

PACIFIC SEABIRDS



A Publication of the Pacific Seabird Group

Volume 27 Number 2

Fall 2000



Dedicated to the Study and Conservation of Pacific Seabirds and Their Environment

The Pacific Seabird Group (PSG) was formed in 1972 out of a need for better communication among Pacific seabird researchers. The Group coordinates and stimulates the field activities of members involved in research and informs its members and the general public of conservation issues relating to Pacific Ocean seabirds and the marine environment. Group meetings are held annually and the PSG publication, *Pacific Seabirds* (formerly the *PSG Bulletin*), is issued twice a year. Current activities include involvement in seabird sanctuaries, seabird restoration after oil spills, seabird/fisheries interactions, and endangered species. Policy statements are issued on conservation issues of critical importance. Although PSG's primary area of interest is the West Coast of North America and adjacent areas of the Pacific Ocean, it is hoped that seabird enthusiasts in other parts of the world will join and participate in PSG. PSG is a member of the U.S. Section of the International Council for Bird Preservation, the International Union for Conservation of Nature (IUCN), and the American Bird Conservancy. Annual dues for membership are \$20 (individual and family); \$13 (student, undergraduate and graduate); and \$600 (Life Membership, payable in five \$120 installments). Dues are payable to the Treasurer; see Membership/Order Form next to inside back cover for details and application.

Pacific Seabirds

Pacific Seabirds (ISSN 1089-6317) is published twice a year, in the spring and fall, and contains news of interest to PSG members, including regional seabird research, conservation news, and abstracts of papers presented at the annual meeting. *Pacific Seabirds* is an outlet for the results of scientific research, especially those of regional interest. It also contains articles and shorter items on seabird conservation, seabird research activities, and other topics related to the objectives of PSG. All materials should be submitted to the Editor, except that conservation-related material should be submitted to the Associate Editor for Conservation. Back issues of the *Bulletin* or *Pacific Seabirds* may be ordered from the treasurer: please remit \$2.50 each for Vols. 1-8 (1974-1981) and \$5.00 each for Vol. 9 and later (see Membership/Order Form next to inside back cover for details).

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Permanent Address

Pacific Seabird Group
Box 179, 4505 University Way NE
Seattle, WA 98105

Editor

Vivian M. Mendenhall, 4600 Rabbit Creek Rd., Anchorage, AK 99516 USA. Telephone (907) 345-7124; Fax (907) 345-0686; Email: fsgadair@att.net.

Associate Editor for Conservation

Craig S. Harrison, 4001 North 9th Street, Arlington, VA 22203 USA. Telephone: (202) 778-2240, Facsimile: (202) 778-2201, E-mail: charrison@erols.com

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CONSERVATION NEWS

Craig Harrison

FEDERAL JUDGE CLOSES HAWAII LONGLINE FISHERY

In July, Honolulu US District Judge David Ezra closed the longline fishery in Hawaii and criticized the National Marine Fisheries Service (NMFS) for its "pathetic" efforts to place observers in the vessels. He said NMFS had to "play catch-up" because of its failure to prepare an environmental impact statement on the effects of long-lining on tuna and swordfish on endangered leatherback and threatened loggerhead turtles. He ruled that NMFS had failed to carry out the law and said his ruling would result in a "lean, more responsible" long-line industry. An unintended consequence is that this ruling also benefits seabirds.

Judge Ezra stated that "unrestricted long-line fishing will never happen again in the Pacific by American-based boats, not because of this court, but because that is what the law requires." NMFS and a long-line association had argued that his order, which includes placing a fisheries observer on every boat by July 26, would result in the closure of 95 percent of the fishery and result in lost revenues of \$44 million. The judge's modified ruling, which encompasses about 7 million square miles of ocean, came about after two environmental groups sued the fisheries agency in 1999 for failing to protect endangered leatherback and other sea turtles. Ezra ordered 1.5 million miles of ocean closed to longliners in November 1999.

"The law requires an injunction where the law has not been followed and the law has not been followed here," Ezra said. He also admonished Hawaii long-liners, saying they can no longer continue fishing wherever and whenever they want to. "It will never again be business as usual because

environmental laws will not tolerate it," Ezra said.

In response to the ruling, NMFS imposed stricter longline fishing regulations in three areas around Hawaii. All longline fishing is prohibited in Area A, north of the Hawaiian Island chain. A limited number of sets is allowed in Area B, where observers must be present on all longline fishing boats at all times. Tuna fishing but not swordfishing is allowed in Area C, where observers must be aboard 20 percent of the vessels by November. Swordfishing is more harmful than tuna fishing because swordfish swim at shallower depths, similar to the turtles.

Although foreign vessels are not affected by the closures, the United States will attempt to impose similar obligations by international agreement. In addition, an unintended consequence of this situation is that many longline vessels have moved to California ports and are fishing there, with potential negative effects on seabirds.

NMFS PROPOSES SEABIRD BYCATCH RULES FOR HAWAII LONGLINE FISHERIES

After four years of focusing on an education campaign, NMFS proposed (in July) regulations to limit seabird by-catch in Hawaii longline fisheries. Birds of concern in Hawaiian waters are black-footed, Laysan and Short-tailed Albatross. Given the recent closure of longline fisheries due to turtle concerns, it was presumed that NMFS would address seabird by-catch responsibly or risk fishery closures again because of damage they cause to seabirds. The two longline fisheries use different gear. Most seabirds and sea

turtles are caught with swordfish gear. This gear uses squid as bait; it is set shallow, which makes bait and hooks available to birds, and stays shallow throughout the soak. Tuna gear is set with a line-shooter so that the bait (sanma) will sink rapidly and stay deep throughout the soak. Thus the final mitigation measures should logically distinguish between swordfish and tuna longliners.

NMFS' proposal, which apparently is backed by the Western Pacific Fisheries Management Council, allows fishermen to "pick any two" mitigation techniques. The NMFS staff preferred requiring the most effective combinations of the various alternatives. For example, vessels that do not use a line-setting machine could be required to set at night, use blue-dyed and thawed bait, and to discharge offal strategically so as to minimize attraction of birds to the gear. Other techniques that are efficacious include towing a line with suspended streamers (tori line), or weighting the branch lines so that baited hooks sink quickly and birds cannot reach them.

The proposal applies only to vessels that fish above 25° North Latitude, while the NMFS staff suggested requiring mitigation measures to all longline fishing North of 23° North Latitude. The difference of two degrees essentially excludes about two-thirds of the fleet from mitigation measures. The proposed rule is silent on observer coverage, the absence of which resulted in Judge Ezra's shut down of the fishery for sea turtle conservation reasons.

NMFS must prepare an environmental impact statement to evaluate the impacts of longline fishing on sea turtles by April 1, 2001. The scoping process has begun, but unaccountably it contains no reference to seabirds. NMFS apparently has to be dragged

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kicking and screaming into the New Millennium.

HAWAII CONFERENCE ON BIOLOGY AND CONSERVATION OF PROCELLARIIDS

The Second International Conference on the Biology and Conservation of Albatrosses and other Petrels took place in May in Honolulu. Concerned about declining populations of many species, 150 researchers from 17 nations around the world, particularly the Southern Hemisphere, reviewed the latest research in long-line fisheries. John Cooper (BirdLife International, South Africa) chaired a workshop on fishery-caused mortality. Introductory presentations reviewed managing albatross interactions with pelagic longliners, mitigation for bird loss, FAO international action plans and other international guidelines. The workshop results will be published in *Marine Ornithology*. In short, it seems if boats were to deploy unfrozen blue-dyed baits at nights with tori poles or other scaring devices set up, a lot fewer birds would die. Also, a growing squid fishery using high-powered lights is a looming international problem.

Mark Rauzon (Marine Endeavors) chaired another workshop on Island Restoration and Predator Control, which reviewed successful and failed efforts to control predators. A "cook-book" approach to eradication was laid out. The attendees sounded an alarm regarding Newell's Shearwater declines and recommended that the species be upgraded from threatened to endangered. However, the discovery of a new colony of Dark-rumped Petrels on a sea stack off Kaho'olawe was encouraging news. It was urged that ship rats should be eradicated from Torishima, the major nesting colony for Short-tailed Albatrosses. Dr. Hiroshi Hasegawa reported that the Short-tail is increasing and now numbers over 1,500! But rats plague the island and

seriously undermine breeding of Tristram's Storm-Petrels and Black-footed Albatrosses

The Western Pacific Fisheries Management Council sponsored a Black-footed Albatross population biology workshop, coordinated by Kathy Cousins, National Marine Fisheries Service (NMFS). Ms. Cousins reported that the NMFS observer program was now collecting information on mitigation methods and bird abundance surrounding Hawaii longline fishing vessels. In addition, NMFS established a protocol for the collection and reporting of bird-bands to the U.S. Fish and Wildlife Service (FWS). The Council and NMFS are continuing to work cooperatively with other fishing nations to collect information on seabird/fishery interactions and methods to mitigation such interactions.

Elizabeth Flint (FWS) provided the most recent albatross population counts in the Northwestern Hawaii Islands. Recent counts of albatross colonies show a decline in the number of breeding pairs for Black-footed and especially Laysan Albatrosses. It is not clear yet whether overall populations of these species are declining; some birds may have opted not to breed during the past few years because of the recent strong ENSO events.

James Ludwig showed the locations of seven at-sea Black-footed Albatross band returns from an Indonesian trawler. The band returns occurred to the north and north east of the Northwestern Hawaiian Islands. From these band returns, Ludwig estimated that this one trawler could have incidentally caught up to 335 albatrosses in a single trip. Melanie Steinkamp reported on the findings of the Hawaiian Islands and Trust Territories Region of North America Colonial Water Bird Conservation Plan. She stated that she is working to standardize the data collection methods for each breeding site.

Nancy Hoffman (USFWS, Midway) updated the participants on Midway Island's long-term monitoring program and identification of monitoring needs, which is being conducted in cooperation with Peter Pyle. J.

Croxall offered to send details of the databases operated by the British Antarctic Survey for maintaining the capture-mark-recapture programs and recording of biological characteristics of the three albatross species.

Hiroshi Hasegawa reported on the Black-footed Albatross population on Torishima. The original colony of this species on Torishima has declined from 691 breeding pairs to 569 breeding pairs. However, the new colony on the opposite side of the island (established in 1989) has increased by 55 breeding pairs. It is unclear whether the increase in breeding pairs in the new colony is due to immigration from the original colony or if these are new birds.

--Mark Rauzon, Marine Endeavors

FWS AND NPS SPONSOR "RAT SUMMIT"

In July, the U.S. Fish & Wildlife Service and National Park Service hosted a rodent control/eradication meeting in San Francisco. The formal workshop title was "Protecting Island Ecosystems: Management of Non-Native Rodents." The conference brought together a wide range of interests, individuals, and agencies to learn more about the use of rodenticides for conservation of island ecosystems.

The conference was attended by about 40 invited participants, including representatives from EPA, manufacturers of rodenticides, and a wide variety of state and federal agencies with wildlife protection mandates. The three day meeting focused on presentations concerning the complexities and regulatory requirements that arise in the use of rodenticides for conservation, and discussed a unified approach that will allow use of rodenticides where no other practical or effective conservation tool is available.

Extremely informative talks were given by Dr. Bruce Colvin (Bechtel Corporation), Bill Erickson (EPA), Bill

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Jacobs (EPA) and Dr. Earl Campbell (U.S. Department of Agriculture). Other presentations discussed rodent eradication efforts in the US Caribbean, and plans to use rodenticides to eradicate or control rodents at a variety of other locations under United States jurisdiction. The group visited Alcatraz Island, where rat control efforts are underway and an eradication is being contemplated. Other planned operations include mouse eradication from the Farallon Islands, rat eradication from Anacapa Island, and eradication plans for a variety of locations in the Alaska Maritime National Wildlife Refuge. Special attention was given to the critical need for toxicant use in Hawaii, where many bird species are on the brink of extinction and introduced rodents are a primary threat to their continued existence.

The conference ended with a panel and group discussion about the challenges facing rodent eradication and control efforts for conservation purposes. Significant hurdles include (1) EPA registration for formulations and use patterns (e.g., aerial dispersal) of rodenticides that do not currently have EPA approval; (2) public concern about toxicity and health concerns and secondary poisoning; and (3) compliance with a variety of other federal and state regulations (e.g., National Environmental Policy Act, Endangered Species Act, Federal Insecticide Fungicide and Rodenticide Act, and the Migratory Bird Treaty Act).

At the end of the conference, the only consensus that was reached was that all parties will stay in close communication and continue to investigate how best to allow rodenticide use, under very controlled circumstances, for conservation purposes. There are concerns about secondary poisoning of birds, and the need for any project to do everything possible to minimize non-target impacts. Any such activities in the United States must ensure that reasonable and prudent methods are employed, and to avoid unnecessary rodenticide use for island conservation purposes.

--Bill Everett, Endangered Species Recovery Council

HISTORIC CONSERVATION FUNDING BILL NOT ENACTED

Despite widespread bipartisan support in Congress, the Conservation and Reinvestment Act (CARA), which would have provided the largest infusion of federal conservation funds in history, was not enacted. Instead, a relatively meager one-year appropriation of \$50 million seems on the verge of approval at press time [late November 2000]

An unprecedented national coalition of up to 10,000 organizations, businesses and elected officials supported securing permanent conservation funding through this legislation. The House of Representatives overwhelmingly passed it in May by a 3-1 margin. All 50 governors voiced support for these bills or their concepts and worked to move this legislation through Congress. Conservative western senators and the Clinton administration's desire not to offend the more radical environmental groups apparently derailed the legislation.

The bill would have provided \$40 billion over the next 15 years, most of which would have gone to state and local conservation programs. Of particular interest to PSG members is the \$350 million per year that would have been set aside for state-based wildlife conservation, education and recreation with an emphasis on preventing species from becoming endangered. In addition, this bill would have provided reliable funding for the Land and Water Conservation Fund, which is used for purchase of wildlife habitat. The Conservation and Reinvestment Act would have reinvested revenues earned from the depletion of oil and gas reserves on the outer continental shelf for the protection and enhancement of our wildlife and other natural and cultural heritage. This goal could have been

achieved by conserving important wildlife habitat, conducting field research to design wildlife management plans, and working cooperatively with private landowners in a non-regulatory, incentive based manner. This would have been especially important for non-game wildlife conservation efforts, which lack a permanent long-term funding source in most states, which leads many species to become endangered before a state wildlife manager has the funds to act on their behalf.

The sponsors of CARA have vowed to try again in 2001 with the new Congress and new president.

FWS LISTS SHORT-TAILED ALBATROSS AS ENDANGERED IN THE UNITED STATES

On 31 July 2000, USFWS issued a final rule that lists the Short-tailed Albatross (*Phoebastria albatrus*) as endangered throughout its range within the United States. As a result of an administrative error in the 1970 listing, the Short-tailed Albatross was listed as endangered throughout its range, except in the United States and US waters out to 3 miles. Short-tailed Albatrosses range throughout the North Pacific Ocean and north into the Bering Sea during the non-breeding season; breeding colonies are limited to two Japanese islands, Torishima and Minami-kojima. Short-tailed Albatrosses originally numbering in the millions, but it was nearly exterminated by harvesting for oil and feathers in the early 1900's. The current population of breeding-age birds is about 600 individuals and the worldwide total population is about 1,500 individuals. There are no breeding populations of Short-tailed Albatrosses in the United States, but several individuals are regularly observed during the breeding season on Midway Atoll. Threats to the species include destruction of breeding habitat by landslides caused by monsoon rains or by volcanic eruption, and genetic vulnerability due to low population

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size and limited breeding distribution. Longline fisheries, plastics ingestion, contaminants, and airplane strikes may also be factors affecting the species' conservation.

The extensive literature research and paperwork required for listing the species were carried out by Janey Fadely and Greg Balogh of Ecological Services, USFWS, Anchorage and Juneau.

CASPIAN TERNS WIN AGAIN IN COURT

As reported earlier (*Pacific Seabirds* 27:23, 2000), a Seattle federal judge enjoined the Army Corps of Engineers from hazing terns at Rice Island in the Columbia River in April. The Corps had been acting at the behest of the National Marine Fisheries Service. The judge agreed with the conservation organizations and ruled that the Corps must comply with the National Environmental Policy Act and prepare a full environmental impact statement before jeopardizing the tern colony. The Corps immediately filed an emergency appeal of this decision to the 9th Circuit Court of Appeals in San Francisco, which refused to lift the stay. The Army Corps of Engineers again appealed the order, which the 9th Circuit dismissed as moot in August. The District Court litigation is still alive and may be resolved by a final order soon. The terns will likely win yet again, and the ruling will establish law making it very difficult for the Corps to haze at Rice Island in subsequent years without complying with the National Environmental Policy Act.

SHOULD EAST SAND ISLAND BE A NATIONAL WILDLIFE REFUGE?

East Sand Island, Columbia River estuary, is one of the biggest seabird colonies in the Lower 48. PSG has

asked USFWS to acquire it as a national wildlife refuge. It contains the following:

- Brandt's Cormorant: 40 pairs on pilings. Use of artificial structures for nesting is very rare, and this is the only estuarine breeding location for this species.

- Brown Pelicans: FWS counted 1,200 roosting pelicans during a 1998 aerial survey, and 2,000 may be present at times.

- Double-crested Cormorant: On June 11, 1989, Douglas Bell recorded 91 nests in this relatively new colony. In 1999 7,000 pairs nested here, making this by far the largest breeding colony on the West Coast of North America (Alaska to Mexico). The next largest colony on the West Coast includes three sites in Mexico, each containing 1,500 pairs.

- Western/Glaucous-winged Gulls: The gull colony on East Sand Island also has increased tremendously in the last decade. On June 11, 1989, Douglas Bell recorded 880 pairs of Western/Glaucous-winged Gulls. Approximately 7,000 nesting pairs were present in 1999. Sand Island now is the second-largest Western or Glaucous-winged Gull colony on the US West Coast, the only larger one being on Southeast Farallon Island, California. (Both species nest and there are many hybrids).

