



COASST

COASTAL OBSERVATION AND SEABIRD SURVEY TEAM

Reports 09–11



Breaking News

Recovering from the largest algal bloom ever recorded in the world, we've combined 2009–2011 into a single report—two for one this year! Despite COASST finding more than 700 scoters between September and November 2009, they still weren't top dog—that title belongs to Northern Fulmars. Still, 2009–2011 was our birdiest biennium yet, with 9,667 carcasses found by 797 participants.

ALASKA

Chukchi

Every region starts with one beach: in the summer of 2009, Julia extended COASST into the Chukchi Sea, where “rare” species (to all of us who live south of 50°N) are pretty commonplace. Just ask Ken Stenek, science teacher at Shishmaref School—McKay's Buntings? They're at the top of Ken's birding list for 2011. His first month of COASST finds included Greater White-fronted Goose,

Sarichef West—COASST's northernmost beach, on the shores of the Chukchi Sea. Photo: K. Stenek

Pomarine Jaeger, Glaucous Gull, and Arctic Tern. And Ken's June 2010 survey grossed three finds nobody else found this biennium: Common Eider, Red-breasted Merganser and Semipalmated Plover (first-ever COASST record).

The Chukchi Sea, sandwiched between the Arctic Ocean and the Bering Sea, is a tricky place to survey because the ocean surface freezes September through May (or later). Even in June Ken has noted, “shore ice that has broken up packed in towards the beach due to northwest winds. Plenty of wave action outside of the ice, but minimal on shore.”

With Ken's foothold in Shishmaref and Jane's training trip to Kotzebue (inspired by Charlotte Westing and Meghan Nedwick in August 2011), COASST's northernmost region now boasts nine beaches in 2012, including Churchrock, accessed by Randy Meyers and Jim Dau in a beach-landing plane!



Bering Sea

Plane-to-beach sounds familiar, at least to Lucretia Fairchild, Kristine Sowl and Audrey Bohl at Cape Glazenap, which turned up two Ancient Murrelets in 2009. Part of the Alcidae family, Ancients are the only member with a cream-colored bill and a “tiny wing, dark upper, and all-white under,” aptly described by this intrepid team.

Tinier still, a Least Auklet showed up in August 2010 on Zappa Beach, St George Island, found by Slade Sapora and Allyson Larned, of the Alaska Maritime National Wildlife Refuge seasonal staff. Like many diminutive seabirds, these guys are specialists on equally small prey items that “fit the bill”—copepods—mini, oceanic insect-cousins.

Neither dainty nor rare, but a strong signal on many COASST beaches, Northern Fulmars and Short-tailed Shearwaters had a good showing on St Paul Island, July–August 2009, but were completely absent in the summer of 2010. Paul Melovidov, Dustin Jones and Samantha Zacharof don’t see the same peak in fulmars that COASSTers from

Washington to California routinely document. Come September, resident birds jet out of the “land of the midnight sun.”

Aleutian Islands

Kyle Morrison and Ray Bucheit, Alaska Maritime National Wildlife Refuge seasonal staff, found two first-year birds on their June 2009 survey of Buldir Transect A that challenged their COASST ID skills. The first, an immature Tufted Puffin, appeared nearly identical to a Horned Puffin with its white breast, but the dark face and bill curvature proved otherwise. As an immature, the Red-faced Cormorant they found lacked the diagnostic red facial skin behind the eye, but had a pale bill with dark tip.

Close cousins of Common Murres, but breeding farther North (Southeast to Chukchi Sea), Thick-billed Murres outnumbered Commons as beached birds 11:1 in the Aleutians. In the Gulf of Alaska it was just the opposite, with 10 Commons and no Thick-bills. When lumped, the two species (distinguishable by bill only) account for about 13%

of finds this biennium in Alaska. By contrast, murres on the outer coast (Washington south to Humboldt) accounted for exactly one quarter of all finds.

Gulf of Alaska

On the hunt for a beached bird (murre or otherwise), Mark Kansteiner didn't see a single one in September 2010 on Airport Beach, but did find "hundreds of moon jellies, approximately 1-inch in diameter, 100 larger moon jellies, plus another 100 lion's mane jellies." In response to concerns about increasing reports of jelly blooms, also known as "smacks," scientists associated with the National Center for Ecological Analysis and Synthesis launched *JellyWatch.org* to create an online portal for citizens to post their sightings.

Jellies abound, but so do sightings of our national bird: anywhere from three, spotted by Kathy East on Cannery Beach North in May 2011, to the "33 BAEA within 500 feet of the start of my COAST segment" reported by Michelle Michaud on Anchor River South. The only Bald Eagle beached bird find washed up far from civilization, on Northwestern Spit, found by Kenai Fjords National Park staff Brooke McFarland, Laura Phillips and Monika Parsons in May 2011.

Following in the footsteps of Max Smith and Sarah Swanson, whose 2006 wedding invitation spoke of their gratitude toward "family and friends for joining us on this

most special occasion at our favorite place to walk, relax and survey dead birds," Bruce Dotterer proposed to Meghan Kelly after completing their June 13, 2009 survey. Bruce offered a very surprised Meghan an engagement ring and he happily reports in the comment section, "She said, 'Yes!'"

Southeast

Heidi and Tim Olson (along with an entourage of four guests) found Boy Scout Beach's first bird since they started in October 2008 (well, there was that Dunlin Merrill Jensen found—close, but not quite dead). The team was first to admit, "it had been two years since our training," but back at the house, they combed over the wing key and photos and came up with the correct species ID, a Common Loon. Not only that, they noted a classic oil "bathtub" ring on the remaining breast feathers.

Judy Ramos, anthropologist for the Yakutat Tlingit Tribe, found Southeast's other loon, a Pacific, on Cannon Beach South in October 2010. Narya a bird on the north end, but Denise Wiltse and John Buller report plenty of "bear tracks observed" over multiple months.

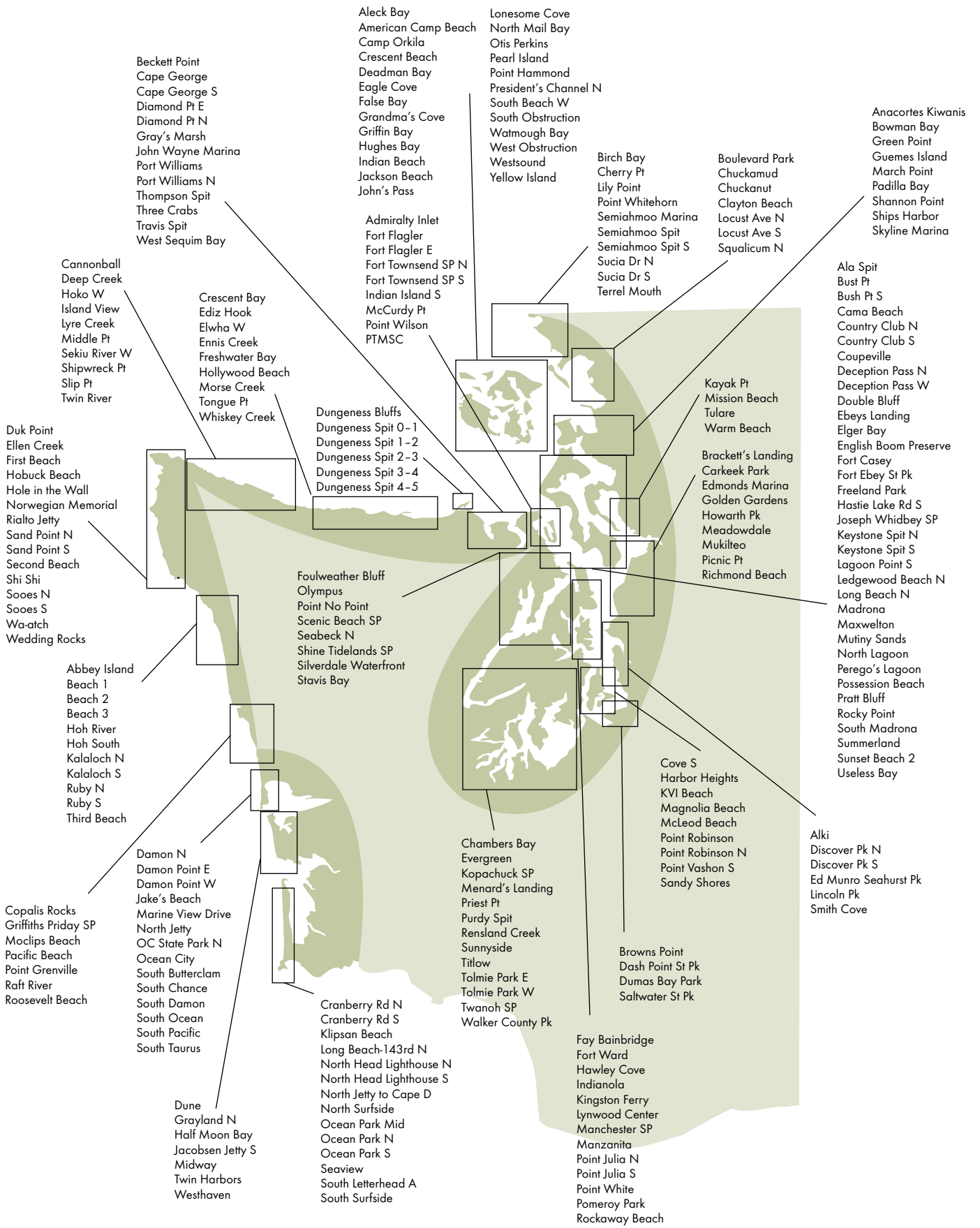
As "lone man standing" in Ketchikan, Gary Freitag spread some COAST cheer and recruited Jessica Davila to adopt surveys of Refuge Cove. Now, with more than 10 surveys under her belt (as of fall 2011), they're tied for total number of birds found (0!).



Look carefully! While this bird has a pale belly, it's not a Horned Puffin; it's a juvenile Tufted Puffin found on Buldir Island in June 2009. Contrast this bird to the one at right.



Check out the beaks of both puffins, especially the bill tip: the Tufted Puffin's (left) forms a sideways heart shape, the Horned Puffin's (above), a dark triangle.



Beckett Point
Cape George
Cape George S
Diamond Pt E
Diamond Pt N
Gray's Marsh
John Wayne Marina
Port Williams
Port Williams N
Thompson Spit
Three Crabs
Travis Spit
West Sequim Bay

Aleck Bay
American Camp Beach
Camp Orkila
Crescent Beach
Deadman Bay
Eagle Cove
False Bay
Grandma's Cove
Griffin Bay
Hughes Bay
Indian Beach
Jackson Beach
John's Pass

Lonesome Cove
North Mail Bay
Otis Perkins
Pearl Island
Point Hammond
President's Channel N
South Beach W
South Obstruction
Walmough Bay
West Obstruction
Westsound
Yellow Island

Birch Bay
Cherry Pt
Lily Point
Point Whitehorn
Semiahmoo Marina
Semiahmoo Spit
Semiahmoo Spit S
Sucia Dr N
Sucia Dr S
Terrel Mouth

Anacortes Kiwanis
Bowman Bay
Green Point
Guemes Island
March Point
Padilla Bay
Shannon Point
Ships Harbor
Skyline Marina

Cannonball
Deep Creek
Hoko W
Island View
Lyre Creek
Middle Pt
Sekiu River W
Shipwreck Pt
Slip Pt
Twin River

Crescent Bay
Ediz Hook
Elwha W
Ennis Creek
Freshwater Bay
Hollywood Beach
Morse Creek
Tongue Pt
Whiskey Creek

Admiralty Inlet
Fort Flagler
Fort Flagler E
Fort Townsend SP N
Fort Townsend SP S
Indian Island S
McCurdy Pt
Point Wilson
PTMSC

Ala Spit
Bust Pt
Bush Pt S
Cama Beach
Country Club N
Country Club S
Coupeville
Deception Pass N
Deception Pass W
Double Bluff
Ebeys Landing
Elger Bay
English Boom Preserve
Fort Casey
Fort Ebey St Pk
Freeland Park
Hastie Lake Rd S
Joseph Whidbey SP
Keystone Spit N
Keystone Spit S
Lagoon Point S
Ledgewood Beach N
Long Beach N
Madrona
Maxwelton
Mutiny Sands
North Lagoon
Perego's Lagoon
Possession Beach
Pratt Bluff
Rocky Point
South Madrona
Summerland
Sunset Beach 2
Useless Bay

Duk Point
Ellen Creek
First Beach
Hobuck Beach
Hole in the Wall
Norwegian Memorial
Rialto Jetty
Sand Point N
Sand Point S
Second Beach
Shi Shi
Sooes N
Sooes S
Wa-atch
Wedding Rocks

Dungeness Bluffs
Dungeness Spit 0-1
Dungeness Spit 1-2
Dungeness Spit 2-3
Dungeness Spit 3-4
Dungeness Spit 4-5

Kayak Pt
Mission Beach
Tulare
Warm Beach

Brackett's Landing
Carkeek Park
Edmonds Marina
Golden Gardens
Howarth Pk
Meadowdale
Mukilteo
Picnic Pt
Richmond Beach

Foulweather Bluff
Olympus
Point No Point
Scenic Beach SP
Seabeck N
Shine Tidelands SP
Silverdale Waterfront
Stavis Bay

Abbey Island
Beach 1
Beach 2
Beach 3
Hoh River
Hoh South
Kalaloch N
Kalaloch S
Ruby N
Ruby S
Third Beach

Damon N
Damon Point E
Damon Point W
Jake's Beach
Marine View Drive
North Jetty
OC State Park N
Ocean City
South Butterclam
South Chance
South Damon
South Ocean
South Pacific
South Taurus

Cove S
Harbor Heights
KVI Beach
Magnolia Beach
McLeod Beach
Point Robinson
Point Robinson N
Point Vashon S
Sandy Shores

Copalis Rocks
Griffiths Priday SP
Moclips Beach
Pacific Beach
Point Grenville
Raft River
Roosevelt Beach

Chambers Bay
Evergreen
Kopachuck SP
Menard's Landing
Priest Pt
Purdy Spit
Rensland Creek
Sunnyside
Titlow
Tolmie Park E
Tolmie Park W
Twanoh SP
Walker County Pk

Browns Point
Dash Point St Pk
Dumas Bay Park
Saltwater St Pk

Alki
Discover Pk N
Discover Pk S
Ed Munro Seahurst Pk
Lincoln Pk
Smith Cove

Dune
Grayland N
Half Moon Bay
Jacobsen Jetty S
Midway
Twin Harbors
Westhaven

Cranberry Rd N
Cranberry Rd S
Klipsan Beach
Long Beach-143rd N
North Head Lighthouse N
North Head Lighthouse S
North Jetty to Cape D
North Surfside
Ocean Park Mid
Ocean Park N
Ocean Park S
Seaview
South Letterhead A
South Surfside

Fay Bainbridge
Fort Ward
Hawley Cove
Indianola
Kingston Ferry
Lynwood Center
Manchester SP
Manzanita
Point Julia N
Point Julia S
Point White
Pomeroy Park
Rockaway Beach

WASHINGTON

Puget Sound

In the chase to add the most new species to the COASST list, Puget Sound won this biennium, but none of the newbies was a seabird. Coming the closest was the “fish hawk,” or Osprey, found by Vic Nelson at Point No Point in August 2009. As testament to what 228 surveys will get you, Vic also turned up another first, a Mourning Dove in July 2010. Elizabeth Cumming-O’Berry and Tom Richards are losing beachfront, “continued erosion near the road—three more trees are tipping just over the cobble,” but grossing lots of birds on March Point: 13 beached birds this biennium, including COASST’s first Tree Swallow in June 2009.

UW Bothell students Sarah Gielgens and Mandy Knudtson, surveying Mukilteo in April as part of their community-based learning and research experience, tallied one bird: “Perching bird, varied plumage: songbird. Use traditional guide.” Our top-notch verifier Charlie Wright identified COASST’s fourth new species, a House Sparrow.

“Noticed diamond-shaped metal tags nailed on two different logs high on the beach. The tags read Fisheries Research—Do Not Tamper—2007, numbered 0690 and 0102, respectively,” wrote Matt and Bonnie Kerschaum on their January 2010 and 2011 surveys of Ala Spit. The study, lead by Dan Tonnes of NOAA Fisheries—Northwest Fisheries Science Center tracks movement of large woody debris critical for salmon habitat.

San Juans

Kim Des Rochers was the first to spot horse tracks on Camp Orkila Beach in April 2010. In May 2009, she found the beach’s first and only bird, a Common Loon—no head—but displaying the diagnostic, flattened tarsus and dark spotted upperwing.

Of the 11 birds found in the San Juans over the biennium, 4 were on two beaches—a rarity—all occurring in July or August. Mike Kaill holds the all-time record—3 Common Murres on Eagle Cove in August 2003. Coming in close behind recently were Debbie Clausen and Kim Sundberg with 2 perching birds in August 2009 and Karla Sabin with a Cassin’s Auklet and a Common Murre in August 2010.

Hughes Bay is always abuzz with live birds seen from the shoreline. Daphne Morris and Cathy Wilson keep watch in the hopes of spotting the occasional Common Goldeneye. It wasn’t a bird, but a feline that surprised them in February



M. Kennedy

If a log rolls off a beach, does anyone notice? Matt and Bonnie might, on Ala Spit, where logs like this are tagged as part of a salmon habitat study.

2010, “1 cat, alive and well,” which marked COASST’s first-ever cat on beach patrol.

Tim Easton and Andrea Wieland also keep an eye out for live birds. The team spotted large flocks of Surf Scoters just off American Camp in October 2010 and May 2011, timed, not surprisingly, with the birds’ arrival to, and departure from, Pacific Northwest waters.

Strait

Pigeon Guillemots of many plumages dotted the pages of Strait data sheets—breeding, non-breeding and those in-between. Relatively well adapted to human activities, the greater Puget Sound’s second most abundant resident seabird fledges chicks in late July and early August from natural and man-made structures like wharfs, bridges, navigation aids, pipes and even beached ship hulls! The wrack of Diamond Point North turned up a transitional plumaged PIGU for Karen Gittleman, Judy Rost and Jan Kummert in September 2009. Marilyn Friederich and Vicki Mansfield found a breeding PIGU on McCurdy Point in August 2010; Nancy Messmer found an immature on Hoko West in October 2010.

