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COASTAL OBSERVATION AND SEABIRD SURVEY TEAM

Reports 04-05

Breaking News

While every year brings different highlights, one thing happily remained the same—COASST kept growing. This year, more than 300 volunteers conducted more than 1,600 surveys on 143 beaches in just over 4,000 hours!

Despite record-breaking efforts, one COASST vital statistic slipped—our total carcass count fell to 2,100. Last year's total was almost 2,700. And although we witnessed no pronounced winterkill, there was a marked summer spike, and a surprising spring surge helped us focus front-page attention on the consequences of the West Coast's unusually warm waters. Without your collective efforts, such trends would still be buried at sea—so we thank you for helping us record and expose another year of coastal change!

Oregon

Speaking of records, the team on Oregon Mile 327, Jann Luesse, Lori Sinnen, Pat Reynolds and Debbie Stoller, had the birdiest month ever in August—averaging a carcass count of nearly 40 birds per kilometer on three separate surveys. Not surprisingly, the team exhausted its supply of some cable tie colors not to mention many of its own members.

We are sad to report that according to Robert and Carolyn Ollikainen's April 26 survey, at least one old gray goose is dead. The Greater White-fronted Goose is the sole representative of European genus, *Anser*, in North America. The bird's measurements and black-speckled belly are indicative of an adult of the *frontalis* subspecies.

Bert Johnstone, Jerry Gibson and Martha Holmberg photographed a pair of wings from a

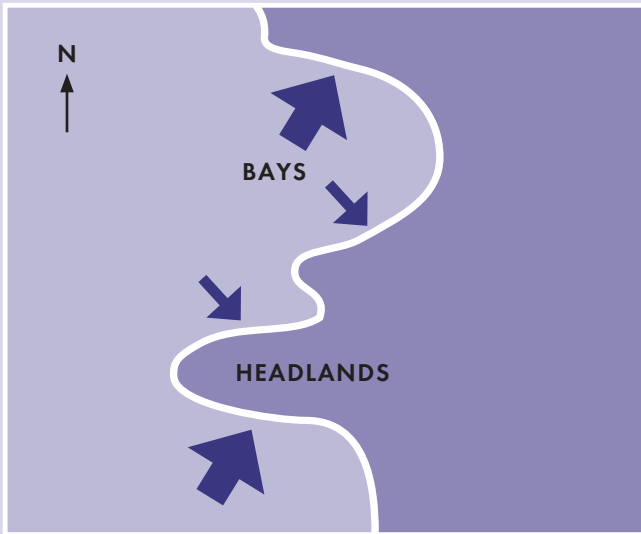
"fall" migrant along Oregon Mile 196. The July 3 date and adult plumage suggest that their Whimbrel was an early returnee from its Alaskan breeding grounds. The next day, Elaine Cramer watched a sailboat declare its independence from the ocean on Oregon Mile 286, as some captain's "Little Clipper" ran aground near Tillamook Bay.

On a more serious note, Rob and Kim Suryan noticed a number of gulls gobbling up marble-sized paint balls a few days after Thanksgiving. Fortunately, the water-based paints and gelatinous capsules are not thought to be toxic. The Suryans also discovered the region's only band recovery—a two-year-old Brandt's Cormorant found in April that had been banded on the Farallon Islands off California in July 2003.



Elaine Cramer

Elaine Cramer found this Little Clipper: intact, foot type unknown, wing chord 1200 cm



Arrow size indicates relative deposition rates

in COASST’s history, more than 30 oiled birds were recorded on South Surfside and Marine View Drive. Although numerous sites neighboring each beach were surveyed during the same month, only Kathleen and Beth Wolgemuth and Susan Clark reported any oiled carcasses.

Across a similarly scattered front, South Coast surveyors Linda Bierma, Barbara Campbell, Susan Clark, Margie Cochran and Barbara Patton found four of COASST’s seven Horned Puffins this year. Like the other three found in Oregon, all appeared between January and April. According to at-sea surveys, this species is very rare offshore at our latitude. With that said, two exceptional wrecks involving tens to hundreds of Horned Puffins were recorded on the outer coast during the 20th century in 1933 and 1959.

North Coast

The North Coast reported over one dozen entangled birds, with Wolter van Doorninck’s total of five on Copalis Rocks surpassing counts from all other sites. Most were gulls, ensnared around the wing or leg with a hook, line or both. In March, Wolter also described a California Gull that appeared to have been shot.

On July 31, Bob and Lauren Middleton found a pile of backbones and baleen from a large whale—likely a Gray Whale or Humpback. Their beach, Kalaloch

South, was also host to the region’s rarest find, an Arctic Tern. Though rather common in offshore waters during their spring migration northward, Arctic’s are virtually unknown in Washington’s pelagic waters in June.

Headland site Sand Point South was ten times as “productive” as its counterpart Sand Point North (31 vs. 3 finds). Greater deposition presumably helped Patti Happe and Dave Manson of the former beach recover the region’s only banded bird, a juvenile California Gull from Mono Lake, California. Bay sites—Hobuck Beach and Sooes South—showed a similar pattern. Tracy Beals, Bryan Bell, Ingrid and Eftin Strong on Sooes South recorded only 10 birds, while Hobuck COASSTers found more than 150! These discrepancies illuminate differences in ocean currents along our crenelated coastline. Even with similar beach length and numbers of surveys, south-facing beaches gather more birds.

Strait of Juan de Fuca

Gary Korb and Carol Volk found only three birds for the year—all on a single day! On February 3 the duo discovered two cormorants, a Great Blue Heron and a sea lion on Tongue Point. Dungeness Spit had the greatest avian diversity in the Strait this year with seven species over 21 surveys. While surveying Dungeness Spit in December, Bill and Barbara VanderWerf documented the inside waters’ only Northern Fulmar—quite a drop from the 23 reported last year.

Ediz Hook’s Heidi Pederson found COASST’s third-ever Ring-necked Pheasant in November. The

COASST’s most unique marine mammal this year was an elephant seal found by John Epler and Clem Hoerner on Ocean Park North in May





Rayna Holtz

Rayna Holtz recorded this chum salmon, ripe for gull snacking, on Vashon Island

Washington Department of Fish and Wildlife (WDFW) releases Ring-necked Pheasants during the hunting season (October to January) in the recreation area next to Dungeness Spit, which may explain their repeated occurrence on beaches in this area.

Thompson Spit's only bird was a goodie—the region's first Franklin's Gull—a subadult ably identified and photographed by Hank and Raedell Warren, despite the carcass' thoroughly disheveled state. Typically, birders only note a handful of live Franklin's Gulls as they pass through western Washington each fall, so COASST's two records (a juvenile occurred along Hobuck in 2002) are quite surprising.

San Juan Islands

The San Juans' few beached birds were spread out fairly evenly across seasons and sites. Rhinoceros Auklets were the most common species on the region's shorelines this year. Rhinos in full breeding plumage were noted by Dick Weisbrod in September on Grandma's Cove and again in May by Mike Kaill on South Beach West.

For the fourth straight year, a dead Bald Eagle appeared in the archipelago. Although eagle chicks are the usual find, the adult found by David and Julia Loyd on Waldron Island represented COASST's first winter casualty. The region's other deposition tradition, a relatively high representation of waterfowl, was apparent on Lopez, where Jim and Jeanne Budlong recorded a Canada Goose and Mallard at Swift's Bay.

Although few birds were detected in the San Juans, humans and marine mammals abounded. South

Obstruction experienced a summer spike in human visitation. Larry and Bev Leyman recorded at least eleven visitors per survey between June and August. According to the Marine Mammal Stranding Network personnel, the two decapitated Harbor Seal pups noted by Judy Chovan along Jackson Beach in August and September were thought to be victims of the local orca population.

Puget Sound

Vic Nelson of Point No Point was responsible for all three Puget Sound observations of Western Grebes. What makes this coincidence even more noteworthy was the "dead one that got away." In mid-December, Vic watched a Bald Eagle kill a Western Grebe and bring it back to a nearby pier. After devouring the grebe, the eagle dropped the remains into the water and the carcass floated off to the west. Could rising eagle populations be partly to blame for this species' drastic decline in local waters?

Further north at Cherry Point, Wayne and Mary Ann Hanson found the Sound's only Common Loons, with four birds spaced throughout the year. Though the species is not depicted in *Beached Birds*, Pat Young and Dick Fritsch had little problem identifying a Great Blue Heron on March Point in November.

Most Puget Sound volunteers went birdless, but marine mammals washed up regularly. While surveying Beal's Point in May, Sherry Bottoms and Michelle Ramsden found one of the seven harbor seals washing up on Puget Sound beaches. Jean Mendel found a Dall's porpoise on Portage East in mid-December. Perhaps not so surprising, as Dall's and harbor porpoises are the two most common cetaceans in Puget Sound.

Not only was Puget Sound smacked with another 1,000-gallon oil spill this year (in Dalco Passage), the region also suffered five of the seven oiled beaches—all small sheens—detected program-wide. This bias in chronic, background oiling is not particularly surprising given the greater concentration of municipalities, industries and shipping activities throughout the area, and means that inside waters' volunteers should remain extra vigilant when surveying.

What's Washed In?

New Species

It seems that COASST has reached an annual diversity plateau. The number of species found in any given year has remained fairly constant, even though effort—the number of surveys and beaches—has increased. Last year, 60 species were found and the two previous years recorded 57 and 55. This year, COASST recorded 56. However, each year we have added a few new species to our overall list. For instance, a record-breaking seven Horned Puffins were found this year, as well as a smattering of single recoveries of marine and terrestrial birds, including an Arctic Tern, Surfbird, Great Horned Owl, Sharp-shinned Hawk and Wilson's Warbler. Since COASST started, we've identified 83 species: 69 aquatic birds including seabirds, shorebirds and waterfowl and 14 terrestrial birds including songbirds, gamebirds and raptors.

Major Species

No new major species this year, but some “reverse” trends. Sooty Shearwaters, Western Grebes and especially Red Phalaropes continued to be found in low numbers. These species each experienced only one year of elevated deposition, perhaps indicating that the factors affecting them are transient instead of persistent. Not so for the murre, fulmars, and juvenile gulls! After last year's big wreck, Northern Fulmars slipped back into third place, behind large immature gulls and Common Murres. But note that murre represented a stunning 47% of the total COASST finds this year.

Murres and gulls, of course, are local breeders as well as migrants into our Pacific Northwest waters, and we might expect to see them wash up regularly. Fulmars grace our coast in the fall and winter months by the hundreds of thousands, coming down from Alaskan waters after the breeding season. So, rather than a cause for concern, consistently high numbers seem to indicate—mostly—that these are simply the common species in our offshore waters.

