

North Pacific Pelagic Seabird Database

Semi-annual Progress Report for the
North Pacific Research Board

Project #: NPMRI 18

Title: North Pacific Pelagic Seabird Database (NPPSD): Compiling Datasets and Creating an Archive, Accessible Database, and Pelagic Seabird Atlas

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Project Summary: A number of large databases, yet to be synthesized, contain detailed information on the pelagic (at-sea) distribution of seabirds in Alaska and elsewhere in the North Pacific. In a collaborative effort between the U.S. Geological Survey (USGS), U.S. Fish and Wildlife Service (USFWS), and several independent investigators, we propose to compile all available data sets, archive the data in a common format, develop Windows-based tools for analyzing and mapping the data, and create web-based and hard-copy products for dissemination of the data to scientists, resource managers and the general public.

Data on the pelagic distribution and abundance of seabirds are critical for understanding the basic ecology of marine birds, monitoring population trends, assessing impacts of human activities, identifying critical marine habitats, and assisting seabird conservation. This project was initiated in 2001 through a cooperative agreement between the USFWS and USGS. Work commenced in 2002 and funding received in October 2002 from the North Pacific Research Board (via North Pacific Marine Research Institute) is being used to hire additional staff to work on the database for two years. The USFWS received funding for personnel time through Migratory Bird Management (MBM), with the goal to use the database for examining seabird-fisheries interactions.

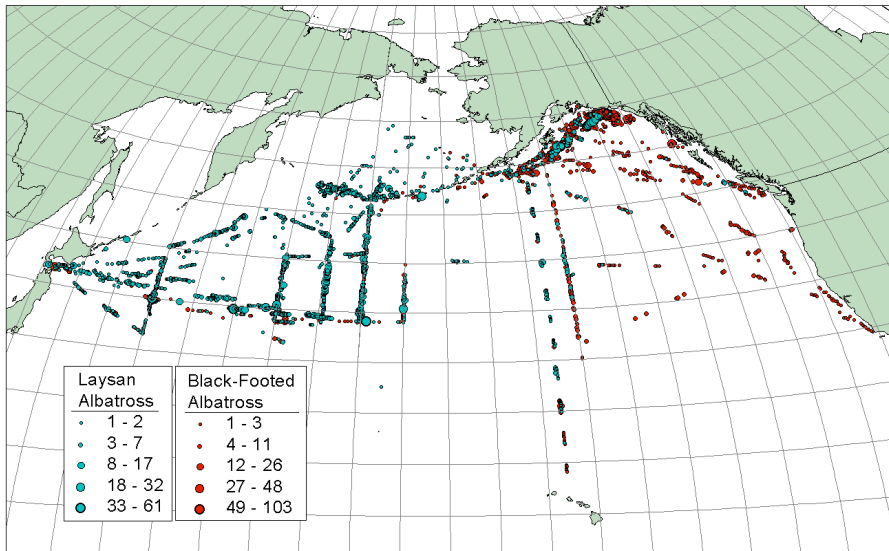
Progress Summary: The need for comprehensive geographic data on the pelagic distribution of seabirds in Alaska and the Northern Pacific has long been recognized. During the Outer Continental Shelf Environmental Assessment Program (OCSEAP) of the 1970's, millions of dollars were spent to gather these data in advance of oil development on Alaska's continental shelves. Ancillary data were routinely collected on environmental conditions (e.g., ice, temperature, salinity) and on marine mammals. This work culminated in an atlas on the "Pelagic Distribution and Abundance of Seabirds in the Gulf of Alaska and Eastern Bering Sea" (a 1982 FWS publication by Patrick J. Gould and others) that documented the at-sea distribution and abundance of 16 common seabird species in Alaska. Since the collection of the OCSEAP data, a large number of surveys have been conducted to determine the pelagic distribution of seabirds in Alaska. These data exceed the original OCSEAP database in size, and include extensive new data sets from areas that were poorly sampled in OCSEAP studies (e.g., SE Alaska, Prince William Sound, Cook Inlet, western Aleutians, western Bering Sea), as well as systematic and repetitive surveys in some of these areas.