Janet and Robert Mullen found one of the state’s rarer birds, a Marbled Murrelet, on Dungeness Spit Mile 2-3 in July 2009. The MAMU, along with a Pelagic Cormorant, White-winged Scoter and Northern Fulmar, made for one of the region’s most diverse surveys, just not quite as birdy as Peter, Carmela and Benjamin Alexander’s September 2009 survey of Ediz Hook with eight birds, six of them hunter-discarded Sooty Grouse, a new species for COASST.

Rod Norvell found this biennium’s only Short-eared Owl on Dungeness Spit Mile 2-3, COASST’s first since October 2006, when Max Smith and Sarah Swanson found one on Oregon Mile 266, and Don and Dalene Edgar found another on South Taurus. Owls aren’t the only birds with talons on Strait beaches; Gary Korb and Carol Volk tagged a Red-tailed Hawk at Tongue Point in January 2011, “44-inch wingspan!!,” and Dave Gittleman added COASST’s first Cooper’s Hawk to the Gittleman/Rost/Kummet team list in December 2009.

North Coast

In an anything-but-quiet 2009 for the North Coast, Surf Scoters rose to the top of almost every September survey, outnumbering White-winged Scoters 3:1. The algae-driven scoter pulse even overwhelmed cumulative COASST data (summed across all regions), lifting Surf Scoters from #12 to #3. That year, as the drama wore down, the North Coast wound up with only one Black Scoter, found by Rod Norvell and guest Shelly Ament on Kalaloch South in November, correctly identified by a distinctive wing attribute, “outer primary is shorter than next two feathers.”

Daniel Ravenel was not among the COASSTers who found themselves in the “thick of things” (literally!) in September. Point Grenville only grossed four birds that month, including a Pink-footed Shearwater and a *very*

young Common Murre chick. Not unusual, as the beach is super close “as the murre flies” to the Point Grenville colonies: Erin, Erin’s Bride, Grenville Arch. If early season eagle disturbance causes widespread murre egg loss, birds re-lay and chicks fledge as late as October in Washington.

Way smaller than a COMU chick, but correctly identified (to species!), Judy McCuin and Sue Keilman found COASST’s first-ever Orange-crowned Warbler—yup, complete with orange crown in September 2010 on Second Beach. The “Sue duo” also wound up with another tiny and rare find—a Leach’s Storm-Petrel in September 2010 on Third Beach.

South Coast

South Coast also saw its fair share of *Akashiwo* bloom finds, with friends, neighbors, WDFW personnel Helmut Zahn and Warren Michaelis, and COASST staff deputized to do additional surveys in October as the bloom took its toll on Common Murres, loons (mostly Pacific and Red-throated) and grebes (Western Grebes, predominantly). All told, South Coast COASSTers documented a whopping 298 Common Murres (compared to 14 in October 2010), 67 grebes and 47 loons. In a struggle against diminishing daylight, inclement weather and dwindling supplies, Nancy Fischer captured the scene well, “Also 14 more NOFU, 2 cormorant beyond Midway Beach Road—at that point I quit measuring, but continued to take photos for each bird found.”



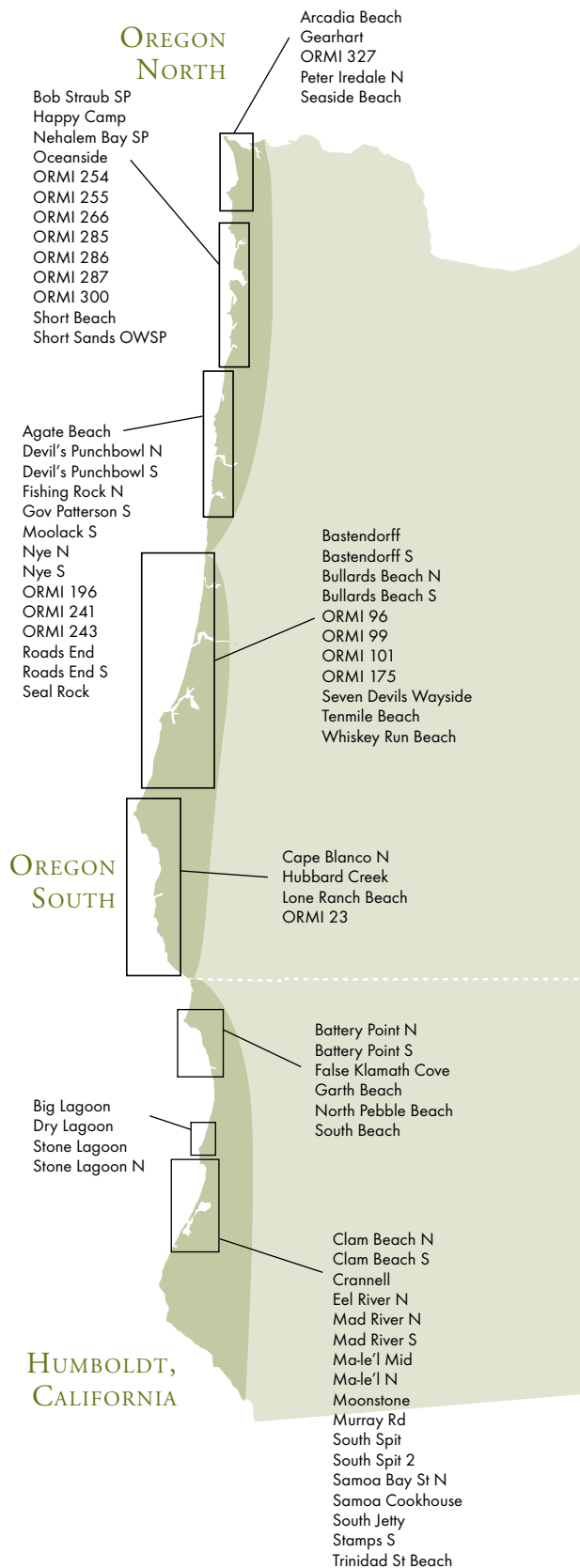
T. Risdon

No, not a stingray, but related—Carl Haynie grabs the “wing” of this Big Skate found in November 2010 on Griffiths Priday State Park.



J. Havrilak

Wowser! That’s no coffee table! The COASST ruler sits atop a whale vertebra Janice Havrilak found on her November 2009 survey of Damon Point East.



John and Joyce Epler tacked two noteworthy finds to their nine-year COASST record on Ocean Park North: a nearly intact male California Sea Lion in June 2010 and this biennium's only Northern Shoveler in September 2010.

On the shorebird front, Terry Risdon and Carl and Matt Haynie recorded COASST's first Short-billed Dowitcher on their "lucky" 13th survey of Griffiths Prriday State Park in May 2009. Headed north to breeding locations bordering the Gulf of Alaska, the Pacific subpopulation accounts for about half of the 140,000 birds worldwide. One of this biennium's two Dunlins showed up on Cranberry North in February 2010 found by Sumer and Latresha Starling, the other spotted by the students of Barbara Blackie's environmental studies class on Kalaloch South in May. And the star of South Pacific (the beach, not the movie) was our only Sanderling, found among 15 other birds that day by Susan Kloeppel and Jeanne Finke in October 2010.

OREGON Oregon North

Though "common" is in the name, they're anything but: this biennium, Bert Johnstone and Peggy Speer found COASST's first Common Tern on Oregon Mile 196 in October 2010, and seven months later, Dianna Moore ran across another on North Jetty (South Coast, Washington). On the East Coast, it's a SEANET (COASST's sister program based in Massachusetts) top find, common enough to be featured in COASST's *A Field Guide to the North Atlantic*.

Another vagrant graced the shores of Oregon North's beaches: a Yellow-billed Loon found by Wendy Williams on Agate Beach in April 2011, a good 350 miles south of its known wintering range. COASST's only other record of this species is well within the known wintering range—Bishop's Beach near Homer, Alaska, in February 2007. Due to low population size, low reproductive rate and disturbance on Arctic lake breeding sites, the U.S. Fish and Wildlife Service designated the Yellow-billed as a Candidate Species in 2009.

Alaska volunteers could have stopped at Q1 of the Wing Key with this find, but the West Coast version of *Beached Birds* only makes mention of this rarity on the Red-legged Kittiwake page: "dark upperwing with white mid-wing triangle." That's right—a Sabine's Gull found by Wade Newbegin on Oregon Mile 241 in September 2009.

Oregon South

From the opposite polar region came one South Polar Skua that Rick Foster correctly identified on his September 2009 survey of Bullards Beach North. COASSTers, a generally meticulous bunch, might well relate to Rick, who prepared a veritable exhibit of evidence, “I took 12 photos but only sent you the best 6 to get a positive ID.” Nearly four years previous, Dianna Moore, Kathleen Wolgemuth and Barbara Patton claimed COASST’s first SPSK in July 2005; that find was documented on *Northwest Cable News TV*!

Jan Henault didn’t find a single bird on her first survey of Lone Ranch Beach in June 2010, but the sands revealed something speckled and white—a Common Murre eggshell, which didn’t come far: likely from Twin Rocks, home to about 11,000 Common Murres just north of Brookings, Oregon.

Doug and Mariann Croucher spent their first surveys of Oregon Mile 101—July and August 2010—counting some tiny chicks of Oregon coastal breeders: three Common Murres, six Western Gulls and one Pelagic Cormorant. A consistent signal, coastal breeders (and their chicks) account for more than 90% of species found after the breeding season as exhausted parents and fragile young succumb to starvation and early fall storms.

A migrant Whimbrel rounded out the selection found on the Oregon South coast thanks to David Sweetman and Karen Olsen on Seven Devils Wayside in May 2011.



The first since 2005, the white underwing flashes of this South Polar Skua caught Rick Foster’s attention on Bullards Beach North in September 2009.



R. Ridenhour

Linda Doerflinger stands next to her once-in-a-lifetime sighting of a 25-foot Gray Whale on Dry Lagoon. A couple of weeks later, headlines of the Eureka Times Standard read, “washed up whale may have been harpooned off Russia.” Tim Broadman of the National Marine Fisheries Service found the exposed harpoon matched those from the Chukotka people who live in Siberia and along the northern Bering Sea coastline.

CALIFORNIA Humboldt

For those of you that think gull identification is “for the birds,” figuratively and literally, time to put Gary and Lauren Lester on speed dial. On Murray Road in January 2010, they correctly separated a lone Thayer’s Gull from its more common Glaucous-winged and Western Gull cousins by its bi-colored primaries and an all-white underwing including primary tips. Rich Ridenhour and Linda Doerflinger found another COASST first, a Wood Duck, at Dry Lagoon in October 2010. Without finding a bill or feet, Rich and Linda pulled out two characters, “green speculum sheen and speckled underwing pattern,” which are diagnostic for this duck, and correctly identified it to species.

Post the Common Murre pulse (32 chicks in June of 2009), Pam and Dennis Cahill were at it again in July, with a few refinds (predictable...) and a juvenile California Sea Lion. And they’re not alone: Summer 2009 brought 21 additional marine mammal records, with Kay Zeleny and Marie Granshaw reporting, “the marine mammal stranding network responded to another 20-plus animals.”

Mortality Related to Human Activities

Oiled & Entangled Birds

As usual, entangled birds were a small percentage of total finds, accounting for only 0.29% of the birds in COASST year 2009–2010 and 0.37% in 2010–2011. Three new species were added to the entanglement list—Black-legged Kittiwake, Heermann’s Gull and Pigeon Guillemot. Only 0.09% of total finds in 2009–2010 and 0.08% in 2010–2011 were oiled, including the first two Common Loons.

Oiled Birds

2009–2010

Common Loon	Griffiths Priday State Park (WA)
Northern Fulmar	Battery Point N (CA) Tenmile Beach (OR)
Rhinoceros Auklet	South Taurus (WA)
Unknown Murre	Staraya Artil (AK)

2010–2011

Common Loon	Boy Scout Beach (AK)
Rhinoceros Auklet	Griffiths Priday State Park (WA)
Short-tailed Shearwater	Hobuck Beach (WA)

Entangled Birds

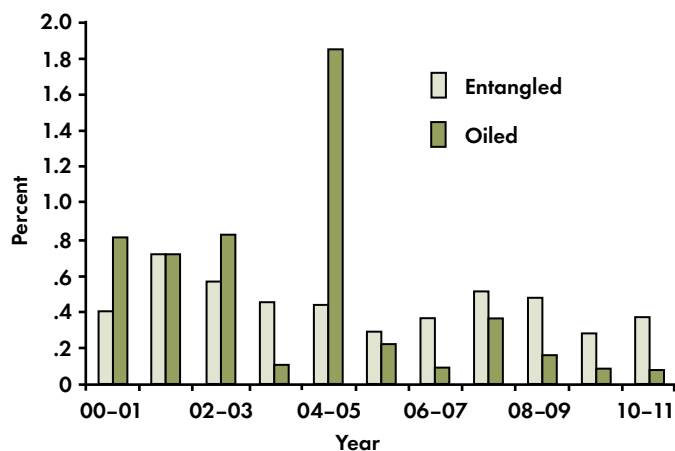
2009–2010

Brandt’s Cormorant	Mad River S (CA) ²
Brown Pelican	Battery Point S (CA) ^{1,2}
Common Murre	Clam Beach N (CA) ^{1,2} Cranberry Rd N (WA) ¹ Dungeness Spit 0–1 (WA) ¹ (2) Murray Rd (CA) ¹ (2) Stamps S (CA) ¹ Stamps S (CA) ²
Glaucous-winged Gull	Cannery Beach N (AK) ¹
Northern Fulmar	South Taurus (WA) ³
Pelagic Cormorant	Crannell Beach (CA) ¹ OR Mile 286 (OR) ² Peter Iredale N (OR) ¹
Unknown Gull	Clam Beach N (CA) ¹
Western Grebe	Garth (CA) ¹

2010–2011

Black-legged Kittiwake	Southwest Stretch (AK) ¹
Common Murre	Battery Point N (CA) ¹ Copalis Rocks (WA) ⁴ Crannell Beach (CA) ¹ Whiskey Run Beach (OR) ¹
Heermann’s Gull	OR Mile 196 (OR) ^{1,2}
Large Immature Gull	OR Mile 286 (OR) ¹
Pelagic Cormorant	Mad River Park N (CA) ¹ Nye North (OR) ^{1,2}
Pigeon Guillemot	Agate Beach (OR) ¹
Sooty Shearwater	Clam Beach N (CA) ^{1,2}
Unknown Gull	Lagoon Point (WA) ¹
Western Gull	Ma-le’l N (CA) ^{1,2} OR Mile 175 (OR) ^{1,2}

¹ Hook, ² Line, ³ Rope, ⁴ Twine



Rates of chronic oiling (dark green bars) and entanglement (pale green bars) are low over all COASST years, hovering around 0.5%. The obvious exception was summer 2004, when COASSTers found 35 oiled birds from an undocumented spill off the South Coast of Washington.

COASST Quiz



A



D. Chisholm

Found 4/23/2011
 Samoa Cookhouse
 (Humboldt, CA)
 Bill: 42 mm
 Wing: 28 cm
 Tarsus: 53 mm

D



C. Burns

Found 12/4/2010
 ORMI 175
 (South Oregon, OR)
 Bill: 32 mm
 Wing: 17 cm
 Tarsus: 32 mm

B



S. Graham

Found 9/16/2010
 Chuckanut Bay
 (Puget Sound, WA)
 Bill: 36 mm
 Wing: 33 cm
 Tarsus: 50 mm

E



AMNWR seasonal staff

Found 6/4/2009
 Buldir Transect A
 (Aleutian Islands, AK)
 Bill: 36 mm
 Wing: 23 cm
 Tarsus: 40 mm

C



S. Fedora

Found 9/12/2009
 Harbor Mouth
 (Gulf of Alaska, AK)
 Bill: 33 mm
 Wing: 30 cm
 Tarsus: 36 mm

—answers on page 14

Beached Birds Identified to Species

SPECIES	YR 12 #	YR 11#	YR 12 %	YR 11 %	YR 10 %	YR 9 %	YR 8 %	YR 7 %	YR 6 %	TOTAL #	TOTAL %
Northern Fulmar	1160	1095	33.1	19.9	8.9	30.5	9.5	12.4	8	6477	23.7
Common Murre ¹²	502	1682	14.3	30.5	35.7	26.6	19.5	28.8	47	7268	26.6
Rhinoceros Auklet	232	50	6.6	0.9	2	2.2	13.2	10.3	1.5	1068	3.9
Large Immature Gull	201	354	5.7	6.4	11.6	9	10.6	10.8	13.3	2480	9.1
Glaucous-winged Gull	164	109	4.7	2	4.4	3.4	6.1	2.4	3.8	923	3.4
Western Gull	155	110	4.4	2	4.3	3	5.3	1.7	3.2	770	2.8
White-winged Scoter	113	246	3.2	4.5	0.5	1.1	1.3	1.2	1	531	1.9
Sooty Shearwater ^Y	106	73	3	1.3	2.5	1.1	1	1.2	2.1	485	1.8
Black-legged Kittiwake	78	47	2.2	0.9	1.8	0.7	2	0.2	0.2	280	1.0
California Gull	77	37	2.2	0.7	0.8	0.5	1.1	1.2	0.7	277	1.0
Western Grebe ¹²	63	98	1.8	1.8	2	2.7	3.4	6.5	0.8	704	2.6
Pelagic Cormorant	62	142	1.8	2.6	1.3	1.7	2.1	1.7	2.7	531	1.9
Brandt's Cormorant ¹²	54	123	1.5	2.2	3.9	4.4	3	3.8	3.3	756	2.8
Surf Scoter	49	753	1.4	13.7	1	1	1.1	0.9	1.1	979	3.6
Cassin's Auklet ¹²	41	9	1.2	0.2	1.3	0.7	4.7	5.8	2	472	1.7
Pigeon Guillemot	33	25	0.9	0.5	0.7	0.5	1	0.9	1	191	0.7
Parakeet Auklet	25	9	0.7	0.2	0.4	0.1	0.2	0.1		56	0.2
Short-tailed Shearwater	25	28	0.7	0.5	0.4	1.6	0.7	0.8	0.9	205	0.8
Brown Pelican ^{5,6}	23	90	0.7	1.6	2.9	0.5	0.4	0.07	0.4	228	0.8
Pacific Loon	21	48	0.6	0.9	0.4	0.7	0.5	0.4	0.3	152	0.6
Herring Gull	20	8	0.6	0.1	0.3	0.1	0.05	0.1	0.1	55	0.2
Cackling Goose [*]	18	18	0.5	0.3	0.2	0.2	0.3	0.03		61	0.2
Double-crested Cormorant	17	25	0.5	0.5	0.6	0.6	0.5	0.7	0.5	149	0.5
Fork-tailed Storm-Petrel	16	7	0.5	0.1	0.5	0.6	1.5	0.6	0.2	128	0.5
Ancient Murrelet ^Y	15	8	0.4	0.1	0.5	0.2	0.4	0.2	0.1	71	0.3
Leach's Storm-Petrel	14	2	0.4	0.04	0.1	0.2	0.1	0.1	0.1	42	0.2
Thick-billed Murre	14	12	0.4	0.2	0.3	0.1	0.05			39	0.1
Common Loon ¹¹	13	16	0.4	0.3	0.4	0.7	0.3	0.8	0.4	123	0.5
Black-footed Albatross ^R	11	11	0.3	0.2	0.9	0.4	0.5	0.5	0.7	120	0.4
Heermann's Gull ^Y	11	9	0.3	0.2	0.3	0.3	0.3	0.2	0.3	72	0.3
Bufflehead	8	3	0.2	0.05	0.2	0.1	0.1	0.07	0.3	40	0.1
Northern Pintail	8	13	0.2	0.2	0.5	0.2	0.2	0.2	0.1	64	0.2
Great Blue Heron ¹³	7	3	0.2	0.05	0.09	0.05	0.05	0.1	0.1	24	0.09
Green-winged Teal	7	9	0.2	0.2	0.2	0.2	0.3	0.1	0.1	45	0.2
Marbled Murrelet ^{2,7,9,10,Y}	7	1	0.2	0.02	0.2	0.3	0.4	0.2	0.1	51	0.2
Rock Pigeon	7	4	0.2	0.07	0.3	0.2		0.1	0.05	34	0.1
Tufted Puffin ¹²	7	9	0.2	0.2	0.4	0.4	1		0.1	69	0.3
Horned Puffin	6	4	0.2	0.07	0.09	0.1	2.6	0.1	0.3	78	0.3
Mew Gull	6	1	0.2	0.02	0.3	0.2	0.2	0.2		39	0.1
American Crow	5	14	0.1	0.3	0.3	0.2	0.3	0.4	0.4	76	0.3
Canada Goose	5	5	0.1	0.09	0.2	0.07	0.3		0.3	38	0.1
Greater White-fronted Goose	5	8	0.1	0.1	0.6	0.02		0.03	0.05	30	0.1

* Cackling Goose is now considered a distinct species rather than a subspecies of Canada Goose.