Conservation Concerns

Mostly because of the elevated number of murres (85% of the Species of Concern total) and not withstanding

the increase in Brandt's Cormorant and Cassin's Auklet finds, almost 55% of all birds found this year were listed on Federal or State lists, or on the Audubon WatchList (see page 8). Last year, this percentage was much lower—only 23% of all finds were on conservation lists. If the strong murre signal is removed, the remaining listed species comprise only 8% of all finds this year. How does this “murre-less” value compare to previous years? In 2003–2004, Species of Concern excluding murres accounted for 5% of all finds; the rate was 7% in 2002–2003. So, this year is a little bit higher, but not substantially so.

Thirteen of the 15 Species of Concern overlapped with last year; the two shorebirds—Surfbird and Whimbrel—were new. Despite these additions, there were fewer total species on the list this year, because several species found in low numbers last year (Buller's Shearwater, Horned Grebe, Band-tailed Pigeon and Black Oystercatcher) weren't found this year.

Two species on the list—Brandt's Cormorant and Black-footed Albatross—may merit special attention. The number of both species found this year is roughly half again as many as in the previous two years, when survey effort is controlled. Note that the same is true for murres. (see the Pacific Die-off story on page 13).



Mary Marsh

Just enough remained to identify this Sharp-shinned Hawk on Dungeness Spit

Beached Birds Identified to Species

Black-footed Albatross migrate into the Pacific Northwest region to forage during and after their November to June breeding season. Nesting albatross can actually fly from Hawaii to the West Coast and back again, delivering a high calorie squid, fish and “petrel oil” meal to a hungry chick. Although the population of these birds is estimated at almost 300,000, there has been a recent decrease in the number of Black-foots attempting to breed. Counts of nesting birds declined almost 20% from 1995 to 2000—one of the reasons for this species’ inclusion on the Audubon WatchList.

There is concern that hungry albatross entering our waters will seek out fishing vessels for food, and chance getting caught on longlines as the birds attack baited hooks. Does the increase in albatross on our beaches reflect increasing populations, or perhaps increasing mortality associated with fishing activities? It is almost impossible to tell. However, longline activity (measured at total fish landed) has declined over the last decade, according to the Pacific States Marine Fisheries Commission. This suggests that fishing mortality may not account for the 2004 summer uptick. On the other hand, Westport Seabirds reports



Julia Parrish

Beware squid! A Black-footed Albatross searches for its next meal

SPECIES	YR 6 #	YR 6 %	YR 5 %	YR 4 %	YR 3 %
Common Murre	987	47.0	17.8	24.0	26.1
Large Immature Gull	279	13.3	7.7	10.1	17.9
Northern Fulmar	168	8.0	57.0	23.6	8.5
Glaucous-winged Gull	79	3.8	2.0	3.3	3.2
Brandt's Cormorant	79	3.3	1.2	2.0	2.6
Western Gull	69	3.3	0.9	1.8	2.4
Pelagic Cormorant	57	2.7	1.3	2.6	1.3
Sooty Shearwater	43	2.0	0.9	2.1	7.4
Cassin's Auklet	41	2.0	1.0	1.5	2.1
Rhinoceros Auklet	31	1.5	1.0	1.3	1.9
Surf Scoter	23	1.1	0.7	1.6	0.5
White-winged Scoter	22	1.0	0.5	0.9	1.0
Pigeon Guillemot	21	1.0	0.5	0.9	0.2
Short-tailed Shearwater	19	0.9	0.2	0.4	1.3
Western Grebe	16	0.8	1.0	2.9	7.2
Caspian Tern	16	0.8	0.4	0.8	0.6
California Gull	15	0.7	0.5	1.3	1.8
Black-footed Albatross	14	0.7	0.2	0.4	0.8
Double-crested Cormorant	10	0.5	0.6	0.6	0.5
Common Loon	9	0.4	0.4	0.3	0.5
American Crow	9	0.4	0.3	0.2	1.0
Brown Pelican	8	0.4	0.2	0.4	0.3
Heermann's Gull	7	0.3	0.2	0.4	0.3
Bufflehead	7	0.3	0.1		0.3
Canada Goose	7	0.3	0.2	0.4	0.5
Pacific Loon	7	0.3	0.1	0.9	0.6
Horned Puffin	7	0.3			
Varied Thrush	6	0.3	0.04		
Fork-tailed Storm-Petrel	5	0.2	0.3	0.1	0.5
Black-legged Kittiwake	5	0.2	0.2	0.4	1.8
Northern Pintail	3	0.1	0.2	0.2	0.3
Herring Gull	3	0.1	0.1	0.3	0.3
Marbled Murrelet	3	0.1	0.04	0.2	0.8
Great Blue Heron	3	0.1	0.04	0.1	
Green-winged Teal	3	0.1	0.04	0.1	
Mallard	2	0.1	0.3	0.2	0.3
Ancient Murrelet	2	0.1	0.1	0.2	0.5
Leach's Storm-Petrel	2	0.1	0.1		0.5
Tufted Puffin	2	0.1	0.1		0.3
Bald Eagle	2	0.1	0.1	0.1	0.3
Red-throated Loon	2	0.1	0.04	0.2	0.3
Red Phalarope	1	0.05	0.4	10.6	0.3
Rock Dove	1	0.05	0.2	0.1	
Greater Scaup	1	0.05	0.1	0.2	0.2

SPECIES	YR 6 #	YR 6 %	YR 5 %	YR 4 %	YR 3 %
Sanderling	1	0.05	0.1	0.1	
Chicken	1	0.05		0.1	
Common Merganser	1	0.05		0.1	
Dunlin	1	0.05		0.1	0.2
Franklin's Gull	1	0.05		0.1	
Whimbrel	1	0.05		0.1	
Arctic Tern	1	0.05			
Great Horned Owl	1	0.05			
Greater White-fronted Goose	1	0.05			0.2
Ring-necked Pheasant	1	0.05			0.3
Sharp-shinned Hawk	1	0.05			
Surfbird	1	0.05			
Wilson's Warbler	1	0.05			
Red-necked Grebe			0.2		0.2
American Wigeon			0.1		
Buller's Shearwater			0.1		
Horned Grebe			0.1		0.2
Red-breasted Merganser			0.1		0.2
American Coot			0.4		0.6
American Robin			0.04		
Band-tailed Pigeon			0.04	0.1	
Barred Owl			0.04	0.1	
Black Oystercatcher			0.04		0.2
Black Scoter			0.04	0.1	0.2
Bonaparte's Gull			0.04	0.1	
Common Goldeneye			0.04		
Glaucous Gull			0.04		0.2
Mew Gull			0.04	0.2	0.8
Red-breasted Sapsucker			0.04		
Ring-billed Gull			0.04	0.1	0.2
Black-bellied Plover				0.1	0.2
Brant Goose				0.1	0.2
European Starling				0.1	
Lesser Scaup				0.1	
Marbled Godwit				0.1	
Parasitic Jaeger				0.1	
Pink-footed Shearwater				0.1	
Mottled Petrel					0.3
Clark's Grebe					0.2
Western Sandpiper					0.2
TOTAL	2,100				

Species totals, excluding unknowns and refinds. Note that major species—accounting for greater than 5% in any year—are in bold type.

that Black-footed Albatross sightings on pelagic birdwatching trips in July through September increased by 50% since 2002. At least in recent years, more Black-foots have visited our coast.

Fortunately, there are solutions to the seabird bycatch problem. In Alaska, albatross, fulmar and shearwater hookings in the longline fleet have decreased dramatically as a consequence of the use of bird scaring, or tori, lines. The Partner Profile in last year's annual report highlighted this innovative conservation effort.

Oiling

Two percent of all birds found this year were oiled. This is a dramatic increase from previous years, in which less than 1% were oiled. Suspiciously, all but one of the oiled birds washed up along our South Coast region, and 35 of those birds were found in August on two beaches: Marine View Drive and South Surfside. An oil spill? Seems likely. However, despite our best efforts to track down the source, this remains a mystery spill. Neither the Washington State Department of Ecology (DOE) nor the US Coast Guard have any record of a spill during this period in this location. It is likely that these birds encountered the oil offshore. In coordination with DOE, we would like to train COASST volunteers in proper oil sampling techniques so that future mystery incidents might be traced back to a source.

Murres were the big loser, representing nearly 80% of all oiled birds found. Sadly, this percentage is not uncommon for murres. In the four largest oil spills along the Pacific coast in which significant numbers of birds have been oiled (the *Exxon Valdez* in Alaska, the *Apex Houston* in California, and the *Nestucca* and the *Tenyo*

Maru in Washington), murrens have comprised 75% or more of the recovered carcasses. Studies of chronic oiling in California have also shown that murrens are one of the most affected species. Clearly, murrens have behavioral patterns that put them in harm’s way.

On a brighter note, there were two reported spills this year during which COASST volunteers mobilized to collect daily data on beaching patterns, and no oiled birds were found. In October 2004, the *Polar Texas* spilled an estimated 1,000 gallons of oil into the waterways surrounding Vashon and Maury Islands in Puget Sound. COASST volunteers leaped into action, conducting a total of 24 surveys in two weeks on KVI, Lisabuela and Point Robinson beaches on Vashon Island, and on Brown’s Point, Middle Waterway and Owens Beach in Tacoma. Although an oil sheen was reported on both Lisabuela Beach and Middle Waterway, no carcasses—oiled or otherwise—were found. In fact, COASST data suggested that beached bird deposition was unusually low in Puget Sound for

Species of Concern

SPECIES	WA	OR
Common Murre ¹⁰	421	566
Brandt’s Cormorant ¹⁰	41	29
Cassin’s Auklet ^{3,10}	27	14
Western Grebe ¹⁰	12	4
Common Loon ⁸	9	
Black-footed Albatross ¹¹	8	6
Brown Pelican ^{1,4,5}	8	
Fork-tailed Storm-Petrel ⁹	4	1
Heermann’s Gull ¹¹	3	
Marbled Murrelet ^{2,6,7,11}	2	1
Bald Eagle ^{2,6,7}	2	
Tufted Puffin ^{3,10}	1	1
Bufflehead ⁹	1	
Surfbird ¹¹	1	
Whimbrel ¹¹	1	

¹ Federally Endangered, ² Federally Threatened, ³ Federal Species of Special Concern, ⁴ WA State Endangered, ⁵ OR State Endangered, ⁶ WA State Threatened, ⁷ OR State Threatened, ⁸ WA State Sensitive, ⁹ OR State Sensitive, ¹⁰ WA State Candidate, ¹¹ Audubon Watchlist

An entangled Sooty Shearwater



Barbara Blackie

October. For instance, the average deposition index in 2003 was about one bird every three kilometers, whereas in 2004 during the oil spill, the deposition index dropped by a factor of 10. Although we don’t know the reason for this drop, we speculate that the decreased numbers of birds in Puget Sound waters helped keep oiling low.