The NPPSD project is still in development, and has just gotten started in earnest with the phases of acquiring these various datasets, cleaning them up, and organizing them into usable archives and a single database. During the most recent NPRB reporting period (Jul 1- Dec 31, 2002), we have concentrated on documenting metadata for the OCSEAP dataset and the FWS Prince William Sound (FWS-PWS) dataset, documenting methods used for data acquisition of both datasets, finalizing corrections to the OCSEAP and FWS-PWS datasets, inventorying FWS and USGS datasets, acquiring other datasets from principal investigators, locating and restoring old 9-track mainframe tapes with FWS and BRD data on them that may contain survey data sets not sent to NODC (National Oceanographic Data Center), developing and initiating a hire for an Information Technologist specialist to begin development of database programming and web interface (currently, this is on hold owing to lack of USGS budget and a hiring freeze).

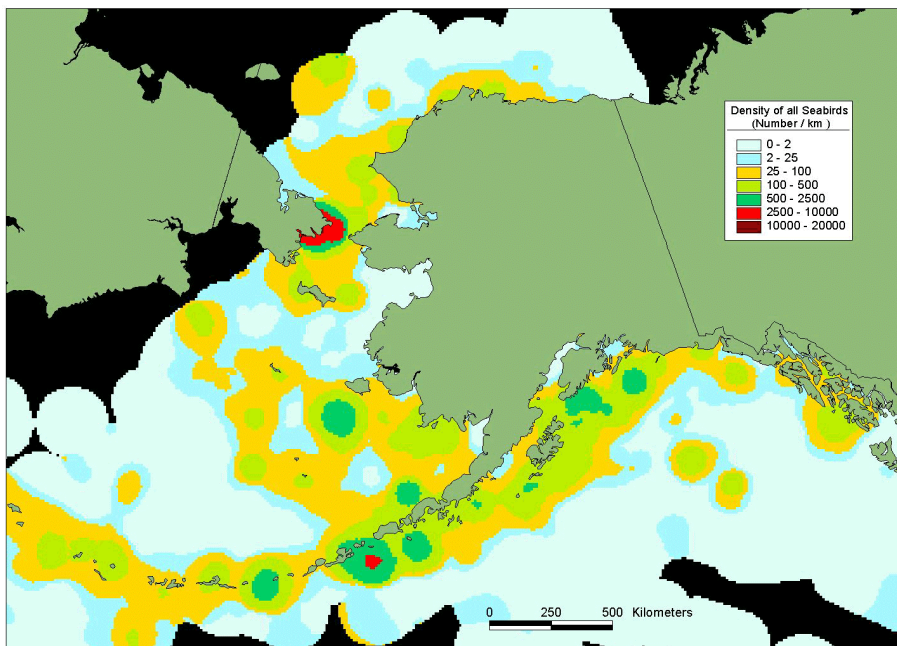
These activities do not, in themselves, yield products to report upon. However, we can report that the North Pacific Pelagic Seabird Database (NPPSD) currently consists of historical data collected primarily in the 1970s, but is being updated with more recent data from Cook Inlet, Prince William Sound, and Glacier Bay, and eventually will include data from a wide variety of sources. The NPPSD will be an ongoing project that will serve as a repository and server for future pelagic survey data from the North Pacific. The core of the NPPSD remains the OCSEAP dataset (242 surveys), comprising >60,000 standard transects with >325,000 records that document the environment, distribution and group size of >4,000,000 animals. During the process of importation to the Access relational database, numerous entry and cataloging errors were discovered in the digital data obtained from NODC. We have since verified these data through careful cross-checking of original data sheets (1000's), we have removed all identified errors and duplications and documented the data. The only remaining work to be done on the OCSEAP dataset is to look for OCSEAP data that were not archived at NODC (National Ocean Data Center), and to document metadata for individual cruises and trips in the database (both activities in progress).

