Pelagic Longline Take Reduction Team
Webinar
September 26, 2019

Key Outcomes Memorandum

I. OVERVIEW

NOAA's National Marine Fisheries Service (NMFS) convened the Pelagic Longline Take Reduction Team (PLTRT or the Team) via webinar on September 26, 2019 to provide updates on the following:

- Progress and timing of the proposed Pelagic Longline Take Reduction Plan (PLTRP) amendment
- Pilot whale research pertinent to the PLTRP

This summary, prepared by the meeting facilitators and NMFS, provides an overview of the meeting's key outcomes. It is presented in six main sections: (1) Overview; (2) Participants; (3) Presentations; (4) Public Comment; (5) Key Discussion Themes; and (6) Next Steps.

II. PARTICIPATION

The following team members participated in the call: Bill McLellan, Damon Gannon, Tim Werner, David Kerstetter, Brendan Cummings, Sharon Young, Jane Davenport, Martin Scanlon, Jeff Oden, and Laura Engleby. Andy Read, an alternate, participated as a presenter.

The webinar was convened by PLTRT Coordinator Erin Fougères; Scott McCreary with CONCUR, Inc. and Bennett Brooks with the Consensus Building Institute facilitated the discussion. NMFS staff from the Southeast Regional Office (SERO) included Kara Shervanick, Jessica Powell, and David Hilton. Lance Garrison from the Southeast Fisheries Science Center (SEFSC) participated in the webinar as a presenter.

Other participants included Jaclyn Taylor (NMFS HQ Office of Protected Resources), Lawrence Beerkircher (SEFSC Pelagic Observer Program), Keith Mullin (SEFSC), and Katie Moore (U.S. Coast Guard). Lesley Thorne (Stony Brook University) and Joe Fader (Duke University) participated as presenters. Five members of the public participated.

III. PRESENTATIONS

Below is a brief summary of the introductions, updates and presentations provided during the meeting. This summary is not intended to be a meeting transcript. Rather, it provides an overview of the main topics covered, any primary points and options raised in discussion, and any areas of full or emerging consensus.

A. Welcome, Introduction and Agenda Review

After a review of participants, S. McCreary opened the meeting then provided an overview of the meeting agenda followed by the meeting purpose and objectives. B. Brooks reminded participants of the Team's informal protocols intended to foster productive dialogue.

B. Pelagic Longline Take Reduction Team/Plan Updates

E. Fougères reviewed the regulatory and non-regulatory consensus outcomes from the most recent meetings – December 2015 in-person and October 2016 webinar. She also provided an update on the proposed rule status and expected timing. She noted that NMFS plans to reconvene the Team during the proposed rule public comment period (expected in early 2020), taking into account the fishermen's schedules.

Several Team members commented on the delay in rule progress, expressing frustration at the slow pace and seeking to understand and anticipate whether future rulemakings are likely to move forward at a similar pace. The Agency acknowledged a number of challenges which have caused delays including staff limitations and competing priorities in the region (Deep Water Horizon restoration and other Natural Resource Damage Assessment restoration cases), in addition to the partial federal furlough.

C. Abundance, PBR, and bycatch updates

L. Garrison started by providing abundance and PBR updates since the last meeting. PBR increased from 159 to 236 due primarily to the increased precision in the population estimate relative to the estimate from 2011. High observer coverage in the first quarter of 2016 and 2017 (driven by increased observation of the bluefin tuna fishery) returned to lower levels in 2018, resulting in lower observer coverage overall and less coverage in the northern part of the Mid- Atlantic Bight (MAB) and all of the North East Coastal (NEC) area. L. Garrison noted that the next abundance survey will be conducted in 2021.

Spatial and temporal patterns in interactions for 2016-2018 were similar to those in prior years. The five-year average estimated mortality and serious injury (2014-2018) was 156.42 compared to the PBR of 236. However, L. Garrison noted that observed bycatch rates are highest in the MAB in the late 3rd and 4th quarters, which is consistent with what has been observed in prior years as the fishery makes its way north to areas with higher concentrations of pilot whales at that time. Bycatch of pilot whales per set was highest in September (nearly 0.5 pilot whale per set) and decreased incrementally through the 4th quarter.

L. Garrison noted that, in general, sets from 2014-2018 tended to have reported mainline lengths consistent with regulations (under 20nm in MAB) when compared to longer reported mainline lengths from 1992-2013. Furthermore, he looked at sets by area by quarter from 2015-2018, noting that while sets in the MAB tended to have mainlines less than 20nm, there was still evidence of multi-sets in the MAB, specifically in the 3rd and 4th quarters.