Just as Puget Sound COASSTers were breathing a sigh of relief, a second oil spill—this time on the Skipinon River, just off the Columbia River in Oregon—deposited a diesel sheen about 1.5 km wide on November 9. Known as the Warrenton oil spill (after the local boat basin at which the spiller was moored), this sheen dissipated without noticeable harm to aquatic birds. The volunteers on both sections of North Head Lighthouse in the South Coast and OR Mile 327 made the extra effort to get out after the spill. Again, no oiled birds were found.

In general, Pacific Northwest beaches are fairly pristine when it comes to oiling. Other regions of the world sustain much higher oiling rates, including Northern Europe at more than 40% and Newfoundland at more than 60%! Fortunately, we are nowhere near these levels. Nevertheless, this year was a bit of a scare given the approximately 10-fold increase in our local rate, and a reminder that we need to work hard to protect the quality of our coastal habitats—for birds as well as people.

Entanglement

The entanglement rate was fairly comparable to previous years, hovering at about half a percent of

Mortality Related to Human Activities

SPECIES	TOTAL	BEACH # FOUND
OILED BIRDS		
Common Murre	33	Marine View Drive (18) South Surfside (14) Kalaloch South
Western Gull	4	Marine View Drive
Black-legged Kittiwake	1	North Jetty
Large Adult Gull	1	Marine View Drive
Large Immature Gull	1	Ocean Park South
Northern Fulmar	1	Marine View Drive
Unidentified Petrel	1	Marine View Drive
ENTANGLED BIRDS		
Common Murre	2	Copalis Rocks ³ Copalis Rocks ^{1,2}
Double-crested Cormorant	1	Beach Three ²
Large Immature Gull	2	Agate Beach ^{1,2} Copalis Rocks ¹
Northern Fulmar	1	Shi Shi Beach ^{1,2}
Sooty Shearwater	2	Hobuck Beach ³ OR Mile 255 ^{1,2}
Large Adult Gull	1	Copalis Rocks ²
Western Gull	1	Copalis Rocks ^{1,2}

¹ Hook, ² Line, ³ Net

total finds. Although murre were in the mix, gulls—both adult and juvenile—represented the majority of entangled birds. More than half of the entanglements appeared to be with recreational hook and line gear. By contrast, only two birds—a murre and shearwater—were entangled in nets. This difference may simply represent the relative use of gear types along our coast. Gillnetting—the net type known to inadvertently capture marine birds—is banned in coastal Oregon, and only used in select salmon fisheries in Grays Harbor, Willapa Bay and inside waters of Washington. By contrast, hook and line fishing is practiced widely.

A WDFW study on the incidence of bycatch in recreational salmon fishing in Puget Sound did find evidence of bird hookings—mainly gulls. It may also be true that marine birds entangled in nets rarely

wash ashore. Instead, the nets ball up and eventually sink. Paul Dinnel, a COASSTer and research scientist at Western Washington University’s Shannon Point Marine Center, is involved with a Northwest Straits Commission project that is mapping and collecting derelict gear throughout the Sound. They often find the remains of fish, birds and marine mammals among the seaweed, sponges, oysters and other organisms fouling the nets. The oldest net they have retrieved so far had been “fishing” in the Sound since 1975.

Deposition Rates

Before we get into the details of this year’s deposition patterns, a few quick reminders about how we treat the data for those of you who have read *COASST Reports*, and a brief explanation for all of our new readers. Remember that we don’t actually measure the rate of carcass deposition. That would require lots of surveys—in fact, daily. What COASST actually measures is encounter rate—the average rate at which COASSTers encounter new birds on a monthly basis. We adjust for those of you surveying your beaches more than once a month by making sure to “add back in” any birds refound on subsequent surveys (that is, the second, or third, or ...) that were finds on the first survey of the month. Just think about it, had you only gone out on the *second* date, you would have found these birds as new finds, not as refinds.

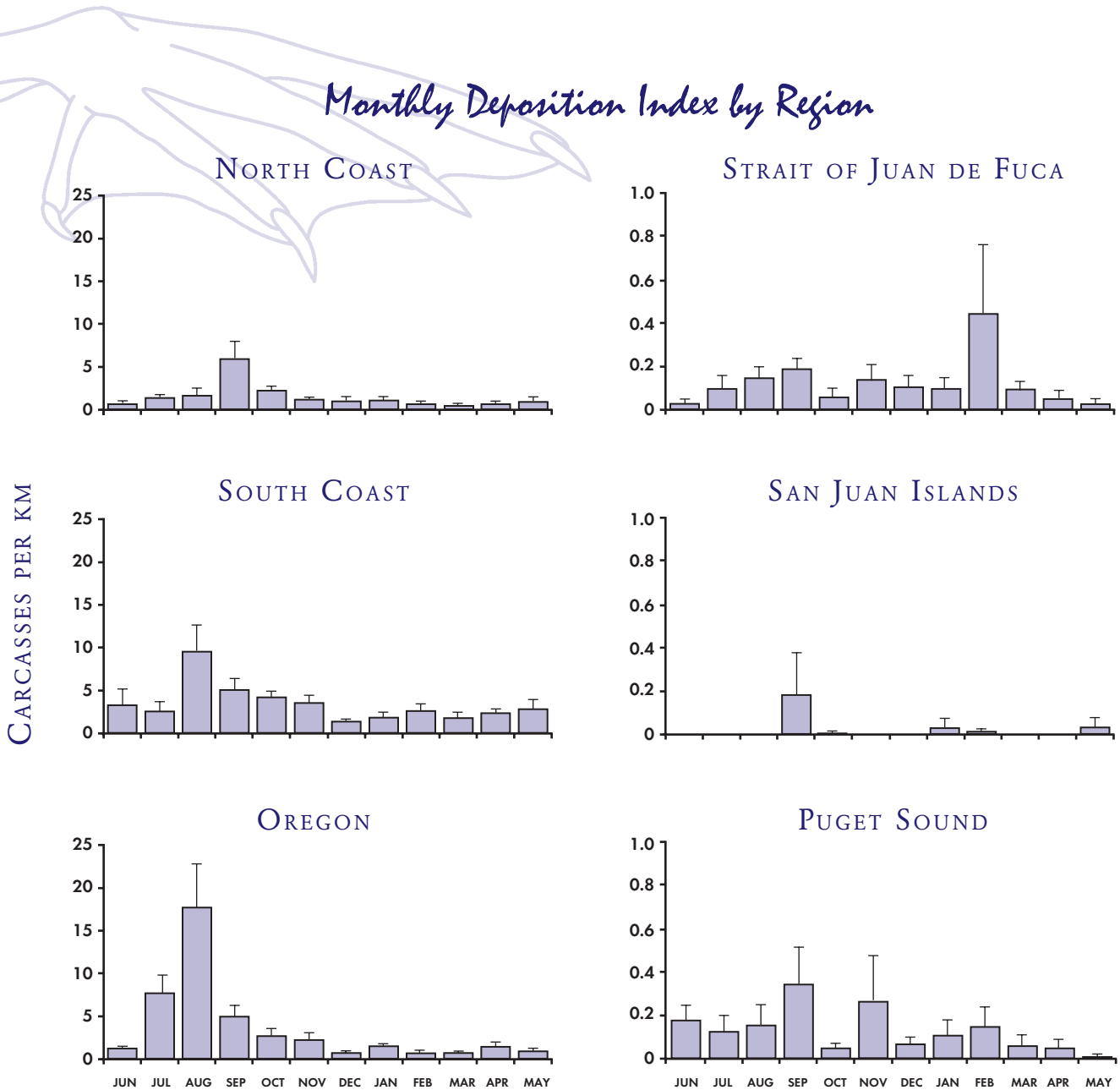
One last adjustment is to standardize beach length (which varies from 0.085 km to 5 km!) to one kilometer. That way, we can compare all beaches directly. This is a simple matter of dividing the number of finds by the beach length. With those adjustments out of the way, we average within beaches for each month, and then average across beaches within a region—also within each month. This gives us a monthly value in which all beaches in the region carry equal weight. COASST refers to this value as the deposition index, so called because it allows us to compare across regions and years, even if we don’t know the actual rate of deposition. Because we have multiple beaches in each region, we can also calculate a measure of the variability among beaches. This is the standard error, represented by the Ts above each bar in the deposition index plots.

Even though COASSTers found fewer beached birds this year than last, it doesn't mean it was a boring year. A quick glance at the regional deposition index graphs reveals both standard and new patterns. Once again, and not surprisingly, COASSTers surveying beaches along the inside waters of Washington found far fewer birds than their outer coast counterparts. In fact, the disparity between inside and outside increased. Cumulative deposition over the year for all of the

three inside regions was only 3% of the deposition experienced by the three outside regions! Deposition in the Strait, San Juans and Puget Sound also appeared to be slightly lower than last year, although more consistent—with a uniform fall 'peak' in September for the three regions.

A more interesting story emerges when only the outer coastal regions are considered. In most years, peak mortality is fairly equal across the three regions,

Monthly Deposition Index by Region



The difference between COASST outer beaches (left) and those along inside waters (right) increased this year.

centered in the fall and early winter. But regional symmetry broke down this year. The peak deposition index in Oregon was 17.3 birds per kilometer, almost twice as high as the peak in the South Coast of Washington, and nearly three times as high as the North Coast of Washington. In fact, this is the largest monthly peak COASST has ever recorded regionally. So, lots of birds were dying off the Oregon coast at the end of the summer. The second oddity in this year's outer coast pattern is the total absence of a winterkill peak. Last year we pointed out that the "standard" pattern was a double wave of mortality: a late summer/early fall peak for the resident breeders, and a typically higher fall-winter peak primarily composed of migrants into our waters. What happened this year?

The Oregon peak falls during the classic post-breeding mortality wave. Toward the end of the breeding season (July-August in Oregon, August-September in Washington) resident species, including Common Murres, Rhinoceros Auklets, Glaucous-winged/Western Gulls and the three cormorant species, begin to leave their colonies for widespread winter foraging grounds. Because of the stress of breeding—long hours sitting on eggs, the extra time and energy to feed hungry chicks—many parents lose weight throughout the season, pushing themselves to successfully fledge their offspring at their own expense. In most years, this strategy is a good one, as the post-breeding season affords lots of foraging opportunities to fatten up wan parents. Only a small proportion of the population will not be able to recover. These unfortunate birds form part of the post-breeding peak.

The second component is obvious, if counter-intuitive. Young birds, like young mammals, are simply not as successful at survival as their adult counterparts. So, a second portion of the post-breeding mortality peak is fledglings that didn't make it. In a highly successful breeding year, many parents will fledge chicks. And more fledglings in the water translate into more birds on the beach. For this component of the peak, a good year for reproduction can actually translate into a high beached bird year.

To illustrate these points, we've re-analyzed the last several years of deposition index data, using only



Wade Newbegin

At the peak of deposition in Oregon, Wade Newbegin found and tagged this WOCT (worn out census taker)

the resident coastally breeding species. The left side of the table on page 12 shows two types of data: the cumulative deposition index across the months of July to October, and the value in the peak month. The data are presented by outer coast region and year. Blanks in Oregon reflect the fact that COASSTers started surveying this region a few years after beginning in Washington.

