caught on the same trip so it is important to include records where monkfish is not listed as the TARG1 species, for example. This is consistent with what was done in the Sturgeon Action Plan.
- Include only records that denote ‘spiny dogfish’ as target species and exclude records for ‘smooth dogfish’ and ‘unknown’ records. Spiny dogfish is the only dogfish species managed by the MAFMC.
- Subset data based on two mesh size groups: 1)  $\geq 5'' - < 7''$  and 2)  $\geq 7''$  based on how the spiny dogfish and monkfish fisheries operate.
- For soak duration analyses, recommended using a 15-hour soak time to represent the longest day in summer. This can be further refined based on any development of seasonal measures.
- Include data from 2015 – 2023. The time period from 2015 to 2020 was used in the Sturgeon Action Plan and the team thought including more recent data would be helpful to account for recent fishing activity. Including the earlier years with the more recent data would be helpful to provide more confidence in the data and results. The group noted that 2023 observer data is only currently available through April, which represents a partial year. The longer time series can be used to evaluate whether bycatch trends have been consistent over time and could be refined as needed.

#### *Further data needs*

The Team identified the following as additional data needs:

- Differentiating sturgeon interactions between state and federal fishing

The Team also recommended reiterating to the Joint Committee and Councils the number of vessels responsible for sturgeon takes in the bycatch hotspot areas. The team noted that in general, sturgeon takes are occurring by a large number of vessels participating in these fisheries, it is not only a few vessels that are catching sturgeon. There are some occurrences where a specific haul may catch a lot of sturgeon, however, it was discussed that often fishermen let each other know when they catch sturgeon and will move away from the area to avoid further interaction. In terms of high numbers of sturgeon caught by a

small number of vessels it was discussed that 11 vessels had greater than 10 takes each in the NJ hotspot statistical areas. There were 30 vessels in New Jersey and 33 vessels in Delaware/Maryland/Virginia that had sturgeon takes in these hotspot areas from 2015-2022.

***Follow up items***

The Team agreed to the following next steps:

- FMAT/PDT to review summary of today's recommendations and to-do's
- Council staff will send outcomes of NEFMC and MAFMC September and October meetings, respectively, to FMAT/PDT in early October. After a range of alternatives is clear, the dataset can be compiled.
- Bridget to pull data and send to Jason B. in October
- Jason B. to begin analyzing data in November

***Other business***

None discussed. The Team meeting adjourned at approximately 4 p.m.



## Consideration of data loggers to monitor gillnet soak durations

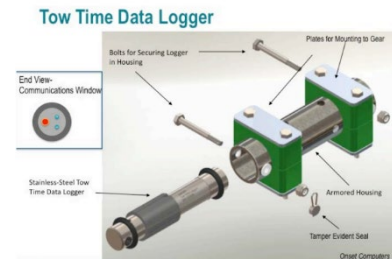
September 2023

### Previous research ([Matzen et al. 2015](#))

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#### Data logger technology

- Developed to monitor and enforce trawl durations
- Detects when a tow has exceeded a specified threshold
- Takes depth measurement every 30 seconds
- “Alarm” event recorded in file when tow duration exceeded
- LED blinks every 4 sec to confirm the unit is operational
- LED can also indicate if alarm event has triggered
- Welded to trawl door in a housing made of polypropylene and stainless pipe clamps
- Tamper-evident seal placed in bolt; indicates if nut has been loosened to access the unit



#### Results

- Deployed on 9 trawl vessels with 7 different target species
- Tested short- and long-term deployments
- 954 hauls recorded over 897 days
- Battery lasted multiple years (longest deployment >3 yrs)
- Depth readings were tested dockside and found to be accurate
- Tow duration verified in study where tow times were kept in haul log and determined consistent
- Stored ~ 3 months of haul data
- No failure due to shock or vibration
- Only issue was pressure sensor clogged with silt substrate on deep deployments (~200 m). Corrected by installing a filter through the pressure access holes.

### New research - second generation data logger

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#### Specifications

- Measure time the unit is submerged below a specified depth
- Tamper resistant and tamper evident (physical unit and data)
- Expanded data storage (one year at a sampling rate of once every 30 seconds when submerged)
- Operate on iOS and potentially a limited number of android platforms
- Battery life of at least one year
- Means (alert) by which enforcement can determine if duration has been exceeded
- Unique serial number on the logger and the data recorded
- Final cost <1K per unit





### *Next steps*

- Request proposals to develop logger with new technology
- Then will partner with trawl vessels to test the operational feasibility
- Once feasibility testing is complete, evaluate for potential management application

### *Items to be determined*

- Location
  - Logger does not record location of the haul
  - Exploring options for linking logger data to location data:
    - Stand-alone GPS
    - Linking to AIS, VMS, or VTR
- Data collection and transfer
  - Exploring options:
    - On board wireless transfer to tablet/phone
    - On board transfer to tablet/phone using a shuttle (previously tested in Matzen et al.)
    - Autonomous data upload to cloud database via cellular or satellite
  - Once collection and transfer are determined, need to clarify how exceedances are reviewed

### **Applicability to gillnet fisheries**

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- Likely work for gillnet fisheries
- Would likely need to redesign the housing
- Consideration of the number of loggers required per net and/or string
- Consideration of whether there could be issues with transferring data from multiple loggers
- Ideally develop one technological approach/database across applications (e.g., trawl, gillnet, other) to reduce confusion and streamline data handling