Finally, L. Garrison reviewed the use of different hook types and associated bycatch and serious injury rates in the fishery. During 2016-2018, the fishery used primarily 16/0 hooks in the MAB and was dominated by the Eagle Claw 2048 and Mustad 39960 hook types. Though not highlighted during the webinar, the increased use of these hook types is a change from prior years when approximately 61% of sets reported using LGPN-LPCIRBL hook types (2013-2015, presented to the team in December 2015). One interaction resulting in a serious injury was observed on the M-39988D (Gulf of Mexico "weak" hook), but the

interaction did not involve hooking of the animal. The observed interaction and serious injury rates were higher than the mean in sets using the Eagle Claw 2048 hook type; however, this observation is likely confounded with spatial and temporal variability in catch rates.

One team member inquired about the status of the animals that were released alive and if they were able to do that on their own, or if it was through the intervention of the crew. L. Garrison noted that it is almost always by intervention because those animals were extensively entangled in the mainline.

Another team member noted that recently implemented Northeast Canyons and Seamounts Marine National Monument may be responsible for the change in the distribution of fishing effort observed in 2018.

D. Short Finned Pilot Whale Tagging and Photo ID Research

A. Read presented an update of Duke University Marine Lab's research on movement of short- finned pilot whales based on telemetry and photo identification. The focus of the telemetry research was deploying satellite tags on short-finned pilot whales in two main study areas - off Hatteras, NC (79 animals) and off Jacksonville, FL (8 animals) - over the past decade. The results suggested that animals tagged off Hatteras had three primary movement modes: 1) moving north along the shelf break, then spending a period of time in canyons along the shelf before returning; 2) moving into pelagic waters, where they then appear to track eddies and fronts in the Gulf Stream; and 3) heading south (though in much smaller numbers). Animals tagged off Jacksonville moved north with the Gulf Stream, then south to the Bahamas and finally repeated that behavior forming large circles.

Home range and core areas developed using the telemetry data showed that there was quite a bit of overlap between core areas for pilot whales and longline activity. The data was also used to infer the behavior of animals, showing that the shelf break from North Carolina north appears to be important foraging habitat for the pilot whales (though they are also using pelagic waters for transiting). Behavior off Florida was quite different from the north.

The study also used photo identifications from 6 primary catalogs to assess animal movements. The study found the following matches: Norfolk and Hatteras (24; 2007-2017); Hatteras and Onslow Bay (3; 2007-2018); Hatteras and the Gulf of Mexico (6; 2004-2014); Onslow Bay and the Bahamas (5; 2009); and Jacksonville and the Bahamas (7; 2007-2015). The matches off Hatteras underscore the importance of that area as a place of frequent return and higher density. Additionally, A. Read noted that that several of the matches, particularly those between Hatteras and the Gulf of Mexico and the U.S. and the Bahamas, suggest that it is increasingly unlikely that there are separate stocks in the Atlantic and Gulf of Mexico and may even extend into the Caribbean. He recommended the Agency incorporate photo-ID and telemetry data, in addition to genetics, to determine stock structure of short-finned pilot whales for future SARs.

E. Spatiotemporal patterns of overlap between pilot whales and the PLL fishery

L. Thorne presented her research on pilot whale habitat use relative to the shelf break, overlap relative to rates of bycatch, and the use of predictive habitat models to identify potential hotspots for bycatch. In her work, tags were deployed from 2014-2015 and showed a close association with shelf break from North Carolina north.

More than 75% of all locations occurred within 10km of the shelf break and more than half (57%) occurred within 5km of the shelf break. These data also allowed researchers to highlight areas of pilot whale foraging, which showed significantly higher foraging effort close to the shelf break and in submarine canyons.

To assess spatial overlap between longlines and pilot whales, the study used the satellite tag data to examine the spatial distribution of pilot whales, logbook and Pelagic Observer Program (POP) data to examine the spatial distribution of longlines, and bycatch rates calculated as number of pilot whales caught per set from the POP data. Study results showed significant overlap of pilot whales and longline effort close to the 1000m isobath. Longline sets were primarily concentrated around the 1000m isobath, pilot whale distribution occurred just inshore of the 1000m isobath, and observed bycatch, and the bycatch rate, were highest inshore of the 1000m isobath.