Beached Birds Identified to Species

SPECIES	YR 12 #	YR 11 #	YR 12 %	YR 11 %	YR 10 %	YR 9 %	YR 8 %	YR 7 %	YR 6 %	TOTAL #	TOTAL %
Red Phalarope	5	12	0.1	0.2	0.04	0.02	0.05	1.6	0.05	238	0.9
Red-throated Loon	5	58	0.1	1.1	0.09	0.2	0.1	0.2	0.1	90	0.3
American Wigeon	4	2	0.1	0.04		0.02		0.07		11	0.04
Caspian Tern ¹³	4	8	0.1	0.1	0.3	0.1	0.3	0.4	0.8	81	0.3
Pink-footed Shearwater ^R	4	4	0.1	0.07	0.3	0.02		0.07		20	0.07
Whimbrel	4	3	0.1	0.05	0.3	0.05			0.05	17	0.06
Common Goldeneye	3	1	0.09	0.02				0.03		6	0.02
Greater Scaup	3	1	0.09	0.02	0.2	0.1	0.2	0.1	0.05	29	0.1
Mallard	3	9	0.09	0.2	0.2	0.05	0.5	0.07	0.1	46	0.2
Northwestern Crow	3	2	0.09	0.04	0.09	0.1				11	0.04
Snow Goose	3	4	0.09	0.07	0.4	0.07	0.3	0.03		25	0.09
Barred Owl	2	3	0.06	0.05	0.09	0.02				8	0.03
Bonaparte's Gull	2	1	0.06	0.02	0.2	0.05	0.1	0.07		16	0.06
Brant	2	6	0.06	0.1	0.09	0.02	0.05	0.07		16	0.06
Common Tern	2		0.06							2	0.01
Crested Auklet	2	2	0.06	0.04	0.3	0.05	0.1			15	0.05
Dunlin	2		0.06		1.4		0.05	0.07	0.05	39	0.1
Horned Grebe ¹³	2	1	0.06	0.02	0.09	0.05	0.1			12	0.04
Laysan Albatross ^R	2	3	0.06	0.05	0.09			0.03		8	0.03
Long-tailed Duck	2		0.06			0.02				3	0.01
Red-necked Grebe ¹³	2	1	0.06	0.02	0.1	0.1	0.05	0.07		20	0.07
Ring-billed Gull	2	5	0.06	0.09	0.04	0.02	0.2			17	0.06
American Coot	1		0.03		0.09	0.1	0.4	0.03		20	0.07
Bald Eagle ^{7, 10, 11}	1	1	0.03	0.02		0.1	0.05		0.1	16	0.06
Black-bellied Plover	1	3	0.03	0.05						7	0.03
Clark's Grebe ^{12, Y}	1	4	0.03	0.07		0.07	0.2	0.2		18	0.07
Common Eider	1		0.03		0.04					2	0.01
House Sparrow	1		0.03							1	<0.01
Least Auklet	1		0.03			0.02				2	0.01
Least Sandpiper	1		0.03			0.02				2	0.01
Mourning Dove	1		0.03							1	<0.01
Northern Flicker	1	4	0.03	0.07		0.02				6	0.02
Northern Shoveler	1		0.03		0.04	0.02	0.05	0.07		6	0.02
Orange-crowned Warbler	1		0.03							1	<0.01
Parasitic Jaeger	1	1	0.03	0.02						3	0.01
Red-breasted Merganser	1		0.03				0.05	0.03		6	0.02
Red-faced Cormorant ^Y	1	1	0.03	0.02		0.07	0.05			6	0.02
Red-legged Kittiwake ^Y	1		0.03		0.2	0.02	0.05	0.03		8	0.03
Red-tailed Hawk	1	1	0.03	0.02						2	0.01
Sanderling ^Y	1		0.03		0.04			0.03	0.05	9	0.03
Semipalmated Plover	1		0.03							1	<0.01
Steller's Jay	1		0.03		0.04	0.02				3	0.01
Thayer's Gull ^Y	1		0.03							1	<0.01

SPECIES	YR 12 #	YR 11#	YR 12 %	YR 11 %	YR 10 %	YR 9 %	YR 8 %	YR 7 %	YR 6 %	TOTAL #	TOTAL %
Varied Thrush ^Y	1	1	0.03	0.02	0.04	0.1	0.1	0.07	0.3	18	0.07
Wedge-tailed Shearwater	1		0.03							1	<0.01
Western Sandpiper ^Y	1		0.03		0.04	0.1		0.03		8	0.03
Wood Duck	1		0.03							1	<0.01
Yellow-billed Loon ^{4,Y}	1		0.03				0.05			2	0.01
Glaucous Gull		15		0.3		0.05	0.1	0.03		22	0.08
Sooty Grouse		6		0.1						6	0.02
Arctic Tern ¹³		4		0.07					0.05	5	0.02
Black Oystercatcher ¹³		3		0.05	0.04		0.05			7	0.03
Common Raven		3		0.05		0.02	0.05			5	0.02
Black Scoter		2		0.04		0.02	0.05	0.07		9	0.03
Dark-eyed Junco		2		0.04						2	0.01
European Starling		2		0.04				0.03		4	0.01
Greater Yellowlegs		2		0.04						2	0.01
Pomarine Jaeger		2		0.04		0.05				4	0.01
Cooper's Hawk		1		0.02						1	<0.01
Great Horned Owl		1		0.02					0.05	2	0.01
Harlequin Duck		1		0.02	0.04					2	0.01
Osprey ¹³		1		0.02						1	<0.01
Ring-necked Pheasant		1		0.02	0.04	0.02	0.05	0.03	0.05	7	0.03
Sabine's Gull		1		0.02		0.07	0.1	0.03		7	0.03
Savannah Sparrow		1		0.02						1	<0.01
Short-billed Dowitcher		1		0.02						1	<0.01
Short-eared Owl ^Y		1		0.02			0.1			3	0.01
South Polar Skua		1		0.02				0.03		2	0.01
Tree Swallow		1		0.02						1	<0.01
Turkey Vulture ¹³		1		0.02		0.02	0.05			3	0.01

	YR 12#	YR 11#	YR 10#	YR 9#	YR 8#	YR 7#	YR 6#	TOTAL #
Total ID to Species	3500	5513	2241	4088	1920	2895	2096	27331
Total Finds	3756	5911	2489	4626	2186	3094	2258	29765
Total Species	90	90	81	90	81	76	57	142

SPECIES OF CONCERN

¹ Federally Endangered, ² Federally Threatened, ³ Federal Species of Concern, ⁴ Federal Candidate, ⁵ WA State Endangered, ⁶ OR State Endangered, ⁷ CA State Endangered, ⁸ AK State Endangered, ⁹ WA State Threatened, ¹⁰ OR State Threatened, ¹¹ WA State Sensitive, ¹² WA State Candidate, ¹³ WA State Monitored, ^R 2007 Audubon Watch List Red, ^Y 2007 Audubon Watch List Yellow

Total finds include all first-found birds. Refinds not included in totals. Note that major species—accounting for greater than 5% in any COASST year—are in bold. Only species found in Years 11 and 12 are listed. Cumulative totals for each species are listed in the right-hand darker-shaded columns. Reported totals shown here may vary slightly from those in past annual reports due to processing of survey data submitted after publication.



Answers to the Quiz

A. Three webbed toes with 4th lobed leads to Waterfowl: Diving Ducks. White in the wing and a thick bill with pale feathers along the forehead—using the waterfowl family page, you've narrowed choices down to scoter or eider. Good work! None of the eiders have an all-white speculum, so this is a White-winged Scoter. With dark feet and a dark bill tip—a female.

B. “Seagull” is a good guess, but only half the answer. Indeed, this bird has the characteristic gray mantle with black wingtips, white “windows” and “fingernails” of adult gulls. Smaller than a Ring-billed or California, this gull has a white “knuckle” band separating the mantle from the wingtips—that’s right—a Mew Gull.

C. Another gray mantle with black wingtips, like Photo B, but the wingchord is smaller still. For Lower 48 COASTers, that leaves you with Red-legged or Black-legged Kittiwake. Notice the broken, dark diagonal stripe from wrist to elbow? In the *Beached Birds: Alaska* wing key, only one common bird has that feature, an immature Black-legged Kittiwake.

D. Three toes, all webbed, and a 17-cm wing chord makes this bird a large Alcids. Did you catch the pale bill and pale stripe on the leading edge of the wings? Tell-tale “true puffin” signatures. This bird lacks the deep bill of a Tufted or Horned Puffin. In fact, without the “rhino” horn and plumes, it’s a juvenile Rhinoceros Auklet.

E. California, Oregon and Washington COASTers watch out—would we really have given you something that easy? White-tipped secondaries = murre, true. But this bird sports a white moustache. And did you check those measurements? The bill is way short. It’s a resident breeder in Alaska, the Thick-billed Murre.

COASST at a Glance 2009–2011

Most birds in one survey: 239
(Mary Sue Brancato and USFWS Refuge personnel;
Second Beach)

Honorable mentions:

196 (Sue Keilman, Sue Shane and Scott
Horton; Third Beach)

137 (Jim Roberts, JoAnn Roberts, Janet Oja,
and Janet Bruening; Second Beach)

110 (Sue Shane and Sue Keilman; Second
Beach)

Most people seen on one survey: 120
(Mark Elliott; Roads End South)

Most dogs seen on one survey: 52
(Wendy Williams; Agate Beach)

Most horses seen on one survey: 24
(Sidney Pickett, Sean Burns, Cindy Burns, Anne
Caples, Valerie Knox, and Sarah Burns; Oregon
Mile 175)

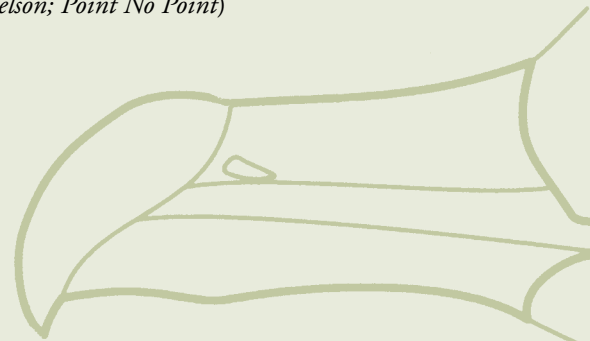
Most vehicles seen on one survey: 100
(Carl Haynie and Terry Risdon; Roosevelt Beach)

Longest survey in the snow: 2.5 hours
(Tasha DiMarzio; Tonsina)

Longest survey: 10 hours
(Nadine Fuller; Abbey Island)

Most time spent traveling: 223 hours
(Sue Nattinger; Shi Shi Beach, Shipwreck Point
and Twin River)

Most km walked: 342
(Vic Nelson; Point No Point)



Project Profile

British Columbia Beached Bird Survey: Filling a Big Gap

“But... what about Canada?” Like Southeast Alaska, much of British Columbia’s 27,000 kilometers of coastline is rugged and remote. Although you won’t see the Canadian coastline on a COASST map, it is surveyed by volunteers in our sister program, the British Columbia Beached Bird Survey (BCBBS).

The BC effort, originally spearheaded by Dr. Alan Burger at the University of Victoria in 1986, was re-initiated in 2002 by Bird Studies Canada, the BirdLife International co-partner in Canada (www.birdscanada.org). Under the direction of Peter Davidson and Karen Barry, the program coordinates the effort of over 70 volunteers at more than 100 sites (see map), and it continues to expand each year.

Initiated to provide baseline data after the *Nestucca* oil spill, BCBBS has documented a local decline in oiling from about 50% to just 1% (in line with COASST’s findings) along the west coast of Vancouver Island since the 1980s and 1990s, coincident with increased enforcement efforts.

What washes in just north of the Strait of Juan de Fuca and the Strait of Georgia? The most commonly found species on BC’s beaches are the same as COASST: Northern Fulmar, Common Murre and Glaucous-winged Gull. And the oddballs? Ruddy Duck, American Kestrel, and Ring-necked Pheasant(!) to name a few.

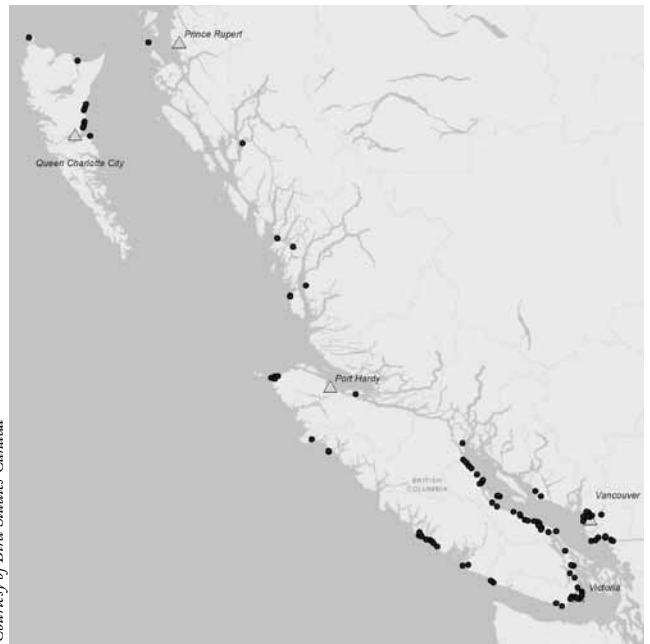
In an effort to study Salish Sea-wide patterns, COASST and BCBBS collaborated on a study examining fisheries-associated mortality events (or wrecks), published in the journal *Marine Ornithology* in 2009. The take-home message is that wreck events, occasionally severe but also infrequent, pale in comparison to baseline mortality across the thousands of kilometers of Salish Sea beaches.

“COASST has been an inspiration to us in British Columbia in many ways, from the great materials that you have produced (which all our BC volunteers also use!) to the much broader value of having COASST as a flagship for a growing movement of well-respected citizen science,” remark Karen and Pete. “Conservation planners, managers and research groups increasingly recognize the citizen-scientist partnership as a valuable way of doing business



Courtesy of Bird Studies Canada

Karen Barry and Peter Davidson stand ready to catch the next Sandhill Crane sighting outside their office. “We keep an office window bird list and I think it’s over 65 species now!” says Karen.



Courtesy of Bird Studies Canada

Stretching from Langara Island (N) to the southern tip of Vancouver Island, BCBBS even monitors the rugged coastline of Haida Gwaii, also known as the Queen Charlotte Islands.

cost-effectively, while building public constituencies for conservation.” COASST staff, too, look forward to a continued cross-border collaboration.

What's Washed In?

Residents and Migrants

It's a simple story, and one repeated year after year on COASST beaches. The local breeders, exhausted and thin after a summer of foraging for the family, lost in an early fall storm. The long-distance migrants flocking in from an open ocean transit, unable to survive the ravages of winter. Over the entire COASST program, from California to Alaska, from 1999 to 2011, more than half of the beached birds fall into these two categories: post-breeding mortality and winterkill.

Our perennial #1—Common Murres—have this position because they are the quintessential resident breeder along much of the outer coast of the COASST Lower 48. From northern California up to the tip of the Olympic Peninsula in Washington, murres breed by the tens of thousands on islands and sea stacks in the nearshore. Sometimes a stone's throw from the mainland, this seabird is truly “common.” Come late summer and early fall, emaciated murres—both adults and young-of-the-year—will wash in to the broad sandy beaches of the outer coast.

Migrants, as it turns out, come in a variety of flavors. Some are long-distance migrants, like the shearwaters traveling by the millions from the southern hemisphere to “winter” (our summer) in Alaska. Suddenly stuck in a super-dense concentration of fellow migrants who have collectively stripped the local environment of food, shearwaters “wreck” with regularity.

A whole host of species breed inland—on bogs, lakes and other freshwater bodies—migrating to the coast after sending out the season's new fledglings. From Alaska and the Northern Territories (Canada), large-bodied birds like scoters and tiny shorebirds like phalaropes all come down to the West Coast to winter. Closer to home, Western Grebes and their close relation, Clark's Grebes; a host of loon species from Common to Red-throated; and even a smattering of gulls like Ring-bills and Californias, transit from breeding locations in eastern Washington down through California, west to the coast, looking for foraging opportunities and a safe haven to molt their ragged flight feathers in preparation for winter.

