

## 2016 Abstracts



# NOAA FISHERIES

### SUBMON

Assessing the occurrence and severity of decompression sickness in marine turtles incidentally captured by trawl fisheries.

The main objective is to gather information regarding the incidence of decompression sickness (DCS) in sea turtles incidentally captured by trawl and associated environmental factors, and its associated postrelease mortality. A second objective is to write a set of guidelines on best handling techniques for trawl captured turtles, in order to minimize the post-release mortality and/or further consequences in survivors. Two researchers will work on board a South Brazilian trawl fishing vessel during 2 trips in summer (Jan.- Feb.) and 2 trips in winter (July-Aug.), examining all incidentally captured sea turtles. A total of 20 animals (10 each season) will be fitted with pop-up tags to find out the animal's post-release behavior and mortality rates.

### University of North Carolina – Wilmington

Assessment of fisheries interactions with East Pacific leatherback turtles at foraging grounds off the coasts of Colombia and Panama.

The objectives of this study are to: 1) Conduct bycatch assessment surveys with small-scale and industrial fishers at major ports in Columbia and Panama to document interactions with and direct mortality of leatherback turtles in this region. 2) Use survey data to compare the nature and frequency of leatherback turtle interactions between fisheries operating in this region. 3) Use survey data to identify spatial and temporal patterns in fisheries interactions with leatherback turtles, and remotely sensed data to characterize environmental conditions associated with interactions. 4) Conduct workshops with fishers to share survey results, promote best practices for handling and releasing captured turtles, and foster cooperative relationships to facilitate future studies. 5) Cooperate with broader, region-wide initiatives (LaudOPO, NFWF) to characterize bycatch of leatherback turtles in the fisheries of Central and South America and inform management decisions regarding conservation targets under threat reduction scenarios.

### Mote Marine Laboratory

Improving cost-efficiency and monitoring duration in the study of post-release mortality in highly migratory species.

The proposed work is an expansion of NOAA/NMFS-funded work that is proving highly successful and efficient in documenting the post-release mortality of large coastal sharks. The novel accelerometer/VHF tag package that the lead PI has developed for this work not only provides more detailed and definitive information on animal outcomes than conventional satellite tagging methods, but can do so for 1/7th of the cost. One weakness of this approach is that highly mobile species can only be monitored for 1-2 days, because their tags must be searched for and

recovered using VHF telemetry. Here, we propose to develop a new ADL-float package that will allow us to recover tags over longer monitoring durations (and shark displacement distances) by incorporating new satellite transmitter/pinger technology for package recovery. It will allow us to collect up to a week of fine-scale ADL data providing definitive information on animal mortality and/or recovery, while also ensuring that tag packages are found and recovered so they can be re-used multiple times.

### University of New England (UNE)

Determining the discard mortality rate of Barndoor skates in existing non-directed gillnet fisheries II: Implications for the development of new and sustainable skate seafood markets.

During the 2017 fishing season, this project will evaluate the physical injury of Gulf of Maine (GOM) Barndoor skates immediately following capture by sink gillnet gear during dedicated research trips conducted under fishery-dependent conditions. The objectives of the proposed study are to inform the development of a commercial-scale, sustainable harvest of a rebounding resource by: (1) Characterizing the vitality and condition of 2,872 Barndoor skates captured as part of a previous exempted fishing permit study; (2) Tag 50 Barndoor skates with pop-up satellite archival (PSAT) tags to quantify the post-release mortality rates and; (3) Integrate the new satellite data with the previous vitality data to quantify fishery wide post-release establishment of appropriate landings limits for this species.

### University of California – Santa Cruz & University of Maryland – Center for Environmental Science

El Nino Watch revised - An improved index for reducing Loggerhead Turtle bycatch in the California Current.

This project will re-examine the DGN seasonal El Niño closure rule by developing a habitat-based model of loggerhead turtle occurrence and using regional oceanographic variables to develop an improved, spatially- and temporally-explicit closure rule. Primary objectives are to: 1) Develop a habitat model for loggerhead turtles in the California Current that incorporates the comprehensive suite of available loggerhead turtle datasets and environmental observations. 2) Use newly collected satellite telemetry and aerial survey data to validate the models. 3) Develop an improved closure rule, based on regional environmental data, which will be made available through a new web-based platform hosted by the NOAA CoastWatch Program and incorporated into existing efforts to inform the California drift gillnet fishery fleet of areas of high-bycatch risk.

### Cascadia Research Collective (CRC)

False killer whale movements in relation to longline fishing activity: assessment of interactions using satellite tag and fisheries data to develop best practices to reduce bycatch.