- Caspian Terns: Roby et. al. reported 1,400 pairs nesting in 1999. In 2000, about 8,000 birds nested there, most having moved from nearby Rice Island, to make it the largest Caspian Tern colony on earth.

PSG ENDORSES RESTORATION PLAN FOR THE AMERICAN TRADER OIL SPILL

PSG wrote comments in July that generally supported the draft restoration plan for seabirds injured by the *American Trader* oil spill off Huntington Beach, California. The

trustees proposed spending about \$2.9 million for the following projects:

1. Creation, enhancement and protection of Brown Pelican communal roost sites,

2. Seabird nesting habitat restoration at Anacapa Island,

3. Public education and awareness, and

4. International efforts for Brown Pelicans (educational and protection activities, eradication of exotics on Baja islands, monitoring of populations).

PSG applauded the trustee agencies' decision to allow funds to be spent in Mexico to restore Brown Pelicans, which will have very high value for the damaged pelican population. PSG commended the agencies for applying sound ecological principles in their consideration of projects, and noted that in other restoration plans the trustee agencies insisted that restoration funds be used only at the location where the injuries took place.

PSG also endorsed competitive bidding for all projects. Sole-source contracts often cost much more for less return (and thus less benefit to seabirds) than competitively bid contracts. Moreover, there is a public perception that it is unseemly to award contracts without competitive bidding, especially to the same individuals or entities that represented the government as experts in the settlement negotiations. The practice therefore tends to taint the entire restoration process.

CALIFORNIA FISH AND GAME RESTRICTS GILLNET FISHERY

In September, California Department of Fish and Game Director Robert C. Hight ordered the halibut gillnet fishery closed in shallow waters near Monterey Bay and Morro Bay. The closures prohibit the use of gill or trammel nets in ocean waters that are 60 fathoms or less in depth, in an area extending from Point Reyes in Marin

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County to Yankee Point in Monterey County. Also closed is an area of water 60 fathoms or less in depth from Point Arguello to Point Sal in Santa Barbara County. The order is in effect for 120 days and may be extended.

The director determined that as a direct result of the use of gill nets, there is the danger of irreparable injury to, or mortality in, the common murre population. Murres are dying in gill-nets at a rate of 5,000 per year; this is threatening the viability of the population. Director Hight also determined that, as a direct result of the use of gill nets, the recovery of the southern sea otter as a protected species is impaired.

OREGON BEACHED BIRD SURVEY RESULTS

The twenty-second year of surveys on the portion of beach between Beaver Creek and Henderson Creek in Lincoln County, Oregon has been completed by Sara Brown, Laimons Osis, Shirley Loeffel and Bob Loeffel. The surveys were conducted at intervals of eight days or less, except for one 10-day period for the north part of the beach. The survey was intensified to daily observations from late Febru-

ary through March as part of the *New Carissa* oil spill evaluation.

Murre chicks were the most numerous birds found dead, as usual. The occurrence of murre chicks (393) reached near average numbers, probably due to improved production of chicks over 1998 (thus greater numbers were available to succumb). Birds other than murre chicks totaled 392 in 1999, well below the average (469) for the first 20 years of the survey. Adult murres (77) and Northern Fulmars (45) were found in greatest numbers. About half of the murre mortalities were found in July and August, coincident with heavy murre chick mortality.

Cassin's Auklets were almost absent. Four were found, which equals the lowest count on record and is far below the 20-year average of 89. Adult Rhinoceros Auklet mortality was especially notable in March (13) and December (12), when for several weeks they were common in the collection. Interestingly, both of the Rhinoceros Auklet peaks occurred shortly after oil spills--the *New Carissa's* second grounding in March, and the *Blue Heather* sinking in December.

Other notable findings include: 8 Common Loons in February, which is more than were found in February counts for the previous 21 years com-

bined; 5 Black-footed and 1 Laysan Albatross; an unusual number of Fork-tailed Storm-Petrels (37); two Parakeet Auklets; and, for the first time a Turkey Vulture and an American Coot.

--Robert Loeffel, Oregon Department of Fish and Wildlife, Retired

CONGRESS ENACTS NEOTROPICAL MIGRATORY BIRD CONSERVATION ACT

In July, Congress enacted the Neotropical Migratory Bird Conservation Act by a wide margin. The act authorizes \$5 million annually to be spent on grants through 2005, 75% of which must be spent outside the United States. President Clinton's FY 2001 Department of Interior budget unfortunately does not include any funding for the act. This statute is reminiscent of the Fish and Wildlife Conservation Act of 1980, a matching grant program for non-game projects, which still has never been funded.

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TWENTY-EIGHTH ANNUAL MEETING OF THE PACIFIC SEABIRD GROUP, FEBRUARY 2001

The Pacific Seabird Group will hold its 28th Annual Meeting on 7-11 February 2001 at the Radisson Kauai Beach Resort in Lihue, Hawaii. The meeting will feature a half-day symposium on the seabirds of Japan, a workshop to discuss the latest draft of the North American Colonial Waterbird Conservation Plan, and a full scientific program.

The symposium on the Biology, Status, and Conservation of Seabirds in Japan is being convened by Yutaka Watanuki, Kim Nelson, and Harry Carter. Japanese scientists and others will speak about the species from all parts of the nation. Papers will be presented in English, possibly with Japanese translation; the proceedings will be published in English with Japanese abstracts.

Field trips to Midway Atoll and a variety of sites in the main Hawaiian Islands will be offered before and after the meeting. Midway supports hundreds of thousands of breeding albatrosses and petrels, endangered monk seals, and a coral lagoon. Trips of both 5 and 8 days will depart on 10 February. There will be one-day trips before

and after the meeting to less-distant birding areas: seabird and waterbird habitats on Kauai, Haleakala Crater on Maui, and the slopes of Mauna Kea on the island of Hawai'i.

For more information about registering, contact David Duffy, Department of Botany, University of Hawai'i Manoa, 3190 Maile Way, Honolulu, HI 96822; phone 808-956-8218; e-mail [dduffy@hawaii.edu](mailto:d Duffy@hawaii.edu). For information regarding the scientific program contact Bill Sydeman at wjsydeman@prbo.org. Further information also is available on PSG's website at <http://www.nmnh.si.edu/BIRDNET/PacBirds/>.

STUDENT TRAVEL AWARDS, PSG 2001

The Executive Council of the Pacific Seabird Group has provided the Awards Committee a fixed amount of money to support travel of several students to the next PSG meeting in Lihue, Kauai, 7-11 February 2001. We would like to use the funds as effectively as possible to maximize the number of student members both attending the meeting and making either oral or poster presentations. We ask that students (and their advisors) first

seek travel support through their home institutions or grant/contract funds, to the maximum extent possible. This will allow us to give awards to those students who genuinely are in the greatest need of support.

Eligibility: Any individual who is a student member of PSG in good standing in calendar year 2000 and/or 2001, and who is senior (first) author of an oral or poster presentation at the PSG meeting in Lihue.

To apply for a travel award, the student must submit:

1. A copy of the presentation abstract,
2. A brief statement outlining level of need and of other support, either (a) pending or (b) already provided by other funding sources, and
3. The name and contact information of the graduate advisory committee chair.

Applications should be sent as e-mail text only (no attachments) to Ed Murphy, PSG Awards Committee, at ffecm@uaf.edu.

Any student who does not have access to e-mail may instead mail the information to: Ed Murphy, PSG Awards Committee, Institute of Arctic Biology, University of Alaska Fairbanks, Fairbanks, AK 99775.

Anticipated maximum award amount: \$500.

SEABIRD TIDINGS

This new section will offer occasional seabird news items that don't fit anywhere else.

STORM ALTERS MARINE BIRD HABITATS ON ALASKA'S NORTH SLOPE

The arctic is usually associated with extreme weather, but summers on the northern Alaska coast have been surprisingly predictable and benign. However, on 10 August 2000 a violent windstorm swept across northern Alaska, reducing birds and biologists to survival mode and reshaping coastlines.

An extreme low-pressure system passing north of the state produced sustained winds of 55 mph at Barrow for over 24 h, with gusts of 70 mph. Paul Flint of USGS in Anchorage estimates that waves in the Beaufort Sea reached 20 ft. Following the storm, temperatures were subnormal for 3 days (maximum 33° F, compared with a mean for August in Barrow of 38°). An inch and a half of snow fell, with drifts as high as 8 inches. Major storms and storm surges typically hit the North Slope in fall and winter, when sea ice moderates the waves and most birds are long gone.

Paul Flint's group was studying seabird productivity and dispersion on Flaxman Island and in Simpson Lagoon. Thanks to a storm warning from the weather service in Barrow, the Flaxman Island crew were able to beach most of their boats and rescue telemetry monitoring equipment. Although some tents were destroyed, the Flaxman crew was equipped to continue working. However, their research ended anyway because their telemetry reference sites had disappeared into the sea. Two people from the Simpson Lagoon crew were

caught away from camp and were stranded when the storm cut the island in two. They were rescued by helicopter. A lone biologist at George Divoky's site on Cooper Island weathered the storm well in her tent, although she had to spend the entire time flat on her back because the wind bowed in the fiberglass poles so they hit her whenever she sat up. The two other tents at the camp lost their integrity and demonstrated why their outside shell is called a "fly." The wind knocked down the radio antenna. Since she had no way to let Barrow know that the island was still above water and she was safe, Search and Rescue sent a helicopter to evacuate her.

The storm hit some islands heavily. On Flaxman Island, sloping shores were converted to 10-m-high cliffs, and one portion of shoreline retreated 12 m. Low-lying spits and islands were inundated. Flint has no precise data on mortality among Common Eider chicks, which were around 25 days old at the time, but he could find only one brood in his study area after the storm. Habitat change could have the greatest impact on the dynamics of this declining population, however. Barrier islands were swept clear of driftwood; Flint estimates that 3/4 of the Eiders' nesting habitat disappeared. It remains to be seen how rapidly new logs will accumulate on the islands.

The Black Guillemot research colony on Cooper Island may have lost half its chicks to starvation. At the onset of the storm there were 70 active nests (all in manmade boxes), with 170 nestlings averaging 16 days of age. The winds of 10-11 August probably prevented adults from provisioning the

chicks and restricted their foraging for themselves. Snow blocked at least some nest-sites on 12-13 August and further prevented feeding of chicks. Two to 4 days without food probably resulted in the starvation of many chicks, especially the younger ones in two-chick-broods. Nestlings that survived the storm gained weight rapidly over the next 10 days; the 67 young that fledged were nearly at normal weights. Breeding habitat at the Cooper Island colony was little impacted by the storm. Some nest boxes were blown over (and away) by the wind, and 3 were flooded. However, boxes have survived on the island since as long ago as 1956, indicating that the ground is high enough above sea level to escape all but the most severe storm surges in the Beaufort Sea.

Losses to local residents and businesses were significant. The National Climate Data Center reports that houses in villages across the North Slope suffered \$700,000 in damage, and a \$7 million dredge near Barrow dragged its anchor and crashed onto the shore.

This anomalous late-summer storm in northern Alaska demonstrates the increasing intensity and frequency of extreme weather associated with global climate change, and it shows how these events can affect bird populations. Storms such as this could produce much more immediate and visible impacts than the gradual elevation of sea and air temperatures by global warming.

--George Divoky and Vivian Mendenhall

CHINESE CRESTED TERNS DISCOVERED

A seabird that was thought to have become extinct in the 1930s has been rediscovered in the South China Sea. Six pairs of Chinese Crested Terns (*Sterna bernsteini*) have been spotted rearing chicks on a tiny islet. A tourist sent photographs of the terns to the Wild Bird Federation Taiwan, a part of Birdlife International. Experts have confirmed the find. They are keeping the islet's location secret to prevent disturbance of the birds.

Ornithologists say the last confirmed sighting of the Chinese Crested Tern was of 21 specimens

collected off Shandong in 1937. Possible reasons for the species' decline include exploitation by passing fishermen for eggs and plumage, habitat destruction, and pollution.

"This is a very exciting discovery," Dr Ian Nisbet told the British Broadcasting Corporation. He said that the Chinese Crested Tern is one of the least known seabirds in the world, and possibly the rarest. "It's only known from a few specimens . . . collected mostly along the coast of China. Obviously there are very heavy human pressures. . . . Almost nothing [is] known about the Chinese Crested Tern, apart from a few specimens in New Zealand and two recent site records. So this discovery . . . where

there is some prospect of protecting them is very pleasing indeed for conservationists."

Dr Nesbit said that protecting the birds would be a challenge. "What we need are studies to find out what sort of breeding success, the seabird is having and what it needs for protection," he said. Fishermen are known to visit the islet looking for birds' eggs. One idea that has worked in other areas is to give local people a vested interest in seeing the birds stay alive. Fishermen could take birdwatchers to see the rare seabirds rather than collecting their eggs.

--From BBC website



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John Cooper jcooper@botzoo.uct.ac.za / Tony Gaston marine_ornithology@ec.gc.ca

REGIONAL REPORTS

Regional reports summarize seabird work of interest to PSG members. Reports are organized primarily by location of the work, not by affiliation of the biologist. Alaska and Russia are summarized separately this year. The Non-Pacific U.S sent no information to its regional representative.

ALASKA

Summarized by **Rob Suryan**

GULF OF ALASKA

Long-term seabird monitoring in Southeast Alaska continued under biologists of the Alaska Maritime National Wildlife Refuge (AMNWR). At Saint Lazaria Island, Leslie Slater and crew, **Erica Sommer**, **Christy Aucoin**, **Rachel Cleaves**, and **Connie Adams**, monitored nine seabird species to evaluate population levels, annual productivity, chick growth, and diets between early June and early September. Marine habitats were sampled near Saint Lazaria in July to describe the fish species that characterize the marine environment within the foraging range of seabirds breeding at the colony. This project was part of SMMOCI (Seabird, Marine Mammal, & Oceanographic Coordinated Investigations) and was supported by the refuge vessel, *M/V Tiglax*. Continuing south from Saint Lazaria, the *M/V Tiglax* and crew circumnavigated the Hazy Islands to count ledge-nesting seabirds. They then visited Lowrie, Forrester, and Petrel islands in extreme southeast Alaska to check study plots of burrow-nesting seabirds (storm-petrels and auklets), and each island was circumnavigated to count Pigeon Guillemots. Crew aboard the *M/V Tiglax* included **Michael** and **Tanja Britton**, **Vernon Byrd**, **Claire Caldes**, **Don Drago**, **Rebecca Joyce**, **Doug Palmer**, **John Piatt**, **Deb Rudis**, **Barry Sampson**, **John Tobin**, **Jeff Williams**, and **Susan Woodward**.

Marine bird and mammal surveys were conducted in Yakutat Bay, Disenchantment Bay, Russell Fiord, and Nu-

natak Fiord in June by **Shawn Stephensen**, **Kent Wohl**, [U.S. Fish and Wildlife Service (USFWS)] and **Bill Lucey** (USDA Forest Service). This was the first survey of this type ever completed in the area; our data will be used to determine a baseline. The entire shoreline (except for ice-choked areas of Disenchantment Bay) and 27 coastal-pelagic transects were surveyed. **Brad Andres** (USFWS) also surveyed the shoreline for breeding Black Oystercatchers. A 26 ft aluminum boat and 15 ft inflatable were used for transportation. All seabird colonies in the area also were inventoried.

Seabird monitoring on East Amatuli (Barren Islands) was conducted by **Arthur Kettle** of AMNWR and his crew.

Biannual marine bird and mammal surveys in Prince William Sound were conducted by **David Irons** and crews as part of the post-*Exxon Valdez* Oil Spill (EVOS) monitoring. Surveys were conducted in March by **Shawn Stephensen**, **Julian Fischer**, **Tracey Gotthardt**, **Heather Johnson-Schultz**, **Steve Kendall**, **Karen Breneman**, **Greg Spencer**, **Greg Golet**, **Jamie Stitch**, **Debbie Wong**, and **Kent Wohl**, and in July by **Shawn Stephensen**, **Rob Suryan**, **Bill Ostrand**, **Larry Barnes**, **Jon Nickles**, **Becky Howard**, **Molly Housman**, **Jeb Benson**, **Craig Collins**, **John Barnum**, **Steve Kendall**, and **Marian Snively**. The data are used to estimate bird and mammal populations and trends and to determine whether populations injured by the oil spill are recovering. Both surveys went smoothly, except for encounters with a few rocks.

Seabird colonies throughout Prince William Sound and the adjacent coast were recensused by **Shawn Stephensen**. Several new colonies were documented and several old ones had disappeared. Data will be used to update the Alaska Seabird Colony Catalog; some of these colonies had not been surveyed since 1963!

David Irons continued his long-term population and productivity counts of kittiwakes at 27 colonies in Prince William Sound. Work at the Shoup Bay kittiwake colony was continued for the 13th consecutive year. Fieldwork was led by **Kelsey Sullivan**, a graduate student from Rutgers University with **Joanna Burger**, and **Ally McKnight** with help from several of Ally's high school students. David also continued monitoring of kittiwake and cormorant colonies in Chiniak Bay on Kodiak Island. **Steve Kendall**, **Debbie Wong**, and **Jay Johnson** conducted this fieldwork.

Scott Hatch (USGS, Anchorage) and crews continued research on the population ecology of seabirds on Middleton Island in the Gulf of Alaska. **Hatch**, **Rick Lanctot**, **Conrad Field**, and **Dale Chorman-Spence** visited Middleton for 10 days in April to continue structural modifications to the tower colony of kittiwakes and cormorants. Biological field work was conducted from 8 May to 18 August by **Hatch**, **Verena Gill**, and **Charla Sterne** (camp leaders) plus six volunteers from around and about: **Kaspar Delhey** and **Pablo Petracci** (Argentina), **Shaye Folk** (Alberta), **Jennifer McGrath** (Alaska), **Anja Schiller** (Australia), and **Anna Trobaugh** (formerly of Minnesota, moving to

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Alaska). We continued the supplemental feeding experiment with Black-legged Kittiwakes, and also began feeding trials with Pelagic Cormorants, which looks promising for the future. Natural foraging conditions appeared to be good around Middleton throughout the summer of 2000, highly unusual in the last couple of decades and in complete contrast to the abysmal conditions and breeding performance we saw in 1999. Congratulations to **Verena Gill** for completing her masters degree at the University of Alaska Anchorage involving supplemental feeding experiments of kittiwakes a Middleton Island.