As the COASST range has expanded both north and south, we've definitely picked up more species, and

we've also blurred the line between resident and migrant. Breeding in Alaska and blasting down to the warmer climes of California to fatten up during the winter, Northern Fulmars pile up on Pacific Northwest beaches from Washington to California during their southward migration and occasionally on the way back as well. Rhinoceros Auklets? Well, they do breed along the West Coast of the Lower 48, but their population center is actually in British Columbia. Most of the rhinos we see are migrants from Canada. Ditto for Cassin's Auklets.

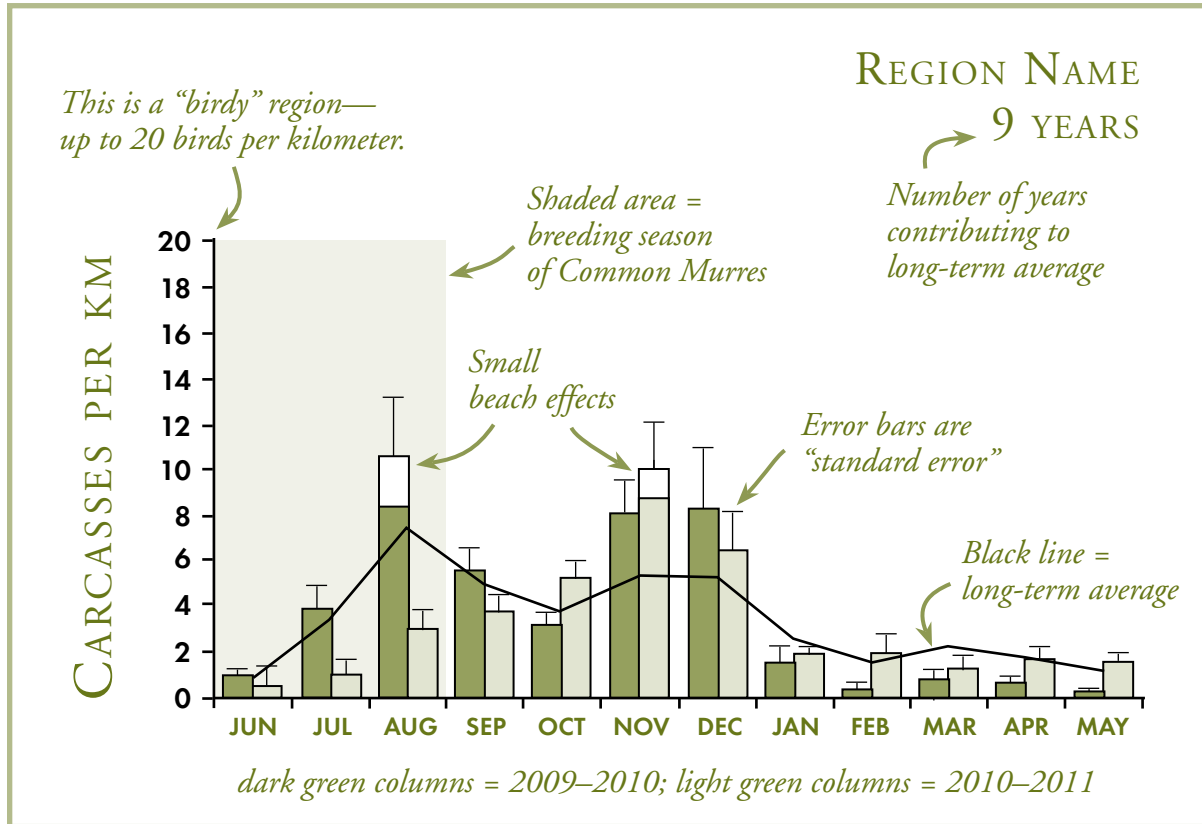
Trying to figure out what's normal and what's amiss can be a puzzle. Are we seeing post-breeding mortality of locals, or a wave of migrants that have exhausted themselves in transit? If fulmars wash up in northern Oregon in November by the thousands, is that “normal”? Right time of year, but so many birds... Is there a smoking gun? With two years of beaching patterns to report, we've saved up a lot of stories.

What's in a Graph?

We graph COASST data to highlight seasonal and regional differences. Notice that the “COASST year” starts in June and ends in May. We do this to get a better sense of the breeding and post-breeding seasons, the effects of winter and the pre-breeding migration in early spring. The vertical axis is “encounter rate” or the number of beached birds COASSTers are apt to find in a particular region and month if they surveyed one kilometer of coastline (carcasses per kilometer). Of course we all know every beach is different, so these are the region-wide averages.

As you compare graphs from adjacent regions, one thing to keep in mind is the scale on the encounter rate axis. Some regions just get more birds. Vertical axes change from a maximum of 0.6 carcasses per kilometer for Puget Sound or Southeast Alaska, to highs of 20 or even 30 carcasses per kilometer along the outer coast of the Lower 48 and in the Aleutian Islands, respectively.

Columns and lines—what's the difference? Following the line across the months on the graphs shows you the long-term average—calculated over all of the years COASST has surveyed beaches in a given region (also listed on each graph). The vertical columns are the particular encounter rates calculated for the 2009–2010 season (dark green) and the 2010–2011 season (light green). When



vertical columns rise well above the long-term line, we pay attention. That means there might be something unusual going on: an earlier or later peak in post-breeding or winterkill, a wreck (defined as a concentrated beaching of just one or two species), or just a super-abundance of the “right” species at the “right” time of year. When vertical columns fall well below the long-term line, we wonder, but don’t usually worry. Occasionally absence can signal a problem, as in 2005 when no murres beached during the usual post-breeding peak. In that case, the peak came earlier in spring, provoked by lack of upwelling, low production and not enough forage fish to feed the murres. When the long-term average falls pretty much at the same level as the vertical columns, we smile and nod. Just another “normal” year.

You can get a sense of the variability among beaches within a region by examining the “error bars” (the T-shape sitting on top each vertical column). A larger (taller) error bar means more variability, often exacerbated by a smaller sample size (the number of beaches surveyed every month). Tiny, little, hard-to-see error bars mean that most of the

beaches within the region are pretty much getting the same number of birds washing in within a given month, making variability low. We’ve only put in the “positive” error bars (sitting above the columns on the graph). To estimate whether a given year (2009–2010, or 2010–2011) is different from normal, mentally mirror the error bar and see whether the long-term average line falls within that plus-or-minus range.

Because some beaches are quite short, we take care to make sure our calculations aren’t biased by removing the data points from our regional results when we think the spike is multiplication not real mortality. Think about the number of carcasses per kilometer if 3 birds washed up on a 250-meter pocket beach—12!—probably not realistic. Of course, this is a bit tricky in places like the Aleutians, where many of the beaches are small and our sample size is low. The “small beach effect” is highlighted as a white portion on top of some columns (like August 2009—Oregon North) so you can easily pick out the difference between lots of carcasses, and multiplication. This year we’ve added a new graph feature—a shaded set of months encompassing

the breeding season of one of our most ubiquitous residents—Common Murres. Taken from data in *Birds of North America*, the shading is mean lay date plus 60 days. It's inexact, but does clearly show the association between breeding and the post-breeding mortality spike.

Alaska

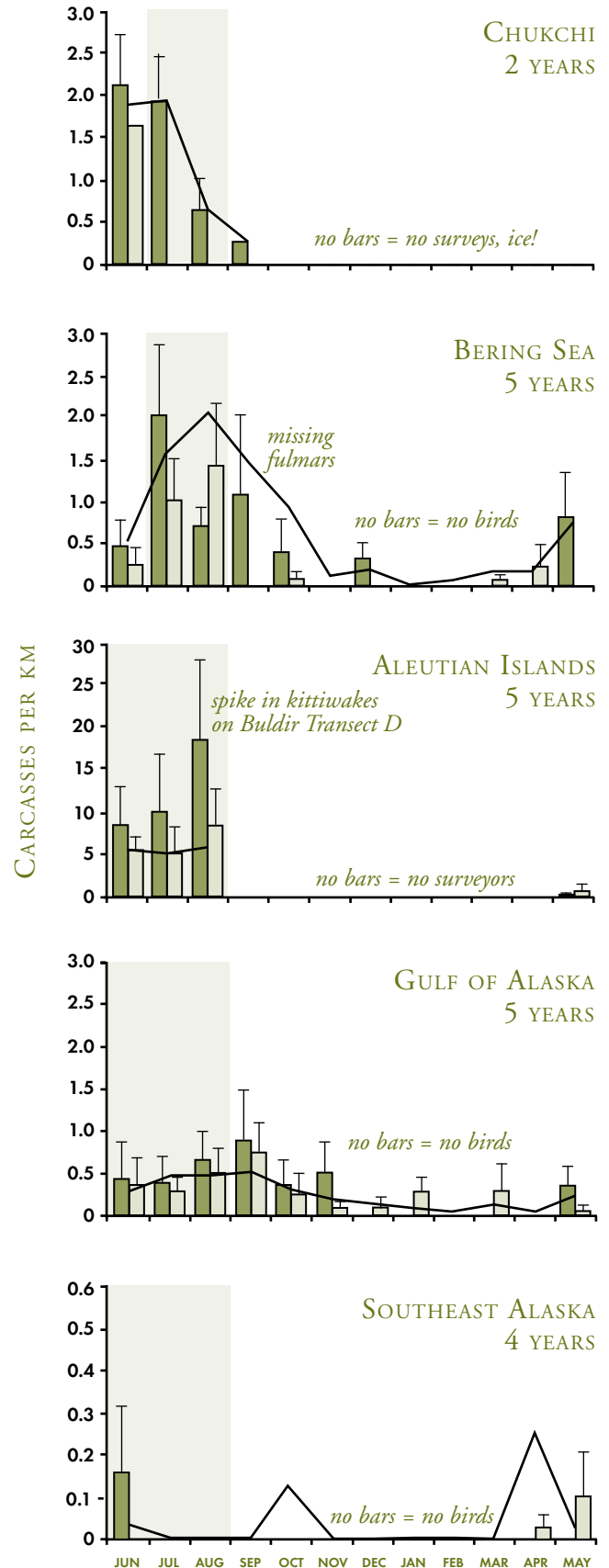
Our northernmost COASST sites in the Chukchi Sea are cold, cold, cold! Suffice to say nothing much washes in for half of the year—the ocean is frozen over. Come spring in April and May, breakup opens the ocean up to the sunlight, phytoplankton blooms, and the brief cycle of summer in the Arctic begins. Breeding is quick up here. A female Thick-billed Murre at Cape Lisburne in the Chukchi Sea might lay in late June, and the chick will leave the colony with the male by August. With just two years under our belts, we're starting to sense a pattern, with a peak in bird encounters—mostly Glaucous Gulls and Black-legged Kittiwakes—at the solstice in June/July. In fact, the Chukchi addition is responsible for the distinct uptick in Glaucous Gull encounters in 2009–2010.

Sites to the south(!) in the Bering Sea peak a little later, in July/August. The 2009–2010 year was an uptick of both breeders (mostly Northern Fulmars) and migrants (mostly Short-tailed Shearwaters) in July. In 2010–2011, those same species washed in along the Bering Sea beaches in much lower numbers, leading to a smaller-than-usual signal.

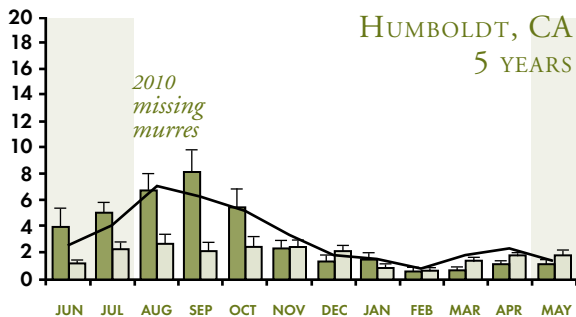
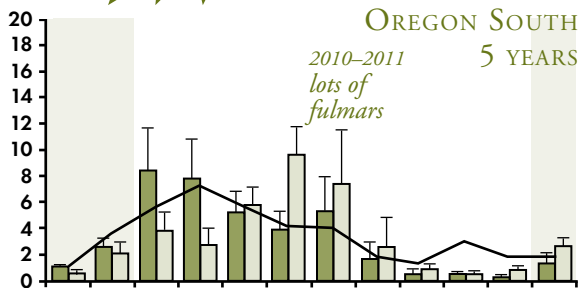
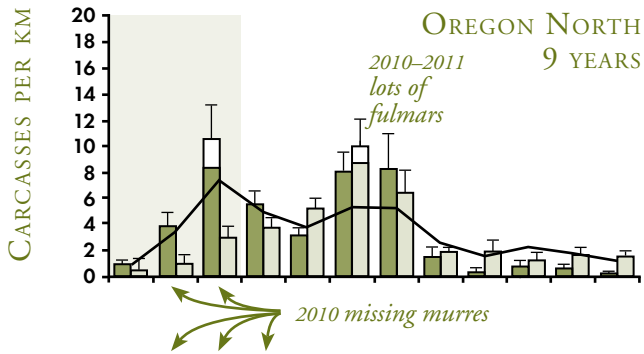
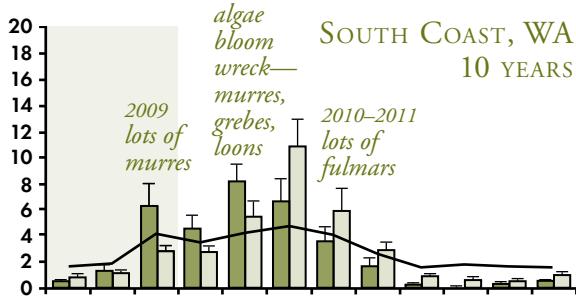
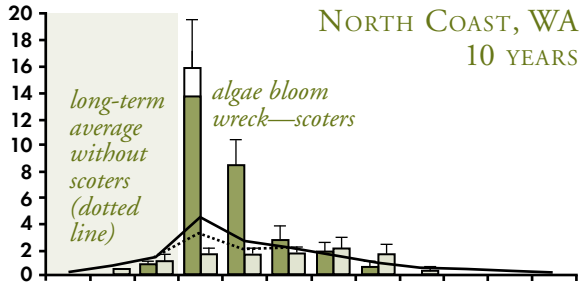
Take out the shearwaters and here's what's cool about this northern Alaska signal: it's *during* the breeding season, not after. The shortened northern season also seems to have only one peak (not two like the Lower 48), composed of both residents and migrants. We are still cautious about our interpretation, as our data collection season is shorter due to the extended ravages of winter, we don't have that many years under our belts, and our Alaska sample size is small, especially when compared to the tremendous amount of coastline in this state. We've highlighted the Common Murre breeding season in each region with a shaded region, so you can see when the beaching peaks occur. Compare Alaska to the Lower 48. Although Alaska affords a pristine breeding habitat for millions of birds—little disturbance and lots of food—it's still a harsh environment, even in the summer.

In the Aleutians, still farther south and west, deposition was—as usual—much higher, especially in 2009–2010. Why? Many of the COASST beaches in the Aleutians are

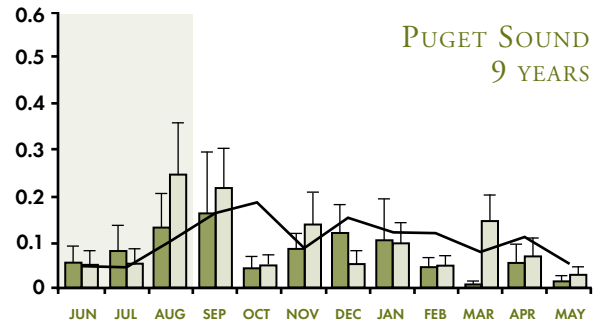
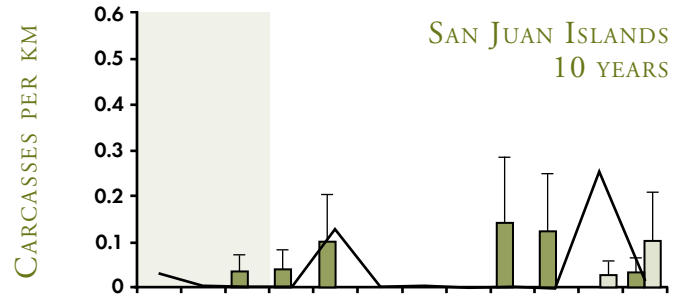
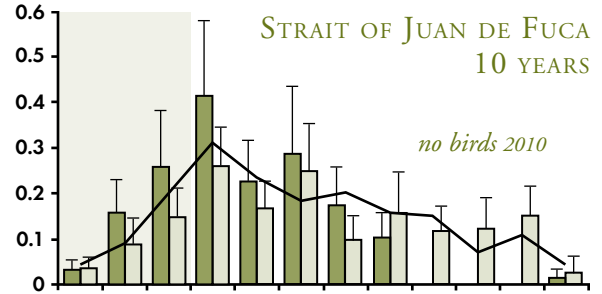
ALASKA



OUTER COAST



INSIDE WATERS



manned (and womanned) by Alaska Maritime National Wildlife Refuge biologists spending the summer on seabird colonies from Kruzof Island to Buldir Island, taking the pulse of the seabirds and the marine environment. And yes, just what you would expect—more birds wash in on beaches fronting the cliffs of a 100,000-strong seabird colony. Glaucous-winged Gulls, Black-legged Kittiwakes and Thick-billed and Common Murrelets typify the Aleutians COASST signal. In fact, in 2009–2010, additional surveys on Buldir transects D and E grossed more than 60 additional birds, showing up later in the season, during July and August (after the usual June peak). All but one of the 25 Parakeet Auklets found in 2010–2011 came from Buldir (the other from Polovina Beach on St Paul Island, Bering Sea).

Gulf of Alaska?—rock steady. Like always, the peak in August–September was full of post-breeding resident birds: Black-legged Kittiwakes and Glaucous-winged and Herring

Gulls that make their home on the Kenai Peninsula, some with breeding colonies right next to beaches. Early fall continued on to a calm winter, at least beached bird-wise, and a bit of a rise in May during the initiation of the local breeding season. And Southeast—these COASSTers are troopers. It's cold and it's often wet and dark, and there are no beached birds. Notice that the Y-axis scale is miniscule—5 times less than the Chukchi and Bering scales, and 40 times less than the Aleutians. These quiet inside waters and narrow, glacial beaches don't make for the drama—and trauma—of the outer coast.