Additionally, researchers found that pilot whales were consistently located inshore of 1000m isobaths from June through December but longline sets exhibited greater variability around the 1000m isobath. There was a strong and significant relationship between monthly pilot whale- longline overlap and monthly bycatch rates relative to the 1000m isobath in both 2014 and 2015. The highest bycatch rates primarily occurred in fall and winter months, when longline effort shifted inshore near the 1000m isobath. There were no consistent trends between bycatch and longline overlap relative to SST.

Finally, L. Thorne detailed the predictive habitat model her team built to predict pilot whale occurrence at longline sets. The results suggest two key findings:

- Predictive models of pilot whale habitat use can be used to accurately predict times and places with a high risk of pilot whale bycatch
- Combining pilot whale habitat models with near real-time or forecasted environmental conditions could provide a promising tool for predicting where pilot whales are going to occur, and could be used to develop adaptive management strategies to mitigate bycatch

F. Move on Recommendations and Research

J. Fader presented research on space-time patterns of pilot whale interactions in the Atlantic longline fishery. Space-time patterns are events correlated in both space and time. For example, eddies or groups of whales moving across the ocean are coordinated in both space and time. This principle can be applied to bycatch of pilot whales for the longline fishery.

Using observer-collected depredation and bycatch data from 2000-2017, and statistically removing effects of only space or only time, he quantified risk of pilot whale interactions in

the MAB for every combination of space and time out to 200 nm and 20 days. The product is a heat map that shows excess risk attributable to space-time interactions at each of these space-time thresholds. Thus, if a depredation or bycatch event were to occur, the likelihood of an additional event occurring close in space and close in time increases. For pilot whale interactions, the effect of moving away in space reduced risk more than moving away in time.

Examining 17 years of data indicates that the background interaction (depredation) rate on a set- by-set basis was about 13%. However, if a whale interaction (i.e., depredation or bycatch) is observed, the risk of an additional interaction is higher if fishing operations continue nearby in space and time. For example, the risk exceeds 30% if setting within 1-2 days and 20nm of the observed interaction. This representation of risk is simply an observation of the data, and not calculated statistically. However, the results are consistent with the statistical approach described above, such that the risk of repeat interactions is persistent in time and may be reduced most effectively by moving away in space.

While L. Thorne's research was focused on large-scale predictions, J. Fader's research focused on what happens after a fishing interaction with whales is observed, providing tools that can be used to appropriately respond if an interaction occurs. Pilot whales may aggregate in time and space, thus moving spatially (and temporally if possible) is most effective to reduce risk. This strategy, though, does not account for the trade-offs of moving.

Team members acknowledged that captains' communications to report locations of interactions, warn other captains, and motivate shifting location, was an element to the original TRP regulations. J. Fader noted that this research is based only on observed data and the advantage is the ability to look at data over 15 years to assess effectiveness and amount of benefit.

IV. PUBLIC COMMENT

A few public comments were offered. One member of the public explored the potential merits of collecting hooks from interaction events to gain insight into gear effectiveness in bycatch avoidance, though this step was viewed as a difficult ask, given that collecting gear is external to observer duties and, in many cases, whales are released with the gear. Another member of the public posed a clarifying question on the geographic area subject to the proposed regulations, once they are implemented.

V. KEY DISCUSSION THEMES

Fishery effort reduction and shifts. Team member D. Kersetter noted that total effort and total number of boats has gone down and asked L. Garrison if that had been accounted for. L. Garrison explained that total estimated interactions accounts for effort and that decline in interactions could be a factor of effort reduction or bycatch rate reduction.

Team member M. Scanlon noted that a set of factors may have contributed to reduced fishing effort or bycatch in the Northeast. These factors included the designation of a Marine National Monument, illness on the part of some captains, and mechanical breakdowns.

The 1000m isobath.
Team member M. Scanlon suggested that in the Mid-Atlantic, following J. Fader's presentation, that the captains are choosing to fish offshore of the 1000m isobath to avoid interactions with pilot whales.

A member of the public asked how much flexibility the fishermen have to fish beyond the 1000m isobaths. Team member M. Scanlon replied that it depends on the target species and the basin fished.

VI. NEXT STEPS

- L. Garrison will take a closer look at interactions with hooks that meet the hook requirements in the consensus recommendation.
- L. Garrison will explore mining observer program data for information that is recorded on the captain's actions taken to avoid additional interactions.
- Facilitation team will work with the Agency to prepare and distribute a Key Outcomes Memorandum (this document)
- NMFS SERO will keep the team apprised of status and timing of work on rule development. The agency anticipates scheduling a webinar during the public comment period for the Proposed Rule in early 2020.