Finding of No Significant Impact for the Use of 'Surprise Net' Technology to Decrease or Eliminate Predation of Pre-weaned Hawaiian Monk Seal Pups by Sharks in the Northwestern Hawaiian Islands, Pacific Islands Fisheries Science Center, Hawaiian Monk Seal Research Program, Honolulu, Hawaii

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National Oceanic and Atmospheric Administration Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. '1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant in making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

1) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in Fishery Management Plans (FMPs)?

Response: No. The surprise net will be deployed in a very limited area (i.e., three islets) at French Frigate Shoals. Moreover, because the study site is within the Papahānaumokuākea Marine National Monument, strict measures will be taken to eliminate damage to coral and habitat. Fishing gear will be deployed only over sandy bottom substrate, which will be minimally impacted.

2) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

Response: No. Although using the surprise net will result in more efficient capture of Galapagos sharks preying on Hawaiian monk seal pups, the sharks' predatory behavior on nursing pups is atypical, having been observed at only one site (French Frigate Shoals), despite monitoring of shark and monk seal behaviors at all other NWHI locations. Galapagos sharks' typical prey includes demersal fishes and cephalopods. Moreover, data indicate that only a small subset of the Galapagos shark population at FFS is preying on seal pups, and removal efforts will be targeted at these individuals. The proposed activities will therefore have minimal impact on overall Galapagos shark predator-prey relationships.

The activity will also help ensure the continued existence of the FFS subpopulation of Hawaiian monk seals, a critical component of the ecosystem. In 2008, 12 nursing pups died or disappeared (30%) out of 41 births at FFS, with eight of the losses due to Galapagos sharks. This level of mortality cannot be sustained by the seal subpopulation at FFS, where the total subpopulation and annual pup production are projected to continue declining for the foreseeable future due to a consistently unbalanced age structure.

3) Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety?

Response: No. The surprise net will be deployed in remote areas which are not accessible to the public and will be monitored at all times, so there is no chance that any of the materials could be transported into public areas. The research staff will implement appropriate safety measures and take the necessary precautions to minimize risks while deploying the surprise nets.

4) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

Response: No. Potential effects of the surprise net on endangered or threatened species and marine mammals have been evaluated and will cause no adverse impact. Mitigation measures will be in place during all activities. Namely, the surprise net will not be deployed if such species (e.g., Hawaiian monk seals, green turtles), are within the arc of the net, either in the water or on the beach. If a protected species should become entangled, use of the surprise net will be terminated until revised methods are developed.

The surprise net will be deployed only when Galapagos sharks are within the arc inscribed by the net, and will therefore not be actively fishing at other times. The area inscribed by the arc of the net is small (<150 m^2), and will have very limited bycatch of the few fish species which occur in shallow water (< 5m) habitat over sandy bottoms. The mesh size of the net will be large enough to allow small fish to escape. Finally, the surprise net will be retrieved as soon as it is deployed, and any non-target species remaining in the net will be expeditiously released to prevent mortality. The proposed action will have a less than significant effect on protected species. No ecosystem-level effects due to this research are anticipated because the project affects a small sample size of individuals in a localized region, therefore minimizing potential effects on a greater geographic scale.

5) Are significant social or economic impacts interrelated with natural or physical environmental effects?

Response: No. Use of the surprise net is a short-term field activity that would have no impact on social or economic activities in the affected areas.

6) Are the effects on the quality of the human environment likely to be highly controversial?

Response: No. The proposed activity involves small-scale, short-term gear deployment in restricted, remote areas, and will have a minimal effect on the quality of the human environment. The removal of any animal may be considered controversial by certain groups that oppose human intervention to benefit one species over another. Nonetheless, the small beneficial effect of controlling this known source of monk seal pup mortality exceeds the minor controversy of shark removal. The Galapagos shark population in the action area is robust, while the Hawaiian monk seal is at risk of extinction.

7) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

Response: No. The proposed activity will occur within a unique area, the Papahānaumokuākea Marine National Monument, and is therefore subject to strict measures and conditions of the Monument permitting process. Adhering to these conditions will avoid substantial impacts to the resource.

8) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

Response: No. The surprise net has been developed and used successfully to capture marine mammals. The PIFSC adaptation and modification of the net to capture sharks presents few additional risks. PIFSC is taking action to mitigate these potential risks by developing protocols to avoid unexpected outcomes (i.e., entanglement of non-target species including humans, injury risk related to capturing shark, entanglement on coral, destruction of habitat). Moreover, deployment of the net will be tested in controlled environs without the presence of sharks prior to any use in the NWHI and mitigation activities will be further refined after the tests.

9) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

Response: No. The use of surprise nets is a short-term field activity, minimally affecting existing robust populations of elasmobranchs in the affected geographic areas. Non-target species, including both protected species and other non-target marine organisms, are not anticipated to be affected, therefore avoiding cumulatively significant impacts.

10) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

Response: No. The proposed activity will occur at great distance from any districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. Similarly, no cultural or historical resources are present at the study site. The procedures will not cause loss or destruction of scientific resources.

11) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?

Response: No. The proposed activity is not expected to result in the introduction or spread of a nonindigenous species. The species involved in the proposed research activities are native to the study regions. Deployment and transfer of both equipment and personnel will be bound by strict quarantine procedures which are delineated as part of the Monument permitting process, to prevent introduction of both terrestrial and marine species. Such procedures have been standard practice for the Protected Species Division for many years within the Monument, as well as within USFWS Refuges prior to creation of the Monument.

12) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

Response: No. The purpose of the activity is to use more efficient and selective procedures to reduce or eliminate a localized, unique phenomenon. A suite of contingencies has been developed which must be met in order to continue the activity, as well as circumstances which would lead to cessation of predation control measures. The latter circumstances include evidence that shark predation on seal pups were to continue despite deterrent or removal efforts. The research will have little effect on future decisions regarding large-scale predator removal because large-scale predator removal has already been considered and rejected.

13) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

Response: No. The proposed activity complies with applicable Federal and state environmental regulations, including applicable permit requirements. Monument permits authorizing the activity will be in place before any research is conducted.

14) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

Response: No. This research involves short-term, localized, and highly targeted field activities. These activities would result in minimal impacts on existing robust populations of elasmobranchs in the affected geographic areas. Non-target species, including both protected species and other non-target marine organisms, are not anticipated to be affected. The proposed action would have less than significant impacts both individually and cumulatively on target and non-target species.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Supplemental Environmental Assessment of the Program for Decreasing or Eliminating Predation of Pre-weaned Hawaiian Monk Seal Pups by Galapagos Sharks in the Northwestern Hawaiian Islands, conducted by Pacific Islands Fisheries Science Center, Hawaiian Monk Seal Research Program, Honolulu, Hawaii, it is hereby determined that such research will not significantly impact the quality of the human environment as described above and in the supporting Supplemental Environmental Assessment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary.

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Responsible Program Manager

5/15/2010
Date