Pacific Northwest Outer Coast

Stare at these graphs (page 19) and a few things leap out at you. The tremendous spike in September and October 2009 in the North Coast of Washington. The November 2010 peak in the South Coast of Washington, with echoes of same down through Oregon. The quiescent post-breeding season of 2010 in northern California. The lack of a spring migration pulse in March and April. With few exceptions—it's the usual players.

And here's one of the exceptions: 2009 saw an untoward number of Surf Scoters, and secondarily White-winged Scoters, washing into Washington outer coast beaches. Reported in *COASST Reports 2008–2009*, this huge wreck was the result of a “perfect storm” of events. Post-breeding scoters, down from lakes in Alaska and Canada's northern territories, holed up as usual in the small embayments of the Washington coastline to fatten up on mussels, clams and other abundant shellfish. A seasonal molt of their flight feathers literally turned them into sitting ducks, unable to flee deteriorating conditions. At the same time, an unusually warm September fueled a huge (over 77 kilometers from north to south!) bloom of fall phytoplankton (the single-celled dinoflagellate, *Akashiwo sanguinea*), which vacuumed clean the local surface waters of the nutrients needed for cell growth. Early fall storms pushed the starving cells to shore, breaking them like eggs in the pounding surf and whipping up the cell contents into a greasy grey-green meringue that coated the feathers of every marine bird unable to get out of Dodge. Acting like soap, the *Akashiwo* foam caused normally buoyant and water-tight feathers to flatten, exposing bird skin to the frigid ocean water. Without insulation, the birds quickly succumbed to the cold. A similar, but smaller, event in October along the southern Washington coast

trapped and killed hundreds of molting murrets and also grebes and loons. The earlier August peak along the outer coast of Washington and Oregon was also murrets, but not caused by the *Akashiwo* bloom.

After that, the rest of the 2009–2011 biennium seems like a cakewalk. Our two consistent “winners”—murrets and fulmars—were again in evidence, albeit in opposition to each other. In the fall of 2009—just before the *Akashiwo* bloom hit the Washington beaches, a stronger than normal pulse of post-breeding murrets hit the beaches in August and September from California up through Washington, averaging up to five murrets per kilometer along Oregon and California beaches. (High, but still doesn't compare to the murre post-breeding wrecks of 2004—a whopping 15 murrets per kilometer graced Oregon north beaches in August!). A year later, the post-breeding season of 2010 was quiescent, and those missing murrets pushed the annual signal way below the long-term average.

Calm for murrets, but boisterous for fulmars: later in the fall of 2010, outer coast beaches of the Pacific Northwest picked up the migrating fulmar signal, primarily in the middle of our range—the South Coast of Washington and the entire coastline of Oregon. November saw region-wide averages of 6–7 fulmars per kilometer, second only to a fulmar peak of 9–11 birds per kilometer when a sustained wreck had COASSTers knee-deep in fulmars from October 2003 through January of 2004. Both north (North Coast of Washington) and south (Humboldt) of this area, fall 2010 fulmar numbers were normal.

One of our most abundant species, fulmars are also one of the most erratic—in some years, the post-breeding migration or “winterkill” signal is very strong, as in 2003–2004, but in many years it is almost 10 times lower. In general, about one in every three-to-four years we see a fall fulmar wreck. Occasionally, as in 2008, we'll see another fulmar peak in the spring (March–April) when these “snowbirds” are returning north to begin breeding, but this peak is lower (approximately three fulmars per kilometer) than in the fall, and much more occasional.

A few other contributors to the fall-winter pattern included Rhinoceros Auklets and Brown Pelicans. Rhinos usually wash in during their spring migration northward, along with British Columbia colony neighbors, Cassin's Auklets. This spring “peak” has been absent for the past several years, but it's still apparent in the long-term average. In 2010, rhinos echoed the fulmar signal, adding another



B. Whitney

Species Profile: Harlequin Duck

True to its name, the male comes dressed like a party trickster: brilliant chestnut crown and flanks, white patches on cheek, ear and upperwing, stripes on neck, breast and shoulders with an otherwise bluish plumage. The female? Well, she's no vaudeville act—a rather plain brown duck, sharing only the white cheek and ear patch, and the small blue-gray bill.

With many of the same wintering locations in common with other diving ducks, such as scoters and goldeneyes, Harlequins depart from the standard lake-breeding strategy in favor of two distinct areas: fast-moving inland streams or coastal estuaries. Here, the female carefully canvasses the area to select some prime real estate, often with preference for midstream islands, nice shrub cover and a good view. The “nest” is actually a surface scrape on a bed of needles, mosses, leaves or stones, lined with down for some extra insulation. Sometime during the month-long incubation period, the male high-tails it to the coast while the female holds down the fort, keeping six eggs at a cozy 98°F. Make no mistake, she's not left trying to feed six mouths—they're feeding themselves a mere day or two after hatching. In another month and a half, the young will head for the coast.

In the winter months, Harlequin Ducks forage close to shore, gleaning a diet of crunchy marine invertebrates—crabs, amphipods (tiny, shrimp-like organisms), snails, clams and limpets—from the sea floor. Much more ubiquitous during this time, more than 5,000 Harlequins were counted during the 2011 annual Audubon Christmas Bird Count in North America. At the top of the national list: Alaska COASST locations Kodiak—420, Sitka—63;

Washington locations: Sequim—218, Port Angeles—98. With the removal of the Elwha Dams (see partner profile page 38), biologists and birders are hopeful the 50 miles of restored, uninterrupted river may increase the local Harlequin Duck population in the greater Port Angeles area still further.

COASST finds of beached Harlequins aren't so numerous, thankfully. In 11 years of COASST data, only two birds have ever wound up on a survey: a female on Buldir Transect B (Alaska) in June of 2008 and a male on Hobuck Beach (Washington) in November, 2009. Still, large beachings have occurred. Two winter/spring oil spills in Alaska have taken their toll: *Exxon Valdez* in March 1989—1,300 Harlequins, and *Selendang Ayu* in December 2004—another 60 birds. Other threats, including illegal hunting, entanglement in nets, disturbance at nesting sites and habitat degradation are also of concern.

With a bi-coastal population of less than 220,000, Harlequins were listed in Canada as Endangered in 1990 and in the United States as a Candidate Species in 1991. These designations launched a renewed research and monitoring effort—on the West Coast in particular, a joint effort between Glacier National Park (Montana) and the Montana Natural Heritage Program has worked to identify critical nesting habitat and track sightings of banded birds—10% found again—most frequently in British Columbia, Canada. COASSTers, too, continue to monitor beaches adjacent to prime Harlequin Duck wintering habitat, especially in greater Puget Sound (Washington), Alesha, Newport and Siletz Bays (Oregon), and the sheltered waters of Prince William Sound (Alaska).



COASST People

Volunteers

The past two years have seen an incredible amount of time spent and kilometers walked by COASSTers. In total, they spent 15,779 hours surveying and 10,457 hours traveling, and walked 14,575 kilometers in the 2009–2010 and 2010–2011 COASST years. That’s 797 volunteers who conducted 6,504 surveys on 419 beaches over the past two years!

Staff

On the North Coast of Washington and the Strait of Juan de Fuca, Janet continues to oversee COASST operations while simultaneously coordinating volunteers for the Olympic Coast National Marine Sanctuary’s Discovery Center. Always happy to share the beauty of Hobuck Beach with others, in May, Janet cheerfully hosted a group of five COASST interns, three new volunteer recruits, and long-time COASST volunteers Sally Parker and Miriam Bobkoff. Special recognition is owed to Rose Forbes. In addition to conducting monthly COASST surveys at Gray’s Marsh, Rose also assists Janet with many hours of data entry.

Jane Dolliver, our Program Coordinator and font-of-all-

COASST-knowledge, had a whirlwind biennium: training new employees, conducting 26 COASSTer trainings and socials, giving 5 presentations, and heading up our North Pacific Groundfish Observer Program trainings (turns out a bycatch bird doesn’t look too different from a beachcast one). Oh! and Jane also does bird ID verification, runs all of our budgets, helps Julia with grants, and still finds time to bake the best brownies in Seattle.

The COASST office has gained the expertise of Charlie Wright, data verifier extraordinaire. A life-long birder, Charlie began leading trips for the Rainier Audubon Society at age 11. On any given day, you’ll find him with *Beached Birds* and Sibley’s in hand, inches from his computer screen, scrutinizing the details of a tattered gull, all in order to put his enthusiastic stamp of approval on a WEGU identification. Sound tedious? Not to Charlie—“I pretty much get to geek out over birds all day. It’s the ideal thing I’d want to do on any given day.”

The autumn of 2010 saw the arrival of another new staffer, Annie Woods, coordinator of COASST volunteers and interns. Annie came to COASST from the Adirondack Ecological Center where she worked as a senior research support specialist, studying all manner of forest-dwelling



Courtesy of COASST

After her first training in Newport, Oregon, Volunteer Coordinator Annie Woods (left) and Jane check out the murre colony at Yaquina Head lighthouse.



J. Dolliver

Auklets aplenty—Data Verifier Charlie Wright shows off specimens from the ornithology collection at the Burke Museum of Natural History and Culture.

critters from land snails to small mammals, and birds of course! After a year of service through AmeriCorps, Annie is impressed with the incredible army of volunteers that give their time and energy (and smile through pelting rain) to make the COASST program possible.

After dozens of hours spent on the beach during the scoter wreck of 2009, Penelope Chilton decided she needed more extreme fieldwork and headed south, *far* south, to Antarctica's King George Island. There she is collecting data on penguins, skuas and petrels. According to Penelope, "the island is brimming with wildlife and every day is a new adventure."

Executive Director Julia Parrish is sporting a new title these days. In April 2011, Julia was named as the first-ever Associate Dean of Academic Affairs and Diversity for the College of the Environment at the University of Washington. No worries, though—aside from her new role, Julia will still be visiting COASST communities for talks, trainings and workshops.

Interns

Our intern program has continued to grow during the last two years, hosting 31 University of Washington students who contributed 4,352 hours of service—that's about

equivalent to 40 hours a week or one full-time employee for two years!

What do interns do? Start with COASST finds this biennium—9,667. For each, at least one photo was printed, sorted, labeled and filed. Before COASST staff headed out to a training, students assembled kits, field guides, protocols and beach maps. And then there's COASST email, Facebook and Twitter accounts. And, they weren't just stuck in the office—each quarter, students got the chance to adopt a nearby COASST beach, go on a field trip to the outer coast and help out with COASST trainings and socials (did someone say free food?).

In 2010, we started our senior intern program, with Kelsey Gordon and Erin Tomaras stepping in as our first senior interns. Senior interns take a leading role in laying out the endless to-do list and in delegating tasks. Whether it's doing a wrap up from the weekend's volunteer training or helping to advertise for the next, senior interns have a plan to get it all done.

Additionally, Jenny East, a graduate of Western Washington University, offered her expertise and organizational skills to pull together material to lay the foundation for a COASST marine mammal guide.

Interns speak...

Over the past 3½ years, I have become pretty proficient in identifying dead birds, which is definitely a skill that not many people have! I have also learned about non-profit organizations and what is needed to organize a large team of volunteers. Through COASST, I have made some great friends—thanks for a great undergraduate experience!

—Erin Tomaras, Senior Intern

I have really enjoyed getting to know the volunteers and their beaches, seeing all the cool pictures of birds and other things that wash up on beaches. I can't believe I'm graduating and won't be in the office checking out surveys or sending emails anymore! I can only imagine how much more COASST and all its volunteers will continue to do... and I'm looking forward to hearing about it.

—Stephanie Doyle, Intern



Congratulations to 2011 University of Washington graduate and COASST senior intern, Kelsey Gordon, who received a Mary Gates Leadership Scholarship for her work developing citizen science and COASST lessons for high school students.

We recognize the following students who have helped in the office over the past two years:

Biology

Omar Abdelbadie Jasmine Palmer
 Stephanie Doyle Steve Pirotte *
 Stefanie Gleason ** Stefanie Porter *
 Ann Hansen * Erica Sherman **
 Natasha Lozanoff Kate Terpstra **
 Lindsey Nelson

Program on the Environment

Jessica Jetter ** Alexandra Ulmke
 Rachel Mickey Samantha Zwicker
 Erin Tomaras

Environmental Science and Resource Management

Kaitlyn Schwindt Monica White
 Jackie Walls

Aquatic and Fishery Sciences

Sarah Apsens ** Eric Harris
 Chris Biggs * Sean Rohan *
 Bethany Diehl Michelle Ruge **
 Katie Dowell **

Psychology

Emil Buscaino * Kelsey Gordon **
 Lindsey Desmul ^

Oceanography

Erin Costello Keri Salemme *

* Graduated 2010

** Graduated 2011

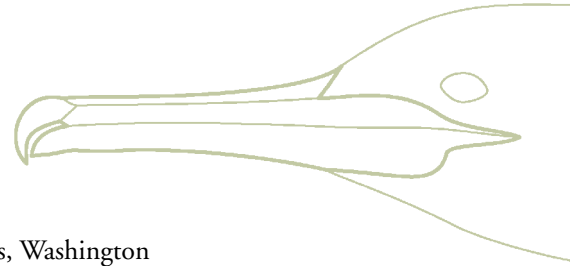
^ Graduated 2005

COASST Talks

- June 11, 2009 Poulsbo Marine Science Center, Poulsbo, Washington
- August 19, 2009 Nisqually National Wildlife Refuge Summer Lecture Series, Olympia, Washington
- October 1, 2009 Laskeek Bay Conservation Society 20th Anniversary Symposium and Celebration of Citizen Science, Haida Cultural Center, Queen Charlotte Islands, British Columbia
- February 25, 2010 2010 Ocean Sciences Meeting, Portland, Oregon
- March 19, 2010 Olympic Coast National Marine Sanctuary Advisory Council, Port Angeles, Washington
- May 14, 2010 Ecotrust Building, Portland, Oregon
- July 9, 2010 Makah Museum, Neah Bay, Washington
- October 13, 2010 Keynote to the University Professionals Continuing Education Association Region West Conference, Seattle, Washington
- October 16, 2010 Marine and Science Technology Center, Des Moines, Washington
- October 23, 2010 Olympic National Park Visitors' Center, Port Angeles, Washington
- October 27, 2010 South Sound Science Symposium, Shelton, Washington
- November 18, 2010 Alaska Bird Conference, Anchorage, Alaska
- January 20, 2011 RE Sources Sustainable Living Center, Bellingham, Washington
- April 11, 2011 Kodiak Area Marine Science Symposium, Kodiak, Alaska
- April 22, 2011 Spring Seminar Series, Oregon Institute of Marine Biology, Charleston, Oregon
- May 5, 2011 Kitsap Beach Naturalist Program, Bremerton, Washington
- May 13, 2011 Second International Marine Conservation Congress, Victoria, British Columbia
- May 24, 2011 People for Puget Sound's Science Café, Everett, Washington



COASST Trainings



June 2009 Poulsbo, Washington
September 2009 Ocean Park, Washington
Lopez Island, Washington
October 2009 Bellingham, Washington
Eureka, California
April 2009 Padilla Bay, Washington
Juneau, Alaska
May 2010 Port Angeles, Washington
Orcas Island, Washington
Friday Harbor, Washington
June 2010 Charleston, Oregon
Brookings, Oregon
Arcata, California
Yakutat, Alaska
Kenai, Alaska

July 2010 Ocean Shores, Washington
October 2010 Port Angeles, Washington
Ocean Shores, Washington
Padilla Bay, Washington
November 2010 Tacoma, Washington
Seattle, Washington
Homer, Alaska
January 2011 Ocean Shores, Washington
Bellingham, Washington
April 2011 Kodiak, Alaska
Juneau, Alaska
Charleston, Oregon
May 2011 Newport, Oregon
Cannon Beach, Oregon

In addition...

24 monthly on-the-beach trainings with Janet Lamont at Hobuck Beach (Neah Bay, Washington)

9 trainings with Jane or Annie at Discovery Park (Seattle, Washington)

COASSTers smile for the camera during a field trip to Hobuck Beach. Front (left to right): Interns Jasmine Palmer, Kelsey Gordon, Erin Costello, and Kate Terpstra. Back (l to r): Adrienne Akmajian, Janet Lamont (Volunteer Coordinator), Miriam Bobkoff, Sally Parker, Monica White (intern), Ami Magisos, and Eric Page.