John Piatt's Cook Inlet Seabird and Forage Fish Study (CISeaFFS) completed another field season with funding and logistic support from the USGS, EVOS Trustee Council, USFWS) and University of Alaska Fairbanks. John and crews also conducted work in Glacier Bay. Congratulations to **Mike Litzow** for completing his graduate work at U.C. Santa Cruz on Pigeon Guillemots in Kachemak Bay, Alaska, and to **Tom Van Pelt** for completing graduate studies at the University of Glasgow while working on Common Murres on Duck Island in Lower Cook Inlet.

Bob Day of ABR, Inc. continued his at-sea studies of seabirds in Northern Gulf of Alaska with the GLOBEC project of the National Science Foundation and the National Oceanographic and Atmospheric Administration (NOAA). This will be his third year of year-round data collection on seabirds in the Gulf of Alaska.

The Alaska SeaLife Center in Seward reports a good year with the birds in the exhibit, according to **Michele Miller**, supervisor for Avian Husbandry. They now have 9 Common Murres (one pair in the collection hatched a chick this year), 13 Tufted Puffins, and 13 Pigeon Guillemots (10 from **George Divoky's** research work). We're working hard at increasing the diversity of the bird collection; hopefully during the next year, more species will be added. We're in the process of setting up in-house research projects

that will focus on molting and nutrition, to start with, and hopefully progress into other interesting areas such as diving physiology, color visualization, and some aspects of behavior that are difficult to study in the "real world."

Scott Newman (University of California at Davis), **Scott Hatch** (USGS), and **Susan Inglis** (Alaska SeaLife Center) continued their collaboration to determine suitable radio attachment methods (conventional VHF and satellite transmitters) for Common Murres using captive subjects maintained at the Alaska SeaLife Center. Survival, health, and behavioral data from abdominal implants and external mounts performed in 1999 are under analysis. In August 2000, they initiated trials of an alternative technique—subcutaneous implantation—using both VHF and satellite transmitters.

APEX (ALASKA PREDATOR ECOSYSTEM EXPERIMENT)

APEX is a 5-year study in Prince William Sound and lower Cook Inlet, funded by the *Exxon Valdez* Oil Spill Trustee Council (EVOSTC). Personnel of APEX conducted little fieldwork this summer, as they were focusing on data analysis and write-up. Some investigators will have partial funding in fiscal year 2001 for continued analyses, writing, and synthesis. Otherwise, the project is closing out and the focus of the EVOSTC will turn to the Gulf Ecosystem Monitoring program for long-term monitoring of Prince William Sound and the Gulf of Alaska. **David Duffy** continues to coordinate APEX investigations.

Principal investigators with APEX include **Kathy Kuletz**, who continued data analysis and write-up on work conducted from 1995-1999 in Prince William Sound. Kathy is looking at murrelet distribution and productivity relative to habitat and forage fish abundance. Kathy is also working with other agencies to plan for and monitor effects on marine birds of projected increases in recreational use and tourism in Prince William Sound. Con-

gratulations to Kathy on her new job at USFWS in Anchorage as technical advisor and liaison on seabird-fisheries issues in Alaska.

Bill Ostrand of the Seabird/Forage Fish Interactions component of APEX spent this year analyzing data, writing manuscripts, and assembling the final report. **Tracey Gotthardt** has taken a position with the University of Alaska, Anchorage. The final report on data for 1994-1995 is now complete, data from the study are archived, and the report will soon be available on the Internet as a portion of the APEX report. On 15 September **Bill** took another position with USFWS; he will continue to be available at the same address, email, and phone number.

Greg Golet concluded work with the Pigeon Guillemot component of APEX. He recently took a position with The Nature Conservancy, Chico, California as an ecologist for their Sacramento River riparian restoration project.

Rob Suryan, David Irons, Jeb Benson, and Max Kaufman continued to analyze data on the mechanisms of prey limitation and the effect on kittiwake foraging, breeding success, and population dynamics in Prince William Sound. Rob will be participating in the synthesis of APEX investigations through the winter. Jeb will maintain some contact with the project, but will primarily focus on engineering studies at the University of Alaska Anchorage. Max is also maintaining some contact with the project while moving on to future work.

David Ainley, Glenn Ford, and D. Schneider continued modeling work with the APEX project. Their work included a foraging model for kittiwakes in Prince William Sound and evaluation of a foraging model for Pigeon Guillemots. They have also been investigating colony-specific foraging ranges of kittiwakes in Prince William Sound and the effect of competition on colony distribution.

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ALEUTIAN ISLANDS

Seabird colonies in the Aleutians were monitored by AMNWR staff. **Greg Thomson** and **Joe Smith** were on Aiktak Island, **Karen Brenneman** and **Heather Moore** worked on Buldir Island, **Lisa Sharf**, **Jeff Williams** and **Vernon Byrd** visited Kasatochi, Koni-ujji, and Ulak, and **Dean Kildaw**, **Cliff Lascink**, **Vernon Byrd**, and **Jeff Williams** monitored Bogoslof Island.

Ian Jones (Atlantic Cooperative Wildlife Ecology Research Network, Memorial University, Newfoundland) conducted his eleventh year of research on seabird behavioral ecology and demography at Buldir Island, in collaboration with the Aleutian Island Unit of AMNWR. The crew consisted of **Martin Renner** (in his first field season of a PhD project on demographic and sexually selected consequences of Least Auklet plumage polymorphism), **Jolene Sutton**, **Josh Penne**, and **Jones**.

Lucy Vlietstra is working with **George Hunt's** laboratory at the University of California, Irvine (UCI) on shifts in individual behavior and community structure among marine birds during prey fluctuations. She will examine how shearwaters respond to prey fluctuations associated with tide movements at passes in the Aleutian Islands, using hydroacoustic fish measurements and bird observations to compare spatial relationships between trophic levels.

AMNWR biologists continued efforts to prevent or control the introduction of predators so as to restore and preserve seabird nesting habitat. **Steve Ebbert** and crews continued fox removal on Tanaga and Little Sitkin islands. **Art Sowls** was joined by **Mark Rauzon** (Marine Endeavors, Oakland, CA) for a rat reconnaissance on Kiska Island.

BERING AND CHUKCHI SEAS

Pribilof Island colonies were monitored by AMNWR staff **Tonja Bittner** and **Art Sowls** on St. Paul Island; and **Lori Ness**, **Nora Rojek** and **Kent Sundseth** on St George Island. **Art Sowls** continued work with the rat prevention program in the Pribilof Is-

lands. He also has instituted an outreach program to the fleet operating in southwest Alaska to make them aware of the rat problem.

George Hunt's lab at UCI group is funded for new a study of inter-decadal variation in upper trophic-level foraging and population ecology at the Pribilof Islands. This work will be conducted in collaboration with **Vern Byrd** of the US Fish and Wildlife Service in Homer, Alaska and **Beth Sinclair** of the National Marine Mammal Laboratory in Seattle. **Lucy Vlietstra** will focus on large-scale shifts in abundance and distribution of seabirds and their fish prey around the islands that may be related to shifts in climate regimes in the Bering Sea.

Hunt's group has completed field work on a collaborative study of production and shearwater use of the inner domain and inner frontal region of the southeastern Bering Sea. Results are now being written up. **Cheryl Baduini** continues the write-up of conclusions from her portion of the work on the foraging ecology of short-tailed shearwaters in the area in 1997-1999; she received her PhD in Spring 2000. **David Hyrenbach** (Scripps Institute of Oceanography and UCI) is collaborating with **Cheryl Baduini** and **Jaime Jahncke** in a study of Short-tailed Shearwater foraging ecology in relation to the Inner Front in the southeastern Bering Sea. This research aims to understand the way frontal variability affects ecosystem structure in the southeastern Bering Sea, and how these changes in the ecosystem influence the distribution, abundance and foraging ecology of Short-tailed Shearwaters. **Jahncke** joined Hunt's lab in 1999.

Nikolai Konyukhov (Moscow Bird Ringing Center) conducted molt studies on the Least Auklet on St. Paul Island from 19 May until 23 August. This species begins to molt during breeding season. The molt patterns of different wing feathers have adaptive value. New feathers are protected by old ones or full-grown new feathers while they are growing; at this time they are soft and could be easily injured during flight and feeding.

Ed Murphy (University of Alaska Fairbanks) continued work at Bluff on Norton Sound. Topics included population counts, breeding chronology, and success of murrets and kittiwakes.

The Cape Peirce colony in Bristol Bay was monitored in 2000 by **Rob MacDonald** and staff of Togiak National Wildlife Refuge. They recorded population and productivity of Black-legged Kittiwakes, Common Murrets, and Pelagic Cormorants. The camp was opened on 26 April, and seabirds were monitored from 6 May to 8 September. In addition, predation and disturbances to seabirds were recorded and beached bird surveys were performed. Staff at Togiak NWR have monitored the population and breeding performance of kittiwakes, murrets and cormorants from shore-based plots at Cape Peirce annually since 1984. The average number of Black-legged Kittiwake adults and nests on all plots were low, although still within the range for the last 10 years. Breeding performance for Black-legged Kittiwakes was high; reproductive success and overall productivity were more than twice the 10-year average and were at the high end of the range. The average number of Common Murre adults on all plots was low, although still within the range for the last 10 years. Breeding performance for Common Murrets was high; reproductive success was above the 10-year average and was at the high end of the range. The average numbers of Pelagic Cormorant adults and nests were low, although within the range for the last 10 years. Breeding success of Pelagic Cormorants was high, with reproductive success just below the 10-year average and overall productivity slightly above the 10-year average. Both were at the high end of the range.

David Irons and **Kent Wohl** initiated what they hope will be a long-term study of seabirds near Savoonga on St. Lawrence Island. Species in the study include Least and Crested Auklets, Common and Thick-billed Murrets, and Black-legged Kittiwakes. Fieldwork was led by **Adrian Gall** as part of her graduate work at Oregon State University with **Dan Roby**.

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Adrian had help in the field from **Victor Zubakin** (Russian Union for Bird Conservation, Moscow) and **Brian Milakovic** (Toronto). Zubakin also worked on improving the census methods for auklets on St. Lawrence Island.

Dave Roseneau continued monitoring work at Cape Lisburne in the Chukchi Sea. **Bob Day** and **John Rose** of the ABR, Inc. Fairbanks office conducted radar studies of migrating eiders at Barrow, Alaska. Radar was used to study movements of eiders during periods of limited visibility in preparation for an assessment of collision probability.

Steve Johnson (LGL Ltd., Sidney, BC) continued his 23-year study of the distribution and abundance of Oldsquaw in the nearshore coastal zone of the central Alaska Beaufort Sea; aerial observations were conducted by **Mike Bentley**. LGL also monitored the abundance and distribution of nesting Pacific Eiders (*Somateria mollissima v-nigra*) on barrier islands along the central Alaska Beaufort Sea coast. New LGL projects for 2000-2001 will involve **Lynn Noel**, **Robert Rodrigues** and **Johnson**. They will work on winter and molting-season surveys of threatened Steller's Eiders and other seabirds in the eastern Aleutian Islands; winter and molting-season surveys of threatened Steller's Eiders and other seabirds in the vicinity of the city of Unalaska; and aerial surveys and habitat classification for Spectacled and Steller's Eiders in the National Petroleum Reserve on the North Slope.

STATEWIDE

Vernon Byrd and **Becky Howard** completed entry of historic data throughout AMNWR into the Pacific Seabird Monitoring Database. **Vernon Byrd**, **Don Drago**, and **David Irons** produced the third annual report on status and trends of seabird in Alaska.

Charla Sterne and **Scott Hatch** (USGS) continued data entry and management for the Pacific Seabird Monitoring Database. Data for 25 years of seabird monitoring at the Semidi Islands were entered this year, and an-

other long-term data set is being entered for Middleton Island. Records submitted previously by numerous contributors from throughout the Pacific region are under review and revision. After data entry is complete, the whole database will be made available via the Internet with a suitable user interface. **Charla Sterne** is learning Visual Basic and other programming skills required to write the code for an on-line data entry system to complement the data-serving capabilities developed for us by contractors last year.

Kent Wohl and **David Irons** continued their participation in the Circumpolar Seabird Working Group. This is a sub-group of CAFF (Conservation of Arctic Flora and Fauna), a treaty organization of circumpolar nations. CAFF is considering a monitoring project of focal vertebrate species, including seabirds (Common and Thick-billed Murres) in addition to caribou, Dolly Varden trout, and geese. Kent has also been coordinating work and cooperative agreements with Japanese scientists regarding seabirds and other nongame species. Closer to home, Kent and David are organizing another meeting of the Alaska Seabird Working Group.

Heather Johnson-Schultz recently joined the Nongame Migratory Bird staff (USFWS) as the Regional Nongame Migratory Bird Outreach Biologist. Heather has completed a new brochure titled "Seabirds and You" as a partnership effort of FWS and CAFF. The brochure gives tips on being good stewards around seabird nesting colonies to target audiences such as mariners, fishermen, and pilots. A poster was developed to accompany the brochures in areas of high visibility, such as at the fuel dock in Whittier, the Alaska SeaLife Center in Seward, and the Alaska Maritime National Wildlife Refuge Visitors Center in Homer. Heather also made presentations on the FWS curriculum for elementary schools, "Learn About Seabirds." Heather and David Irons visited Little Diomed Island, a native-owned island in the Bering Strait, and reached K-12 grade students, teachers, and

community members. Heather also conducted programs at the Yukon Delta National Wildlife Refuge with refuge education staff, Partners from the World Wildlife Fund took "Learn About Seabirds" to the villages of Gambell and Savoonga on St. Lawrence Island, another island that is owned wholly by Natives.

Heather also worked on establishing a new "Rural Eyes" program to encourage local community members to work with USFWS in monitoring seabird population trends throughout Alaska. Heather and **Shawn Stephensen** conducted workshops in Anchorage and Dillingham to train interested villagers in Beached Bird Survey methods. Villagers are the only visitors to many remote coastlines, so we need their reports of seabird dieoffs and the data and specimens they can collect. Heather and Shawn reached approximately 50 people from a variety of villages within the Bering Sea Ecosystem.

FISHERY ISSUES

Ed Melvin (Washington Sea Grant) spent a second year studying methods to reduce seabird bycatch in the North Pacific longline fisheries. Ed is collaborating with **Julia Parrish** and is assisted by **Kim Dietrich** and a host of trained NMFS observers. Gear modifications that he is evaluating include weighting the line, deploying the line underwater through a lining tube, and flying streamers (tori lines) over the line as it is being deployed. As with an earlier coastal gillnet bycatch study in Puget Sound, preliminary analyses indicate that both bird abundance and interaction rate change markedly, both from year to year and among locations. Despite this inherent "noise," gear modification does appear to make a difference. Final results will be available early next year.

Greg Balogh of USFWS Ecological Services, Anchorage Field Office continues seabird conservation efforts to get deterrent devices into the hands of longline fishermen. In 2000, they received over \$450,000 for use in manufacturing and distributing free tori

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lines to every longline vessel owner that fishes in Alaska and for cost-sharing the installation of davits (devices used to deploy tori lines on larger vessels). This money is in addition to the \$404,000 they received for this same project in 1999. The Pacific States Marine Fisheries Commission has been hired to administer the project. Hundreds of tori lines have been distributed to fishermen thus far, and hundreds more will be distributed in the near future. We are making the davit installation reimbursement program available to an ever-widening group of vessel owners. Ecological Services continues to cooperate and support Ed Melvin's evaluation of the effectiveness of seabird deterrent devices (see above). In addition to providing financial support, Greg participated in a two-week cruise in the Bering Sea aboard the F/V *Alaska Mist*, during which several different deterrent device treatments were tested.

Kathy Kuletz has a new job at USFWS in Anchorage as technical advisor and liaison to the National Marine Fisheries Service (NMFS) and others on seabird-fisheries interactions in Alaska. Topics include allocation and bycatch issues and NMFS observers.

The Short-tailed Albatross was listed as endangered in the U.S. in July (see Conservation News).

Kim Rivera of NMFS in Juneau reported on several additional projects related to seabird bycatch issues in Alaska and internationally. NMFS is preparing a Programmatic Supplemental Environmental Impact Statement (PSEIS) on the Alaska Groundfish fisheries (trawling and longlining for pollock, rockfish, and other species). One purpose of the PSEIS is to describe the current management regime in Alaska and current knowledge about the physical, biological, and human environment in order to assess impacts to the environment caused by past and current fishery activities. The PSEIS is broad in scope, with one of the alternatives focusing on offering increased protection to marine mammals and seabirds. NMFS will issue a draft for public review and comment

sometime in October or November 2000. Visit the NMFS Alaska Region website at <http://www.fakr.noaa.gov/> and watch for news of the availability of the PSEIS.

NMFS is preparing annual estimates of seabirds taken in the Alaska groundfish fisheries, 1993-1999. This updates the 1993-1997 estimates that were provided at the 1999 PSG Seabird Bycatch Symposium in Blaine, WA. We plan to make a NOAA report on this incidental catch information available to the public annually. Check the NMFS Alaska Region Seabird Program website at <http://www.fakr.noaa.gov/protectedresources/seabirds.html> for news when these estimates are available.