Both data types tell the same story—compared to previous years, the 2004 summer-fall resident die-off was anomalously high in Oregon and the South Coast of Washington, but not in the North Coast of Washington. In the north, the big year was 2003. We've highlighted the maximum values for easy comparison.

But is this elevated signal in 2004 due to more adults (a bad bird year) or more chicks (a good bird year)? We corrected for chick mortality by removing Common Murre chicks. With close to a million murres breeding in Oregon and California, quite a few chicks can be produced even in poor years. The right side of the table shows what remains—that is, the adult signal. Although the Oregon and South Coast values are lowered by half to a third, the 2004 peak still stands out, especially in the July through October cumulative index. Therefore, we can conclude that: 1) adults coming off the breeding colonies were dying in high numbers, and 2) whatever caused this die-off was specific to Oregon and the South Coast of Washington.

On the other hand, it was a very quiet year for migrants. The normal pattern for migrant species—including Northern Fulmars, the shearwater and albatross species, and even Red Phalaropes—is to enter our Pacific Northwest waters in the fall and winter. Coming from both southern and northern extremes, the travel costs combined with our winter weather usually result in a second mortality peak in December through March, as exhausted birds just can't find enough food to survive. Last year, winterkill dwarfed post-breeding mortality, as tens of thousands of Northern Fulmars washed up on beaches from British Columbia to California. This year was odd in that the winterkill peak was largely absent from the outer coast regions.

As an example, relative to the massive 2003–2004 winterkill, this year's peak (measured as cumulative deposition from December through March of migrant species) was only about one third as high along the South Coast beaches, and only about 10% as big in both the North Coast and Oregon regions. In fact, this is one of our lowest winters for deposition; only the winter of 2001–2002 had lower values, and not by much. And this is also the reason that the total beached bird tally was lower this year compared to last year, even though the resident breeder mortality was higher.

There are at least two explanations for the lack of a

winterkill signal. It could be that migrant species just didn't visit our coastline this year. Fewer live birds in Pacific Northwest waters would mean fewer beached birds along our shores. However, Westport Seabirds reported no drop in migrant species sightings this past fall/winter relative to previous years.

A second potential explanation for the low numbers is that our winter was unusually mild. Remember those unseasonably warm, sunny days last winter, when all of "our rain" went to California? Fewer storms might accommodate hungry seabirds, allowing them to find food more easily without having to wait out bad weather. In fact, climate data bears out this theory. Nick Bond, a climatologist from the National Oceanic and Atmospheric Administration's Pacific Marine Ecology Laboratory in Seattle, analyzed the zonal winds at the jet stream level right off the Oregon and Washington coast. The intensity of these winds is basically an energy index for winter storms. Winter 2005 (December through February) had the second weakest zonal winds in more than 50 years! Only 1993 had a weaker wind signal. No wind energy and few storms added up to milder than usual conditions, with the result—for COASST—that the usual winter wreck never materialized.

Resident Species Deposition Index, 2001-2004

	All residents					Residents minus murre chicks			
	2001	2002	2003	2004		2001	2002	2003	2004
July-October									
North Coast	4.3	4.0	14.4	8.7		3.5	3.3	9.8	7.2
South Coast	6.2	9.7	10.7	16.7		4.8	6.3	8.7	11.3
Oregon		9.5	10.7	28.6			5.9	7.7	15.6
Peak Month									
North Coast	1.8	1.4	10.3	5.1		1.4	1.1	6.0	4.0
South Coast	2.7	3.7	4.2	8.9		2.0	2.0	2.8	5.0
Oregon		3.2	5.2	16.6			2.1	3.3	7.7

Annual Estimated Deposition

For the past two years, we have attempted to use COASST data to extrapolate a range of estimated total seabird beachings in order to put numbers to the deposition indices we usually report. Because COASSTers do not conduct daily surveys, we really don't know how frequently birds wash in, what affects that rate, or how quickly beached carcasses are lost to wind burial, scavengers or the next tide. In fact, our next big scientific push will be to design and implement a daily survey study on select beaches, to gather these very data. Let us know if you would like to participate, either by conducting a few extra surveys or by helping to recruit others to survey your beach.

For now, we simply present two numbers: a lower bound that assumes that the birds found in an average monthly survey represent all of the individuals washing ashore for the month (which of course, is way too conservative) and an upper bound that assumes that the average survey represents weekly deposition of new finds. We also standardize by beach substrate because in previous analyses we've discovered that, for instance, sandy beaches gather more birds on average than cobble beaches. Finally, if the region has coastline of a substrate not currently covered by COASST, we use an average of all other substrate types in that region to "fill in the gap." This year, we've managed to up our coverage to the point where there are fewer substrate gaps.

Because we didn't have a winter wreck this year, we didn't correct for that occurrence as we have in previous years. Therefore, the upper bound is a straightforward multiplication of the lower bound, and the range between them is large: 30,477 to 132,069. We suspect the actual value is closer to the high end. Compared to previous years' high values (164,000 in 2003–2004, and 82,980 in 2002–2003), this year falls in between. However, we'll have to wait until we can collectively mount a scientific investigation of the daily patterns of deposition before we can truly nail down the total number of birds washing in to Pacific Northwest beaches.

The Pacific Die-Off

The big story this year is happening even as we go to press; coastal fish-eating seabirds, exemplified by Common Murres and Brandt's Cormorants, are washing onto Pacific beaches in unprecedented numbers. Articles have appeared in many news outlets, including the *Seattle Times*, *USA Today*, *CNN*, *National Public Radio* and the *Canadian Broadcasting System*. Julia Parrish, our executive director, has been quoted as saying: "Something big is going on out there. The bottom has fallen out of the coastal food chain." What is going on?

In June, BeachCOMBERS' Hannah Nevins reported elevated numbers of Cassin's and Rhinoceros Auklets, Common Murres and Brandt's Cormorants washing onto beaches along the California coast in winter-spring of 2005. Necropsies performed on fresh carcasses indicated no sign of disease or foul play. With no fat and reduced flight musculature, the birds were clearly starving.

At the same time, Bill Sydeman, Marine Ecology Division Director at PRBO, warned that Common Murres and Brandt's Cormorants nesting on the Farallon Islands off the coast of San Francisco, were up to a month late in starting to breed. Cassin's Auklets—earlier breeders—had largely given up for the season, abandoning eggs in their burrows. By the end of June, it was obvious that this trend was coast-wide. Murres



Craig Zora

A live murre recently washed onto Westhaven Beach, on the south coast of Washington



Jam Laese

Just four of the 90 Common Murres found on one survey in Oregon

and cormorants breeding on Tatoosh Island, off the northwest tip of Washington, were also several weeks late in laying. Roy Lowe, Project Leader of the Oregon Coast National Wildlife Refuge Complex, released a report saying that the number of murres washing ashore near Newport had reached near record levels.

With a geographic reach as extensive as COASST, we knew that our data would play a central role in determining the scope of this event, both in space and in time. The graphs on the facing page compare the monthly running average of the deposition index for Brandt's Cormorants and Common Murres to the deposition index values from this year alone. The line with standard error bars represents the average values including the present year. The histograms indicate the value for only the present year. We have graphed data from June 2004 through June 2005 to show as much of the unfolding picture as we can. These graphs allow you to ask the question: How different is the present year from the overall "average" year?

For Brandt's Cormorants, the answer is quite different. The deposition index of these birds, even in

the highest months, is not very high. In other words, on average, you have to walk some distance to find a Brandt's. Prior to this year, the standard spring pattern over the entire outer coast was one bird every 62 kilometers. This spring COASSTers found one Brandt's every 2.8 kilometers averaged over the entire coast, and one bird every 1.4 kilometers along the South Coast. That's 44 times more common than the normal spring average!! However, rates in California were even higher, spiking to more than five Brandt's for every kilometer walked in May.

The murre pattern is more complex. In Oregon, where most of the murres breed, COASST data for this spring did not show a significant difference from previous springs, with the potential exception of April (July and August early reports are lots of murres). May and June along the Washington coast did shoot up this year, with 2–12 times as many murres washing up as in previous years. Maximum deposition index for murres this June in the South Coast was one murre per kilometer—already higher than the Brandt's numbers. However, unlike the Brandt's pattern, the murre deposition index at the end of the 2004 breeding season was significantly elevated in Oregon and South Coast. Thus, murres appeared to be doing poorly starting last fall.

Why murres and Brandt's? There are several potential reasons. First, Common Murres and Brandt's Cormorants are abundant resident breeders. There are more than 100,000 Brandt's and nearly a million murres breeding along the West Coast, especially in California and Oregon. Pelagic and Double-crested Cormorants both breed in lower numbers, as do Rhinoceros Auklets. Thus, unlike rarer species, we might expect to pick up an elevated mortality signal among the "noise" more easily in murres and Brandt's. Second, their large size and distinctive plumage make them more visible than some of the abundant smaller species, like Cassin's Auklets. Third, both cormorants and murres are fish eaters, dependent on plentiful supplies of coastal forage fish. Finally, unlike the tubenoses, who regularly fly hundreds to thousands of kilometers to forage for their chicks, murres and cormorants are not the best flyers. During the breeding season maximum flight distances are about 50 km for murres and 20 km for cormorants.

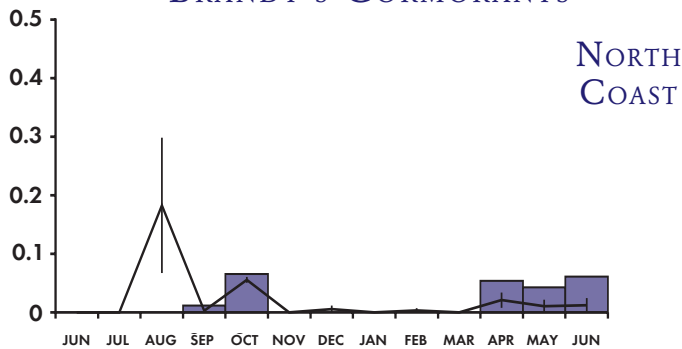
For all of these reasons, murres and Brandt's represent a visible bellwether for local nearshore fish availability.