A. Woods



Volunteer Effort, June 2009–May 2011

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Jeff Adams	5.5	4.5	3.3
Suzy Adams	2.0	1.0	1.7
Donna Aderhold	7.7	3.0	12.0
Holly Aderhold	1.2	0.5	1.0
Wayne Aderhold	6.2	2.5	10.0
Bernard Afterbuffalo	3.5	0.2	2.0
Elizabeth Akins	2.5	2.5	2.4
Glenn Akins	2.5	2.5	2.4
Pat Albright	3.3	0.6	3.2
Peter Alexander	41.4	11.0	54.4
Carmela Alexander	37.5	7.7	50.6
Candace Allen	26.3	4.0	30.0
Kristie Allen	1.5	1.5	2.4
AMNWR Seasonal Staff	143.1	27.5	136.1
Doris Anderson	3.6	5.5	1.6
Hope Anderson	2.2	3.5	1.4
Jan Anderson	2.5	3.0	5.0
Janet Anderson	7.8	4.8	11.2
Jerry Anderson	4.0	6.0	1.9
Ralph Anderson	2.5	3.0	5.0
Rick Anderson	7.8	4.8	11.2
Nancy Andrich	2.0	1.0	1.7
Ed Ansorg	27.8	14.0	17.6
Liam Antrim	13.9	17.0	9.6
Arne Apsens	7.7	4.1	5.4
Elizabeth Arch	53.6	8.0	40.8
Steve Arch	52.6	7.7	39.1
Bonnie Ashelman	3.3	0.5	1.7
Mary Atherton	2.8	0.5	1.9
Ariana Auerbach	1.5	1.0	1.2
Chris Bacon	20.3	5.3	13.6
Nareen Bagdasarian	0.7	10.0	1.6
Brian Bailey	1.0		3.7
Lisa Barbieri McAvoy	1.5	1.5	1.8
John Barimo	12.1	7.5	5.6
Russel Barsh	6.2	12.0	5.4
Polly Bass	0.8	0.1	0.8
Dan Battaglia	23.5	27.0	15.2
Susan Baxter	26.4	10.0	6.3
Mary Jo Becker	8.3	14.5	6.6
Nancy Bell	5.3	4.6	2.5
Tristin Bell	2.2	0.3	2.2
Chase Berenson	5.9	4.4	9.8
Liz Berg	50.3	11.0	35.6
Pete Berg	24.8	3.9	19.1
Carol Bernthal	16.0	22.7	17.6
Chrys Bertolotto	1.8	1.0	4.0
Jenny Betts	2.2	0.3	2.2
Linda Bierma	22.3	7.7	30.4
Dave Bilderback	57.1	21.3	34.9
Diane Bilderback	57.1	21.3	34.9
Lyn Bishop	1.0	1.0	0.6
Barbara Blackie	17.7	14.5	8.1
Max Blair	31.1	4.6	33.6
Paul Blake	42.3		56.0
Alice Blandin	42.6	3.9	31.5

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Bill Blandin	41.0	3.8	29.9
Rae Jean Blaschka	0.8	0.3	0.6
Bent Blichfeldt	7.5	1.7	6.0
Miriam Bobkoff	98.0	132.5	78.0
Audrey Bohl	6.3	4.8	2.6
Heath Bohlmann	17.4	5.3	16.0
Kevin Bolstrom	8.6	0.2	4.0
Mary Bond	6.7	2.3	6.1
Amanda Boshers	21.9	4.5	29.1
Lee Bowen	38.6	53.0	57.6
Ed Bowlby	6.3	4.0	2.0
Jane Boyden	26.8	10.0	24.0
Syd Boyle	2.3	1.6	2.4
Mary Sue Brancato	105.9	91.3	50.0
Carolyn Breece	3.5	3.0	1.9
Nathan Breece	3.5	3.0	1.9
Matt Brencick	2.2	1.0	1.6
Shirley Brencick	4.2	2.0	3.3
Bob Breslin	4.3	0.7	1.7
Bill Bridgeland	11.3	0.5	3.0
Jennifer Bright	23.8	29.8	22.6
Alicia Brito	1.7	0.3	1.6
Luis Brito	1.7	0.3	1.6
Nicholas Brito	1.7	0.3	1.6
Patti Brooks	2.0	0.7	0.7
Chris Brown	14.3	5.0	11.7
Ian Bruce	0.7		0.4
Keith Bruce	0.7		0.4
Sara Bruce	0.7		0.4
Janet Bruening	20.8	45.0	15.0
John Buller	5.0	0.9	4.9
Cindy Burns	65.3	15.4	37.4
Dennis Burns	14.6	2.9	8.6
Helga Burns	14.6	2.9	8.6
Paul Burns	4.0	1.3	3.4
Sarah Burns	45.5	10.6	25.5
Sean Burns	58.8	13.3	32.3
Ken Burton	3.2	2.8	4.0
Gerry Busch	29.2	5.9	43.2
Lindsay Busch	28.2	5.7	41.4
Kathy Bush	70.0	8.3	41.7
Rick Bush	70.0	8.5	41.7
Coleman Byrnes	169.3	179.7	170.2
BJ Byron	42.9	10.5	33.7
Dennis Cahill	30.7	18.2	18.4
Pamela Cahill	19.8	13.3	13.6
Mauricio Calderon	3.9	2.3	2.0
Allison Camp	5.9	5.0	8.4
Barbara Campbell	50.9	15.8	56.0
Ken Campbell	72.0	126.8	57.0
Mary Campbell	72.0	126.8	57.0
Joan Campf	2.3	2.3	1.6
Anne Caples	52.3	13.5	30.6
Brett Carey	2.2	0.3	2.2
Betsy Carlson	2.5	0.7	4.0
Ricki Carlson	20.6	1.4	24.0

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Ron Carson	2.6	6.0	1.2
Dan Carter	12.8	27.8	11.5
Bruce Casler	5.5	5.0	2.6
Chris Cassidy	1.0	0.7	0.5
Joe Ceriani	39.9	24.5	29.6
Jerry Chadwick	27.7	24.0	21.6
Lee Chavez	20.8	13.8	29.4
Penelope Chilton	71.8	46.0	50.9
Dorothy Chisholm	28.7	6.0	12.0
Sue Christiansen	3.5	1.8	4.8
Joan Christy	31.1	4.6	33.6
Diana Clapper	2.6	7.6	6.0
Elizabeth Clark	3.0	1.8	5.9
Gordon Clark	1.2	0.3	1.6
Susan Clark	67.5	15.3	72.0
Debra Clausen	13.8	1.6	32.0
Rebecca Clement	2.3		3.7
Lisa Climo	14.7	9.2	22.0
Lisa Cobb	2.2	0.3	2.2
Marjorie Cochrane	12.3	4.7	19.2
Jane Comerford	9.6	5.3	11.2
Kathleen Confer	2.5	1.0	1.6
Steve Confer	2.5	1.0	1.6
Roger Contor	40.6	30.5	40.0
Susan Contor	38.6	29.0	38.0
Paul Cookson	4.5	3.0	3.0
Eileen Cooper	1.7	0.2	1.3
Stephen Corcoran	12.4	2.5	9.8
Carla Corin	11.1	3.5	14.3
Lenny Corin	11.1	3.5	14.3
Erin Costello	5.4	13.0	3.0
Matt Cottingham	1.5	1.0	1.2
Zoe Cottingham	5.7	5.8	5.2
Michael Courtney	43.0	54.0	30.1
Sarah Cowell	0.6	1.0	0.7
Tim Cowell	2.0	6.0	2.4
Karen Cradler	1.3		1.5
Justin Craver	2.8	1.8	0.7
Gaby Crooks	2.2	0.6	2.4
Summer Cross	1.2	0.3	2.0
Doug Croucher	12.5	1.0	7.6
Mariann Croucher	10.4	0.9	6.5
Elizabeth Cumming-O'Berry	51.2	17.6	39.4
Carol Cwiklinski	30.2	15.5	24.6
Janice Cyre	3.8	3.8	1.5
David Daniels-Lee	2.0	0.5	1.1
Mary Daniels-Lee	2.0	0.5	1.1
Dick Dapceвич	23.7	35.0	27.0
Rhonda Dapceвич	23.7	35.0	27.0
Bobbee Davidson	7.5	1.1	2.3
Jessica Davila	4.8	3.5	13.0
Chris De Capua	1.0	4.0	1.8
Amber DeDerick	1.8	6.0	1.9
Juana Del Handy	21.5	5.2	11.0
Sandy Dengler	41.6	37.5	14.4
Kim Des Rochers	30.3	17.3	21.0
Genie Devine	30.7	21.3	49.1
Gilda Diaz	2.3	0.8	1.0
Pam Dick	72.5	36.5	33.0
Michael Dick	4.6	1.5	2.9

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Pam Dick	72.5	36.5	33.0
Jeff Dietrich	0.8	1.0	2.1
Cyndy Dillon	6.4	2.6	8.0
John Dillon	1.0	0.5	1.1
Tasha DiMarzio	19.5	18.5	3.0
Paul Dinnel	27.7	17.5	56.0
Tina Dinzl-Pederson	12.1	0.7	12.8
Judy Dixon	19.5	5.8	26.4
Linda Doerflinger	69.4	33.5	53.4
Jane Dolliver	41.5	32.7	33.5
Robin Donnelly	30.2	20.8	20.4
Bruce Dotterer	0.8	1.3	1.0
Sherri Dougan	8.6	2.1	8.2
Jack Doyle	1.7	0.7	1.0
Laura Doyle	35.0	12.7	19.6
Stephanie Doyle	1.5	0.3	1.2
Sandy Dubpernell	47.3	35.3	23.5
Kathy East	17.1	8.2	26.0
Patrick East	1.3	0.7	2.0
Dave Easton	23.0	12.3	13.8
Timothy Easton	14.5	7.4	11.0
Dave Eckwert	1.5	0.2	1.0
Dalene Edgar	39.2	6.7	22.0
Don Edgar	36.3	6.3	20.9
Brent Edwards	2.2	1.9	0.3
Sue Ehler	5.3	1.0	1.7
Dixon Elder	15.4	3.3	30.8
Kaci Elder	3.8	0.2	0.7
Ann Elliott	25.0	24.3	24.2
Mark Elliott	47.4	6.6	32.4
Nick Elliott	1.0	4.5	1.4
Liz Ellis	7.8	8.9	4.3
Martha Ellul	36.7		52.8
John Emig	28.8	24.5	38.0
John Epler	30.8	33.7	121.5
Joyce Epler	30.8	33.7	121.5
Rick Exstrom	0.9	2.0	1.2
Lucretia Fairchild	30.5	25.1	14.4
Rebekka Federer	2.8	1.6	4.5
Shirley Fedora	39.4	18.1	26.6
Peter Fineo	5.5	1.0	4.6
Jeanne Finke	32.1	5.5	17.3
Nancy Fischer	65.7	46.8	43.2
Daki Fisher	3.0		2.0
Cindy Flanagan	5.8	3.7	1.4
Gail Fontaine	2.5	2.5	1.2
Burton Foote	45.6	55.8	31.3
Rose Forbes	39.1	22.5	43.2
Tony Fortune	3.3	10.0	3.5
John Foster	9.4	3.5	13.0
Rick Foster	131.3	93.0	93.0
Andrew Fratis	2.1	2.0	4.0
Matt Frazer	1.5	0.2	1.0
Gary Freitag	16.1	11.2	11.7
Ellie Friars	5.1	0.5	10.0
John Friars	5.1	0.5	10.0
Marilyn Friedrich	63.1	9.7	103.5
Ron Frisch	43.2	0.4	57.5
Nadine Fuller	71.1	43.3	50.6
Sue Gabriel	23.6	2.3	22.4

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Varian Gacek	27.1	9.7	28.8
Finn Gatewood	58.5	24.2	79.9
Sharon Gearhart	24.4	42.8	14.4
Edge Gerring	44.2	11.4	21.0
Joan Gerteis	12.2	14.8	9.0
Sarah Gielgens	12.0	6.0	3.9
Joe Gilbertson	11.1		6.0
Derek Gill	2.5	1.0	1.4
Sue Gilleland	41.6	53.0	61.6
Dave Gittleman	49.8	87.3	48.6
Karen Gittleman	35.1	65.5	35.7
Curt Given	0.7	1.2	1.0
Stefanie Gleason	7.5	3.8	12.0
Charin Godbolt	4.6	0.7	1.9
Phoebe Goit	40.9	27.3	22.4
Tom Golding	34.2	21.3	37.5
Kelsey Gordon	5.8	13.0	3.9
Linda Gorman	1.9	0.5	3.9
Sylvia Graham	5.9	10.2	6.8
Marie Granshaw	6.5	2.7	9.6
Matt Gray	6.5	7.5	7.5
Marla Greanya	21.9	4.5	29.1
Doug Greaves	12.9	2.3	12.8
John Green	7.9		9.6
Margaret Green	7.9		9.6
Phil Green	14.5	1.0	13.6
Alan Greenbaum	2.3	1.5	3.6
Marina Griebel	9.8	9.0	9.0
Frieda Grierson	0.8		3.7
Karin Grimlund	7.1	3.5	6.8
Carol Griswold	15.0	10.8	13.0
Nona Groesbeck	9.9	12.3	11.8
Richard Groesbeck	27.5	35.5	32.3
William Hager	22.0	6.3	15.3
Julie Hahn	2.6	6.0	1.2
Shelley Hall	1.0	8.0	1.8
Mary Hamann	35.5	69.0	29.9
Carol Harding	4.4	3.6	4.8
Birgit Harmon	2.0	1.0	2.4
Gary Harmon	2.0	1.0	2.4
Mary Harp	13.4	25.5	7.0
Rod Harp	13.4	25.5	7.0
Mary Claire Harris	1.2	1.0	0.4
Scott Harris	6.0	9.5	2.4
Jack Hartt	1.6	0.5	2.6
Jon Harwood	1.5		2.0
Clare Hatler	14.0	28.0	9.0
Janice Havrilak	128.9	20.4	100.6
John Haxton	10.5	3.0	9.6
Carl Haynie	60.1	135.5	61.0
Matt Haynie	38.3	87.5	40.4
Teresa Hedges	3.8	4.0	3.1
Clarence Hein	1.5	0.5	1.0
Jill Hein	34.3	20.3	18.4
Jan Henault	9.5	2.9	7.0
Andrea Hepburn	9.0	1.0	2.1
Heidi Herter	3.4	0.3	5.3
Nancy Hertzal	4.0	3.5	1.5
Connie Herzig	34.8	122.5	40.7
Tom Herzig	38.2	129.5	42.9

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
John Hinds	6.5	7.4	3.6
Karl Hoehn	6.8	11.5	5.4
Russ Holmes	11.9	3.4	7.7
Karin Holser	4.8	1.5	5.4
Rayna Holtz	66.0	3.7	33.0
Scott Horton	34.3	22.0	30.4
Burney Huff	1.2	0.9	0.9
Mary Huff	5.3	3.3	3.6
Sandy Huff	2.1	1.0	2.4
Vanessa Hunt	4.9	4.8	3.4
John Hunter	25.8	27.0	27.0
Nate Hunter	2.1	3.0	3.0
Pamela Hunter	23.8	24.0	24.0
Jack Hurt	6.6	1.3	6.4
Pattie Hutchins	34.2	7.4	16.0
Dallas Huth	7.5	10.0	4.0
Nick Iannelli	1.0		0.7
Jon Ihde	1.3	0.1	2.4
LaVonna Ihde	5.0	0.5	6.0
Hussein Ismail	0.3	0.2	0.4
Jeanne Iversen	51.0	35.1	31.8
Robert Ivey	3.0	3.0	0.7
Tyna Ivey	3.0	3.0	0.7
Craig Jackson	1.5	1.5	1.4
JoAnn Jackson	23.7	7.1	25.2
Mandy Jackson	8.0	9.0	5.4
Jeff Jacobsen	3.2	2.8	4.0
Merrill Jensen	53.6	16.4	60.2
Caroline Jezierski	0.5	0.3	0.9
Keith Johanson	23.8	5.7	17.6
Mary Johnson	19.0	5.8	43.5
Dick Johnson	23.4	3.7	34.2
Estelle Johnson	5.0	2.9	2.3
Gary Johnson	8.0	2.2	20.3
Ingri Johnson	28.5	8.1	18.7
Lurie Johnson	11.0	3.5	11.3
Nancy Johnson	2.0	0.9	1.6
Bert Johnstone	89.2	15.3	73.6
Dustin Jones	46.6	43.2	92.0
Marilyn Jones	49.1	8.0	39.2
Penny Juttner	20.6	4.5	38.3
Walter Juttner	8.9	1.8	14.9
Mike Kaill	23.2	30.4	18.7
Carl Kalb	42.4	15.4	38.2
Maija Kalb	11.6	2.8	6.6
Mark Kansteiner	11.3	5.4	10.5
Melanie Kasek	44.2	11.4	21.0
Sue Keilman	116.0	50.0	93.6
Barbara Keithly	5.0	6.5	2.1
Jeanette Kelley	3.6	5.5	5.9
Colleen Kelly	10.8	5.0	10.0
Meghan Kelly	0.3	0.7	0.5
Bonnie Kerschbaum	13.9	14.5	28.0
Matt Kerschbaum	20.0	18.8	36.3
Phyllis Kind	58.7	23.3	77.9
Kristen Kirkby	12.4	54.0	12.0
Marilyn Kirkham	1.7	0.8	2.0
Alexander Klatt	5.2	6.2	3.2
Dana Klatt	5.2	6.2	3.2
Kathy Klee	21.8	6.4	15.8

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Norma Klein	6.2	11.0	5.9
Lee Kloeppe	3.0	0.3	1.2
Susan Kloeppe	31.6	3.3	15.0
Chris Kloppmann	1.5	1.0	1.4
Elaine Knapp	2.7	1.5	1.0
Valerie Knox	69.8	16.9	40.8
Mandy Knudtson	14.9	4.6	3.9
Gary Korb	27.1	7.3	9.6
Bradley Krall	41.7	66.7	30.0
Tamara Krall	27.4	40.0	18.0
Bill Krause	2.3	1.0	1.0
Susan Kreml	2.8	0.5	1.8
Christina Kriedeman	0.7	10.0	1.6
Ward Krkoska	7.0	2.7	6.3
Chuck Kuhlman	6.5	0.8	3.6
Jan Kummet	55.2	93.8	49.1
Yvonne Kuperberg	67.2	3.7	33.0
Deb Kurtz	1.8		1.8
Julia Labadie	0.8	0.3	0.8
Charlene LaCoursiere	3.0	2.8	1.2
Linda LaMay	5.7	0.7	8.8
Mac LaMay	12.6	1.8	24.2
Dow Lambert	23.9	13.6	22.1
Janet Lamont	115.7	139.3	69.0
Jim Lamont	36.6	49.2	22.7
Barbra Landi	0.8	0.3	1.0
Benjamin Larson-Alexander	17.9	3.0	19.8
Nathan Larson-Alexander	1.3	0.3	2.2
Jacqueline Laverdure	9.0	6.0	2.0
Laurie Lawrence	5.1	2.7	3.6
Pete Lawrence	2.0	2.1	1.0
Cathie Lazier	1.6	0.8	1.0
Don Leak	7.6	2.0	5.2
Joyce Leak	12.2	3.7	8.8
Julie Lennartz-Reppen	0.9	0.2	0.5
Amy Lester	46.7	7.6	54.7
Gary Lester	113.2	16.3	110.1
Lauren Lester	59.0	7.5	47.3
Bev Leyman	22.2	28.8	12.1
Larry Leyman	24.2	33.8	14.1
Dan Lieberman	29.5	7.2	18.6
JoAnn Lincoln	48.2	57.0	24.0
Rich Lincoln	7.4	9.0	3.6
Brian Linnell	12.4	32.6	6.4
Kathy Linnell	32.7	85.6	16.8
Barbara Linnett	8.0	0.8	4.8
Paula Linton	2.5	0.8	1.5
Peter Linton	100.4	56.7	74.0
Tina Lipman	22.8	46.7	15.6
Laura Lippman	9.7	6.8	7.2
Sky Lloyd	42.2	4.3	35.1
Robina Loken	0.7	0.3	0.9
Betty Long	11.5	23.2	7.6
Camilla Loyd	27.8	4.0	24.0
David Loyd	6.5	1.0	6.0
Julia Loyd	86.0	11.7	68.2
Nicole Luce	21.8	13.5	28.0
Nalani Ludington	11.7	1.8	7.0
Jann Luesse	36.9	10.2	35.2
Nate Lundgren	1.4	2.3	3.7