NMFS, USFWS, and the Department of State are finalizing a draft National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries. This project is in response to the International Plan of Action issued by the Food and Agriculture Organization (FAO); which calls for nations to develop their own national plans to address longline fisheries with seabird bycatch problems. The Department of State, USFWS, and NMFS also are involved in an international initiative to develop an agreement for the conservation of Southern Hemisphere albatrosses and petrels. The initiative notes that these birds face threats not only from commercial longline fisheries, but also from pollution, habitat degradation, etc. The initiative was first proposed by the government of Australia, under the auspices of the Program for the Conservation of Migratory Species (CMS, also known as the Bonn Convention).

RUSSIAN FAR EAST

Summarized by **Nikolai Konyukhov**

Studies at Talan Island in the Sea of Okhotsk are being supervised by **Alexander Andreev** (Chief, Laboratory of Ornithology, Institute of Biological Problem of the North, Magadan; andreew@online.magadan.su). Biologists were on the island from 12

June until early September. A census of Crested Auklets was carried out. Breeding success and productivity were determined on monitoring plots for the Common and Thick-billed Murre, Black-legged Kittiwake, Tufted and Horned Puffin, Ancient Murrelet, and Crested and Parakeet Auklet. Diets (feeding and food composition) also were monitored in the Tufted Puffin, Horned Puffin, and Crested Auklet during the chick-rearing period. Most of the mesoplankton species that characterized diet of Crested Auklets in the early 1990's had disappeared; so had the young pollock that were previously common in the diet of Tufted Puffins. **Elena Golubova** (Institute of Biological Problems of the North; ibpn@online.magadan.su) worked on Talan Island, where she studied the breeding biology, breeding success, and feeding of alcids.

A report (in Russian) on studies at Talan Island in 1999 is available on floppy disk; the report on this summer's studies will be ready in December.

Larisa Zelenskaya (Institute of Biological Problems of the North; ibpn@online.magadan.su) studied seabirds under conditions of strong anthropogenic pressure at Shelikan Island in June and again in August. She made counts of the Slaty-backed Gull, Black-legged Kittiwake, and Pelagic Cormorant, and recorded their feeding behavior and breeding success. Larisa also continued her studies at the Commander Islands (Bering, Ariy Kamen, and Toporkov Islands) from mid-June until August. She censused and monitored all seabird species and focused on feeding of the Glaucous-winged Gull. She also worked on determining sites and quotas for harvesting of birds and eggs by local Aleut people.

The seabird colonies of the Kuril Islands were mapped by **Yuri Artukhin** (Kamchatka Institute of Ecology and artukhin@mail.iks.ru). The cruise began at Petropavlovsk-Kamchatskiy (Kamchatka Peninsula) and ended at Korsakov (Sakhalin Island). Studies were carried out from 17 June until 14 August. Numbers and species compo-

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sition at all colonies were determined. [According to the U.S. Fish and Wildlife Service's Beringian Seabird Colony Catalog, parts of the Kuriles had never been surveyed, and some colonies were last visited in 1963—*ed.*]

Victor Zubakin (Russian Union for Bird Conservation; victor@zubakin.msk.ru) monitored numbers and productivity of alcids and Black-legged Kittiwakes on St. Lawrence Island, and **Nikolai Konyukhov** (Moscow Bird Ringing Center; ring@bird.msk.ru) carried out molt studies of Least Auklets on St. Paul Island. Details are in the Alaska Report.

CANADA

Summarized by **Ken Morgan**

BRITISH COLUMBIA—MARBLED MURRELETS

Alan Burger (University of Victoria) continues research on Marbled Murrelets. Analyses of habitat use in various forest types is underway with **Volker Bahn**, **Angeline Tillmanns** and **Anna Young**. At-sea surveys continue in Barkley Sound with **Anne Stewart**, focusing on marine habitat use and long-term fluctuations in local populations. **Michelle Masselink** is completing her study of Steller's Jay as a nest-predator of Marbled Murrelets and has shown that jays are most commonly found at forest edges associated with clearcuts and roads. Burger is also supervising **Kathy Kuletz's** PhD work on Marbled Murrelets in Alaska.

Trudy Chatwin (BC Ministry of Environment, Lands and Parks), **Cathy Conroy**, and **Volker Bahn** are studying Marbled Murrelet habitat selection and nesting density in Clayoquot Sound. They have identified 4 classes of forest habitat; random trees with potential nesting platforms in three habitat types were selected and over 400 trees were climbed. Using GIS analysis of forest cover maps of Landscape Units on Vancouver Island, **Connie Miller-Retzer**, **Monica**

Mather and **Chatwin** have identified areas of "Suitable Nesting Habitat". These areas are being compared with areas of "Constrained Harvesting" (areas not for harvesting due to riparian or terrain considerations) to determine if setting aside constrained and suitable Marbled Murrelet habitat will work as a conservation strategy for Marbled Murrelets on Vancouver Island.

Fred Cooke of the Centre for Wildlife Ecology, Simon Fraser University (SFU) notes that the major activity with Marbled Murrelets was radio telemetry studies of two populations. They continued working on demography and breeding biology of the Desolation Sound murrelet population (comprising 4000-6000 individuals), and they found 29 new active nests, including the first reported in an alder tree. More than 200 birds were banded, including 75 to which radios were attached prior to the breeding season. These birds were followed throughout the nesting period, which allowed detailed studies of their movements and nest success. Late in the season 14 juveniles and 8 adults were radioed in order to follow post-breeding movements. A new study was initiated at Clayoquot Sound, to compare nesting locations of radio marked birds with areas predicted by a large scale mapping project. Although 75 birds were radio marked only 9 nest sites were located, mainly because of the earlier nesting phenology of this population.

The BC Ministry of Environment and the Canadian Wildlife Service (CWS) initiated a study examining the forest habitat requirements of Marbled Murrelets in the Queen Charlotte Islands (QCI). The study, funded by Forest Renewal BC and the World Wildlife Fund, was carried out by **Anne Harfenist**, **Irene Manley**, and **Gary Kaiser**. Murrelet incubation did not begin until late June/early July and only 6 of the 50 radio-tagged murrelets nested. The nesting habitats were described at the nest, stand and landscape levels.

During the past year **Paul Jones** continued at-sea monitoring of Marbled Murrelets in Middlepoint Bight.

For the second year in a row, snow conditions prevented access to murrelet nesting sites on the Caren Range until early July. Observations suggested that birds may have delayed nesting until late June, as small numbers of juvenile birds did not appear in Middlepoint Bight until mid-August. For the tenth year in a row Murrelet flight feathers were collected on the shores of the Bight. Numbers of birds molting in August 2000 were down over past years. **Jones** made presentations to the BC Provincial Government suggesting a moratorium on logging on the Bunter Range in the vicinity of Powell River. He also urged others (including PSG) to make similar recommendations.

Since November 1999, **Ken Morgan** has been chairing Canada's Marbled Murrelet Recovery Team. In March the team hosted a 2-day workshop that brought together the latest knowledge on the science and management of Marbled Murrelets in BC. Along with **Doug Bertram** and **Sean Boyd** (CWS), **Dave Mackas** and **David Welch** of the Department of Fisheries and Oceans (DFO), and **Mike Bentley**, **Morgan** continued at-sea surveys of seabirds near Triangle Island.

BRITISH COLUMBIA—OTHER MARINE BIRDS

John Ryder (SFU) reports that the Triangle Island research station completed its seventh year of seabird monitoring under the direction and support of the Centre for Wildlife Ecology, SFU/CWS. **Doug Bertram** continued his role as project coordinator and director of research. **Ryder** completed his fourth year as camp manager; **Krista Amey** assumed this role from July to August. **Mark Drever** spent ten days on Triangle at the start of the season before heading off to Frederick Island to lead the field crew there. Other research assistants and volunteers included **Alison Agness**, **Jean-Francois Aublet**, **Lori Barjaktarovic**, **Andrew Lang**, **April Hedd**, **Andrea Lonon**, **Gregor Yanega**, and **Sharilynn Wardrop**.

The Triangle crew continued ex-

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aming phenology, reproductive performance, nestling diet and development, provisioning and attendance patterns of four alcids (Cassin's Auklet, Rhinoceros Auklet, Tufted Puffin and Common Murre). They also continued a mark/recapture banding program to examine the demography of Cassin's and Rhinoceros Auklets. All four alcid species had excellent breeding success, similar to 1999. The second season of a radio-telemetry study to examine the at-sea foraging ecology of Cassin's Auklets was conducted (again supported through the *Nestucca* oil spill trust fund and the Canadian Nature Federation). Transmitters were affixed to 37 adults at the colony during chick rearing period and four aerial surveys to locate the radioed birds were conducted by **Sean Boyd** (CWS) in June. Auklets were foraging in approximately the same area as in 1999 but nearer to the continental shelf. A pilot project to determine the feasibility of radio-marking Rhinoceros Auklets using the subcutaneous attachment technique was conducted. The method was found to work well; there are plans to expand this project to examine the species' foraging ecology in 2001. Partners in this collaborative investigation of marine predator/prey relationships and distribution around Triangle Island include **Dave Mackas** and **David Welch** (DFO), **Mike Bentley**, and **Ken Morgan** (CWS).

Carina Gjerdrum (SFU) continued her MSc research on Tufted Puffins breeding on Triangle Island. Her primary objective for 2000 was to examine the intra-annual variation in parental effort. She collected data on nestling growth, fledging behavior, parental feeding rates and bill load composition. Additional data were collected on egg size, kleptoparasite activity by Glaucous-winged gulls, and adult puffin behavior outside the burrow during a provisioning event. To look at the effect nestling mass has on adult provisioning behavior and nestling fledging behavior, she experimentally increased chick mass by supplementing their diet with sand lance. For the second consecutive year, the

population of puffins had an estimated fledging success of 88%, in contrast to the total reproductive failures experienced between 1994 and 1998.

Louise Blight (Simon Fraser University [SFU]) successfully defended her MSc thesis in July. Blight studied Rhinoceros Auklet nest attendance on Triangle Island (off the northern tip of Vancouver Island). Using artificial eggs containing a temperature logger, she monitored parental incubation behavior and egg neglect over two breeding seasons. In 1998, an El Niño year, there were significantly more instances of neglect per breeding pair than in 1999. In 1999 she experimentally chilled auklet eggs for 48 hours at 7 or 30 days of age, in order to test developmental effects of lengthy egg neglect at different stages of incubation. Results indicated that embryo survival was not affected by the time after laying that the simulated neglect occurred. However, chilled eggs hatched an average of 2 days later than non-chilled controls, whether they were chilled at 7 or 30 days of age.

In January 2000 **April Hedd** started a post-doc with **Doug Bertram** (Centre for Wildlife Ecology, SFU/CWS) based at the CWS office in Delta. Her responsibilities are to help with the analysis and publication of long-term seabird monitoring data collected both from Triangle and Frederick Islands. To date her efforts have focused on Cassin's Auklets, examining both how diet and reproductive performance of this planktivore varies spatially (within two distinct oceanographic domains) and temporally, with the goal of understanding the influence of ocean climate change. BC has witnessed extremely variable ocean climate conditions within the 1990s, and this has provided a mechanism for examining how such changes might be affecting the reproductive performance of seabirds off BC's south coast. Hedd and Bertram plan to continue with analysis of provisioning and growth information, and, in collaboration with DFO, to investigate Cassin's Auklet prey selection at sea.

Mark Drever, Jean-Francois Savard, Kevin Jager and Jennifer Rock (SFU/CWS) returned to Frederick Island, QCI. Work conducted in 1998 suggested that Cassin's Auklets were experiencing reduced survival and reproductive performance. However, this year's study indicates that the Cassin's population has returned to the pre-97/98 El Niño levels. Burrow occupancy rate was approximately 80% (~55% during 1998), and fledging rate was again high in 2000 (nearly 90%). Data collected on survival (using capture-mark-recapture techniques) and nestling diet wait to be analysed.

Tony Gaston (CWS) reports that the usual monitoring of Ancient Murrelets continued at East Limestone Island (QCI), where **Janet Grey** ran the Laskeek Bay Conservation Society camp, now in its eleventh year. At Reef Island, 40% of the nest-boxes installed in 1997 for Ancient Murrelets were occupied. **Stephanie Hazlitt** (CWS) banded Black Oystercatchers on East Limestone Island. Five breeding oystercatchers had been banded on East Limestone as chicks. On a welcome note, Pelagic Cormorants bred in Laskeek Bay for the first time since 1986.

Trudy Chatwin, Tanya Giesbrecht, Terry Sullivan and Ian Moul re-inventoried Double-crested and Pelagic Cormorant colonies in the Strait of Georgia. The last census (conducted in 1987 by **Kees Vermeer** and **Ken Morgan**) showed that both species were increasing; however, recent work points to major declines. Chatwin has initiated a disturbance-monitoring project to help determine causes of colony failures.

Deborah Lacroix (SFU) recently completed the field portion of a two-year MSc study on the wintering ecology of Surf Scoters in Howe Sound. Her research consisted of determining the Surf Scoter's role in shaping the intertidal communities by investigating the impact of scoter predation on mussels. Scoter abundance and distribution patterns were also monitored; these patterns will be further investigated using GIS map techniques to determine

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habitat preference and link foraging behavior to prey availability.

Ken Morgan (CWS) and **Mike Bentley** continued at-sea surveys to study the distribution of pelagic seabirds as related to oceanographic conditions and prey availability, completing the 11th offshore survey of a 1,500-km transect. **Bill Sydeman** (Pt. Reyes Bird Observatory), **David Hyrenbach** (Scripps Institution) and Morgan are embarking on a study that will continue long-term at-sea survey data sets from the California Current System to identify biological "hotspots." Morgan spent July aboard a Coast Guard vessel surveying seabirds between Victoria, BC and Tuktoyaktuk, NWT.

Jen Zamon has taken a post-doctoral fellowship from the Natural Sciences and Engineering Research Council of Canada (NSERC) to work at the Pacific Marine Biological Laboratory, DFO, in Nanaimo. She will join **David Welsh** in a project on the relationships between marine productivity and the survival of salmon in the northeastern North Pacific Ocean.

Alan Burger and **Andrea Lawrence** recently returned from a year working on tropical seabirds in Seychelles with BirdLife Seychelles and are writing up the research completed there.

Gary Kaiser retired from the CWS in mid-September.

NORTH, EAST, AND INTERIOR CANADA

Tony Gaston (CWS) and **Mark Hipfner** visited Prince Leopold Island (Barrow Strait), as a pilot project for a reappraisal of seabird status and ecology at this important colony. Most seabird populations there appeared unchanged since the 1970s. They were joined by **Keith Hobson** (CWS) who is continuing his ecosystem studies in the area, through stable isotope analyses of seabird blood. **Uli Steine** and **Kerry Woo** led teams banding Glaucous Gulls and Thick-billed Murres and monitoring the feeding ecology of Thick-billed Murres at Coats Island. This project was disrupted by polar bears which broke into the cabin over

the winter and later returned to eat murre eggs on the cliffs. Mercifully, the summer was cooler than the last few years and no murres died from mosquito attacks.

George Hunt's laboratory (University of California, Irvine) is completing a study of marine bird use of the North Water polynya between the northwest coast of Greenland and Ellesmere Island in the Canadian High Arctic. Field work is complete and they are now writing up. **Nina Karnovsky** has recently completed her field work on seabird foraging dynamics for this project. She will be working next on high-arctic seabirds around Svalbard and Jan Mayen aboard the Polish oceanographic sailboat *Oceania*.

Ian Jones' camp at Gannet Island, Labrador continued its fifth year of operation, with PhD student **Rosana Paredes** doing a comparative study of auk foraging and diving behavior. MSc student **Brian Veitch** investigated Great Black-backed Gull predation on other seabird species. Long-term foraging and demographic studies of Razorbills, Common and Thick-billed Murres and Atlantic Puffins were continued by **Johanne Dussureault**, **Mark Button**, **Bobby Fokidis** and **Jones**.

Michel Robert (CWS), **François Shaffer** (CWS), **Chapdelaine** and members of *Attention Frag'Îles* surveyed seabirds in the Magdalen Island, Gulf of St. Lawrence. The objectives were to determine the proportions of Thick-billed and Common Murres breeding at Bird Rocks and to estimate the total population of the Razorbill (a species of high concern in eastern Atlantic Canada). Provisional estimates for Thick-billed and Common Murres are 580 and 3,700 pairs respectively. The Razorbill population for the whole archipelago was 1,668 pairs. The Northern Gannet colony of Bird Rocks is approximately 16,800 pairs and is the second largest gannet colony in North America. In general, seabird population of the Magdalen Islands are increasing, except for Common and Arctic Terns.

Grant Gilchrist (CWS) was busy working on waterfowl projects in northern Canada. Gilchrist is leading research on the survival and reproductive ecology of Common and King Eider breeding at East Bay, Southampton Island, Nunavut. This project will generate the first experimental and behavioral data on the effects of energy reserves on eider annual fecundity in the Canadian Arctic. Other components of the study include the influence of internal parasites, heavy metal contaminants, and Herring Gull and polar bear predation on adult survival and annual reproduction. The team found that most eiders banded at East Bay winter in southwest Greenland. The eiders are heavily parasitized and carry high levels of selenium and cadmium. Herring Gull predation is greatest during egg-laying; however, polar bears, which visited the colony in four of the past five summers, have the greatest impact on annual reproductive success.

Another of Gilchrist's projects is looking at winter ecology of Hudson Bay Eiders in the Belcher Island, Hudson Bay. Other personnel include **Greg Robertson** and **Keith Hobson** (CWS), and **James Lovvorn** (University of Wyoming). Hudson Bay Eiders (*S. m. sedentaria*) winter in open water leads near the Belcher Islands and off the west coast of Quebec. Mass dieoffs occur when large proportions of the population are concentrated in open water leads that sometimes freeze. This study is examining habitat use, body condition, benthic communities on the sea floor of polynyas, and diets of King and Common Eiders wintering in the Belcher Island during three consecutive winters. Winter kill due to heavy sea ice is a key component of the population dynamics of this race. The birds depend in winter on polynyas and ice floe edges; polynyas act as temporary refuges when floe-edge habitat does not exist. Their diet consists of urchins, mussels, sea cucumbers, and small fish. Eiders that forage at polynyas are heavily constrained by strong tidal currents, which prevent them from diving for several hours each day.

