

Fisheries Interactions and Population Conservation

SHORT-TAILED ALBATROSS ARE A CRITICALLY ENDANGERED SPECIES, WITH A TOTAL POPULATION OF ONLY ABOUT 2,500 INDIVIDUALS. THESE PELAGIC SEABIRDS ARE BY FAR THE NORTHERNMOST-BREEDING SPECIES AMONG THE NORTH PACIFIC ALBATROSS, AND THEY FREQUENT WATERS OFF ALASKA, RUSSIA, AND JAPAN THAT ARE HEAVILY FISHED BY COMMERCIAL FISHERIES.

Short-tailed albatross have been killed in commercial fishing gear in Alaska, and the longline and trawl fisheries operate under "incidental-take" limits for this species under the Endangered Species Act. The commercial fishing fleet in Alaska has taken admirable measures to avoid incidental take of short-tailed albatross, implementing requirements for "streamer line" avoidance measures for the hook-and-line groundfish and halibut fisheries.

The Board has supported two linked projects that use satellite telemetry to measure albatross habitat use, combined with satellite remote-sensing measurements of habitat characteristics, chemical analyses of albatross diet, and NOAA fisheries effort and seabird bycatch data. Despite recent population increases, short-tailed albatross remain exceptionally vulnerable, in large part because they nest on only two small, unstable islands. The short-tailed albatross recovery team determined that the establishment of additional colonies is of utmost importance to the recovery of this species, so NPRB funded a study of translocation to more stable islands.

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Survival of Short-Tailed Albatross

Project 723

TO GIVE US MORE INSIGHTS INTO THE OVERLAP between short-tailed albatross marine habitat and commercial fisheries, and to increase short-tailed albatross population growth and stability, NPRB funded Project 723, which translocates chicks to less vulnerable breeding sites than on active volcanoes.

Volcanically active Torishima supports 85% of the breeding population, while the other 15% breed on Minami-Kojima Island (Senkaku Islands group), whose ownership is disputed by Japan, China, and Taiwan.

Island, an uninhabited, non-volcanic, and politically stable Japanese island. The translocation itself is a relatively small part of the work. Afterwards, the chicks must be hand-reared for three months until they reach fledging age.

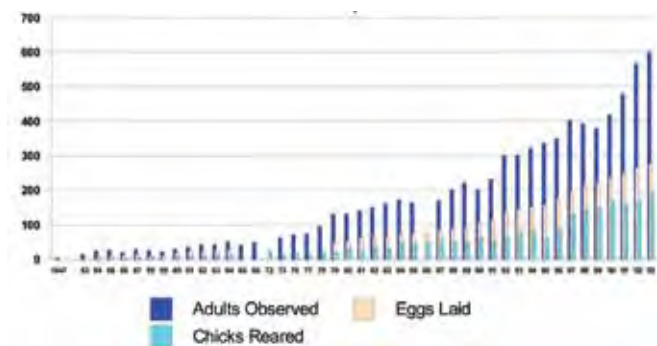
The investigators are measuring several variables of both normally reared chicks at Torishima Island and hand-reared chicks at Mukojima Island to allow them to quantify the success of the translocations, and are using satellite transmitters to evaluate the range and habitat choices of both populations.



The investigators, a collaborative team of U.S. and Japanese scientists, remove a small number of chicks from Torishima Island and carry them via helicopter to Mukojima

A short-tailed albatross chick translocated from Torishima is hand-reared on Mukojima, Japan, 300 kilometers away.

Short-Tailed Albatross Population Data at Torishima



Short-tailed albatross population trend from 1947-2003 on Torishima Island, Japan.

FEATURE PROJECT

SEABIRDS :: Fisheries Interactions and Population Conservation

Overlap of Fisheries and Seabird Habitat

Projects 322, 532

TO HELP WITH FISHERIES MANAGEMENT AND SPECIES CONSERVATION, Project 322 sought to better understand short-tailed albatross distribution and marine habitat use. The investigators captured short-tailed albatross, both at sea and at their breeding colony off Japan, and attached satellite transmitters. Data from the satellite-tracked birds showed that short-tailed albatross had the greatest potential overlap with the sablefish fishery and others occurring on the continental shelf break and slope habitats in the Bering Sea and the Gulf of Alaska. Some birds also travelled onto the Bering Sea shelf, suggesting potential (although more limited) interactions with the walleye pollock and Pacific cod fisheries. This project also highlighted the need for more widespread use of longline seabird deterrent devices among regions and nations sharing responsibility for conservation of this imperiled species.