Late breeding and elevated beaching rates are usually signs of poor body condition. Because breeders must be in tiptop shape at the start of the season to endure the months of limited foraging time during egg incubation and chick rearing, a bird that has not quite "topped up" for the season may delay breeding. If conditions

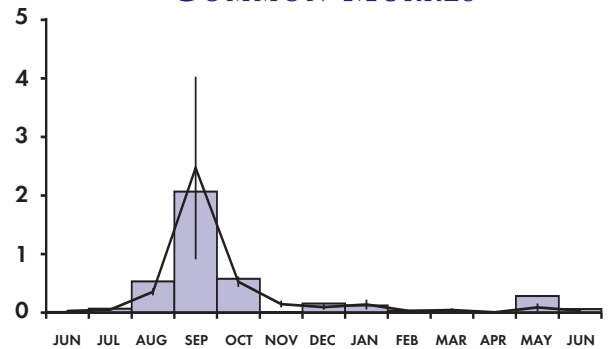
are poor enough, birds will simply skip breeding altogether. When this happens at several colonies, it is usually a sign of a broadscale climate event that weakens upwelling all along the Pacific Coast, such as El Niño. For instance, the number of breeding seabirds along the West Coast dipped precipitously in 1993 and again in 1998 in response to El Niño conditions. But there isn't an El Niño this year.

Monthly Deposition Index

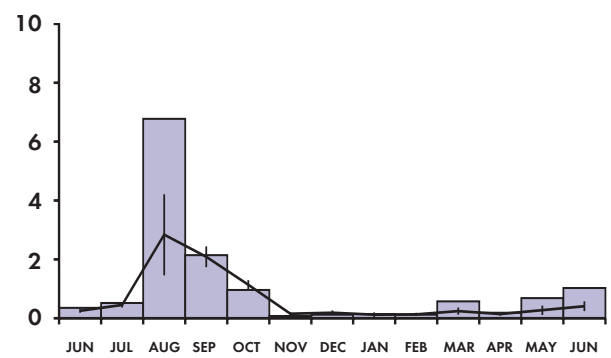
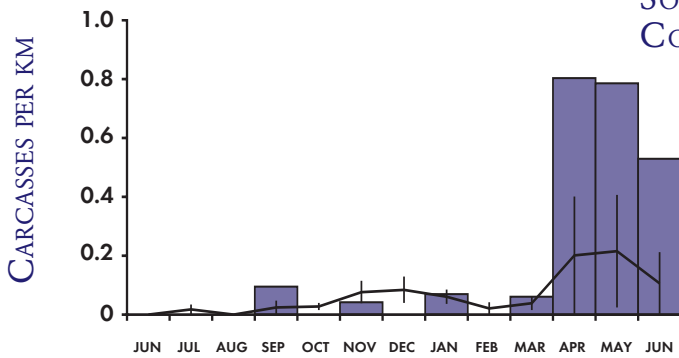
BRANDT'S CORMORANTS



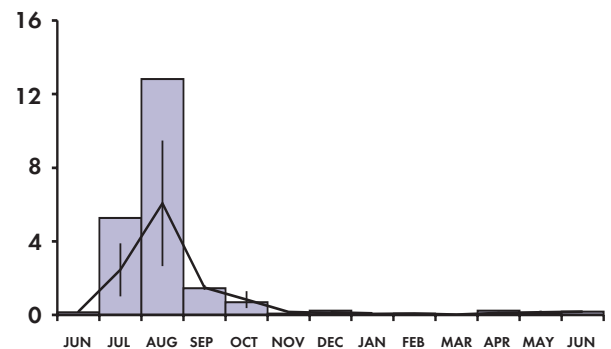
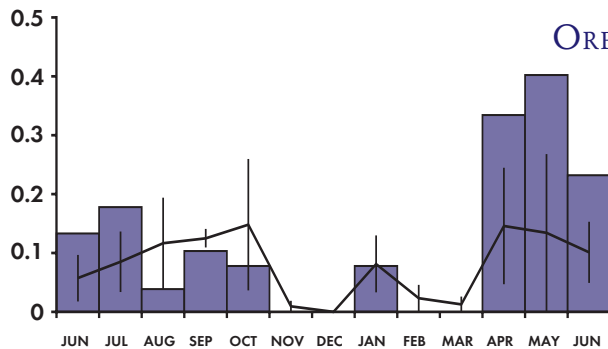
COMMON MURRES



SOUTH COAST



OREGON



So, what is the reason thousands of coastally breeding seabirds have abandoned breeding and washed up on beaches? Is this just a weird year, or are we seeing the beginning of a change for the worse? Could this be global warming? Climatologists Nate Mantua, from the University of Washington's Joint Institute for the Study of the Atmosphere and the Oceans, and Nick Bond, from NOAA, have provided us with some tantalizing clues. As previously mentioned, the winter of 2004–2005 was one of the milder ones on record. Very low storm energy and weak zonal winds translated into an easier time for seabirds. Within the COASST geographic range, lower than average numbers of coastal breeders washed in, and hardly any migrant species were found.

But conditions were already starting to deteriorate in California. Nate reports that weakened upwelling conditions in March and again in May—the usual month of breeding initiation at murre colonies in

California—caused sea surface temperatures in central California to climb 4° C above normal in places. The same thing happened off the coast of Oregon and Washington in June, just when the northern murre colonies were settling down to begin breeding. Although upwelling started much later than usual along our coast, a comparison with previous years indicates that the 2005 spring season is by no means the worst. For instance, 1993 and 1983 were far weaker. However, in both of those years there was a basin-wide forcing factor—El Niño.

What makes this year's story so interesting is its mystery—how can a merely mediocre spring upwelling pattern result in such a strong top predator effect? We suspect a combination of events. A bad fall—at least for murres—a mild winter allowing undernourished birds to “limp” through, and an unseasonably late onset of spring upwelling all created the perfect storm for some of our more flight-challenged coastal breeders.

In the final analysis, it is worth remembering that the beaching rates currently being reported, by COASST and others, are still below the standard post-breeding mortality peak in the late summer and fall. What is unprecedented is the timing of this die-off.

Will it make a difference to murre and cormorant populations? As with the winter wrecks we normally experience, the answer depends on how long this event persists. Many healthy populations can withstand the occasional downturn. However, a longer-term shift in coastal productivity, as would be the case if weak spring upwelling becomes the norm, would seriously affect Pacific Northwest seabirds, as well as other top marine predators. Stay tuned as this story continues to unfold.

*A Brandt's Cormorant
resting near North Head
Lighthouse*



Tom Harzig

The ever-popular COASST quiz



vital stats

found 10/24/04

Travis Spit (Strait of Juan de Fuca)

Bill: 80 mm

Wing: 32 cm

Tarsus: 82 mm



vital stats

found 3/24/05

Hobuck (North Coast)

Bill: 15 mm

Wing: 14.5 cm

Tarsus: 26 mm



vital stats

found 2/2/05

Golden Gardens (Puget Sound)

Bill: 30 mm

Wing: 17 cm

Tarsus: 35 mm

answers on page 26

Species of Concern Profile: Brown Pelican

Watching Brown Pelicans can turn a simple beach trip into an extraordinary event. A perfect line formation of these large, prehistoric-looking birds is becoming a more common sight in the Northwest.

When they dive, the fun really starts. Folding their wings back, pelicans sight along the bill as they plunge into the water, breaking their torpedo-like progress by gaping wide. Aptly named pouchbills by COASST, they are one of two pelican species in North America and are closely related to the more ubiquitous cormorants.

Nesting in trees and shrubs by the thousands, pelican colonies are an oddly quiet place. Adults are silent, relying on the flash of breeding plumage and waggle of their reddened bill pouch to attract mates. Unlike gull chicks who are quickly up and around, pelican chicks stay in the nest for weeks. But after a two-month diet of anchovies—hold the pizza—most are ready to fledge and begin life on their own.

Once a *critically* endangered species protected under the Endangered Species Act, the West Coast population of Brown Pelicans *Pelecanus occidentalis californicus* came close to the brink of extinction because of pesticide poisoning. Pelicans were accumulating DDT and its breakdown products through a process known as biomagnification. Pesticides entering the marine foodchain were concentrated at each level: plankton to fish to marine birds. Because DDT interferes with calcium production, females began to produce thinner eggs, and parents inadvertently crushed their offspring while attempting to incubate. By the 1970s, entire colonies were failing to produce any young.

Brown Pelicans pass over a murre colony in Oregon



Nathalie Hamel

Rachel Carson's book *Silent Spring* documented the impacts of pesticides on birds throughout North America and helped launch the successful campaign to ban DDT in the US in 1972. Today, pelican eggshells are much thicker—only 4–5% thinner than normal—and successful reproduction is again the norm.

But these ancient birds are not quite “out of the water” yet. They breed on only six main islands along the West Coast—two off southern California and four in the Gulf of California off the Mexican coast. Even a small amount of human disturbance at a colony, an oil spill in the nearshore environment, or a decrease in forage fish availability can cause a hiccup in the recovery of this species.

A voracious hunter of silvery schooling fish, a Brown Pelican can consume up to four pounds of fish in a typical day. Anchovies and sardines—the fish of Cannery Row fame—are a favorite food. These days, pesticides and fishers are minor concerns for pelican recovery relative to climate events that alter forage fish populations. If the anchovy population takes a dip during an El Niño, the number of pelicans returning to breed can drop by two thirds!

Moreover, the picture isn't always simple: in 2004, the food supply was good during the breeding season, but diminished right after the chicks were fledged and on their own for feeding. Many young birds were found starving and begging for food at docks and wharfs. Some traveled inland as far as Arizona in search of food. Many perished, fooled into doing kamikaze flights onto the water mirages of hot, shiny pavement.

More than a quarter century after they were first listed, the West Coast population of Brown Pelicans is still on the Federal endangered species list. But this scrappy and often comical bird *is* a conservation success story. On Anacapa Island—the main pelican breeding colony on the West Coast of the US—the population has climbed from a low of less than 100 pairs in the 1970s to over 6,000 pairs by 2004. In recent years, East Sand Island at the mouth of the Columbia River has been a popular roosting area for Brown Pelicans, and may represent the beginning of a Pacific Northwest breeding colony. And so, as you walk your beaches, look for a squadron of pelicans overhead.

COASST People

Volunteers

COASST put the icing on the cake high this year, adding 118 newcomers for an impressive total of 307 volunteers and substitutes. And you all braved the wind, rain and blowing sand to complete 1,618 surveys—the highest count to date. With more than 8,060 km of round trip surveying, COASSTers collectively could have walked from Seattle to New York City and back!

Be it one foot, two foot, red foot or blue foot, COASSTers recorded their finds with continuing accuracy. Success rate to species level was nearly 89%—close to last year’s 90% feat. However, if you feel that your skills are getting rusty, sign up for the North Coast rotating beach program with Mary Sue Brancato or Barbara Blackie, our North Coast and Strait volunteer coordinators.

Some of you even broke last year’s records. Wolter and Aneka van Doorninck cumulatively logged 230 km, 122 more than they surveyed last year! Vic Nelson, another one of COASST’s “extreme” surveyors, logged over 100 km during his 68 surveys. In fact, several other volunteers walked great distances for COASST—at least 60 km each—including John Epler, Mary Ann Hanson, Wayne Hanson, Clem Hoerner, Sue Nattinger, Sharon Nelson, and Jim Todd—excellent work!