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A number of population surveys have been examining trends in Common Eiders breeding in northern and eastern Canada. **Jean-Pierre Savard, Scott Gilliland, Greg Robertson, Jean-Francois Rail, Gilles Fardeau, and Gilchrist** (all of CWS) are undertaking surveys of Common Eider in the eastern Canadian Arctic, where trend data do not exist for the species. Trends have varied in other populations of Common Eiders in northern Canada. The Hudson Bay population breeding on Belcher Island has declined by 70% since the late 1980s, whereas the small Northern Common Eider population breeding in the Diges Sound region has remained stable. On four archipelagos in Ungava Bay, where 48,000 pairs of Common Eiders were estimated in 1980, populations on 3 either remained stable or increased slightly, while the fourth has declined. The Ungava Bay project was in cooperation with the Makivik Society. Herring Gulls, Great Black-backed Gulls, Glaucous Gulls, and Black Guillemots also were surveyed.

Molting and wintering areas of Common Eiders that breed in the eastern Canadian Arctic and Greenland are being located by satellite telemetry. The international project includes **Gilchrist, Flemming Merkel** (Greenland Institute of Nature), **Anders Mosbech** (Dept. of Arctic Environment, Denmark), and **Knud Falk** (Ornis Consult, Denmark) implanted satellite transmitters in Common Eiders on their Canadian nesting grounds and in eiders captured along the west coast of Greenland during late winter. Results to date suggest that there appear to be two populations of eiders wintering in the Nuuk area of Greenland: one that remains to breed in the area and another that migrates to Canada. Of birds wintering in the Nuuk region that migrated into Canada, breeding sites ranged widely throughout the high and low Canadian Arctic.

Several veterinary projects are examining mortality factors in seabirds and other waterbirds. **Ted Leighton** [Canadian Co-operative Wildlife Health Centre (CCWHC), Saskatoon]

reports that research is being conducted by **Roser Valarde** on the prevalence and significance of a circovirus found in association with a small die-off of nesting gulls in an urban centre. (Contact: CCWHC, and Dept. of Pathobiology, Ontario Veterinary College, University of Guelph). Monitoring of epidemic diseases on colonies of Double-crested Cormorants and American White Pelicans in the boreal forest zone of Saskatchewan since 1994 has found regular occurrence in cormorants of both Newcastle disease (paramyxovirus 1) and avian cholera (infection with the bacterium *Pasteurella multocida*). Each disease has caused very high mortality among young of the year. **Catherine Soos** has completed two seasons of a three season study of causes of mortality among Franklin's Gulls and the relationship of such mortality to epidemics of avian botulism in this and other species in the same habitat. (Contact: CCWHC and Dept. of Veterinary Pathology, University of Saskatchewan). Common Loons and Northern Gannets have received particular attention during diagnostic work on causes of death in seabirds of the Maritimes. Chronic lead poisoning from ingestion of sinkers from fishing lines has been identified as an important cause of mortality in adult loons. Mercury contamination and high levels of intestinal parasitism by small trematodes also were documented. An experimental study of the effect of a trematode *Cryptocotyle lingua* in Double-crested Cormorants was recently completed, in an attempt to develop a model of this infection in Common Loons

Mortality of Northern Gannets has been studied since 1988 through necropsy of approximately 70 birds. Some causes of death and disease that have been identified include entanglement in fishing nets, encephalitis (of undetermined cause), severe ischemic pododermatitis and cellulitis (also of undetermined cause), sarcosporidiosis, and acute trauma resulting possibly from collision with the bottom during feeding dives. (Contact: **Pierre-Yves Daoust**; CCWHC, and Atlantic Veteri-

nary College, University of Prince Edward Island).

Steve Johnson (LGL Ltd., Sidney) continued long-term studies of waterfowl in Alaskan waters (see the Alaska report).

NATIONWIDE

Leah de Forest of the Canadian Nature Federation (CNF) notes that more than 1200 Important Bird Area (IBA) sites have been nominated using internationally agreed-upon criteria. The IBA program is an international initiative spearheaded by BirdLife International, which seeks to identify and conserve each nation's most important bird habitats. CNF and Bird Studies Canada are the Canadian co-partners. Conservation plans for over 100 sites are now being written at the local level. Many plans across the country cover seabird and colonial waterbird sites, including 30 seabird/seaduck sites in Newfoundland and Labrador. The IBA Community Action Fund (IBACAF) awarded in excess of \$165,000 to 47 community projects at IBA sites across Canada; the deadline for the Spring 2001 IBACAF will be announced on the IBA web site (<http://www.ibacanada.com>) this fall. For further information about the IBA program, contact Leah at ldeforest@cnf.ca.

FISHERY ISSUES

Ken Morgan is working on a system to obtain seabird bycatch data from observers on commercial fishing vessels in BC. He worked with the Department of Fisheries and Oceans (DFO) and **Joanna Smith** to set up a training program for observers and developed a curriculum, so that the observers can identify birds in bycatch, record data, and salvage dead birds for additional analyses. Ken coordinated development of a seabird identification guide for the observers. Partnerships have been established with DFO and fishing industry associations. **Bob Milko** (CWS), **John Chardine** (CWS) and Morgan met with staff of DFO to push implementation of FAO's International Plan of Action to reduce the

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bycatch of seabirds in longline fisheries.

Joanna is developing a research project to examine seabird interactions with fisheries in BC. She is planning on starting a PhD in January 2001 to examine seabird mortality in longline and net fisheries. Earlier this year, Smith attended the Conservation of Arctic Flora and Fauna meeting, held in Dartmouth, N.S., to discuss seabird bycatch issues in Arctic countries, examine directions for future work, and present the results of the training program/curriculum she has developed. Smith is a member of an informal regional seabird bycatch working group that has just been formed to address seabird bycatch issues in BC. Future plans with the working group include summarizing the existing seabird bycatch data and developing educational and outreach materials.

POPULATION GENETICS

Vicki Friesen (Queen's University) and her lab are using molecular methods to study population and conservation genetics of a variety of seabirds. They have completed a study of population differentiation in kittiwakes. Gene flow among colonies of Red-legged Kittiwakes is restricted, suggesting they should be managed separately. Atlantic and Pacific populations of Black-legged Kittiwakes are distinct, in agreement with current taxonomy; gene flow among colonies in the Atlantic is restricted, whereas Pacific colonies are more homogeneous (A. Patirana, S. Hatch and J. Char-dine, unpubl.). They also finished a genetic study of Common Murres from throughout the North Atlantic, and Thick-billed Murres from throughout the Northern Hemisphere. Partially analyzed data suggest that Atlantic and Pacific populations of both species are genetically distinct, that gene flow occurs within each ocean basin, but that genetic clines may exist (M. Damus, unpubl.).

John Piatt (U.S. Geological Survey) and Friesen continue their molecular study to aid in the restoration of murres, guillemots and murrelets to the

Gulf of Alaska after the Exxon Valdez Oil Spill. These studies are wrapping up and some preliminary analyses have been performed. With the assistance of numerous personnel from the U.S. Geological Survey, U.S. Fish and Wildlife Service, and CWS, they collected tissue or blood samples from Common Murres, Marbled and Kittlitz's Murrelets and Pigeon Guillemots throughout the North Pacific. They then compared variation in mitochondrial DNA, microsatellites and nuclear introns. Gene flow in murres is generally high, and murres from different regions are genetically similar (T. Birt, K. Warheit and A. Patirana, unpubl.). A high proportion of murres sampled from the Gulf of Alaska represent the descendants of hybridization between Common and Thick-billed Murres (A. Patirana, T. Birt, M. Damus and S. Leung, unpubl.). Marbled Murrelets from the Aleutian Islands are genetically different from those elsewhere, possibly due to historical variance; ground- and tree-nesting populations do not appear to differ (Congdon et al. 2000, *Evolution* 54: 974). There was no evidence of hybridization between Marbled and Kittlitz's Murrelets (N. Pacheco). Pigeon Guillemots from different regions are genetically distinct, and gene flow in guillemots is highly restricted (V. Poland and G. Ibarguchi, unpubl.).

Friesen and colleagues compared Blue-eyed Shags from several colonies around the subantarctic, and found that shags from Heard Island are distinct from those from South Georgia and Macquarie Island, and probably represent a separate species (S. Corbett and N. Brothers, unpubl.) They initiated population genetic studies of Masked Boobies; preliminary results indicate that populations from the Atlantic, Caribbean, and central and eastern Pacific are genetically distinct and probably represent cryptic species (T. Steeves, D. Anderson, E.A. Schreiber, and H. Jones, submitted). And they initiated a study of Band-rumped Storm-Petrels; preliminary results indicate that populations breeding during the spring versus fall in the Atlantic

Islands are reproductively isolated and probably represent cryptic species (L. Monteiro, R. Furness, A. Smith, G. Ibarguchi, and V. Lodha, unpubl.).

WASHINGTON AND OREGON

Summarized by Roy W. Lowe

WASHINGTON—MARBLED MURRELETS

Shelley Hall and staff at Olympic National Park, with assistance from the Washington Department of Fish and Wildlife (WDFW), conducted weekly surveys at Heart of the Hills Camp-ground during the entire Marbled Murrelet breeding season. They hope to document any murrelet use outside of the traditional protocol survey season. They selected this site because of consistent high levels of activity over the past several years. They are analyzing data from a two-year (1998/1999) study of murrelet use in pristine and developed areas within the park. In addition, they are comparing activity levels in the park with activity in more intensively managed areas of the Olympic Peninsula. Plans for the 2001 survey season include assisting with inland surveys covering all suitable murrelet habitat within San Juan National Historical Park in the San Juan Islands of Washington. This will be an interesting survey project for two reasons: 1) Although murrelets are often observed on the waters in the San Juans, no inland surveys have ever been conducted. 2) The habitat in the park, although suitable, is not what is traditionally thought of as murrelet habitat.

William Ritchie of Washington Department of Fish and Wildlife (WDFW) discovered and verified the first active nest to be found in Washington since 1997, at a site in southwest Washington. This nest was expected to fledge during the last week of August. Ritchie, Deanna Lynch of the U.S. Fish and Wildlife Service (USFWS) and Tom Kogut (USDA

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Forest Service), following information provided by a biologist surveying for Spotted Owls, documented murrelet presence at a site on the Gifford Pinchot National Forest in Skamania County. At more than 112 km (70 mi), this is the farthest inland detection in the state at present, and it may turn out to be the farthest-inland site documented in North America. Additional surveys are planned for next year.

WDFW personnel continued conservation work on murrelet breeding habitat by reviewing Forest Practice Applications and survey protocol compliance for sites where surveys are required under state regulations. Private timberland owners are given assistance with interpretation of protocols and regulations, habitat assessment, survey design, survey training, and landscape planning. They also are helped with survey personnel for sites involving special or complex situations, and they get assistance with survey and habitat data information management. About 20 WDFW biologists have contributed to these activities during the past year.

Ritchie and **Shelley Hall** (Olympic National Park) began work on a statewide cooperative monitoring survey project involving sites in different physiographic provinces under different land management types. Surveys are being conducted weekly from late March to mid-September at two nest sites with very high detection levels to document activity during the entire breeding season. Results are expected to be useful in verifying protocol survey season recommendations, for managing projects with possible disturbance potential in or near suitable habitats, documenting regional differences in the timing of murrelet breeding activity within the state, and may aid in determining the success of the breeding effort prior to initiation of the standard survey season. Discussion with additional cooperators is ongoing and in the future may include the Washington Department of Natural

Resources, USDA Forest Service, and the Willapa National Wildlife Refuge.

Martin Raphael, **Diane Evans Mack**, and **Randall Wilk** of the USDA Forest Service's Pacific Northwest Research Station in Olympia, Washington, continued several collaborative studies on Marbled Murrelets in Puget Sound and Hood Canal during 2000. Along with researchers elsewhere in Washington, Oregon, and northern California, we initiated the pilot year of long-term population monitoring of murrelets under the Northwest Forest Plan, using a standardized marine survey design that was developed over the last several years. We surveyed the San Juan Islands to Olympia in Puget Sound, which represents a portion of Zone I as defined by USFWS's Marbled Murrelet Recovery Plan. **Martin Raphael** and **Jeff Laake** of NOAA developed an analytical design for the transect-based survey data using program DISTANCE coupled with additional software to estimate mean density of birds from each target population in each recovery zone. We also continued to collect baseline data on within-season and annual changes in distributions, densities, and productivity indices of murrelets in the San Juan Island archipelago. Numbers of murrelets observed on systematic surveys in 2000 were the lowest since 1996 for sampling periods in early May, early June, late June, and mid-July. Similarly, numbers of murrelets observed on Hood Canal transects were lower in 2000 than 1998 and 1999 for June and July samples, although higher in August. Density and productivity estimates were not available as of this writing.

In collaboration with **Brian Cooper** of ABR, Inc., we conducted a third year of radar sampling at 10 large drainages around the Olympic Peninsula to determine if the level of murrelet activity can be correlated with the distribution and landscape configuration of potentially suitable nesting habitat defined at a broad scale. We added simultaneous sampling at a subset sites to test radar coverage. With

John Marzluff of the University of Washington (UW), we completed the fifth and final year of an assessment of the effects of landscape and stand features on the predation risk of artificial murrelet nests on the western Olympic Peninsula. This study was also funded by WDNR, Rayonier Timber Co., USFWS, and NCASI. Our focus now is on developing new models that will relate predicted occupancy (probability of nesting) and risk of predation (nesting success) to habitat features at the stand and landscape scales.

Work continues on developing a map of potential murrelet nesting habitat for Western Washington Cascades and the Olympic Peninsula. This habitat map will be derived from a region-wide vegetation map being developed by the Forest Service and Bureau of Land Management in support of monitoring efforts throughout the Pacific Northwest.

WASHINGTON—OTHER SPECIES

The Puget Sound Ambient Monitoring Program (PSAMP) is a state and federal interagency effort in Washington that monitors various components of the inner marine waters of the Strait of Juan de Fuca, San Juan Islands and Georgia Basin, Puget Sound proper. **David Nysewander**, **Joe Evenson**, **Bryan Murphie**, and **Tom Cyra** are continuing several monitoring studies associated with the marine bird component of PSAMP. Winter aerial surveys of marine birds and waterfowl were conducted again in December 1999 and January 2000. Data and map products in ARC GIS format for winter and summer surveys from 1992 through 2000 are available through the Wildlife Resources Data Section of WDFW (contact **Shelly Snyder** at 360-902-2483). Restricted funding has led to the discontinuation of the summer aerial surveys for now, but the 2000-2001 winter aerial surveys will be continued, in part due to concern about the decreasing trends seen recently for many of the diving ducks and other key marine species like Western Grebes.

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Pigeon Guillemots were surveyed at breeding sites for the second year in May 2000 by WDFW's PSAMP program, USFWS, and volunteer groups. This year the boat-based surveys used standardized protocol and timing at all sites. Colonies checked last year were resurveyed, and a few missed last year were added, such those in the western Strait of Juan de Fuca. The collaborative effort is expected to last at least a three to five years. Contact **Joe Evenson** at 360-902-2524 for further information. The PSAMP team will also participate in a pilot project during June 2001, collaborating with a number of ground-based volunteer observers, which will evaluate the feasibility of monitoring great blue herons from aerial surveys of their marine feeding areas in northern Puget Sound.

Jen Zamon completed her doctoral thesis in spring 2000 on the foraging ecology of marine birds and seals in Cattle Pass of the San Juan Islands, Washington.

Julia Parrish's lab (UW) spent a busy year in pursuit of both live and dead birds. For the third year in a row they studied factors affecting reproductive phenology and success of Common Murres nesting at Yaquina Head in Newport, Oregon (see Oregon section). Murre population data were also collected at Tatoosh Island, off the NW tip of Cape Flattery in WA, for the tenth consecutive year. The field crew included **Julia Parrish, Andrew Richards, Valerie Sloane, Colin French, Nathalie Hamel, Libby Logerwell, and Jen Szucs**. Eagle pressure is much higher at this colony than at Yaquina Head and continues to rise annually. As a result, reproductive success of all surface nesters, including murres, cormorants, and gulls, has been depressed to non-existent. Eagles frequented many murre nesting areas early in the season, causing the murres to abandon their eggs. For pairs making it through this bottleneck, however, chick fledging was near 100%. Chicks were fed mostly Pacific herring and surf smelt.

Eighteen adult murres were radio-marked in the second year of a study to determine foraging distribution and the pattern of dispersal along the outer coast and into Puget Sound. Movements were similar to last year; the majority of tagged birds headed east down the Strait of Juan de Fuca and into the Sound. **Nathalie Hamel** spent the remainder of the summer and fall flying Washington's waters in search of signals. The project depended on the able assistance of four wildlife veterinarians, who volunteered for the project: **Bob Whitney, John Huckabee, Darlene Deghetto, and Heidi Zurawka**.

Deborah Jaques (USFWS, Willapa NWR) is continuing her research on Brown Pelican use of roost sites in southwest Washington. This is part of a long-term agreement with the Washington Dept. of Transportation to monitor impacts of a highway erosion control project at the north end of Willapa Bay. As predicted by some engineers, a sand island at the mouth of the bay eroded entirely within two years of project implementation. The island was one of the key Brown Pelican roost sites in the Pacific Northwest. Overall use of Willapa Bay by Brown Pelicans decreased in 2000 in response to roost site loss, while use of roosts in the surrounding estuaries, the Columbia River (East Sand Island), and Gray's Harbor (Sand Island) increased. USFWS is working on means to protect the remaining critical roost sites.