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Joanna Lynch	17.3	6.0	12.8
Debbie Maas	8.6		14.0
Kathy Maas	23.3	22.2	9.7
Judith MacKenzie McCuin	25.6	10.0	19.2
Pat MacRobbie	14.0	28.6	9.0
Ted Magnuson	3.8	0.8	1.5
Chuck Main	9.6	17.0	9.0
Hannah Main	2.1	4.0	1.5
Christy Mann	7.2	2.1	8.9
Tim Manns	19.0	26.1	22.9
Vicki Mansfield	62.8	13.0	103.5
John Maré	3.0	0.7	3.2
Jane Marks	43.8	7.7	35.4
Becky Mars	7.7	8.0	4.2
Jennifer Marsh	1.4	0.5	1.5
Jerry Marsh	25.5	8.0	24.0
Mary Marsh	21.8	5.0	17.0
Bob Marshall	5.0	4.0	4.0
Adam Martin	1.7	1.0	1.2
Dian Martin	2.2	2.8	2.1
Radames Martinez	29.6	21.5	28.0
Lani Marvick	15.5	9.2	12.8
Karen Matsumoto	12.0	6.5	12.4
Annie Matsumoto-Grah	2.4	2.4	3.2
Irene Matsuoka	2.7	3.3	2.4
Barb Matter	36.5	15.8	33.6
Pamelia Maxwell	3.5	3.0	1.9
David McDaniels	12.0	1.9	6.1
Melissa McDowell	43.8	3.4	31.2
Brooke McFarland	19.3	47.4	21.3
Leighanne McGough	0.8	0.1	0.8
Casey McHugh	12.3	23.0	25.6
Kristina McHugh	3.0	6.5	6.4
Kim McJury	1.6	0.8	1.4
Anita McMillan	6.7	8.0	3.9
Joanne McMillen	3.0	1.3	2.0
Vicki McNeil	22.9	14.7	46.8
Gerret McPherson	9.8	9.0	9.0
Paul Melovidov	80.9	71.6	146.0
Jean Mendel	2.1	1.0	2.4
Alan Merat	4.6	1.3	2.9
Gary Merculief	5.0	4.5	5.4
Nancy Messmer	28.5	4.6	38.7
Sharon Metcalf	4.8	1.5	9.9
Annie Meyer	1.7		0.8
Michelle Michaud	38.5	36.3	29.2
Carol Mickey	1.3	5.0	2.0
Rachel Mickey	1.3	5.0	2.0
Anne Middleton	4.2	0.3	4.0
Jack Middleton	0.8	0.1	1.0
Marilyn Miller	5.4	6.9	1.8
Tina Mirabile	26.2	28.0	18.0
Georgia Mitchell	1.5	1.5	1.8
Dianna Moore	21.0	4.0	11.8
Daphne Morris	13.7	3.7	2.9
Nicole Morris	6.7	2.9	2.0
Tara Morrow	16.3	7.0	10.9
Cindy Moyer	40.3	34.2	52.0
Jim Mraz	1.5	0.5	1.4
Patricia Muchmore	5.2	11.8	3.6

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Ariel Muldoon	19.5	23.0	13.3
Janet Mullen	81.8	10.6	153.0
Robert Mullen	85.2	11.1	161.5
Michael Mungoven	12.2	7.5	18.0
Carolyn Murphy	26.9	8.8	68.0
Madrona Murphy	6.2	12.0	5.4
Michael Murphy	10.5	10.9	10.4
Sue Murphy	30.8	13.4	31.4
Henry Mustin	9.0	7.1	7.2
Lorre Myers	8.9	16.8	7.5
Deke Naaktgeboren	2.2	3.2	2.1
Lucia Napolitano	7.8	11.5	3.4
Sue Nattinger	202.8	233.0	208.9
Barb Nelson	13.8	4.0	16.1
Christine Nelson	16.7	31.3	14.7
Ethel Nelson	6.1	3.3	4.0
Lindsey Nelson	3.8	8.7	2.5
Lyn Nelson	21.8	6.4	15.8
Pete Nelson	3.4	1.9	4.0
Sharon Nelson	54.0		81.0
Vic Nelson	234.9		342.0
Pat Ness	30.0	52.5	28.0
Wade Newbegin	34.7	3.3	32.0
Nancy Newman	34.0	15.0	32.0
Darlene Nichols	1.5	8.6	0.6
Brandon Nickerson	5.9	38.0	7.5
Kathleen Ninneman	4.3	3.7	3.7
Gus Ninneman	3.3	1.7	2.8
Hayley Norris	2.8	1.6	2.7
Kay Norton	4.4	14.3	8.2
Rod Norvell	134.1	103.9	153.6
Chuck O'Clair	23.7	41.5	13.9
Janet Oja	16.9	39.0	13.4
Rachael Okrent	1.5	1.0	1.2
Carolyn Ollikainen	39.7	11.0	35.2
Robert Ollikainen	95.4	26.7	84.9
Karen Olsen	2.7	1.3	2.0
Heidi Olson	36.6	49.3	45.6
Tim Olson	38.1	50.8	45.6
Lauren Owens	2.2	1.1	1.6
Margaret Owens	5.0	3.0	1.6
Connie Owston	23.0	7.5	20.3
Pete Owston	32.5	6.5	28.8
Becci Oxner	0.7	1.2	1.0
Eric Page	8.5	7.5	7.1
Erin Page	1.8	2.7	4.2
Raul Pagura	7.0	9.9	5.5
Veronica Pagura	8.7	12.2	7.7
Andy Palmer	2.3	0.8	7.0
Jasmine Palmer	1.8	6.0	1.9
Dave Parent	13.8	17.6	15.3
Wendy Parent	1.4	2.6	2.4
Paul Parker	55.9	19.1	47.3
Sally Parker	93.6	24.7	67.9
Monika Parsons	3.3	20.0	3.4
Kathy Partch	3.0	1.5	4.4
Barbara Patton	27.8	2.3	20.0
Michael Patton	39.4	4.1	31.6
Pamela Pauly	7.9	2.1	16.9
Kevin Payne	21.9	4.5	29.1

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Joelle Pebbles	1.9	1.3	2.0
Stacey Pecen	21.9	4.5	29.1
Rod Pelson	1.6	0.5	1.6
Sheila Pera	24.2	3.2	25.2
Betsy Pernotto	5.0	4.0	4.0
Thomas Perry	14.6	3.5	14.4
Vicki Perry	13.4	3.3	13.2
Sarah Peters	18.5	3.0	8.8
Alyssa Peterson	5.8	15.3	7.6
Andy Peterson	1.3	0.4	1.8
Ken Peterson	4.5	0.4	5.6
Beth Phillips	13.5	7.9	30.2
Dan Phillips	12.6	4.2	9.3
Kim Phillips	0.8	0.3	0.6
Laura Phillips	3.6	11.2	4.1
Lynda Phillips	12.6	4.2	9.3
Abby Pickett	6.3	0.5	1.7
Sidney Pickett	14.5	2.2	5.1
Laura Piggott	3.0	0.7	1.0
Julia Pinnix	3.2	0.2	3.6
Andy Pippel	6.1	4.4	4.0
Bob Pippel	6.1	4.4	4.0
Kimberly Pittman-Schulz	30.5	6.6	22.4
Sandra Pollard-Snowberger	14.0	7.0	16.5
Bill Poppe	27.1	45.2	32.0
Jolene Poppe	15.4	25.7	16.0
Stefanie Porter	2.1	0.3	3.4
Fox Power	1.7	0.3	1.8
George Power	47.8	9.1	45.2
Rose Power	50.1	9.4	48.8
Jaci Pumphrey	12.2	11.0	6.6
Niki Quester	31.3	13.3	23.0
Janet Raffensperger	6.0	0.6	6.4
Paul Raffensperger	18.8	1.7	17.6
Nikolas Rasis	3.3	10.0	3.5
Calen Randall	5.8	3.7	1.4
Carley Randall	1.5	0.7	0.4
Leslie Raphael	19.8	3.6	14.1
Robin Rauch	19.2	1.5	8.0
Daniel Ravenel	22.4	8.8	28.5
Lani Raymond	14.2	4.0	16.4
Dick Reese	53.2	22.3	27.1
Rebecca Reilly	1.7	1.0	1.2
Lauren Reinalda	16.3	5.7	18.4
Bruce René	29.4	12.0	37.9
Cari René	27.6	11.8	36.0
Jasmine Reppen	6.0	2.7	4.9
Pat Reynolds	36.9	62.5	35.2
Tom Richards	66.9	24.3	44.6
Rich Ridenhour	69.1	34.7	54.4
Jerry Ring	25.7	18.4	41.2
Terry Risdon	59.1	135.5	61.0
William Ritchie	1.7	4.0	1.6
Hannah Robbins	18.2	12.2	7.8
Jim Roberts	71.3	178.9	29.9
JoAnn Roberts	71.3	178.9	29.9
Linda Robertson	39.4	41.0	12.5
Betsy Robins	1.5	0.5	0.7
Holly Robinson	9.4	0.7	25.6
Carrie Rogers	4.1	0.2	1.0

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Jim Rogers	4.1	0.2	1.0
Sean Rohan	5.5	6.0	2.7
Christine Rominski	1.5	1.0	1.2
Sam Rose	3.3	10.0	3.5
Judy Rost	52.1	70.8	45.1
Judy Roth	2.8	6.0	2.6
Ina Rowley	19.4	11.8	15.0
Karla Sabin	12.3	10.8	6.3
Paige Saffle	1.8	1.7	2.2
Jeanne Sampier	2.9	1.0	4.0
Susan Savage	6.2	0.3	7.2
Warren Scarlett	5.1		2.0
Greg Schirato	6.7	12.0	3.9
Pat Schoen	7.6	23.5	6.7
Michael Schrimpf	0.9	0.8	0.8
Terry Schulz	50.0	9.7	38.3
Jonathan Scordino	6.3	0.8	2.0
Michael Scott	10.9	3.5	11.4
Tillie Scruton	4.2	2.0	3.3
Bette Seaman	7.3	2.4	8.0
Katharine Sell	14.7	6.5	26.5
Shirley Sell	3.3	1.0	5.2
Sue Shane	83.8	33.5	61.6
Tom Sharp	43.0	12.2	29.2
Traudl Sharp	17.8	5.6	13.1
Barbara Shaw	5.0	2.9	2.3
Michael Shephard	1.0	8.0	1.8
Nan Simpson	1.0	0.7	0.5
Lori Sinnen	30.3	47.0	27.2
John Skinner	1.0	2.5	0.6
Julie Skopal	24.8	21.7	14.3
Leslie Slater	0.8	0.5	0.7
Mark Smaalders	13.9	8.8	9.0
Steve Small	12.2	5.7	9.0
Patrick Smit	17.1	5.0	10.2
Roberta Smit	17.1	5.0	10.2
Cuyler Smith	1.5		1.6
Elizabeth Smith	4.5	0.3	4.2
Jan Smith	26.6	15.0	18.7
Jim Smith	4.5	0.3	4.2
Karl Smith	34.8	20.8	24.1
Max Smith	27.3	70.5	28.8
Neil Smith	7.9	8.3	10.5
Randy Smith	8.9	2.9	19.8
Richard Smith	52.6	42.0	60.0
Dee Snider	19.5	1.6	16.0
Mike Snider	19.5	1.6	16.0
Cheryl Sones	3.1	0.1	2.0
Fran Songer	12.5	10.0	15.7
Linda Songer	14.9	11.0	18.8
Leesa Sorber	14.2	8.2	9.0
Sanita Southgate	1.5	1.5	1.2
Kristine Sowl	9.2	6.0	6.8
Rick Spaulding	14.3	7.9	26.6
Peggy Speer	83.3	15.0	72.0
Caroline Spehar	1.3		0.8
Katie Spellman	10.0	5.0	5.0
Al Standish	12.2	8.5	24.0
John Stange	8.3	2.5	9.0
Heidi Stangvik	1.8	1.8	3.2

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Ann Stark	1.3	0.2	1.8
Doug Stark	13.5	2.7	17.8
Latresha Starling	94.8	3.9	76.4
Sumer Starling	94.8	3.9	76.4
Peter Starr	36.5	22.1	49.8
Sara Starr	36.5	22.1	49.8
Christine Stawitz	1.2	0.2	1.0
Arlene Stebbins	32.8	11.8	35.2
Carol Steele	35.4	6.9	33.6
Pete Steen	1.6	0.5	1.6
Wendy Steffensen	9.5	12.3	14.0
Ken Stenek	24.2		49.2
Jamie Stevens	9.4	39.5	6.6
Jesse Stewart	20.4	2.7	32.0
Laura Stichert	7.4	4.4	9.5
Ruth Stockdill	3.0	1.0	3.2
John Stockman	6.0	1.1	2.8
Barbara Stone	3.1	2.3	4.6
Erik Stromholt	16.8	5.8	9.7
Robin Stromholt	16.8	5.8	9.7
Eftin Strong	16.8	55.0	21.7
Ingrid Strong	14.5	50.0	18.7
Dave Sturdevant	23.9	8.7	5.5
Randi Sulkin	3.5	2.0	1.5
Kimbal Sunberg	6.1	0.5	12.8
Sarah Swanson	27.3	70.5	28.8
Anna Swartz	1.5	1.0	2.2
Terry Tavel	4.5	4.5	4.8
Barbara Taylor	12.4	9.0	9.0
Bert Taylor	2.0	1.0	2.2
Brenda Taylor	29.8	11.5	30.2
Kelsea Taylor	5.6	4.3	5.2
Phil Taylor	29.8	11.5	30.2
Kate Terpstra	1.4	6.0	1.0
Jeanene Tharp	7.5	1.1	2.3
Annie Thorp	43.8	54.0	30.1
Doris Tieder	2.6	3.5	4.4
John Tieder	3.5	4.5	5.8
William Tiederman	3.8	9.2	4.2
Gary Titus	5.0	2.0	1.3
Marcia Toby	26.3	10.5	36.5
Robert Toby	26.3	10.5	36.5
Jim Todd	28.4	44.2	54.0
Sheila Tomas	4.0	0.8	1.6
Floyd Tomkins	2.0	0.7	2.0
McKenzie Trainor	3.0	3.2	1.6
Jenna Trapaus	3.3	0.8	1.5
Chris Trella	0.8	0.8	0.8
Cindy Trussell	2.1	1.2	1.5
Dan Tupper	5.8	8.8	10.0
Patty Tupper	5.8	8.8	10.0
Kelley Turner	16.0	4.8	15.2
Allan Tyson	5.6	0.5	5.4
Barbara Tyson	5.6	0.5	5.4
Dan Urban	3.3	0.6	2.6
Anneka van Doorninck	42.8		60.0
Wolter van Doorninck	165.4		230.4
Joshua VanAalst	1.0	1.7	1.4
Doug VanPatten	1.7	0.8	2.0
Litzy Venturi	28.7	6.0	12.0

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Madeleine Venturi	28.7	6.0	12.0
Chet Vincent	20.4	17.0	27.0
Olivia Vitale	5.9	5.2	1.4
Don Vitale	5.2	5.0	1.2
Dee Vixie	4.2	7.4	3.3
Carol Volk	27.1	7.3	9.6
Frank Vondersaar	30.4	8.7	21.6
Esther Wadsworth	13.3	8.8	11.5
Eric Wagner	2.1	0.3	3.4
Neil Wagner	16.8	5.8	18.0
Stan Wagner	37.2	17.1	30.8
Jackie Walls	4.6	6.8	4.3
Becky Wanless	17.9	8.0	63.1
Elizabeth Warfield	0.5		1.0
Chase Warren	2.8	1.6	2.7
Hank Warren	43.3	31.5	42.0
Raedell Warren	39.3	28.5	38.0
Greg Waters	7.6	8.0	9.6
Liam Waters	5.6	4.8	6.8
Pat Watt	4.9	6.8	5.4
Laurie Webb	0.5	0.5	0.8
Mike Webster	1.0	0.7	2.4
Dick Weisbrod	3.8	12.8	5.7
Rita Weisbrod	1.4	2.7	1.5
Abby Welch	3.9	2.5	5.3
Ian Welch	3.9	3.0	5.3
Patricia Went	35.0	6.7	32.0
Don Wester	10.1	36.5	12.8
Linda Wester	10.1	36.5	12.8
Grace Wheeler	53.5	15.3	25.3
Don Wheeler	45.6	14.0	23.1
James Wheelwright	1.7	1.0	1.2
Karen White	1.8	0.3	1.6
Liane White	4.6	2.0	4.0
Monica White	1.8	6.0	1.9
Anna Wiancko	27.8	4.8	16.0
Andrea Wieland	14.5	7.4	11.0
Monika Wieland	21.1	31.0	18.0
Rainer Wieland	41.0	83.3	29.0
Vera Wieland	6.5	15.7	5.0
Don Wilkin	12.0	1.3	11.9
Daniel Willard	9.4	39.5	6.6
Angelique Williams	2.3	1.0	1.6
Wendy Williams	109.1	48.5	40.0
Caren Willoughby	31.6	11.3	17.0
Brian Wilson	24.8	21.7	14.3
Cathleen Wilson	8.7	2.1	2.0
Denise Wiltse	16.8	2.7	17.1
Lorri Winchester	1.5	0.5	2.0
Lou Winkler	15.8	6.5	19.4
Pam Winstanley	9.8	5.3	20.3
Peter Witschi	11.1	13.8	9.6
Jill Wittenbrader	0.8	0.3	0.6
Beth Wolgemuth	10.9	2.3	5.7
Kathleen Wolgemuth	105.8	16.7	58.0
Esther Wong	1.0	0.5	1.2
Christine Wood	3.7	1.0	2.5
Annie Woods	10.6	13.8	7.9
Ami Wright	14.4	17.4	16.5
Charlie Wright	3.5	6.0	2.7

VOLUNTEER	SURVEY HRS	TRAVEL HRS	KM
Jen Wright	0.8	0.3	0.8
Nancy Wright	11.8	15.5	6.2
Richard Wright	1.3	2.0	0.9
Jacqueline Wyland	12.4	2.5	9.8
George Yesalavich	19.6	1.9	12.0
Martina Yesalavich	2.5	0.5	2.6
Randy York	11.8	1.8	22.0
JoAnne Yorkston	7.3	0.9	4.7
Mark Youdall	16.7	6.0	12.2
Pat Young	2.1	0.2	2.0
Steve Young	43.7	32.3	31.5
Axel Yount	1.3	3.0	1.5
Darrell Yount	8.3	15.1	8.9
Jan Yount	13.0	24.1	13.4
Samantha Zacharof	24.6	22.4	46.0
Sue Zalokar	24.3	12.0	14.8
Phillip Zavadil	7.9	2.0	5.0
Kay Zeleny	2.8	1.3	4.8
Jon Ziady	8.4	3.3	9.7
Merrie Ziady	8.4	3.3	9.7
George Ziminsky	98.4	20.8	61.9
Ira Zuckerman	1.3	0.7	1.0
Heidi Zwicker	2.1	0.5	3.0
Kelly Zwicker	2.1	0.5	3.0
Samantha Zwicker	1.5	0.5	1.2
Guests	401.7	367.2	275.5
TOTALS	15,779	10,457	14,575



J. Dolliver

White wing linings, for sure. Diane Winterboer profiles a Pacific Loon wing from the teaching collection at the COASST training in Newport, Oregon, May 2011.