Many of our volunteers need only to step off their back porch and onto the beach, while others travel several hours to reach our more remote beaches along the outer coast. Nearly all of our North Coast and some Strait volunteers spend at least twice as much time on the road as on the beach—many, more than 50 hours total. Special travel thanks to Coleman Byrnes, Ruth Jenkins, Sue Nattinger, Autumn Palumbo, and John Warrick. If COASST ever expands to include road kill monitoring, we know who to call... We also extend a special thanks to Connie and Tom Herzig, who travel from North Bonneville to the South Coast every month for their survey at North Head Lighthouse. In order to capture the true time that everyone devotes to COASST, we have included travel time (when submitted) in our hour calculations for this year. We really appreciate the extra effort you make in traveling so far!

When you include travel time, Sue Nattinger comes out on top with more than 200 hours dedicated to

VOLUNTEER*	HRS	TRAV HRS	KM
Aven Andersen	1.5		1.9
Ken Arzarian	18.0		40.8
Bill Baccus	5.8		4.1
Kathie Balcom	5.5		6.2
Tracy Beals	8.8	24.0	11.7
Katherine Beirne	6.6	9.0	4.1
Bryan Bell	3.6	8.0	3.9
Carol Bernthal	6.8	60.0	20.9
Linda Bierma	33.9	1.1	23.2
Perry Black	14.0	0.2	9.0
Barbara Blackie	44.1	36.0	16.3
Wendy Blair	1.3		3.0
Paul Blake	29.2		36.4
Alynda Blandin	0.7		1.6
Bent Blichfeldt	12.8		3.0
Chuck Blight	2.3		1.6
John Boetsch	1.9	9.0	2.0
Sheldon Botler	1.3		1.6
Sherry Bottoms	2.9		2.0
Ed Bowlby	1.0	0.3	1.6
Jane Boyden	22.3		17.7
Mary Sue Brancato	56.3	36.3	25.0
Stephen Brown	1.3	0.2	1.0
John Bryson	2.0		2.0
Jeanne Budlong	24.3		35.0
Jim Budlong	24.3		35.0
Daryl Bulkley	8.8	1.5	14.5
Jay Burns	2.6	7.3	7.6
John Burton	14.0	3.0	9.7
Kathy Bush	31.8	3.0	18.0
Rick Bush	31.8	3.0	18.0
Coleman Byrnes	49.8	68.0	45.4
Barbara Campbell	27.0	2.8	24.7
Betsy Carlson	7.0	1.3	18.0
Ricki Carlson	7.2		10.0
Maxine Centala	10.7		8.1
Anne Chiller	6.0		4.5
Judy Chovan	11.7	9.0	5.3
Barbara Christensen	6.0		3.8
Dyana Christensen	0.6		0.8
Gordon Clark	1.8	0.2	1.5
Joyce Clark	11.4	8.0	7.2
Susan Clark	55.5	11.2	45.8
Scott Clausen	4.8	1.2	4.2
Debra Clausen	16.8		35.2
Li Clinton	4.3		1.9
Margie Cochrane	3.8		3.2
Jane Comerford	4.2		6.4
Kathleen Confer	12.0		8.1
Steve Confer	10.3		6.4
Susan Contor	20.7	1.6	21.5
Roger Contor	20.7	6.0	21.5
Reid Conwi	1.9	0.5	2.7
Laurel Cook	1.3		0.8
Zilla Copper	0.3		0.2
Amber Cox	6.8	8.0	4.4
Tom Cox	13.8	22.8	11.5
Deb Cox	26.1	41.6	20.8
Elaine Cramer	10.0		6.4
Penelope Cross	1.5		1.9
Denise Dailey	6.6		1.9
Joseph Deegan	6.1		9.5
Pam Dick	31.9	20.0	19.7

VOLUNTEER *	HRS	TRAV HRS	KM
Paul Dinnel	18.9		26.4
Jane Dolliver	13.4		26.8
Karin Edwards	4.3		1.6
Carole Elder	9.3		5.5
Martha Ellul	27.7		35.2
John Epler	14.2		65.3
Aleta Erickson	6.3	42.0	12.2
Beth Fetrow	1.9	9.0	2.0
Field Trip	3.1		1.9
Rebecca Field	6.8		4.8
Sheila Fiepke	10.4		10.0
Jean Findlay	5.4	2.7	6.0
Gilbert Findlay	5.4		6.0
Judy Finley	8.0		6.6
Kathleen Foley	6.3	2.3	6.1
Burton Foote	35.9	38.5	25.5
Rose Forbes	15.8	7.2	19.6
Jerry Freilich	3.9	12.0	4.3
Ellie Friars	5.3		10.0
John Friars	5.3		10.0
Ron Frisch	22.2	11.0	27.6
Dick Fritsch	34.6		6.9
Joanne Fuller	3.7	3.0	3.2
Sue Gabriel	47.5		30.6
Varian Gacek	11.1	0.9	13.6
Sharon Gearhart	8.3	4.0	6.5
George Gemitz	6.6		1.9
Frank Geyer	14.0	0.2	7.0
Jerry Gibson	19.3	4.5	17.7
Gordon Giersch	32.9	36.2	8.7
Barbara Giersch	32.9	36.2	8.7
Jeff Giese	5.8	0.5	2.0
Mary Goff	46.9		52.8
Renee Goff	12.5		14.1
Nina Goff	2.5		3.5
Tom Golding	19.2	7.3	20.9
Mike Gracz	7.8		1.9
Scott Gremel	3.5		2.1
Jan Grove	4.8		8.0
Larry Grove	0.5		2.0
Ron Groves	11.1		7.2
Andy Gruse	14.8		12.0
Guest	63.7		62.2
Mary Ann Hanson	18.2		60.0
Wayne Hanson	18.2		60.0
Patti Happe	8.4	22.0	5.7
Caroline Harding	6.0		6.0
Rebekah Harding	1.4		2.4
Sandra Harold	2.3		2.5
Jon Harwood	10.8	1.3	10.0
John Haxton	27.5		22.5
Kristin Hemmelgarn	1.6		3.0
Tom Herzig	39.6	54.0	20.5
Connie Herzig	36.5	60.0	18.9
Olivea Higley	4.2		12.0
Jon Higley	2.4		6.0
Tonja Higley	1.8		6.0
Steve Hillman	0.7	0.5	0.8
Linda Hillman	10.3	5.0	8.0
Chelsea Hime	10.8	34.0	5.3
Clem Hoerner	14.2		65.3
Cat Hoffman	0.9	4.0	1.6
Roger Hoffman	0.9	4.0	1.6

VOLUNTEER *	HRS	TRAV HRS	KM
Roger Hoffman	0.9	4.0	1.6
Mary Holbert	11.5	2.5	8.1
Martha Holmberg	11.0	4.7	11.3
Rayna Holtz	7.9		6.0
Molly Hukari	13.0		9.2
Mike Hunter	6.6		1.9
Jeanne Iverson	18.3	9.1	14.0
JoAnn Jackson	9.1	0.8	11.2
Kurt Jenkins	1.9	4.0	1.6
Ruth Jenkins	25.2	77.0	23.1
Ellen Jenkins	11.0		11.2
Kyle Jenkins	1.9		1.6
Daniel Jenkins	1.8		1.6
Laurel Jenkins	1.8		1.6
Dick Johnson	11.0	3.0	18.0
Mark Johnson	1.8		1.8
Bert Johnstone	46.7	0.5	43.5
Mike Kaill	23.6	3.3	25.7
David Kaill	0.7		0.8
Marilyn Kastien	4.6		3.0
Christina Kessel	5.4		6.0
Kaylan Kimball	0.6		1.0
Ronalee Kincaid	2.1		1.6
Barb King	25.5	5.0	16.0
John King	24.6	5.0	16.0
Bruce Klanke	2.1		2.1
Gary Korb	16.3	6.0	4.8
Edi Leonard	5.5		3.5
Bev Leyman	3.4	16.0	2.2
Larry Leyman	7.0	34.0	5.6
Peter Linton	31.0		39.0
Kate Little	3.3		7.8
Robert Long	6.6		1.9
Camilla Loyd	7.3	1.3	8.0
David Loyd	19.9	3.7	22.0
Julia Loyd	42.8	7.7	46.0
Jann Luesse	71.8		38.6
Megan MacClellan	3.0		2.4
Pat MacRobbie	2.0	0.3	2.2
Stuart MacRobbie	2.0	0.3	2.2
Dave Manson	7.7	1.3	11.9
John Maré	44.7	3.7	17.7
John Markham	4.1		6.4
Mary Marsh	25.2	5.0	16.1
Jerry Marsh	6.1		6.0
Robert Mauri	8.6		11.5
Ivert Mayhugh	10.0	0.4	9.0
Jeanette Mayhugh	10.0	0.7	9.0
Melinda McComb	7.3		6.4
Gary McDowell	0.8	1.0	2.0
Mary McDowell	0.8	1.0	2.0
Vicki McNeil	17.8		24.2
Jean Mendel	7.7		12.9
Bob Merrick	7.9		10.5
Sharon Metcalf	3.8		5.1
Bob Middleton	26.8	44.0	22.0
Lauren Middleton	26.8	44.0	22.0
Ray Mielbrecht	3.0		2.4
Ian Miller	9.9	25.5	21.6
Marilyn Miller	1.7		0.8
Lindsey Milonas	20.3	8.0	5.8
Keenan Milonas	6.0		1.9
Gary Monterey	1.7	0.3	1.0

