



MARINE MAMMAL COMMISSION

10 March 2010

Hawaii Board of Land and Natural Resources
Attn: Board Members
1151 Punchbowl Street, Rm. 130
Honolulu, HI 96813

Dear Members of the Board of Land and Natural Resources:

On behalf of the Marine Mammal Commission, I am writing to urge your approval of the permit application submitted by the National Marine Fisheries Service to kill up to 20 Galapagos sharks at French Frigate Shoals. The request is a central part of management efforts to reduce shark predation on Hawaiian monk seal pups. As discussed below, we believe the proposed action is warranted for the following reasons:

1. Each year of the past decade sharks have killed approximately 20 to 33 percent of all monk seal pups at French Frigate Shoals. This colony's abundance has declined by two-thirds over the past two decades and reducing shark predation is necessary to maintain monk seals as functioning components of the atoll ecosystem;
2. Direct observations indicate that a small number of Galapagos sharks (i.e., a few 10s of animals) have caused the problem; they appear to have developed a search image for Hawaiian monk seal pups;
3. Such predatory behavior by Galapagos sharks does not appear to be typical and, indeed, the sharks involved represent only a very small fraction of the French Frigate Shoals Galapagos shark population.
4. Because the few sharks involved comprise a very small portion of top predators in the waters in and around the atoll, their removal would have a negligible effect on the atoll ecosystem.

On 2-4 December 2009 the Marine Mammal Commission held its annual meeting in Honolulu. The principal reason for meeting in Hawaii was to review the status of recovery efforts for Hawaiian monk seals. During our review we examined information related to the magnitude of shark predation on monk seal pups, results of ongoing studies to assess the status and movements of Galapagos sharks at French Frigate Shoals, and plans by the Service to mitigate this problem. Based on our review, the Commission believes that the actions proposed by the National Marine Fisheries Service to remove up to 20 Galapagos sharks from this atoll are warranted and will not have a significant effect on the Galapagos shark population or other components of the atoll ecosystem.

First, the problem of shark predation for monk seal recovery at French Frigate Shoals is significant. Over the past two decades, the largest component of the decline in total monk seal abundance has been a sharp drop in their numbers at French Frigate Shoals. By the mid 1980s, this monk seal colony had become the species' largest, producing more than half of all monk seal pups. Its subsequent decline has been driven primarily by high rates of juvenile mortality. A variety of factors have contributed to this problem, including a substantial increase in shark predation. Reasons for the increase in shark predation are uncertain and this problem seems to be unique to

French Frigate Shoals. In the mid-1990s, predation exceeded one-third of all pups born at the atoll. That rate is now somewhat lower, about one-fourth last year, but it is still far greater than the rate at any other atoll. Undoubtedly, shark predation is a significant factor limiting monk seal survival to breeding age at French Frigate shoals and steps to minimize shark predation are urgently needed at this site.

Second, the Service's proposed actions to catch Galapagos sharks near pupping beaches are well-placed and warranted. Almost all monk seal deaths attributed to sharks have involved pre-weaned or newly weaned pups that remain very close to the shores of pupping beaches (generally within 10s of meters). Also, all observed attacks on monk seal pups have involved Galapagos sharks. These observations led the Service to hypothesize that (1) a small number of Galapagos sharks had learned to patrol pupping beaches to catch monk seal pups and (2) removing those sharks would eliminate or reduce predation. The Commission originally considered this hypothesis to be likely and has supported Service proposals to catch sharks near pupping beaches as a precautionary measure. However, at that time the Commission also believed that more information was needed to substantiate the hypothesis and recommended research to investigate shark movement and foraging patterns.

Subsequent research further supports the hypothesis that only a few sharks are involved. The National Marine Sanctuary Program, with assistance from the National Marine Fisheries Service, funded a study by the Hawaii Marine Biological Institute to tag Galapagos and tiger sharks (the only other shark likely to prey on monk seal pups) at French Frigate Shoals. Preliminary results of the study were reviewed at our meeting. They indicate that the Galapagos shark population at French Frigate Shoals likely numbers at least several hundred. Almost all of them appear to use deep water habitat over the reef slope outside the atoll lagoon. However, a very few individual Galapagos sharks are repeatedly found inside the atoll. These results are consistent with the earlier understanding that use of shallow waters by this species is rare. The research also indicates that the best place to catch those individual sharks that do occur inside the lagoon is over open sand flats. The Service's efforts to catch sharks within 400 meters of pupping beaches will occur over open sand flats and will target that small portion of the population known to patrol pupping beaches and prey on monk seals.

Third, limiting the catch to no more than 20 Galapagos sharks will prevent a significant effect on either the French Frigate Shoals shark population or the ecosystem. Twenty sharks is less than 10 percent of the French Frigate Shoals Galapagos shark population, only a very small fraction of any total allowable catch level as might be calculated and considered sustainable for commercial fishing purposes. Because the number of sharks to be caught also is low compared to other far more abundant top predators in lagoon waters (e.g., ulua), the shark removal likely would not have a measureable effect on predation rates for any species other than monk seals. Finally, efforts to catch and release sharks in the lagoon during shark tagging studies demonstrates that bycatch of other species, most of which can be released alive, poses no significant risk.

For these reasons, the Commission considers the limited Galapagos shark removal proposed by the National Marine Fisheries Service (1) appropriate and necessary for the conservation of the colony of monk seals at French Frigate Shoals, (2) exceedingly unlikely to have more than negligible effect on the atoll shark populations or ecosystem, and (3) well designed for the purpose of selectively removing those sharks likely to prey on monk seal pups. Regarding the last point, the Commission also believes that the Service should have a range of options for removing the targeted sharks to ensure they are caught with minimal bycatch of non-target species.

Finally, the Marine Mammal Commission recognizes and appreciates concerns about catching and killing sharks in a Monument designated to protect marine life. Nonetheless, the overriding goal of the Monument is to maintain a healthy marine ecosystem. The proposed removal of up to 20 sharks is an unpleasant but necessary task to recover the French Frigate Shoals Hawaiian monk seal colony as a functioning element of the atoll's ecosystem. Fortunately, doing so poses virtually no risk to the atoll's shark population or the atoll's biological community. The Marine Mammal Commission therefore urges the Land Board to approve the National Marine Fisheries Service's permit application and all its component parts as requested.

Thank you for considering the Commission's comments and views. Please contact me if you have any questions.

Sincerely,



Timothy J. Ragen, Ph.D.
Executive Director