The main objective is to examine the relationship between movements of satellite-tagged pelagic false killer whales and longline fishing effort, as well as environmental variables that may be influencing their movements, using both existing data and additional data collected during the grant funding period.

Analyses of movements of satellite-tagged false killer whales in relation to longline fishing effort from logbook and observer data will be undertaken using data obtained through a dedicated field effort to be undertaken offshore of Hawai'i Island, and combined with existing data being analyzed under a current BREP grant project. Multiple satellite tags would be deployed on each group encountered to track movements and examine spatial spread of groups; above and below-water photographs would be obtained to examine fisheries-related scarring to assess the likelihood of previous fishery interactions by the group.

### University of New Hampshire

An innovative approach to bycatch reduction in the mouth of a trawl gear.

The recent collapse of the Gulf of Maine cod stock is a threat to the survival of the fishing industry and local fishing communities. The challenge for fishermen now is to catch other abundant, valuable groundfish such as flounder while minimizing the catch of cod to the greatest extent practicable. Therefore, this project will test an innovative trawl with a low fishing opening and guiding ropes in the form of a deflector panel, that is designed to target flounder, including yellowtail flounder, winter flounder, witch flounder, and American plaice, while greatly reducing the incidental catch of the path of the trawl.

### Gettysburg College

Can you hear me now? Development of acoustic deterrent devices to reduce sea turtle bycatch in fisheries.

During field trials in 2014 and 2015, it was found that the presence of active low-frequency acoustic devices on gillnets reduced mean catch rates of green sea turtles by 65%, indicating that this strategy may be an effective BRT. This project will refine newly developed ADDs for application in multiple fisheries, and continue field trials of ADDs in gillnet fisheries in Baja California, Mexico.

### Pacific States Marine Fisheries Commission

Addressing Marine Mammal Entanglement in the West Coast Dungeness Crab Fishery.

This project will begin with baseline studies on line profiles and working loads of crab pots providing important information needed to develop gear modifications that reduce the potential for marine mammal entanglement while also reducing the potential for losing the gear. A two-day workshop will be held with fishermen, fisheries managers, gear manufacturers, marine mammal experts and others to generate and prioritize ideas for new gear and practices to minimize whale entanglement. Workshop findings will be distributed to industry groups to encourage awareness of efforts and to help identify additional fishermen willing to test gear. Fishermen in each state will then test gear modifications prioritized at the workshop during regular crabbing operations.

## University of Maryland Eastern Shore

Cold-water corals in the Mid-Atlantic Bight: Density, age, condition, and fishing impacts.

Alcyonaceans are one of the most common habitat forming invertebrate types in the DelMarVa region of the Mid-Atlantic Bight, and previous work has shown that they are highly vulnerable to damage by passive fishing gear. This project will assess the condition, age, and extent of damage to Alcyonaceans that comprise significant portions of EFH in the Mid-Atlantic Bight. Sampling of habitat sites will be conducted by Scuba at depths <25 m, and by ROV at depths >25 m. Alcyonacean ages will be validated by comparing annuli estimates (growth ring counts) to known age of artificial reefs where they exist, and send specimens to experts, including the Smithsonian Institution, for species validation and genetic typing. Prior to conducting fieldwork, the project will examine NMFS photographic databases from surveys conducted in the MAB for additional information on Alcyonacean distribution and health. In addition, the project will hold damaged and undamaged specimens in the laboratory for long-term studies of age-validation, growth, and damage recovery.

## Texas A&M University

Refining rapid recompression techniques in Gulf of Mexico Red Snapper using descending devices and a unique acoustic telemetry approach.

This project will combine acoustic telemetry, barotrauma indices, and recreational angler participation to determine optimal use strategies for descending devices with the goal of maximizing survival of discarded Red Snapper in the Gulf of Mexico. This study will build upon strong previous data to make definitive determination for the best use practices with these devices. This information will provide fishery managers with empirical decision making criteria for discard mortality and engage the angling community in integrating descending devices into the recreational fishery. Overall objectives are to: 1) Determine the effectiveness of rapid recompression strategies using descending devices for increasing survival of discarded Red Snapper at a range of depths; 2) Link barotrauma impairment to release condition to predict fate of discarded fish and how barotrauma severity influences mortality; and, 3) Assess the potential for integrating descender devices into the recreational fishery.

## University of Rhode Island

The Flatfish Deflector Bar: Excluding Flatfish from Scallop Dredges in the Northeast.