VOLUNTEER *	HRS	TRAV HRS	KM
Gary Montesano	2.4		2.0
Dianna Moore	18.6	2.0	21.8
Jake Morgan	2.0		1.6
Sue Nattinger	83.4	118.0	73.2
Vic Nelson	59.0		102.0
Sharon Nelson	41.3		69.0
Wade Newbegin	17.6		16.1
Nancy Newman	23.8	18.0	19.2
Darlene Nichols	14.5	33.0	26.4
Kern Nuttall	12.7		24.0
Robert Ollikainen	36.6		29.0
Carolyn Ollikainen	31.5		24.2
Pete Owston	22.8		57.2
Connie Owston	25.1		16.1
Andy Palmer	9.0	1.0	16.4
Ric Palumbo	14.6	31.5	18.2
Autumn Palumbo	25.5	54.0	31.2
Julia Parrish	3.1		1.9
Mike Patterson	1.8		1.6
Barbara Patton	23.8		14.4
Mike Patton	20.6		12.0
Heidi Pederson	8.6	6.3	16.6
Mollie Peters	1.3		1.6
Vicki Pilatti	6.6		1.9
Ellen Plews	3.4	1.5	2.4
Larry Plews	3.4	1.5	2.4
Mary Porter-Solberg	8.8		13.1
Jeanne Pumphrey	14.3	18.0	7.9
Sally Pytel	10.5		17.1
Paul Raffensperger	14.1		12.9
Janet Raffensperger	1.8		1.6
Michelle Ramsden	3.2		2.0
Brent Ramsey	17.9	0.4	11.0
Barbara Reisman	1.6		3.0
Pat Reynolds	33.8		14.5
Ginger Ridgway	2.5		0.9
Bill Ritchie	2.6		1.6
Holly Robinson	6.0		16.0
Moria Robinson	6.0		16.0
Sandi Robison	4.0	4.5	5.6
Casey Rodgers	1.0		2.0
Abbey Rosso	5.0		1.9
Mark Russell	12.8		11.0
Mary Russell	12.8		11.0
Joyce Ryba	5.9		4.6
Wilma Sale	2.6		2.0
Cheri Scalf	4.4	1.0	1.9
Jim Scheller	1.5		1.6
Dave Schmalz	4.2		5.7
Dennis Schroeder	7.8		4.0
Pete Seidel	6.0		6.0
Brenda Sestrap	5.5		6.2
Fred Sharpe	1.2	9.0	1.1
Nancy Silver	4.0		2.0
Lori Sinnen	38.3		16.1
Deanna Skewis	6.9		5.6
Randy Smith	4.5		6.2
Jo Smith	4.1		8.2
Richard Smith	4.4		1.9
Linda Songer	4.3		3.0
Ron Spring	16.0	15.0	16.1
Cindy Stafford	12.7		24.0
Al Standish	8.5	7.8	11.4

VOLUNTEER *	HRS	TRAV HRS	KM
Doug Stark	10.4		13.2
Ann Stark	0.7		1.2
Wendy Steffensen	11.1		10.6
Jesse Stewart	12.3	3.3	20.0
Iris Stober	15.4	47.3	21.4
Shaylon Stolk	1.3		3.0
Debbie Stoller	29.8		8.1
Linda Streifeld	13.7		8.8
Ingrid Strong	8.8	20.0	9.8
Eftin Strong	9.9	24.0	11.7
Kim Sundberg	11.9		25.6
Kim Suryan	10.3	0.8	8.1
Rob Suryan	10.3	0.8	8.1
Ed Swan	8.6		5.0
Cheryl Tinaves	8.6		11.5
Jim Todd	17.0	17.0	67.3
Jim Towell	8.3		4.8
Sue Trevathan	3.5		7.2
Judy Trieber	6.8		4.8
Bill Trieber	0.9		0.4
Cyndi Ulin	0.7	1.5	1.2
Lisa Unger	0.7	1.5	1.2
Al Vail	0.8	0.5	1.0
Wolter van Doorninck	134.0		170.4
Anneka van Doorninck	49.8		60.0
Glenn VanBlaricom	5.4		4.0
Kristina VanBlaricom	5.4		4.0
Barbara VanderWerf	21.3		14.5
Bill VanderWerf	21.3		14.5
Tina Vogel	11.6	5.0	8.0
Carol Volk	16.3	6.0	4.8
Tami Wagnet	2.0		1.6
Darlene Wahl	18.0		40.8
Raedell Warren	25.7	9.0	25.5
Hank Warren	25.7	10.5	25.5
John Warrick	22.0	59.0	21.0
Brenda Waterman	7.2	7.0	9.6
Christopher Waterman	7.2	7.0	9.6
Greg Waters	2.4		2.7
Amy Webb	3.5		1.5
Doug Webb	1.5		0.8
Anne Weisbrod	2.1	3.1	2.1
Dick Weisbrod	12.3	12.5	7.9
Sonya White	4.5	2.0	4.8
Jodi Wilmoth	2.2		6.0
Beth Winslow	17.7	6.7	19.0
Peter Witschi	4.3		3.6
Beth Wolgemuth	32.3	8.0	15.2
Kathleen Wolgemuth	71.3	17.0	32.3
Max Woods	3.1		3.2
Anne Woodward	4.0		2.0
Melissa Woolley	8.6		16.9
Carrie Wooten	23.8	18.0	19.2
Randy York	7.3		14.0
Pat Young	34.1		6.9
Robert Zimmerman	6.0	0.5	4.4
Craig Zora	3.8	1.0	2.0
TOTAL	4058.0		4032.3
*Volunteer effort June 2004-May 2005			

COASST this year. Coleman Byrnes, Susan Clark, Sue Gabriel, Mary Goff, Bert Johnstone, Julia Loyd, Jann Luesse, John Maré, Sue Nattinger, Vic Nelson, Sharon Nelson, Wolter and Anneka van Doorninck and Kathleen Wolgemuth all contributed more than 40 hours of survey time to COASST this year.

Numbers don't say it all, though. Staying power in the face of incessant zeroes is an extremely valuable commodity to us. Limited to small public beaches, a majority of our trustworthy Puget Sound and San Juan Islands volunteers survey their beaches with atomic-clock consistency, even though most did not come across any birds this year.

Huge thanks go out to those who got out there EVERY month this year some even twice a month: Ken Arzarian, Paul Dinnel, Sheila Fiepke, Dick Fritsch, Mary Ann Hanson, Wayne Hanson, Mike Kaill, Peter Linton (he did two beaches!), David Loyd, Julia Loyd, Kern Nuttall, Cindy Stafford, Doug Stark, Judy Trieber, Darlene Wahl and Pat Young.

Staff

Our staff at the University of Washington and the Olympic Coast National Marine Sanctuary has rushed to meet the increasing demands of a growing program. Thankful not to be seeing Northern Fulmars in his sleep this year, science coordinator Todd Hass spent countless hours verifying each of the 4,431 records in the COASST database. Teaching three courses at the UW, putting the finishing touches on the new *Atlantic Guide to Beached Birds*, and holding seven trainings/refreshers in three regions has luckily cured Todd of any fulmar withdrawal.

Mary Sue Brancato and Barbara Blackie of the Olympic Coast National Marine Sanctuary have also gone the extra mile, holding informal trainings at Hobuck Beach every month and helping to coordinate the survey effort at some of our more remote beaches on the North Coast of Washington and Strait of Juan de Fuca. With their help, COASST gained more than 30 volunteers and five new beaches in and around the sanctuary.

After a sabbatical in Santa Barbara where she walked the beaches but found only one adult

—continued on page 24

Volunteer Spotlight

Wolter and Anneka van Doorninck— North Coast

“After landing, the eagle samples the meat, decides whether it’s a sufficiently tender and juicy specimen, and then picks it up and flies off. With a gull, that’s hard to do!” remarks Wolter. Just another interesting day on their beach, Copalis Rocks, for Wolter and Anneka van Doorninck, two of COASST’s original 12 volunteers.

Back in 1999, when Todd and Julia were still inventing COASST, Wolter and Anneka were already primed to begin searching for beached birds. In fact, they already walked their beach daily to pick up *The Daily World*, where they found the original call for COASST volunteers. “We’re on the beach every day anyway, so we thought we could do something useful with the time.” And useful they are! With nearly 500 birds recorded to date, Wolter and Anneka are nearly always busy with new COASST finds.

Since they joined COASST, Wolter, a former Boeing engineer, has been at the top of the ranks every year in hours and kilometers walked. And Anneka is no slouch either. Not a month goes by that the COASST interns don’t see several data sheets from the van Doornincks. Together they have surveyed well over 600 kilometers since they started—that’s more than twice the entire outer coast of Washington!

Lest we be blamed for driving them too hard, at least once every summer, Wolter and Anneka take a break from their relentless pace of COASST surveying and go on a big vacation. This year, they

Anneka and Wolter van Doorninck at Copalis Rocks



van Doorninck family

traveled all over Europe, enjoying great food—they reported both wild boar and deer, but no seabirds on the menu—and sampling some terrific wines. For Wolter, at least, “It was quite a lot of driving, so it’s nice to be home.”

Back on the beach, they keep busy with the birds, monitoring for new arrivals and occasionally recruiting their two grandsons to help with the notetaking portion. “COASST is great—it keeps us busy. We’re always amazed by the changes we see.” For Wolter and Anneka, it’s important to “hear what’s happening on all the coasts.” COASST, of course, is just happy to hear that the van Doornincks are sticking around for a long time.

Dianna Moore and Kathleen Wolgemuth—South Coast

Miles away in Ocean Shores, Kathleen Wolgemuth read the very same *Daily World* advertisement that first attracted Wolter and Anneka. “I asked my husband Bruce, shall we look into dead birds? And he said SURE!” With their new guide in hand, Kathleen and Bruce began searching for dead birds. In those days, they surveyed from the Jetty to Marine View Drive and back, a journey of more than six hours at times.

After Bruce passed on, Kathleen recruited Dianna Moore to help out. For Kathleen and Dianna, both long-time naturalists and frequent beach walkers, COASST was a perfect fit—the ocean, after all, is right in their backyard. And like most folks who live on the coast, they’re incredibly attuned to changes within the ocean environment.

This year, Dianna and Kathleen found evidence of a small, unrecorded spill, which oiled nearly all the birds on their August survey. Kathleen remembered the thousands of oiled birds retrieved from the beach after the *Nestucca* spill in 1988, “it really grabbed our attention.”

After more than six years of surveying, this team has just about seen it all—Dunlin, Marbled Godwit, Black-bellied Plover, Black-Footed Albatross—and how many murrelets and fulmars? We won’t say. Both agree, there’s



Dianna Moore; inset: Mary Kay Kenney



Dianna Moore and Kathleen Wolgemuth on Marine View Drive; inset: Dianna holding a Peregrine Falcon

something to be learned from each species that crosses their path.

When they’re not out surveying for COASST, Dianna and Kathleen keep plenty busy. Dianna helps out UW researcher Dan Varland with raptor surveys along the Washington coast. Between fall and spring, she helps capture and band Peregrine Falcons, and has even witnessed one take a Mew Gull from the beach and a Mallard from her own yard! Kathleen, nature writer extraordinaire, just finished her latest story on Cranberry Cove for the AAA Washington magazine, *Journey*.

“We have a saying out here: There’s no bad weather, only inappropriate clothing.” Besides really good raingear, what else keeps Dianna and Kathleen surveying for COASST during the long winter months? For Dianna, it’s the satisfaction of knowing that, “we’re helping draw one part of a larger picture, helping establish a database that shows changes occurring in the environment.” While nearly all the locals see the value of COASST, every once in awhile an upturned nose forces Kathleen to launch into her spiel: “I tell them, these seabirds are indicators of what’s going on out there, and the data we’re collecting are being used to determine trends—there’s no way scientists can do it all—COASST is citizen science at its best.”

—continued from page 22

Glaucous-winged Gull, executive director Julia Parrish retook the front seat this year, helping to organize and direct COASST's growth. Thanks to her PR prowess, the COASST story has made its way to several local newspapers, and recently, to the AP wire.