Albatrosses and Regional Fisheries

Using the same suite of research techniques, Project 532 extended the success of Project 322 to encompass all three albatross species commonly found in Alaska marine waters: short-tailed, black-footed, and Laysan albatross.

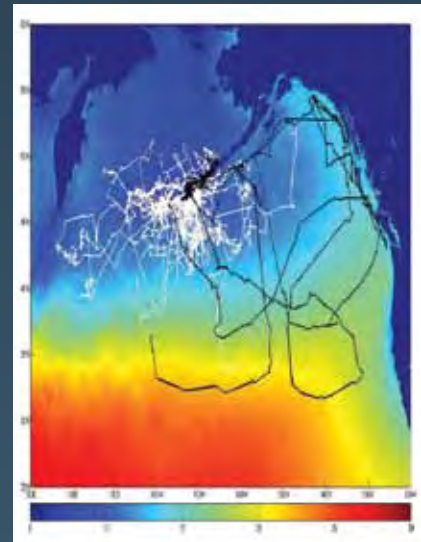
Albatross species showed important differences in foraging niches and habitat associations. Short-tailed albatross had the strongest association with continental shelf break and slope regions, although juveniles also frequented on-shelf habitats. Black-footed albatross were the most varied in habitat use, using all three depth domains of the continental shelf region to equal degrees but spending less time in oceanic waters, whereas Laysan albatross most often used oceanic habitats well off the continental slope.

The Bering Sea walleye pollock and Pacific cod fisheries had the greatest overlap with short-tailed albatross, whereas all three albatross species overlapped with the Aleutian Islands sablefish and Pacific halibut fisheries. Black-footed and juvenile short-tailed albatross had the greatest overlap with Gulf of Alaska fisheries and West Coast Pacific halibut and sablefish fisheries, and overlapped with a portion of the high seas tuna fishery. Overall, Laysan albatross had the least spatial overlap with North Pacific fisheries, spending the majority of time in areas devoid of fishing activities. Taken together, the results of Projects 322 and 532 provide an improved understanding of ecological relationships among North Pacific albatrosses and inter-specific differences in potential interactions with regional fisheries.

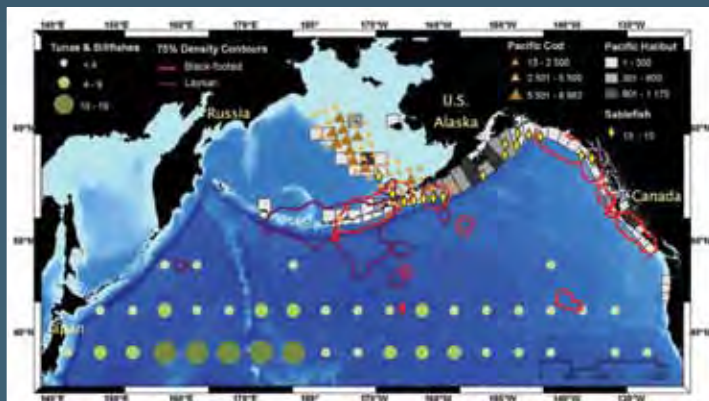


Albatrosses and fulmars with bait raft.

Rob Surgen



Tracks from all black-footed albatross (black lines) and Laysan albatross (white lines) captured near Seguam Pass, Aleutian Islands, Alaska (52.08° N, 172.95° W) superimposed over a composite image of sea surface temperature (°C) for the study periods (July-October, 2005 and 2006).



Overlap between black-footed and Laysan albatross 75% density contours of tracking hours and the spatial distribution of observed or reported longline fishing effort (thousands of hooks) in the North Pacific during July-October (years and data sources vary with fisheries). A portion of fishing distribution is not presented. Most notably, sablefish effort in the central and western Aleutian Islands is not displayed. Fishing effort for tunas and billfishes east of 150°W is underrepresented.