This project involves a collaborative research approach to test a gear modification to a sea scallop dredge. The overall objective of this research is to reduce the bycatch of flatfish without impacting the catch of scallops by adding a Flatfish Deflector Bar (FDB) to a sea scallop dredge. Three Limited Access General Category (LAGC) scallop vessels will fish for 12 days each using their standard scallop dredge and then attaching the FDB to that dredge in an alternating fashion. A minimum of 7 hauls of minute duration per day is expected for a total of 144 pairs. All flatfish captured in each haul will be measured for total length and each species weighed for total weight. Sea scallops will be weighed for total weight per haul. Underwater video will

be taken of the FDB to record fish behavior in relation to the gear. Analyses will be conducted to compare the catch weight of flatfish and scallops between hauls when the FDB is used and not used. Mean length and length-frequency distributions will be compared for flatfish as well.

## HT Harvey and Associates

U.S. West Coast Commercial Dungeness Crab Gear—Field Performance Characteristics and Regional Variations in Gear Deployment.

Working with commercial Dungeness crab fishermen from Oregon and California, engineers from Woods Hole Oceanographic Institution, and scientists from National Oceanic and Atmospheric Administration (NOAA) Fisheries, the project will document underwater buoy line profiles (e.g., curves, loops), measure line tension under varying conditions, and evaluate the in situ visual contrast of the buoy lines. In addition, we will document regional or situational differences in how the gear is configured—differences likely to affect key variables, such as line profile—to determine the range of potential entanglement threats posed by the fishery and to establish a basis for gear and fishing practice modifications.

## University of Hawaii

The effects of condition and handling on post-release mortality rates of shark bycatch in longline fisheries: Identifying "best practices" and improving survival rates.

This is a satellite tagging study to quantify post release mortality rates and identify the 'best handling practices' that improve survival probability in sharks discarded in the Hawaii based tuna longline fishery. The results of this work will be disseminated as a set of standards and "best handling practices" to the fishing community in Hawaii, American Samoa and beyond. The ultimate goal of this project is to increase the probability of sharks' survival after their release from longline gear. The results of this work will have global implications in reducing the impacts that longline fishing has on shark populations worldwide through the use of standard practices to maximize post-release survival. Furthermore, the satellite tag data generated in this study will provide rigorous estimates of fishing mortality to better inform stock assessments of shark species interacting with longline fisheries.

## Pacific States Marine Fisheries Commission

Artificial light: Its effect on the overall escapement of Chinook salmon out a bycatch reduction device.

The objective of this study is to determine the effect that artificial light has on the overall escapement of Chinook salmon out a bycatch reduction device (BRD) by comparing their escapement between tows conducted with and without the use of artificial light. Chinook salmon escapement rates will be quantified using a recapture net. The order in which the BRD is fished with (A) and without (B) artificial light will be randomly selected (e.g., ABAB, ABBA). A series of Lindgren-Pitman LED Electralume® fishing lights (color = blue) will be used to provide illumination. Light levels will be measured using Wildlife Computers TDR-MK9 archival tags. Positive (fish caught in recapture net) and negative (fish caught in

trawl codend) counts will be collected and analyzed using a two-independent-proportions test to determine if Chinook salmon escapement rates are significantly influenced by artificial light. This research will occur over 14 days of gear testing aboard a chartered Pacific whiting fishing vessel.

### **Cornell University Cooperative Extension of Suffolk County**

Bycatch Avoidance Network Approach Expanded to Include SNE/MA Yellowtail Flounder in the Groundfish Fishery.

CCE will expand our successful bycatch avoidance network to include SNE/MA common pool and sector vessels in the groundfish fishery in order to maximize catch and minimize bycatch of SNE/MA yellowtail flounder. The avoidance network will provide the fleet with a system to collect, report and receive information at sea. Fishermen will report observations of yellowtail “hot spots” while engaged in fishing activities. In turn, CCE will compile the information and send it back to active vessels via Boatracs and online, allowing the fleet to gain valuable information about distribution of the species in order to either maximize the catch under the quota or avoid bycatch “hot spot” areas if the quota is exceeded. This project is critical at this time since the SNE/MA yellowtail flounder stock is overfished and overfishing is occurring. CCE staff will also conduct 25 at sea observer days with participating vessels active in the common pool or sectors fishing for SNE/MA yellowtail flounder. This at-sea component will be performed in order to monitor and facilitate proper procedures in reporting events.

### **Pfleger Institute of Environmental Research**

Assessing catch and release mortality and movements of bigeye thresher sharks caught using deep-set buoy gear.

This project will support and align with previous BREP funded research and document post release survival and depth distribution of BET discarded in a new west coast fishery. The work will entail cooperative fisher involvement and provide movement information that will be used to tailor current fishing techniques to further avoid non-target interaction. This study will also entail a diverse outreach platform and the production of outreach materials focused on best handling practices in the deep-set buoy fishery for swordfish.