Kate Litle, COASST's operations manager, worked wonders in the office, helping us stay organized and on top of data analysis. Kate is looking forward to "majoring in COASST" when she starts her graduate degree at the UW School of Maine Affairs this fall, examining citizen science for her Master's thesis.

Shelly Ross, our outreach coordinator, helped to strengthen connections with COASST's key supporters and stakeholders. Both Shelly and Kate helped organize COASST's two advisory panel meetings, integral in the creation of goals and objectives for COASST's strategic plan. Sadly for COASST, Shelly recently accepted a

Julia Parrish radios a research vessel from Tatoosh Island, Washington



Nathalie Hamel

full-time position at Children's Hospital in Seattle, but plans to remain involved as COASST begins the new year.

After a brief escapade tagging Pink-footed Shearwaters in the Juan Fernández Islands in Chile this winter, Jane Dolliver, our program assistant, returned to help with COASST's day-to-day matters. This summer, Jane split her time "between the dead and the living," helping out in the COASST office and doing field work on Tatoosh Island.

Interns and Office Help

Behind the scenes, COASST interns are one of the main reasons the program runs so smoothly. Interns organized and electronically entered more than 1,600 datasheets and filed more than 3,000 photographs. Alynda Blandin, Sara Bogard, Leda Chahil, Dyana Christensen, Matt Epstein, Casey Fromson, Amy Groesbeck, Rebekah Harding, Teresa Jewell and Melissa Woolley collectively contributed more than 1,000 hours to keep COASST humming.

The gracious help of our student interns has allowed us to examine trends in human use data, look into establishing beaches in Alaska, update the COASST map to reflect our current beaches and create the first COASST directory. Kudos to Melissa, our lead intern, who stepped up to make sure COASST ran smoothly during Jane's absence.

COASST interns responded to all sorts of questions by e-mail and phone, even the inevitable, "birds with plastic ties are showing up outside my beach house!" complaint. If collecting COASST data on the beach is like being a crime scene investigator, then our interns are top-notch handwriting analysts who have mastered the technique of deciphering those occasional scrawls in the comments field. Thanks to COASST, our recent UW graduates, Alynda Blandin and Sara Bogard, can now list "dead bird datasheet whiz" under the special skills portion of their resume.

A big thanks also to Anna Coles, librarian at the University of Washington, for continued help with the printing and organizing of more than 900 digital photos sent to the COASST e-mail account each year. With Anna, our dead fauna photo collection is always up-to-date.



Colin French

Heceta Head Lighthouse and Devil's Elbow Beach near Florence, Oregon

Partner Profile: Oregon Department of Land Conservation and Development

Oregon is a special COASST region. Although Oregon beaches represent less than 10% of COASST sites, they account for almost 40% of all carcasses found annually. Because so many seabirds breed in Oregon, COASST beached bird data are a vital “early warning system” that can alert natural resource management agencies to environmental change or threats.

As the agency primarily responsible for the management of coastal ecosystems, the Oregon Department of Land Conservation and Development partners with COASST to help conserve Oregon’s ocean resources for future generations. According to Bob Bailey, Manager of the Ocean/Coastal Services Division (better known as the Oregon Coastal Management Program), COASST brings “multiple benefits” to the agency.

“In addition to contributing data that help us better

understand and manage coastal resources, COASST involves the public and gives citizens the opportunity to observe the marine environment,” Bailey explains. “If people understand our coastal resources, they are more likely to be good stewards and advocates. So, in return for a modest amount of funds, we receive good data, citizen involvement and public stewardship. That is a pretty good deal.”

Bailey says the Oregon Coastal Management Program is best described as “the hub of a giant wheel of activities that affect the Oregon coast.” The program includes the land use planning authorities of all coastal cities and counties in the state, and it provides technical and funding assistance to local governments to help plan and manage land uses that affect coastal resources. Bailey’s team works closely

Partner Profile *continued*



Bob Bailey, Oregon Department of Land Conservation and Development

with the Oregon Parks and Recreation Department, the Department of Fish and Wildlife and other state and federal agencies working to protect the Oregon coast, including the US Fish and Wildlife Service Coastal Refuges.

Given the Oregon Coastal Management Program's broad range of partners and stakeholders, it isn't surprising that sound citizen science is a component of its approach to resource management. "Citizens clearly have a role to play, but it must be done in a structured way that will withstand scientific scrutiny and objectivity," Bailey says. "The trick is finding the particular methods that will add scientific value while engaging the public. COASST is a path-breaking example of how to do that."

A veteran manager of marine resources, Bailey encourages citizens to get involved with programs like COASST and become educated about ocean issues. The first challenge we face, Bailey says, is the increasing pressures on coastal ecosystems due to the cumulative effects of human activities at a local, regional, and global scale. "Humans, despite their best intentions, continue to pluck at various threads of these complex ecosystems, and when they unravel, they can do so in a hurry and in most unexpected ways."

The second basic challenge, according to Bailey, is to understand coastal marine ecosystems so that managers can respond to changes in ways that minimize additional adverse effects. However, he acknowledges that this is easier said than done. "Society cannot afford to wait to fully understand how these systems work in order to protect them; we must take action now."

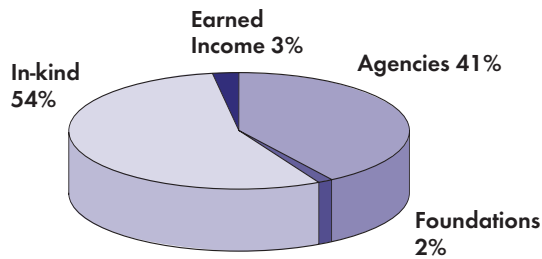
Bailey believes the COASST program is a key opportunity for citizens, scientists, agencies and other stakeholders to join forces and take meaningful action to protect marine ecosystems. "Anyone who has ever walked the beach has seen dead seabirds. But to see them as data points about formerly live birds that lived in a certain way in the marine environment can change people's perceptions about the birds, their environment and how science is conducted," Bailey says. "I am very pleased to support COASST and help expand its mission to the Oregon coast."

Answers to the Quiz

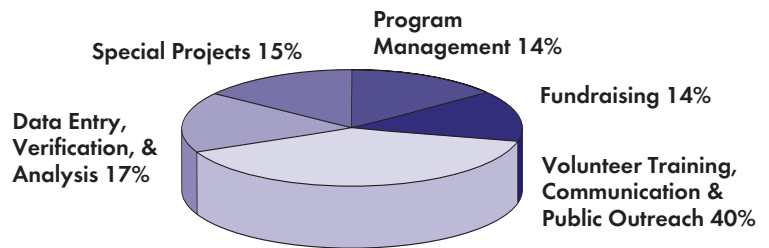
- A.** A webbed foot and wide, flat tarsus point to the loon family—but which species? The black head, nape and straight bill give away this especially large specimen—it's a Common Loon.
- B.** 3-webbed toes, 4th lobed—it must be a diving duck. White in the wing pit and small white patch behind the eye with pale underparts let us know it's a female Buffhead.
- C.** From the ruler we can tell this bird is tiny, with a wing chord less than 15 cm. With nostrils enclosed in a tube on top of the bill it must be a storm-petrel. The pale underparts and a dark eye smudge are telltale of a Fork-tailed Storm-Petrel.

COASST, July 2004–June 2005

Funding Sources



Expenses



Sponsors

COASST is grateful to the following sponsors, who provide operating funds, support for special projects and in-kind donations.

Operational Support

- Denison Family Fund of the Oregon Community Foundation
- Extraordinary Work Group
- NOAA Fisheries
- Oregon Department of Land Conservation and Development
- Washington Department of Fish and Wildlife

Special Projects

- Bird Studies Canada
- US Fish and Wildlife Service Alaska Endangered Species Program

In-Kind Support

- Cable Markers Co. Inc.
- Olympic Coast National Marine Sanctuary
- University of Washington School of Aquatic and Fishery Sciences

We thank the following people and organizations for supporting volunteer training and events: Dungeness National Wildlife Refuge, Jan Hodder and the Oregon Institute of Marine Biology, Makah Natural Resources, North County Recreation District, Ocean Park Timberland Library, Ocean Shores Interpretive Center, Olympic National Park, Olympic Peninsula Audubon Society, Port Townsend Marine Science Center, Quinault Natural Resources, Adriana Hess Audubon Center and Vashon Island Public Library.

COASST Funding

Starting and maintaining a citizen science program with a stellar reputation for high-quality data turned out to be the easy part! Finding the funding to keep our office, training and outreach going has been a challenge, and we welcome all suggestions.

In order to maintain current data collection and expand in a way that truly fulfills our mission, we must raise approximately \$120,000 per year. COASST spends the majority of our funding on salaries for staff, training and survey supplies, travel and outreach.

And although that may sound expensive, in fact we're cheap! According to the Independent Sector valuation of volunteer time for 2004, COASST volunteers contributed more than \$70,000 in survey time alone. That's a *huge* savings over the cost of acquiring the data through traditional employees.

This year, our direct funding needs were principally met by our agency partners. COASST is also extremely fortunate to receive in-kind support from the University of Washington and Olympic Coast National Marine Sanctuary, who support staff salaries, space and equipment. In total, in-kind support made up more than 50% of our 2004–2005 budget! Finally, we secured a small amount of support from private foundations, individual donors, and income from sales of our *Beached Birds* field guide. We've squeaked by with little reserve, but we're committed to meeting our funding goal for next year!

We gratefully accept gifts of any amount. Checks should be made payable to the University of Washington (with COASST on the memo line) and mailed to: COASST, UW School of Aquatic and Fishery Sciences, Box 335020, Seattle, WA 98195-5020.

COASST Mission

The Coastal Observation and Seabird Survey Team (COASST) is a citizen science project of the University of Washington in partnership with the Olympic Coast National Marine Sanctuary. COASST believes citizens of coastal communities are essential scientific partners in monitoring marine ecosystem health in the Pacific Northwest. By collaborating with citizens, natural resource management agencies and environmental organizations, COASST works to translate long-term monitoring into effective marine conservation solutions.



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by University of Washington Publication Services*

COASST Reports Team

<i>Contributors</i>	Barbara Blackie Mary Sue Brancato Jane Dolliver Todd Hass Kate Litle Shelly Ross
<i>Editor</i>	Julia K. Parrish
<i>Graphic Designer</i>	Cathy Schwartz
<i>Illustrations</i>	Valerie Sloane
<i>Analysis</i>	Francis Wiese

COASST Contact Info

<i>Website</i>	www.coasst.org
<i>Email</i>	info@coasst.org
<i>Phone, main office</i>	206-221-6893
<i>Phone, OCNMS office</i>	360-457-6622, ext. 20, 21
<i>Executive Director</i>	Julia K. Parrish 206-221-5787 jparrish@u.washington.edu



Coastal Observation and Seabird Survey Team
School of Aquatic and Fishery Sciences
Box 355020
University of Washington
Seattle, WA 98195-5020