Volunteer Spotlight

Joe Ceriani

Region: Humboldt; Beach: Eel River North

Joe Ceriani's first visit to the Humboldt Bay area was more than 20 years ago on a Sacramento Audubon Society field trip. Although he dreamed of living near the ocean, his work at McClellan Air Force Base kept him near Sacramento. "I never thought I could afford to live on the beach in California!" At retirement, Joe remembered Humboldt Bay and realized his dream might be possible if he moved north. Six years ago, Joe packed up and settled in Eureka.

An avid birdwatcher, Joe soon joined the local Audubon chapter—the Redwood Region Audubon Society. At one of the meetings, he heard Pete Nelson, then a Marine Advisor for California Sea Grant, speak about COASST. Intrigued, Joe attended a COASST training and signed up to survey COASST's southernmost beach, Eel River North. Even though it's a bit of a drive from his home, COASST surveys give Joe a reason to visit this beautiful (and popular!) spot monthly. "My beach has a fantastic view of Humboldt Bay, and great fishing and birdwatching opportunities." Birds aren't the only thing grazing the skies at Eel River North—this beach is adjacent to a popular hang-gliding spot, Table Bluff, sporting a 165-foot cliff for take-offs.

After more than four years of surveying, Joe has a perfect attendance record at Eel River North (never missed a month!) and has roped in help from birdwatching



Courtesy of M. Jensen

Merrill has lots on his list! Making it to the Arctic Circle—check! Monthly surveys of three beaches? Triple check!

friends Kathy Layton, Linda Doerflinger and Rich Ridenhour. Linda and Rich liked it so much, they began surveying their own COASST beach—Dry Lagoon. By far, Common Murres are the most common beached bird finds at Eel River North, but Joe has taken particular interest in the Western Grebes that he sees feeding in the breakers, and has found beached a few times. "When you can examine seabirds up close and look at the structure of the legs, you can really see why they have difficulty walking and struggle to escape the beach." As Joe puts it, even an avid birdwatcher has much to learn from COASST surveys because "a bird in the hand is better than a bird in your binoculars!"

Merrill Jensen

Region: Alaska Southeast; Beach: Shrine of St Therese, Boy Scout Beach, Eagle Beach

Alaska's Southeast COASST region, like Puget Sound and the San Juan Islands, has notoriously low beached bird deposition. That, however, doesn't stop Merrill Jensen from hitting not just one, but three beaches in search of his first official COASST find (he had a Monty Python-esque run-in with a "not quite dead" Dunlin on Boy Scout Beach, but that's another story). Although these three sites aren't very far apart, they couldn't be more different: "Shrine of St Therese is quite short and in a protected harbor, Boy Scout Beach is one of the best stretches of

Sure, it's COASST's southernmost beach, but this isn't So-Cal! Hat and coat required at Joe's beach, Eel River North.



K. Layton

sandy beach in Southeast Alaska and I usually have the place to myself, and Eagle Beach is a remarkable tidal flat.” Merrill has witnessed nature in action at Eagle Beach, known as a year-round feeding ground for birds and bears alike. While on a COASST survey there, he noted, “Dead and dying salmon everywhere...gulls, eagles and ravens feasting on the bounty. Being a first-hand observer of the great cycle of life...priceless!” Fellow members of the Juneau Audubon Society are always interested to hear what Merrill finds, and he has plenty to share. “All these locations have lots of bird activity going on; you never know what bird might show up.”

Interestingly enough, Merrill has had better luck (if you can call it that) finding dead birds outside of COASST. During a trip to Cape Cod for his son’s wedding, Merrill wrote to us after finding five different species within a 1-km stretch of beach, “At long last, I’ve discovered beached birds...unfortunately, they weren’t found on any of my reporting beaches. They weren’t even on the left side of the continent.” Back in Juneau, Merrill watches as the seasons change. “Ice wrack—you all probably don’t get to see that very often,” Merrill writes. He’s also witness to the first signs of spring, as the “last frontier” explodes with life. “Spring is on us like a herd of thundering buffalo! Birds are on the move north, and I see something new every day, which is always cool. Yesterday, the first harrier sailed through,” adds Merrill.

Aside from his interest in all things birds—he’s a board member of the Juneau Audubon Society—Merrill is a horticulturalist and arboretum manager for the City of Juneau. A member of numerous garden and horticultural organizations, Merrill also finds time for the Friends of Alaska National Wildlife Refuges, and the Alaska Photographic Arts Association. Even with all

these activities to keep him busy, Merrill finds time to contribute to citizen science through COASST. With the opportunity to visit three amazing beaches chock full of wildlife monthly, as Merrill would say, “Why not?”

Sally and Paul Parker

Region: North Coast

Beaches: Wa-atch, Sooes South, Hobuck Beach

Of the myriad ways people find out about COASST, we’ve found another one to add to the list—pink backpacks. As residents of Neah Bay at the northwest tip of the Olympic Peninsula, Sally and Paul Parker have always enjoyed walking along Hobuck and Sooes beaches. One day on Sooes, they spied a couple zig-zagging along the beach, sporting a pink backpack. Part of a class? A cult? Or just a crazy couple? Sally and Paul investigated. It was Ingrid and Eftin Strong conducting their COASST survey. The Parkers were interested.

Paul grew up in Neah Bay and knew his seabirds well; Sally had lived in Neah Bay since the 1960s and had learned a lot about local birds, especially raptors, through a program at the Neah Bay School. At the time, Sally was still working and wasn’t sure she’d have time for the required monthly surveys, but Paul was retired, so he decided to join Mary Sue Brancato and Barb Blackie on a COASST survey of Hobuck Beach to find out more. Paul still wasn’t sure dead birds were his thing, but six months later, after Sally retired, the Parkers were out for a walk on Hobuck and spied a beached pelican with tags on it. Sally wondered aloud if they should report the bird, but Paul recognized the color cable ties right away—they were from COASST! With some free time as a new retiree, Sally picked up the COASST protocol and decided to give it a shot. Now she and Paul form the perfect team—he’s the notetaker and photographer, Sally handles the birds.

Sally and Paul initiated COASST surveys at the mouth of the Wa-atch River in the spring of 2007 and have enjoyed watching it change monthly, from cobble to sand and back again. “There’s lots of wrack, and logs are constantly washing in and out. It’s different every month.”

In addition to COASST surveying, the Parkers also

Sally and Paul pause for a moment on Hobuck Beach, with Wa-atch Beach and Cape Flattery in the distance—just ask Sally, who says, “it’s a special place.”



S. Parker

collect beach debris for the Olympic Coast National Marine Sanctuary. “It’s a way to do a small part for the environment and keep Wa-atch Beach clean.” The next couple of years are sure to be interesting—Neah Bay has already been in the news with the November 2011 discovery of Japanese buoys. As Sally says, “there’s a lot of excitement about the possibility of tsunami debris washing up.”

Paul and Sally also help out at other beaches near Neah Bay—they monitor Sooes South every other month, and Sally joins Janet at Hobuck, one of the North Coast’s “birdiest” beaches, to practice her dead bird identification skills and assist with the Olympic Coast National Marine Sanctuary on-the-beach trainings. And practice she gets! Sally has processed 33 different species. “At first, I was nervous about doing the measurements and my IDs. Now I’m a lot more confident.” And the folks in Neah Bay know it—people call Sally and Paul about birds and other objects they find on the beach. “COASST has been a great way to meet interesting, passionate people. The surveys are always an adventure.”

Peter Linton

Region: Puget Sound

Beaches: Ebeys Landing, Perego Lagoon

Peter Linton was introduced to COASST during a fateful ride on the passenger deck of the ferry from Port Townsend to Whidbey Island. During the ride, Peter ran into some fellow members of the Whidbey Audubon Society returning home from a COASST training session

in Port Townsend. One of them, Bob Merrick, was in need of a survey partner, so Peter agreed to join Bob at Ebeys Landing and Perego Lagoon. Peter took over after Bob moved off Whidbey three years later. After more than nine years, Peter has racked up more than 400 surveys for COASST!

Many of you Puget Sound and San Juan Island COASSTers know that beached birds can be scarce. Over the course of his COASST career, Peter has found a total of only 8 birds. That’s 0.02 birds per survey! “It’s tremendously exciting finding birds. When I find one, I think, I’ve got my year’s quota!” Peter enjoys comparing the trends of different COASST regions in *COASST Reports*, so he is well-aware of the large numbers of birds that wash in on Lower 48 outer coast beaches, “I hear about the hair-raising events of the outer coast and wonder, how can you deal with that?”

Although his surveys at Ebeys Landing and Perego Lagoon haven’t turned up many beached birds, there is always plenty to keep Peter interested. Subtle changes—an increase in kelp wrack, new driftwood—make each visit new. Peter has become especially fascinated by the timing of crab molts and has been learning to identify species by their carapaces (a new data set for COASST?). But some things never change: “Since the first boats sailed here, the profile of Admiralty Inlet hasn’t changed—it’s the same thing people were looking at hundreds of years ago.”

Always an advocate for COASST, Peter leaves our colorful species cards around town for others to pick up. “Mainlanders often ask what we do on the island,” Peter says, laughing. “Maybe they’ll find a beached bird and get hooked like I did.” When he’s not out walking the beach, Peter spends time tending to his kitchen garden and orchard with his wife Iris. Both are interested in following the birds in their yard and adjacent woods and on the beach! As Peter says, “I’m ever so fortunate to end up here.”

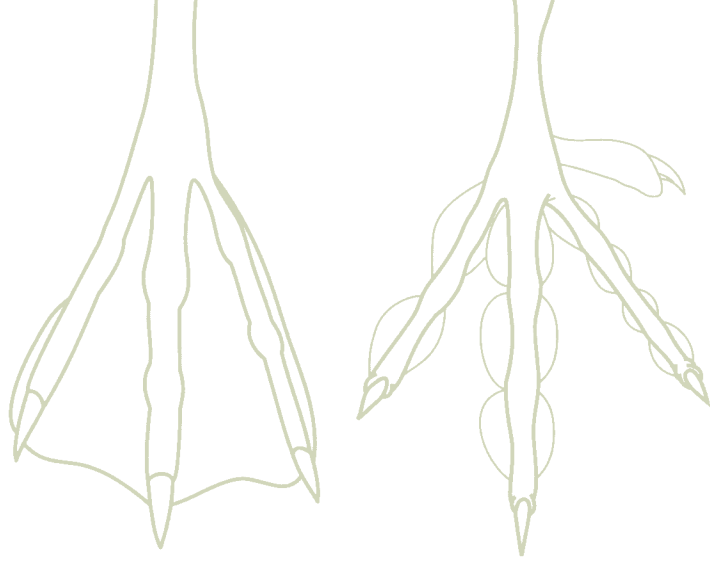
Peter Linton, steward of the shores on Whidbey Island, dons his COASST raincoat for a walk on Ebeys Landing.



Courtesy of P. Linton



R. Ranch



Dave and Diane Bilderback team up to investigate one of the hundreds of murren they've found on Oregon Mile 99.

Diane and Dave Bilderback

Region: Oregon South

Beach: Oregon Mile 99

You know you're a diehard COASSTer when dead birds become a highlight of your vacation. In recounting a recent trip to New Zealand, Diane and Dave Bilderback quip, "Now we always see birds...dead and otherwise."

Long-time employees at the University of Montana (Diane as an advisor and Dave as a professor), both have a background in botany, but always harbored an interest in marine biology. After their retirement to the Oregon coast in 2003, they decided to "walk as many beaches as possible." With a goal to learn about the local seaweeds and seagrasses, the Bilderbacks soon found themselves finding all manner of items on their beachcombing expeditions, including beached birds.

Diane and Dave heard about a COASST talk and training session in Florence, but were unable to attend, so what to do? Send Mom! Diane's mother, Mary Lou Letsom, began surveying Oregon Mile 175 near Florence with Anne Caples, Val Knox and Cindy Burns in September 2005. Diane and Dave decided they should check up on Mom, so they joined the Mile 175 team for a survey. "It was trial by fire!" Diane recounts. "We found 47 birds and it took us 6 hours!" The Bilderbacks weren't deterred. In fact, they continued to join the Mile 175 team, driving from Bandon to Florence monthly, until they started helping Peter Witschi at a beach closer

to home (Oregon Mile 96). Nowadays, the Bilderbacks monitor Oregon Mile 99, but can still be found helping out at nearby beaches, especially when wrecks occur. Together, Diane and Dave have found over 400 beached birds of 26 different species at Oregon Mile 99, and that doesn't include their more than 100 refinds. "In Bandon, we're near large Common Murre rookeries. In good years, we'll see lots of murren. Now we know it's a sign of good health."

Ever willing to combine seabirds with their botanical prowess, Dave and Diane have volunteered for the U.S. Fish and Wildlife Service, helping to assemble herbariums for the Oregon National Wildlife Refuge complex. "On some of the islands, we had to wear snowshoes so we wouldn't crush the burrow nests."

"I've learned so much about marine birds that I didn't know before," says Diane. "When you look at the birds close up, you can see so many details of their bills, feet and wings, all of which help you to understand how each species makes a living." And they don't just stop at beached birds. The Bilderbacks also volunteer with the Marine Mammal Stranding Network. Diane jokes that people often say, "if it's a carcass, the Bilderbacks are interested; and they're right, I am!" And if you've found out about COASST in Coos County, chances are it's through the Bilderbacks. "Dave and I enjoy doing this together in our retirement. It's fun, and you meet lots of people with conservation at heart."

Partner Profile

Clallam County Marine Resources Committee: Focus on the Elwha

Back in 2010, when the removal of the Elwha Dams upstream of Port Angeles in the Strait of Juan de Fuca was slated for September 2011, scientists and citizens wondered: would beaches change as the tons of accumulated sediment behind the dams moved downstream and into the near-shore? What would birds do? Would debris patterns change?

These were all questions the Clallam County Marine Resources Committee (C-MRC) posed. Citizens, resource managers, tribal members, scientists, educators, and commercial and recreational fishermen join together to form MRCs, promoting marine resource stewardship in 10 of Washington's coastal counties. Funded by the U.S. Congress in northern Puget Sound through the Northwest Straits Foundation and the Washington State Legislature on the outer coast, the MRCs solicit for proposals which fill specific community needs, including restoration, monitoring, education and outreach. Cathy Lear, C-MRC committee member, emphasizes that the COASST-MRC partnership is an important one, "MRCs care about the same things COASST cares about: people, shorelines, wildlife and good management."

The removal of the dams, approved by an Act of Congress in 1992, is the largest project of its kind in U.S. history. The hope is to restore 70 miles of historic habitat for native salmon—pink, chum, coho, sockeye and the endangered Puget Sound Chinook. Not surprisingly, it's captured the attention of hundreds of citizens, scientists, resource managers, reporters, writers and film crews.

Realizing a need to unite the Elwha's many stakeholders, Anne Shaffer of the Coastal Watershed Institute put together the Elwha Nearshore Consortium in 2004, which hosts an annual workshop each winter. The Consortium is a big opportunity to bring everyone to the table, "to see, understand and promote the nearshore restoration associated with dam removals," adds Anne.

With funds from C-MRC, COASST set out to bolster survey coverage in the immediate vicinity of the Elwha River outflow by establishing two new sites in the Strait of Juan de Fuca. Thanks to the help of Dan and Lynda Phillips, who survey Crescent Bay, and Dan Lieberman and Tara Morrow from the Olympic Peninsula Skills Center and their students Bahja Huffman, Alexis Olea and Garret Goudie, who collectively survey Elwha West, both sites have yet to miss a single survey since their inception in October 2010.

The new beaches, when combined with data from Tongue Point and Freshwater Bay (both within 15 km of the river mouth), have displayed the basic "Strait" pattern—a weak peak in late summer—early fall (August–September), with ghost peaks in winter (December) and again in spring (April). Essentially the outer coast Lower 48 pattern, only faint. With the dams just coming out now, we've only managed to establish the baseline. Stay tuned for shifts as the wild river re-establishes itself.

To learn more about this project and other COASST partner projects, please visit depts.washington.edu/coasst/involved/learnmore.htm.

An aerial view of Elwha West Beach, where the Elwha River empties into the Strait of Juan de Fuca. J. Gussman



COASST Funding

With 797 volunteers, 419 beaches, and thousands of carcasses to verify annually, the COASST annual budget has certainly grown. It now takes almost \$250,000 to sustain our annual operations, including salary support for our five employees, and all of the travel we do for trainings, socials and presentations. Then there's the cost of COASST supplies! Very fortunately, our organization runs on much more than cash. Without the 26,236 hours of combined travel and survey time from COASST volunteers and the 4,352 student intern hours, we'd be sunk! Realize that those volunteer contributions are worth a stunning \$653,360 according to the federal government. In addition, COASST received in-kind contributions of everything from Julia and Janet's time, to space for trainings, to cable ties—collectively estimated at an additional \$50,000. Foundations supported the Columbia River daily survey project this biennium, while agencies put their money behind trainings and guides for the Observer Program, creating a West Coast wing key, and COASST volunteer supplies, trainings and socials.

COASST would like to thank the sponsors who provided support during 2009–2011:

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NOAA Fisheries

Special Projects

Clallam County Marine Resources Committee
National Fish and Wildlife Foundation
NOAA Fisheries
Washington Department of Fish and Wildlife
Washington Sea Grant

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Cable Markers Co., Inc.
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COASST Mission

The Coastal Observation and Seabird Survey Team (COASST) is a citizen science project focused on the coastal areas of the North Pacific. COASST believes citizens of coastal communities are essential scientific partners in monitoring marine ecosystem health. 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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