Libby Logerwell, who recently joined the extended lab as a post-doc under the Pacific Northwest Coastal Ecosystems Regional Study (PNCERS), has been applying her bioenergetic expertise to examine the effect that piscivorous seabirds have on the nearshore environment of the eastern Pacific. Together with **Julia Parrish** and assisted by **Lia Stamatiou**, Libby has been collecting and collating data on diets and on at-sea and colony diversity and abundance for seabirds from southern California to British Columbia. Many people have contributed time and data to this effort.

Back-of-the-envelope calculations indicate that in the 1990's seabirds consumed 220-300 thousand metric tons of fish annually.

During 1999-2000, volunteers hit the beaches of Washington and Oregon surveying for beached birds. The Coastal Observation and Seabird Survey Team (COASST) program is run by **Todd Hass** and **Julia Parrish**. With assistance by volunteer coordinators **Mary Sue Brancato** and **Valerie Sloane**, COASST volunteers started collecting data in December of 1999. Thirty-two volunteers now survey 17 beaches from Newport, OR north to Neah Bay, WA on the outer coast. In addition, volunteers now survey Dungeness Spit in the Strait of Juan de Fuca and five of the San Juan Islands. COASST Reports '99-'00 was sent to volunteers and natural resource agencies in August 2000. You can get your own copy in PDF format at <http://depts.washington.edu/coasst/>, or a hard copy from COASST, School of Aquatic and Fisheries Sciences, Box 355020, University of Washington, Seattle, WA 98195-5020; or email coasst@u.washington.edu. Hass and Parrish are just finishing *Beached Birds: A COASST Field Guide*, due out in late 2000.

Ed Melvin (Washington Sea Grant) and **Julia Parrish** spent a second year in Alaskan waters studying methods to reduce seabird bycatch in the North Pacific longline fisheries (see Alaska report).

Magellanic Penguins still are the core research area for **Dee Boersma**. She is continuing her work at Punta Tombo, Argentina and is also working on New island South in the Falkland Islands studying the foraging area of breeding Magellanic, Rockhopper and Gentoo penguins. In June working with **Patricia Majluf**, and **Nigella Hillgarth** they used satellite tags to track breeding Humboldt Penguins at Punta San Juan, Peru.

OREGON—LOWER COLUMBIA RIVER

The interagency Caspian Tern Working Group is attempting to move

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the large Caspian Tern colony from Rice Island to East Sand Island (13 miles closer to the ocean), where it was hoped they will consume fewer juvenile salmonids. The Rice Island colony has been the largest Caspian Tern colony in the world for several years, and it has recently become the object of considerable controversy because it consumes millions of salmonids annually. The Caspian Tern Working Group includes the National Marine Fisheries Service, U.S. Army Corps of Engineers, USFWS, Oregon Department of Fish and Wildlife (ODFW), and WDFW. The primary management action planned by the Working Group for 2000 was to completely relocate the Rice Island colony to East Sand Island.

The effort to relocate the tern colony is being monitored through research on predation by Caspian Terns, Double-crested Cormorants, and Western/Glaucous-winged Gulls on listed salmonids in the Columbia River estuary and lower Columbia River. This year's research team included **Dan Roby, Ken Collis, David Craig, Don Lyons, Jessica Adkins, Bobby Begay, Cindy Anderson, Scott Anderson, Michelle Antolos**, and a number of seasonal technicians and volunteers. The team is a joint endeavor of Oregon State University (OSU), the Columbia River Inter-Tribal Fish Commission, and Real Time Research.

About 1,400 pairs of Caspian Terns nested on East Sand Island in 1999. Relocation work began in 2000 when about 4 acres of bare-sand nesting habitat were restored in late March. Tern decoys, audio playback systems, and selective gull removal were used to encourage terns to nest again on the site. The U.S. Army Corps of Engineers hired a crew to haze terns attempting to nest on Rice Island, but a temporary restraining order requested by Seattle Audubon, National Audubon, American Bird Conservancy, and Defenders of Wildlife prevented any disturbance of the Rice Island tern colony throughout the 2000 breeding season.

Nevertheless, over 90% of Caspian Terns shifted from Rice Island to East Sand Island for nesting. About 9,456 pairs of terns nested at the restored East Sand Island colony, compared to only 580 pairs on Rice Island. This represents about a 10% increase in the total number of Caspian Terns nesting in the Columbia River estuary compared to last year.

Only 90 young were fledged at the Rice Island tern colony this season, compared to over 4,000 last season. Intense predation pressure by Glaucous-winged/Western Gulls on tern eggs and chicks was the primary reason for poor productivity at the Rice Island colony this year. Gull predation of tern eggs and chicks was rare on East Sand Island, however, and nesting success was good with over 6,000 young fledged this season. The Rice Island terns continued to rely mostly on juvenile salmonids as a food supply (91% of prey items). The terns nesting on East Sand Island foraged more in marine and brackish-water habitats than did the terns nesting on Rice Island, and the diet of East Sand Island terns was 44% salmonids, or less than half the salmonids that were consumed by terns nesting on Rice Island.

This year was the first in which we attempted to place unique combinations of colored leg bands on adult and fledgling Caspian Terns. Over 600 adults and over 400 fledglings were color-banded. If you sight a color-banded Caspian Tern, please try to record the color combination of plastic bands on the right and left leg, and inform one of the members of the research crew listed above.

The interagency Caspian Tern Working Group will attempt again in 2001 to prevent any nesting by Caspian Terns on Rice Island. There is pressure from some agencies that are members of the Working Group to reduce the size of the East Sand Island tern colony in 2001 as well. The only other known Caspian Tern colony along the coast of Oregon and Washington in 2000 was a colony of 600-800 pairs nesting at the Asarco superfund site near Tacoma,

Washington. Asarco has stated its intent to prevent any nesting by Caspian Terns on the Tacoma colony site in 2001. The State of Washington has no plans to restore or enhance breeding colonies of Caspian Terns anywhere in the state.

The Double-crested Cormorant colony on East Sand Island in the Columbia River estuary remained approximately stable this year. This is still the largest known breeding colony of the species on the Pacific Coast of the U.S. and Canada. Because this cormorant population has consumed millions of juvenile salmonids in each of the last three years, pressure is building from fish managers to reduce this major seabird colony as well.

OREGON—OTHER AREAS

In September, **David Pitkin** and **Eric Nelson** (USFWS) conducted an aerial survey of Brown Pelicans along the Oregon coast in coordination with a similar survey conducted by **Deborah Jaques, Nanette Seto** and **Ulrich Wilson** in Washington. It was found that use of roosts in the Columbia River (East Sand Island), among other places, increased as roost sites were lost in Willapa Bay (see Washington section).

Roy Lowe and **David Pitkin** (USFWS, Oregon Coast National Wildlife Refuge Complex) continued seabird monitoring projects during the summer of 2000. Aerial photographic surveys were conducted of all Common Murre and Brandt's Cormorant colonies and most Double-crested Cormorant colonies along the Oregon coast. The number of murre present at most colonies along the Oregon south coast appeared to be high again this year and chick production appeared to be good. Along the north coast things were different due to intense colony disturbance by Bald Eagles. From Yaquina Head north the production of young was low and some colonies had completely abandonment nesting attempts by mid-June. Two new estuarine Double-crested Cormorant colonies were discovered again this year including one in

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Lincoln County there is no previous record of nesting by this species. Pelagic Cormorant nesting attempts at 17 colonies near Newport, were recorded again this year. The number of Pelagic Cormorants nesting at these colonies was the third lowest total recorded since 1988.

For the third year in a row, **Julia Parrish's** laboratory at UW monitored reproductive phenology and success of Common Murres nesting at Yaquina Head in Newport, OR, as well as the factors affecting these population parameters. This year **Nathalie Hamel** and **Colin French** spent April through mid-July in the lighthouse monitoring the colony. The year 2000 was the most successful since they started monitoring in 1998. More murres nested at Yaquina than in either previous year. At the same time, more eagles frequented the area, and eagle predation and associated disturbance was higher. Murre chick diet was composed of mainly surf smelt and sandlance. Courtesy of the eagles, which drop murre carcasses on the nearby beach, they've also begun a stable isotope study to find out whether murres really are what they eat.

Jan Hodder and students at the Oregon Institute of Marine Biology monitored Pelagic Cormorant nesting success at the nearby colony on Cape Arago for the 25th consecutive year. Productivity was a little above the 25 year mean, but only 13 nests were constructed (25 year mean = 33). In addition, they initiated monitoring on a second Pelagic Cormorant nesting site, the Coos Bay South Jetty cliffs where 30 nests were built this year.

Kim Nelson of the Oregon Cooperative Fish and Wildlife Research Unit at OSU continued her research on murrelets in Oregon and Japan. In Oregon, she currently has three projects ongoing. She continues her habitat modeling work in western Oregon with the Coastal Landscape Analysis and Modeling Study (CLAMS) and the Effectiveness Monitoring program. By spring 2001, she hopes to provide predictive models of Marbled Murrelet habitat and a

murrelet habitat map for the Coast Range Province. Model validation will continue in 2001 and 2002. This project is being funded by the USDA Forest Service's Pacific Northwest Research Station in Corvallis (in cooperation with **Tom Spies**), USFWS, and the Bureau of Land Management. Nelson also completed a project looking at Marbled Murrelet habitat selection in the Coast Range using aerial photo interpretation, in cooperation with **Bill Ripple** of the Environmental Remote Sensing Applications Laboratory at OSU. They compared forest type and fragmentation variables at stand and landscape scales between a set of nest and random sites. A manuscript is in preparation. Funding for this project was provided by the USFWS. A new project, also funded by the USFWS, was initiated to begin to look at murrelet use of sub-optimal habitat. The key question to be answered in this "Gray Habitat Project" is whether murrelets are using even-aged forests with very few remnant old-growth trees or other trees with platforms. Surveys during this first pilot year yielded only one detection in gray habitat. Field assistance was provided by **Amy Ellingson** and **Cheron Ferland**. The project was supervised by **Mandy Wilson**.

Kim also continued her research on Long-billed Murrelets in Japan (see Pacific Rim report).

The new Monitoring Plan sampling design was used by **Craig Strong** and **Terry Carten** (Crescent Coastal Research) to conduct at-sea surveys of Marbled Murrelets and other seabirds throughout Oregon from June through August. Murrelet abundance appeared similar to recent years. Indices of fledgling productivity were relatively high for murrelets and other alcids, reflecting the strong upwelling and primary productivity seen along the west coast in this cool-water year. A draft report for this year's work should be available through ODFW (Wildlife Division, Portland) by December.

Two long-term beached-bird surveys were repeated in Lincoln County, Oregon. **Roy Lowe** reports that the 14th consecutive beached bird mortality study was conducted from June through September on 7.1 km of beach located between Seal Rock and Alsea Bay. Mortality this year was low throughout the study period; only one small pulse of hatching-year murre chicks washed ashore.

On December 31, 1999, **Bob Loeffel** completed the 22nd year of beached bird mortality surveys on the Oregon central coast. This survey is conducted on 4.6 miles of Lincoln County beach south of Newport, between Beaver Creek and Henderson Creek. Assisting Bob on the surveys again were **Shirley Loeffel**, **Sara Brown** and **Laimons Osis**. Surveys were conducted throughout the year at intervals of 8 days or less. The following is a summary for calendar year 1999.

In 1999, 785 birds were recovered during the surveys of which 393 were Common Murre chicks. The murre chick total is near the 21-year average, signaling increased production of murre chicks for the first time in many years. Aside from murre chicks, recoveries were low for the 3rd year in a row (392, compared with an average of 469 during the first 20 years of the survey). The species of greatest number were adult murres (77) and Northern Fulmars (45). About half of adult murre mortalities were found in July and August, coincident with heavy murre chick mortality. Only 4 Cassin's Auklets were found, which equals the lowest count on record and is far below the 20-year average (89). Adult Rhinoceros Auklet mortality was especially notable in March (13) and December (12). Interestingly, both of these occurrences took place shortly after oil spills: the *New Carissa* second grounding in March and the *Blue Heather* sinking in December. Survey effort was increased to daily observations from late February through March as part of the *New Carissa* oil spill response. Other findings of note included: 8 Common

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Loons in February, which is more than combined numbers for the previous 21 February counts; 5 Black-footed and 1 Laysan Albatross; an unusual number of Fork-tailed Storm-Petrels (37); 2 Parakeet Auklets; and, for the first time, a Turkey Vulture and an American Coot.

Other beached-bird work in Oregon was carried out by the COASST program (see Washington section).

Maura Naughton was recently selected to fill the newly created seabird and shorebird biologist position in the USFWS regional office in Portland, Oregon. Maura has previous experience working with seabirds in Alaska, Hawai'i and southern California. Most recently, she served as the wildlife biologist for the Willamette Valley National Wildlife Refuges where she completed her master's thesis on Dusky Canada Geese.

NORTHERN CALIFORNIA

Summarized by **Kyra Mills**

Several projects are continuing on the Farallon Islands and in adjacent waters. **Kyra Mills**, **William Sydeman**, **Christine Abraham**, **Nadav Nur**, **Peter Pyle**, **Jerry Nusbaum**, **Natalia Collier** and **Adam Brown** of Point Reyes Bird Observatory (PRBO) are continuing their long-term monitoring and ecosystem study on the islands. They are looking at the effects of climate variability and change on the population dynamics, demography and feeding ecology of 12 species of seabirds and 5 species of pinnipeds. The study just completed its 31st year of data collection, in cooperation with **Joelle Buffa** of the U.S. Fish and Wildlife Service.

Jan Roletto (Gulf of the Farallones National Marine Sanctuary) and **Joe Mortenson** of the Farallones Marine Sanctuary Association (FMSA) are assessing population indices for

birds and mammals through shoreline monitoring. They are also involved in shoreline monitoring of beached birds and mammals as well as chronic oil pollution. Cooperators are **Leslie Grella** and **Maria Brown** (FMSA).

A long-term study of the distribution and abundance of seabirds in the Gulf of the Farallones is continuing under **Sarah G. Allen** (National Park Service) and **D. G. Ainley** (HT Harvey & Associates) The study, which started in 1985, also includes assessment and modeling of habitat associations. Cooperators are **Hannah Nevins** and **Carol Keiper** (MLML) **Ainley** also is working with **Larry Spear** (HT Harvey & Associates) in studying the effects of disposal of dredged materials on marine birds and mammal habitat 20 miles west of the Farallon Islands. Collaborators are the U.S. Army Corps of Engineers and the Tiburon Environmental Center.

The distribution and relative abundance of seabirds in Monterey Bay and the Santa Barbara Channel are being monitored for the fifth year by **Scott Benson** of Moss Landing Marine Laboratories (MLML) and **Don Croll** of the University of California at Santa Cruz (UCSC), in collaboration with **Baldo Marinovic** (UCSC) and **James Harvey** (MLML). The project focuses on abiotic and biotic factors that are related to seabird distribution. **S. Benson**, **J. Harvey**, and **Andrew De Vogelaere** (Monterey Bay National Marine Sanctuary) are also conducting a long-term monitoring effort of beachcast marine birds and mammals within the Monterey Bay National Marine Sanctuary. Monitoring began in 1997 and also includes the active participation of **Hannah Nevins** (MLML), **Dave Jessup** and **Melissa Chechowitz** of the California Department of Fish and Game (CDFG) Oil Spill Prevention and Response office.

Recolonization of Devil's Slide Rock continues to be successful under the Common Murre Restoration Project. with 98 pairs of breeding murre in 2000. The project, which is

in its 5th year, also includes San Pedro Rocks and the Castle/Hurricane Point Complex. Personnel are **Mike Parker** of the U.S. Fish and Wildlife Service and Humboldt State University (HSU), **Harry Carter** and **Rick Golightly** (HSU), and **Steve Kress** (National Audubon Society), with the help of **Christine Hamilton**, **Tory Slowik**, **Hugh Knechtel**, **Ingrid Harrald**, **Marty Murphy**, **Holly Gellerman**, and **Hannah Nevins** (all from HSU and San Francisco Bay National Wildlife Refuge Complex). Monitoring of murre and Brandt's Cormorants also continued at the Point Reyes Headlands.

Karin Forney of the Southwest Fisheries Science Center, National Marine Fisheries Service (NMFS) is working with **Don Petersen** (Southwest Region, NMFS) to assess the bycatch of marine birds and mammals in the halibut set gillnet fishery in Monterey Bay and adjacent nearshore waters. This study is part of a NMFS Observer program and results indicate that mortality of seabirds, especially Common Murres, is high. The mortality estimate of Common Murres during the 1999 fishing season was as high as 2,359, and observer data for January to June 2000 indicate that 581 murre and 2 cormorants were incidentally killed during 44 observed days of fishing effort.

Monitoring of populations and productivity of Marbled Murrelets from Half Moon Bay to Monterey Bay is in its sixth year under **Ben Becker** and **Zach Peery**, both Ph.D. candidates, and professor **Steve Beissinger**, all of the University of California at Berkeley. Additional aspects of this study include at-sea murrelet habitat selection relative to prey distribution and oceanographic conditions, as well as seasonal and annual variations in murrelet diet.

Craig Strong (Crescent Coastal Research) completed a second year of at-sea surveys of Marbled Murrelets along the Mendocino and Sonoma coast, in cooperation with **Lynn Roberts** (USFWS, Arcata), **Esther Burkett**, **Martin Hauan**, and **Dennis**

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McIver (CDFG), and **Leigh Detweiller**, **Sherri Miller**, and **C.J. Ralph** (USDA Forest Service, Redwood Sciences Laboratory). Results, using a recently developed sampling design under the Northwest Forest Plan Effectiveness Monitoring Program, supported earlier survey findings of very low numbers but consistent presence of murrelets at certain locations north of Salt Point State Park.