Thus, the NPPSD is work in progress, but it is also already a usable database: We have provided information on seabird distribution to various government agencies for a variety of purposes (see below). For example, we provided the USFWS, the National Marine Fisheries Service, and the

North Pacific Fisheries Management Council with information about the pelagic distribution of Black-Footed and Laysan Albatrosses to examine the overlap between albatrosses and fisheries in Alaska (see following figure):

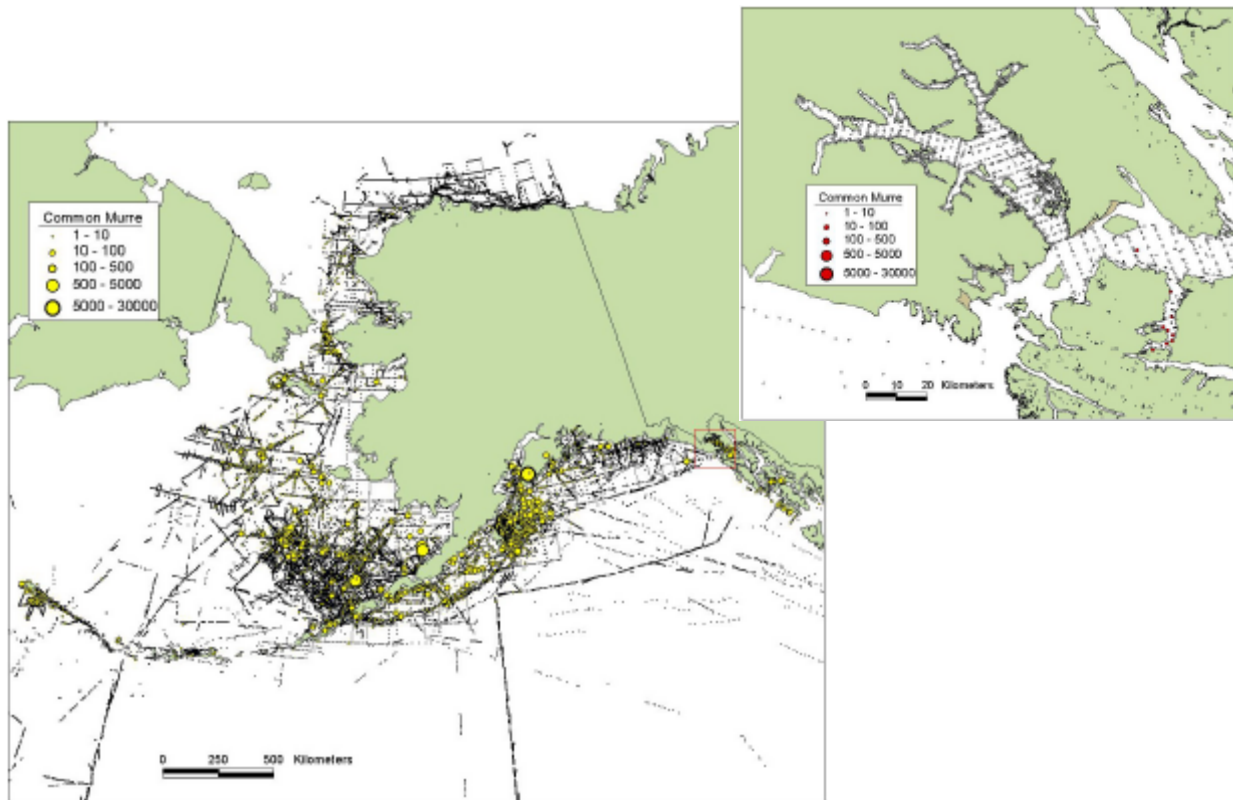


Additionally we provided distribution data on Kittlitz's Murrelet to the FWS for use in development of a status report on that species. We also provided the Minerals Management Service with a general broad-scale map of seabird distribution in Alaska to assist in the development of offshore drilling lease areas in the Gulf of Alaska (see following figure):



Density Strata were calculated from OCSEAP ship based survey data 1976-1984 as compiled in the North Pacific Pelagic Seabird Database (Version 11/20/02).

These types of products are built from underlying data sets which include extensive surveys of individual species in Alaska, as the following maps for Common Murres in Alaska (from OCSEAP data sets) and Glacier Bay (USGS data sets) illustrate:



For the remainder of the fiscal year, priorities for the North Pacific Pelagic Seabird Database project will be to acquire new data sets, document those data, and pull them into the NPPSD; develop programs for merging the various data sets that comprise the NPPSD and begin to develop a web interface for offering NPSSD data and maps on the web.