Sal Chinnici of the Pacific Lumber Company (PALCO) and **Dave Bigger** (Sustainable Ecosystem Institute) are leading a study on monitoring of the Marbled Murrelet as part of PALCO's recently approved Habitat Conservation Plan. Part of this monitoring is a commitment to regional murrelet research to be carried out over a ten-year period. Most of the research funding and efforts this year have gone into research on murrelet numbers and habitat use. Another Marbled Murrelet study focuses on the forest occupancy patterns in relation to timber harvest operations in the Santa Cruz Mountains (San Mateo County) and is led by **David Suddjian** of Suddjian Biological Consulting Services in collaboration with **Jeff Davis** (UCSC), **Laird Henkel** (MLML) and **Bryan Mori** (Mori Biological Consulting Services).

Ron LeValley (Mad River Biologists) and **Howard Sakai** (Redwood National Park) have completed their first year of a two-year survey effort for Marbled Murrelets in residual redwood forest stands within Redwood National Park. Ron also is in this eighth year of training inland surveyors.

In the San Francisco Bay area, **Julie Thayer**, **Ben Saenz** and **William Sydeman** (all of PRBO), along with **Daphne Hatch** (Golden Gate National Recreation Area), completed their fourth consecutive year of monitoring selected seabird species on Alcatraz Island. They are establishing baseline information on the distribution, abundance, and productivity of Brandt's and Pelagic Cormorants, Western Gulls, Pigeon Guillemots, and

Black Oystercatchers, and assessing the extent and effects of disturbance.

Mark Rauzon of Marine Endeavors is studying Double-crested Cormorants nesting on the Richmond-San Rafael Bridge. His collaborators are **Meredith Elliott**, **Jen Roth**, and **Bill Sydeman** (PRBO). The season's highlight was an 18-year old cormorant that had been banded on the Farallon Islands, which attempted to breed on the bridge (but failed). The research is funded by Caltrans. **Rauzon** also worked on predator eradication on numerous remote islands (see Alaska and Pacific Rim reports).

Nesting activity of the endangered California Least Tern colony on Alameda Point (formerly the Naval Air Station, Alameda) is being monitored by **Meredith Elliot** and **William J. Sydeman** (PRBO), in collaboration with **Michael Stroud** (Naval Facilities Engineering Command), **Timothy Burr** (Wildlife Biologist, Naval Facilities Engineering Command), and **Cornell Brown** (Facilities Manager, Alameda Point).

Breeding and foraging ecology of seven seabird species at Vandenburg Air Force Base in Lompoc are being studied by **Adam Brown**, **Dan Robinette** and **Natalia Collier** (all from PRBO). The work focuses on population and breeding dynamics, foraging dynamics of nearshore feeding flocks, and diet composition and feeding rates of Pigeon Guillemots. The second season of field work has been completed. **Nancy Read** (Head Biologist at Vandenburg) is a collaborator for this project.

Craig Strong, **Deborah Jaques**, and **Brad Keitt** conducted aerial Brown Pelican surveys of north and central California in fall 2000 with support from CDFG (Paul Kelly, Oil Spill Prevention and Response program) and the *American Trader* Restoration Council. Combined with survey coverage by USGS researchers **Harry Carter**, **Bill McIver**, and **Gerry McChesney**, this will provide a statewide census of the species during the peak post-breeding dispersal period.

Scott Newman of the University of California at Davis, Wildlife Health Center (UCD/WHC) is evaluating the post-release survival and behavior of rehabilitated Common Murres. The birds were oiled in the *Stuyvesant* spill that occurred in Humboldt Bay in September 1999. Collaborators are **Jonna Mazet** (UCD/WHC), **Rick Golightly** (HSU), **Harry Carter** of U.S. Geological Survey (USGS) and HSU. Scott also is evaluating the biological and behavioral effects of several different radio-telemetry attachment techniques on captive murres. This study is being conducted on captive murres at the Alaska SeaLife Center, Seward, Alaska, along with **Scott Hatch** (USGS, Anchorage) and **Susan Ingles** (Alaska SeaLife Center).

David Ainley and **Cynthia Tynan** of Coast and Ocean, National Oceanographic and Atmospheric Administration (NOAA), Seattle are investigating the life history of salmon at sea through studies of their competitors and main prey. This study also focuses on ocean processes that concentrate prey and allow for more efficient foraging by upper trophic level predators. Collaborators include about 15 other marine scientists, mostly from the NOAA lab in Newport, Oregon.

Daniel Costa and postdoctoral fellow **Scott Shaffer** (UCSC) are in the third year of a study on foraging ecology, energetics, and life history of albatrosses in the southern Indian Ocean (see Pacific Rim report).

SOUTHERN CALIFORNIA

Summarized by **Pat Mock**

Xantus' Murrelet studies are continuing at Anacapa Island. Project leaders are **Darrell Whitworth** and **Harry Carter** (Humboldt State University), **Doug Meekins** and **Tom Hamer** (Hamer Consulting), **Frank Gress** (California Institute of Environmental Studies), and **Sarah Fangman** (Channel Islands National

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Marine Sanctuary). Baseline data are being collected in 2000 in preparation for proposed rat eradication. Methods include radar counts of birds attending potential nesting areas, at-sea captures, vocalization and spotlight surveys, and nest monitoring in sea caves. Data are being compared between Santa Barbara and Santa Catalina islands.

Julie Thayer, Ben Saenz and William Sydeman (all from Point Reyes Bird Observatory), in conjunction with **Gary Strachan** (Año Nuevo State Reserve, California Department of Parks and Recreation), completed their ninth field season studying the population of Rhinoceros Auklets on Año Nuevo Island. The goals of this project are to assess population status, reproductive performance, and food habits of this recovering species. Management efforts have involved protection and enhancement of habitat, implementation of an Island Research Protocol, and installation of nest boxes.

Craig Strong and Deborah Jaques, assisted by **Brad Keitt and Laird Henkel**, have been evaluating Brown Pelican use of roost sites in southern California to provide updated information for the development and implementation of restoration projects as part of the *American Trader* oil spill settlement.

Charlie Collins' seabird projects center on demographic studies of Black Skimmers nesting in coastal Southern California. Some work with Least, Caspian and Elegant Terns also continues. An MS thesis on growth of Elegant Terns is nearing completion and a study of locally nesting Black-necked Stilts is starting. Charlie also is cooperating in studies of the food habits of locally nesting terns and skimmers being done by Mike Horn and his students at California State University Fullerton. Lots of other studies are being done on Island Scrub-Jays and Swifts.

Pat Mock is overseeing surveys of South Salton Sea wildlife, including various waterbirds. He is also very active in regional conservation

planning programs in Southern California and the Florida Keys.

George Hunt's laboratory at University of California, Irvine (UCI) is completing two major projects on ecosystem relationships of marine birds at sea: marine bird use of a polynya between Greenland and Ellesmere Island (see Canada report) and productivity and shearwater feeding in the Bering Sea (see Alaska report). Fieldwork for both of these studies is complete and we are now in the write-up phase. Hunt has received funding for a study of inter-decadal variation in the ecology of upper trophic levels at the Pribilof Islands (see Alaska report). A number of Hunt's students are collaborators on these projects and are involved on independent studies of their own, as described below.

Cheryl Baduini received her PhD from UCI in spring 2000 on the foraging ecology of shearwaters in the Bering Sea. She has accepted a temporary teaching position at the Claremont Colleges, Claremont, CA, where she will teach marine biology and continue to write up her research. **Nina Karnovsky** has recently completed fieldwork on seabird foraging between Canada and Greenland (see Canada report). She was awarded a Fulbright Fellowship to continue her work on the at-sea distribution, abundance and diets of high arctic seabirds around Svalbard and Jan Mayen from the Polish oceanographic sailboat *Oceania*. She will be in Poland from January through August 2001.

Carolina Pickens will be joining George Hunt's laboratory as a graduate student in fall 2000. She has been working for the Channel Island National Park Seabird Monitoring Program this spring and summer on Santa Barbara Island. She has begun to study Western Gulls, assessing the status of female-female pairing and analyzing food habits and post-fledging survival of banded gull chicks.

Chris Maranto of Hunt's lab is working on the foraging ecology of

Arctic Terns and its effect of reproductive success on Matinicus Rock, in the seaward end of Penobscot Bay, Maine. She is examining how the choice of an all-fish diet or one that includes a large proportion of amphipods may affect reproductive success.

David Hyrenbach divides his time between Scripps Institution of Oceanography and Irvine, has several areas of research interest. He is involved in the long-term monitoring of the California Current avifauna within the context of the California Cooperative of Oceanic Fisheries Investigations (CalCOFI) program. This research, initiated by **Dick Veit, Peter Pyle** and **John McGowan**, has revealed long-term shifts in the composition of marine bird assemblages off southern California since the late 1980's. Additional surveys suggest that the trends previously documented between 1987-1994 have continued in recent years. Namely, despite evidence of a possible regime shift into 'cold-water' conditions during 1999, overall bird abundance and Sooty Shearwater numbers remain substantially lower than at the beginning of the time series. David also is doing a telemetry study of albatross foraging ecology based at Tern Island, Hawai'i (see Pacific Rim report) and is studying the foraging ecology of Short-tailed Shearwaters in the southeast Bering Sea (see Alaska report). A new project will look at seabird abundance and distribution off Peru (see Pacific Rim Report).

Lucy Vlietstra's research focuses on shifts in individual behavior and community structure among marine birds during prey-level fluctuations. She is currently examining the effects of ENSO-related prey reductions on the wintering seabird community of Monterey Bay, California. Other projects look at shearwater foraging ecology at passes in the Aleutian Islands and shifts in fish and seabird distributions around the Pribilof Islands (see Alaska report). The first two studies combine hydroacoustic fish measurements and bird observations to

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compare spatial relationships between trophic levels.

Jen Zamon completed her doctoral thesis in Spring 2000 on the foraging ecology of marine birds and seals in the San Juan Islands, Washington (see Washington-Oregon report). She has taken a Canadian post-doctoral fellowship to work with the Department of Fisheries and Oceans on marine productivity and salmon survival (see Canada report).

An impressive number of agencies are cooperating in an integrated study of the at-sea distribution and movements of Cassin's Auklets. The project leader is **Josh Adams** of Moss Landing Marine Laboratories (MLML). Principal investigators are **John Takekawa** and **Dennis Orthmeyer** (U.S. Geological Survey) and **Harry Carter** and **Rick Golightly** of Humboldt State University (HSU). Collaborators include **Tom Keeney** and **Steve Schwarz** (U.S. Navy), **Paul Kelly** (CDFG), **Sarah Fangman** (Channel Islands National Marine Sanctuary), **Paige Martin** (Channel Islands National Park), and **Jim Harvey** (MLML). During 1999-2001 of at-sea distribution and movements of Auklets from two colonies, Prince Island and Scorpion Rock, are being studied during 1999-2001, using radio telemetry and boat surveys. Data are being collected on oceanography, diet, prey abundance and distribution, and breeding phenology and success.

Another interagency study is doing at-sea surveys and coastal counts of all seabird species in the Southern California Bight, including the Channel Islands and mainland. **Gerry McChesney** (HSU) is the Project Leader; key staff include **Bill McIver**, **John Mason**, and **Phil Capitolo**, all of HSU. Principal Investigators are **Dennis Orthmeyer** and **John Takekawa** (U.S. Geological Survey) and **Harry Carter** and **Rick Golightly** (HSU). Collaborators include **Mike McCrary** and **Mark Pierson** (Minerals Management Service), **Tom Keeney** and **Steve Schwarz** (U.S. Navy), and **Paul Kelly** (CDFG). Aerial photographic surveys also are being

conducted for breeding colonies of Brandt's and Double-crested Cormorants and for Brown Pelican roosts. Data on seasonal movements will be integrated with data on prey and oceanography.

Judith Hand has concerned herself recently with the behavior of organisms at a higher level than seabirds (if that's possible). Her first novel, "Voice of the Goddess," will be published officially in February and will be available via Amazon.com by November 2000. It's an epic about the Minoan civilization in 1600 BC.

PACIFIC RIM

Summarized by Katie Swift

MAIN HAWAIIAN ISLANDS

Bob Day (Alaska Biological Resources, Fairbanks) worked on radar monitoring of Dark-rumped Petrels and Newell's Shearwater populations on Kauai, in collaboration with **Brian Cooper** and **Todd Mabee** of the ABR, Inc. Oregon office. They began this work in 1993. **David Duffy** (Pacific Cooperative Studies Unit, Department of Botany, University of Hawai'i Manoa) helped arrange logistics for this study. **David** also helped the Park Service in Hawai'i start an inventory process that will include seabirds.

Dave Smith of the Hawaii Division of Forestry and Wildlife (DOFAW) assessed the effects of feral cat predation on survival and nesting of wedge-tailed shearwaters at Malaekahana State Park on Oahu during the summer of 2000. A feral cat feeding colony is located inside the park. Observers found 23 shearwater burrows or scrapes that were active in May. By late June, only 3 (13%) of the burrows contained birds, and 44 shearwater carcasses had been found in the area. Moku' Auia Island, just offshore of the park, was used as a control site. Eighty-three burrows were monitored on the island and 62 (75%) remained active over the same time period.

Beth Flint and **Katie Swift** (U.S. Fish and Wildlife Service, Honolulu) continued monitoring and providing assistance for tenants on a Diamond Head beachfront property with a small Wedge-tailed Shearwater colony in their yard.

Aaron Hebshi, a graduate student under **David Duffy**, initiated dissertation work on the dependence of tropical seabirds on tuna. He has been monitoring reproductive success and chick growth of Wedge-tailed Shearwaters on the Moku Luas, Kaohikaipu, and Molokini Islets (small colonies offshore of the main islands) and comparing these data to local skipjack tuna catch statistics and independent aerial and boat tuna surveys.

G. Causey Whittow has completed a study of water loss during incubation in Great Frigatebird eggs, documenting the events that occur during the long pipping process, and relating water loss to the prolonged incubation of the frigatebird's egg. Also complete is an investigation of the perinatal physiology of the Laysan Albatross. The physiological changes that occur before and immediately after hatching have now been described more completely in the Laysan Albatross than in any other species of bird. Ongoing is a long-term study of egg dimensions of Laysan Albatross breeding in the main Hawaiian Islands. Future plans for the Laysan Albatross include (a) a collaborative study (with **Katherine Cousins** and **James Ludwig**) of the effects of pesticides and toxic contaminants on hormone levels of embryos and hatchlings, and (b) the characterization of the egg-albumen proteins (jointly with **N.V. Bhagavan**). **Sturkie's Avian Physiology** (5th ed., edited by **GCW**), containing much information on the physiology of seabirds, has been published by Academic Press.

NORTHWESTERN HAWAIIAN ISLANDS

Year-round monitoring of population size, reproductive performance, and breeding chronology was supervised by **Brian Allen** and

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Tony Palermo at Tern Island, French Frigate Shoals; **Lindsey Hayes**, **Donna O'Daniel**, and **Nancy Pusey** at Johnston Atoll, and a rotating staff of two or three at Laysan Island. At each of these sites many exceptional volunteers did much of the actual data collection.

Anthony Viggiano is working on finishing the data analysis on his Master's project at the University of Washington, on the demography, population trends and breeding frequency of Black-footed Albatrosses at Tern Island, French Frigate Shoals.

Allison Veit (Memorial University, Newfoundland) completed her first field season of her MSc investigating sexually selected and aerodynamic functions of Red-tailed Tropicbird tail streamers at Tern Island, in collaboration with the USFWS, Northwest Hawaiian National Wildlife Refuge. Her work is being supervised by **Ian Jones**.

DOFAW continued monitoring of seabirds on the offshore islands. **Dave Smith**, **Eric VanderWerf**, **Reggie David**, and **John Polhemus** spent a week on Kure Atoll in May, monitoring seabird populations there. No evidence of rats was found.

David Hyrenbach (Scripps Institute of Oceanography and University of California, Irvine) and **David Anderson** and **Patricia Fernandez** (Wake Forest University) are studying the foraging areas and the movements of Black-footed and Laysan albatross breeding at Tern Island, Hawai'i. Satellite telemetry will be used to relate albatross movements and foraging destinations to environmental parameters (bathymetric gradients, sea surface temperature, chlorophyll concentration) during years of contrasting oceanographic conditions.

ELSEWHERE IN THE PACIFIC

Beth Flint continued to coordinate the seabird monitoring program in the Pacific Remote Islands National Wildlife Refuge Complex. The complex spans 2500 miles from north to south and is home to 24 species of

tropical seabirds on 32 islands and islets. **Flint** and **Dominique Aycock** made site visits to Howland, Baker, Jarvis, Palmyra, and Kingman Reef in March aboard the NOAA vessel *Townsend Cromwell* and did pelagic seabird surveys en route. An exciting discovery at Jarvis Island was the presence in the air and on the ground of White-throated Storm-Petrels (*Nesofregetta fuliginosa*) for the first time.

David Duffy is supervising a seabird project for American Samoa, doing a basic inventory and establishing monitoring protocols.

Kim Nelson (Oregon Cooperative Fish and Wildlife Research Unit, Oregon State University) continued her research on Long-billed Murrelets in Japan. During her first trip to Japan in 1996 (see *Pacific Seabirds* 24:62-68, 1997), she and many colleagues conducted dawn forest surveys in suitable habitat in an attempt to identify potential nesting areas. No murrelets were detected, prompting plans to conduct surveys in the Sea of Okhotsk to look at the distribution of Long-billed Murrelets at sea during the breeding season. In June 2000, **Kim** returned to Japan with colleague **Tom Hamer** to conduct at-sea surveys. The project was coordinated with **Yoshihiro Fukuda** and field assistance was provided by **Will Wright** and **Mutsuyuki Ueta**. After two weeks of searching from boat and land no murrelets were detected. It is possible the Long-billed Murrelets no longer occur in Japan during the breeding season because of habitat loss and extensive gill-net fishing.

In winter 2001, **David Hyrenbach** will start collaborating with the Peruvian Marine Research Institute (IMARPE) on the monitoring of seabird abundance and distribution off the coast of Peru. He is interested in studying the foraging ecology of Waved Albatrosses off the Peruvian coast as well as their interactions with the small-scale longline fishery.

Lisa T. Ballance and **Robert L. Pitman** are now completing the third year of a three-year project in the

eastern tropical Pacific, conducting ecosystem studies of the pelagic ocean. These studies include seabird distribution and abundance surveys and behavioral studies. In the next year we look forward to analyzing these data and to comparing patterns with those documented by a similar series of cruises in the late 1980s. Further information on the ecosystem is at <http://swfsc.ucsd.edu/mmd/star/-default.htm>. **Lisa** and **Bob** also are continuing work in Antarctica. **Bob** is on research vessels in conjunction with International Whaling Commission efforts to document cetacean distribution and abundance in the Southern Ocean. **Lisa** is investigating factors influencing population trends in Adelie Penguin colonies on Ross Island, in conjunction with **David Ainley**.

Scott Shaffer and **Daniel Costa** of the University of California at Santa Cruz are conducting research on Wandering and Black-browed Albatrosses in the French sub-Antarctic Islands of the Indian Ocean (Crozet, Kerguelen, and Amsterdam Islands), in collaboration with **Henri Weimerskirch** of the Centre National de la Recherche Scientifique in France. This study is in its third year of operation. The main focus is the interspecific comparison of foraging ecology and energetics, with an emphasis on how foraging impacts reproduction and life history strategies.

FISHERIES, OIL AND RAT SPILLS

Beth Flint continues to work with her colleagues in Ecological Services, USFWS on bird bycatch issues in the Hawai'i Pelagic Longline Fishery. She taught a course in seabird identification to fisheries observers.

USFWS and other natural resource trustees have almost completed a restoration plan for a Tesoro Hawaii Corporation oil spill in Hawaiian waters in 1998. The spill injured seabirds and other natural resources on Oahu and Kauai. Seabird restoration projects identified in the plan include: (1) predator control in Newell's shearwater colonies on Kauai, (2)

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predator control and habitat enhancement on offshore islands in the Hawaii Seabird Sanctuary, and (3) extension of the predator fence at Kilauea Point National Wildlife Refuge on Kauai. The trustees expect to implement these projects in 2001.

Linda Eliot of the International Bird Response and Rescue Center (IBRRC) spent several months in South Africa helping care for penguins affected by the oil spill. She also worked on the *Erika* spill in France in December 1999; this led to huge improvements in facilities and identified staff and changes in government regulations on ships. Linda prepared an instructional videotape on handling seabirds for Hawai'i longline fishermen. She worked with two new IBRRC response centers for oiled

waterbird in California, and on post-release studies from the *Stuyvesant* spill in northern California.

Mark Rauzon (Marine Endeavors, Oakland, CA) is working with **Katie Swift** and **Chris Swenson** of USFWS on planning responses to shipwrecks and "rat spills" on Hawaiian Islands. He also is working on feral cat eradication on Wake Atoll with **William Everett's** Endangered Species Recovery Council.

As of July 2000, the Short-tailed Albatross was declared endangered within the United States (see Conservation News.)

MEETINGS, ETC.

Beth Flint, Katie Swift, David Duffy, and Pat Tummons hosted the Second International Conference on the

Biology and Conservation of Albatrosses and other Petrels held in Honolulu in May (see Conservation News.)

Beth Flint, David Duffy, and Colleen Henson are organizing the annual PSG meeting, to be held on Kauai in February (see PSG News for details.)

Beth Flint provided input into the North American Colonial Waterbird Conservation Plan for the Pacific Islands Region. **Katie Swift** is working in the Honolulu office to incorporate monitoring data into the Pacific Seabird Monitoring Database. **Flint and Swift** attended the "Rat Summit" sponsored by U.S. Fish and Wildlife Service and the National Park Service in San Francisco.

REPORT OF THE TREASURER FOR 2000

Breck Tyler

This report comprises a balance sheet for all active accounts of the Pacific Seabird Group, a cash flow summary for the past fiscal year, and a brief discussion of finances and membership. Final accounting for the Napa 2000 Annual Meeting was not completed in time for inclusion in this report.

Assets, Equity, and Liabilities

On 30 September 2000, the total assets in PSG accounts were \$164,022.09 (Table 1). Total equity was \$138,316.55, an increase of \$4,656.69 during the past fiscal year. Liabilities included \$16,850.00 for continued work on the Seabird Monitoring Database, \$5,000.00 for publication of the 25th Anniversary Symposium, \$2,355.54 balance from funds approved for *Marine Ornithology*, and \$1,500.00 for the Xantus' Murrelet Technical Committee. The major sources of income were the Endowment Fund (\$22,051.05) and membership dues (\$6,210.96). Major expenditures included payment of Monitoring Database subcontractors (\$16,876) and production of *Pacific Seabirds* (\$7,263.52).

Endowment Account

On 30 September 2000, the PSG endowment account was worth \$105,091.47. Contributions during the past fiscal year included \$360 in Life Membership payments and \$1,846.51 from fund raising at the 1999 Annual Meeting in Blaine. Capital gains and dividends from the account totalled \$22,051.05 and were automatically reinvested. We now own shares in three Neuberger & Berman Manage-

ment, Inc. funds: Focus, Guardian, and Partners. Share and account values fluctuated significantly in line with the volatile stock market. Overall, we invested \$24,257.56 in the account this year but the account value increased only \$20,160.64.

Other income and expenses

Excluding funds invested in the Endowment Account, PSG generated \$10,152.26 in new income during this fiscal year, 61% from membership dues and the rest from dividends, library subscriptions, and publication sales (Table 2). This does not include membership dues payments and publication sales from the Napa meeting, which will be added to the total when they are determined. Excluding payments for previous liabilities and endowment account share losses, PSG accumulated \$14,954.16 in new expenses (Table 2). Publication and mailing of *Pacific Seabirds* was the largest expense (49%).

Other accounts

PSG currently maintains a savings account with Morgan Stanley Dean Witter, and four other checking/saving accounts for specific needs. The Treasurer's joint checking/savings account is managed by Breck Tyler. The *Pacific Seabirds* account, now managed by editor Vivian Mendenhall, contains funds used in the publication and mailing of *Pacific Seabirds*. Steven Speich manages an account to deal with costs of other PSG publications and *Marine Ornithology*. The United Kingdom membership account, managed by Mark Tasker, is used for de-

posits of dues paid in British pounds sterling. A conversion rate of £1.00 to US\$1.45 was used for the value in Table 1. Due to rising transaction fees, PSG is considering a similar account for members paying in Canadian dollars.

Annual Meeting

At the 2000 Annual Meeting in Napa, expenditures exceeded income by \$3,488.91. The difference was made up using funds from PSG savings. The local committee's account will be closed in the near future and remaining funds will be deposited in PSG savings. The actual cost of the Napa meeting has not been calculated. It will be somewhat higher than the above figure because some of the income collected at the meeting (e.g., membership dues, publication sales, and fundraising profits) was not for registration or other meeting activities. The final assessment of meeting expenses and a complete financial summary for the 2000 Annual Meeting will be presented in a future report.

Membership

At the writing of this report, there were 413 active memberships in PSG: 306 regular memberships (individual and family), 60 life members, 2 corresponding members, and 45 student members. A total of 50 libraries receive *Pacific Seabirds*, of which 26 have paid subscriptions. In addition to life membership payments (\$360) and library subscriptions (\$675), membership dues payments (covering various years) totalled \$6,210.96 this year.

TREASURER'S REPORT

TABLE 1. Pacific Seabird Group balance sheet, 30 September 2000.

	Balance	
	30 September 2000	30 September 1999
ASSETS		
Annual meeting, Napa, January 2000	\$396.88	\$1,000.00
Endowment Fund (Neuberger & Berman)	105,091.47	84,930.83
<i>Pacific Seabirds</i> account (Mendenhall)	\$518.24	0
PSG Savings account (MSDW)	48,159.52	49,004.10
Treasurer's accounts (Tyler)	7,654.93	15,013.98
UK membership account (Tasker)	608.91	469.42
EVOS Workshop and publication	0	15,429.52
<i>Marine Ornithology</i> / PSG publications (Speich)	1,592.14	1,738.01
Total assets	\$164,022.09	\$167,585.86
LIABILITIES AND EQUITY		
Liabilities	\$25,705.54	\$33,926.00
Equity	138,316.55	133,659.86
Total liabilities and equity	\$164,022.09	\$167,585.86

TABLE 2. Pacific Seabird Group cash flow report, 1 October 1999–30 September 2000.

INCOME		
Endowment (Capital gains & dividends)	\$22,051.05	
Membership dues	\$6,210.96*	
Interest & dividends (other accounts)	\$3,091.80	
Library subscriptions	\$675.00	
Life membership dues	\$360.00	
Publication sales	\$174.50*	
Total		\$32,563.31
EXPENSES		
Monitoring subcontracts paid	\$16,876.00	
<i>Pacific Seabirds</i>	\$7,263.52	
Share value losses	\$4,158.97	
Annual meeting 2000 (Napa)	\$3,488.91*	
Director's insurance	\$1,050.00	
Taxes, tax preparation, fees	\$884.45	
Dues (Ornithological Council, American Bird Conservancy)	\$650.00	
<i>Marine Ornithology</i>	\$643.96	
Publications	\$462.45	
Officer & committee expenses	\$361.87	
Annual Meeting 1999 (Blaine) – reimbursed costs	\$200.00	
Bank charges	\$86.95	
Total		\$36,127.08
NET		-\$3,563.77

*Tentative estimates; final report will be issued after accounting for Napa meeting is complete.

PUBLISHED PROCEEDINGS OF SYMPOSIA OF THE PACIFIC SEABIRD GROUP

The Pacific Seabird Group holds occasional symposia at its annual meetings. Published symposia are listed below. They are available for purchase (unless out of print). To order, see the membership application/publication order form.

SHOREBIRDS IN MARINE ENVIRONMENTS. Frank A. Pitelka (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Asilomar, California, January 1977. Published June 1979 in *Studies in Avian Biology*, Number 2. Out of print.

TROPICAL SEABIRD BIOLOGY. Ralph W. Schreiber (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Honolulu, Hawaii, December 1982. Published February 1984 in *Studies in Avian Biology*, Number 8. Out of print.

MARINE BIRDS: THEIR FEEDING ECOLOGY AND COMMERCIAL FISHERIES RELATIONSHIPS. David N. Nettleship, Gerald A. Sanger, and Paul F. Springer (Editors). Proceedings of an International Symposium of the Pacific Seabird Group, Seattle, Washington, January 1982. Published 1984 as Canadian Wildlife Service, Special Publication. Out of print.

ECOLOGY AND BEHAVIOR OF GULLS. Judith L. Hand, William E. Southern, and Kees Vermeer (Editors). Proceedings of an International Symposium of the Colonial Waterbird Society and the Pacific Seabird Group, San Francisco, California, December 1985. Published June 1987 in *Studies in Avian Biology*, Number 10. \$18.50.

AUKS AT SEA. Spencer G. Sealy (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Pacific Grove, California, December 1987. Published December 1990 in *Studies in Avian Biology*, Number 14. \$16.00.

STATUS AND CONSERVATION OF THE MARBLED MURRELET IN NORTH AMERICA. Harry C. Carter, and Michael L. Morrison (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Pacific Grove, California, December 1987. Published October 1992 in *Proceedings of the Western Foundation of Vertebrate Zoology*, Volume 5, Number 1. \$20.00.

THE STATUS, ECOLOGY, AND CONSERVATION OF MARINE BIRDS OF THE NORTH PACIFIC. Kees Vermeer, Kenneth T. Briggs, Ken H. Morgan, and Douglas Siegel-Causey (editors). Proceedings of a Symposium of the Pacific Seabird Group, Canadian Wildlife Service, and the British Columbia Ministry of Environment, Lands and Parks, Victoria, British Columbia, February 1990. Published 1993 as a Canadian Wildlife Service Special Publication, Catalog Number CW66-124-1993E. *Free of charge from:* Publications Division, Canadian Wildlife Service, Ottawa, Ontario, K1A 0H3, Canada.

BIOLOGY OF MARBLED MURRELETS—INLAND AND AT SEA. S. Kim Nelson and Spencer G. Sealy (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Seattle, Washington, February 1993. Published 1995 in *Northwestern Naturalist*, Volume 76, Number 1. \$12.00.

BEHAVIOUR AND ECOLOGY OF THE SEA DUCKS. Ian Goudie, Margaret R. Peterseen and Gregory J. Robertson (editors). Proceedings of the Pacific Seabird Group Symposium, Victoria, British Columbia, 8-12 November 1995. A special publication compiled by the Canadian Wildlife Service for the Pacific Seabird Group. Published 1999 as Canadian Wildlife Service Occasional Paper number 100, catalog number CW69-1/100E. *Free of charge from:* Publications Division, Canadian Wildlife Service, Ottawa, Ontario, K1A 0H3, Canada.

SEABIRD BYCATCH: TRENDS, ROADBLOCKS AND SOLUTIONS. Edward F. Melvin and Julia K. Parrish (Editors). Proceedings of an International Symposium of the Pacific Seabird Group, Semi-Ah-Moo, Washington, February 1999. To be published by University of Alaska Sea Grant, Fairbanks, Alaska. In preparation.

Information on presenting symposia: Pacific Seabird Group Symposia are initiated by one or more persons with interest in a particular topic. The goal is to present a collection of papers that explore and review the chosen topic, usually at an annual meeting of the Pacific Seabird Group. In some cases the papers are then edited and published as a Symposium of the Pacific Seabird Group. Individuals interested in organizing a symposium must first contact both the Coordinator of the Publications Committee and the Scientific Program Coordinator for an annual meeting. Important guidelines will be provided for obtaining approval, organizing, presenting, and publishing Pacific Seabird Group Symposia, including the responsibilities involved. Organizers can then proceed to put the symposium session together. This opportunity is available to all members of the Pacific Seabird Group.

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Contact committee coordinators for information on activities of committees and how you can participate.

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Craig S. Harrison, 4001 North 9th Street, Number 1801, Arlington, VA 22203 USA. Telephone (202) 778-2240, Fax: (202) 778-2201, E-mail: charrison@erols.com

ELECTION COMMITTEE

Pat Baird, Department of Biological Sciences, California State University, Long Beach, CA 90840 USA. Telephone: (562) 985-1780, Fax: (562) 985-8878, E-mail: patbaird@csulb.edu

JAPANESE SEABIRD CONSERVATION COMMITTEE

Koji Ono, Office: Hokkaido Seabird Center, Kita 6-1, Haboro, Tomamae 078-4116 Japan. Telephone: 011-81-1646-9-2080, Fax: 011-81-1646-9-2090. Home: 2-506, Sakaemachi 93-12 Haboro, Tomamae 078-4123 Japan. Telephone & Fax: 011-81-1646-2-1324, E-mail: kojiono@gol.com and **John Fries**, Laboratory for Wildlife Biology, University of Tokyo, 1-1-1 Yayoi Bunkyo-ku, 113 Tokyo, Japan. Telephone/Fax: 011-81-356-89-7254, E-mail: fries@uf.a.u-tokyo.ac.jp

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Anne Harfenist, P.O. Box 2498, Smithers, B.C. V0J 2N0 Canada. Telephone: (250) 847-1730, E-mail: hafenis@bulkley.net

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XANTUS' MURRELET TECHNICAL COMMITTEE

William Everett, Endangered Species Recovery Council, P. O. Box 1085, La Jolla, CA 92038 USA. Telephone: (858) 456-7077, Fax: (858) 456-7121, E-mail: everett@esrc.org, and **Kenneth Briggs**, Danville Veterinary Hospital, 812 Camino Ramon Road, Danville, CA 94526 USA. Telephone: (925) 837-4264, Fax: (925) 837-0467, E-mail: ktbriggs@hotmail.com

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Craig S. Harrison, 4001 North 9th Street, Arlington, VA 22203 USA. Telephone (202) 778-2240, Fax: (202) 778-2201, E-mail: charrison@erols.com, and **Malcolm Coulter**, P.O. Box 48, Chocorua, NH 03817 USA. Telephone: (603) 323-9342, E-mail: coultermc@aol.com

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¹ Contributions may be tax-deductible; see inside front cover for more information.
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- Washington and Oregon** **Roy Lowe**, USFWS, 2127 SE OSU Drive, Newport, OR 97365-5258 USA. Telephone: (541) 867-4550, Facsimile: (541) 867-4551, E-mail: Roy.Lowe@hmsc.orst.edu
- Northern California** **Kyra Mills**, Point Reyes Bird Observatory, 4990 Shoreline Highway, Stinson Beach, CA 94970, USA. Phone (415) 868-1221, ext. 21; Fax (415) 868-1947; Email: kyra-mills@prbo.org
- Southern California** **Pat Mock**, Dames & Moore, Inc., 9665 Chesapeake Drive, Suite 201, San Diego, CA 92123, USA. Telephone: (858) 541-0833, Facsimile: (858) 541-0890, E-mail: sdopjm@dames.com
- Non-Pacific United States** **Jim Lovvorn**, Department of Zoology and Physiology, University of Wyoming, Laramie, WY 82071, USA. Telephone: (307) 766-6100, Facsimilie: (307) 766-5625, E-mail: lovvorn@uwyo.edu
- Pacific Rim** **Elizabeth Flint**, USFWS, Pacific Remote Islands National Wildlife Refuge, P.O. Box 50167, Honolulu, HI 96850, USA. Telephone: (808) 541-1201, Facsimilie: (808) 541-1216, E-mail: beth_flint@fws.gov
- Old World** **Mark Tasker**, JNCC, Dunnet House, 7 Thistle Place, Aberdeen AB10 1UZ, Scotland, UK. Telephone: 011-44-1224-642863, Facsimile: 011-44-1224-6214-88, E-mail: tasker_m@jncc.gov.uk or mltasker@aol.com
- Student Representative** **Louise Blight**, Dept. of Biology, Simon Fraser University, Burnaby, B.C.V5A 1S6, Canada. Telephone (604) 291-5618; Email: louise_blight@sfu.ca.