

OREGON'S OFF SHORE ISLANDS

Marine Birds

Mike Graybill

Marine Mammals

Kelp Beds



Oregon Coast National Wildlife Refuge Complex



and Three Arch Rocks NWRs support some of the most important seabird nesting colonies in the United States. Over a million seabirds, including murres, puffins, cormorants, and storm-petrels nest here. Without these protected nesting areas, many seabird populations would be in jeopardy.

Over 1,850 rocks, reefs and islands
Closed to human access

Nestucca Bay, Siletz Bay and Bandon Marsh NWRs provide vital feeding and resting habitat for shorebirds and waterfowl during their migrations. The protection and restoration of saltmarsh habitats in these refuges benefit the recovery of wild salmon, steelhead and cutthroat trout. Cape Meares NWR protects old-growth forest used by marbled murrelets, peregrine falcons, bald eagles, and songbirds.

The Oregon Coast Refuges are part of the National Wildlife Refuge System, a network of over 540 refuges set aside specifically for fish and wildlife. Managed by the U.S. Fish and Wildlife Service, the System is a living heritage, conserving fish, wildlife and their habitats for generations to come.



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<http://www.fws.gov/oregoncoast/>

Oregon Islands National Wildlife Refuge

Nesting site for a million+ seabirds

Haul – out sites for seals and sea lions

Intertidal resources

Terrestrial plants



OVERVIEW OF TODAY'S ACTIVITIES

- Information on marine birds
- Breeding and non breeding biology of Oregon species
- A few common non breeding species in the Oregon ocean that use the islands
- Threats to marine birds

Field trip to Cape Arago State Parks

Practice identifying marine birds and mammals

MARINE BIRDS

Primary –

spend whole life associated with the ocean

Secondary –

breed “inland” in the summer and spend non breeding period at the ocean

Pelagic – bird of the open seas

MARINE BIRDS

Primary –

spend whole life associated with the ocean

**Use the offshore islands and mainland cliffs
for breeding sites**

Spend their non breeding season at sea

LIFE HISTORY COMPARISONS

MARINE BIRDS



PASSERINES





LIFE SPAN

Marine Birds
12 – 60 years



Passerines
5 – 15 years





CLUTCH SIZE

Marine
Birds

1 – 5



Passerines

4 - 8



INCUBATION PERIOD

Marine Birds
20 - 69 days



Passerines
12 - 18 days





FLEDGING TIME

Marine Birds
30 – 280 days



Passerines
20 – 35 days



AGE OF FIRST BREEDING

Marine Birds
2 – 9 years



Passerines
1- 2 years





Mini Review: MARINE BIRD LIFE HISTORY CHARACTERISTICS

LIVE LONG 12 – 60 years

LAY SMALL CLUTCHES 1 – 5 eggs

HAVE LONG INCUBATION PERIOD
20 - 69 days





FLEDGING TIME LONG
30 – 280 days

LATE AGE OF FIRST BREEDING
2 – 9 years



TWO PHASES TO LIFE

- Non-Breeding
- Breeding





BREEDING

- Predator free islands or mainland cliffs
- Access to productive waters for feeding





Oregon Coast National Wildlife Refuge Complex

Over 1,850 rocks, reefs and islands

A million + seabirds

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Goat Island - soil covered



Crook Point

Bare Rock



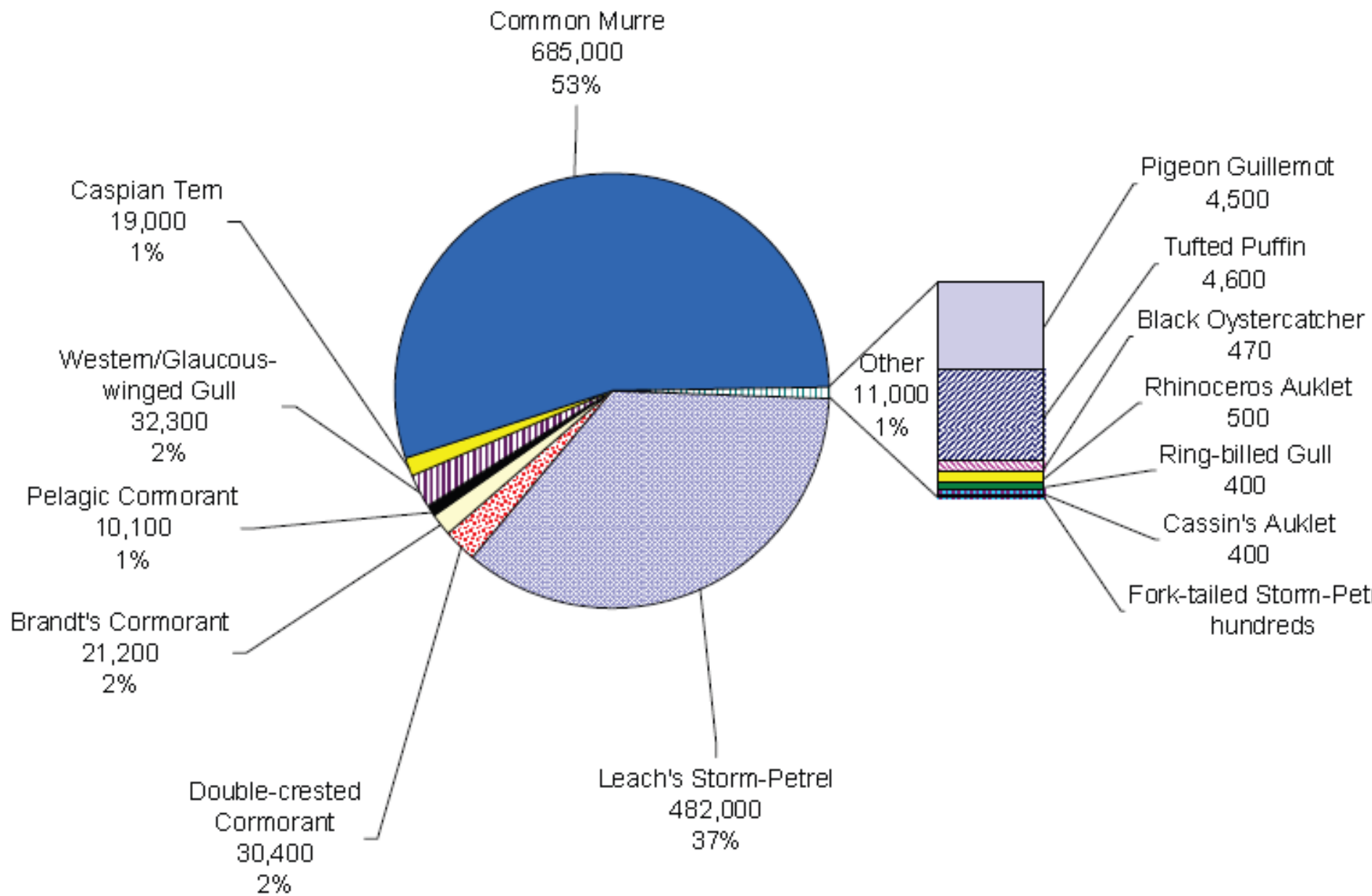
U.S. Fish and Wildlife Service

Catalog of Oregon Seabird Colonies

Biological Technical Publication
BTP-R1009-2007



http://www.fws.gov/oregoncoast/seabird_colony_catalog.htm



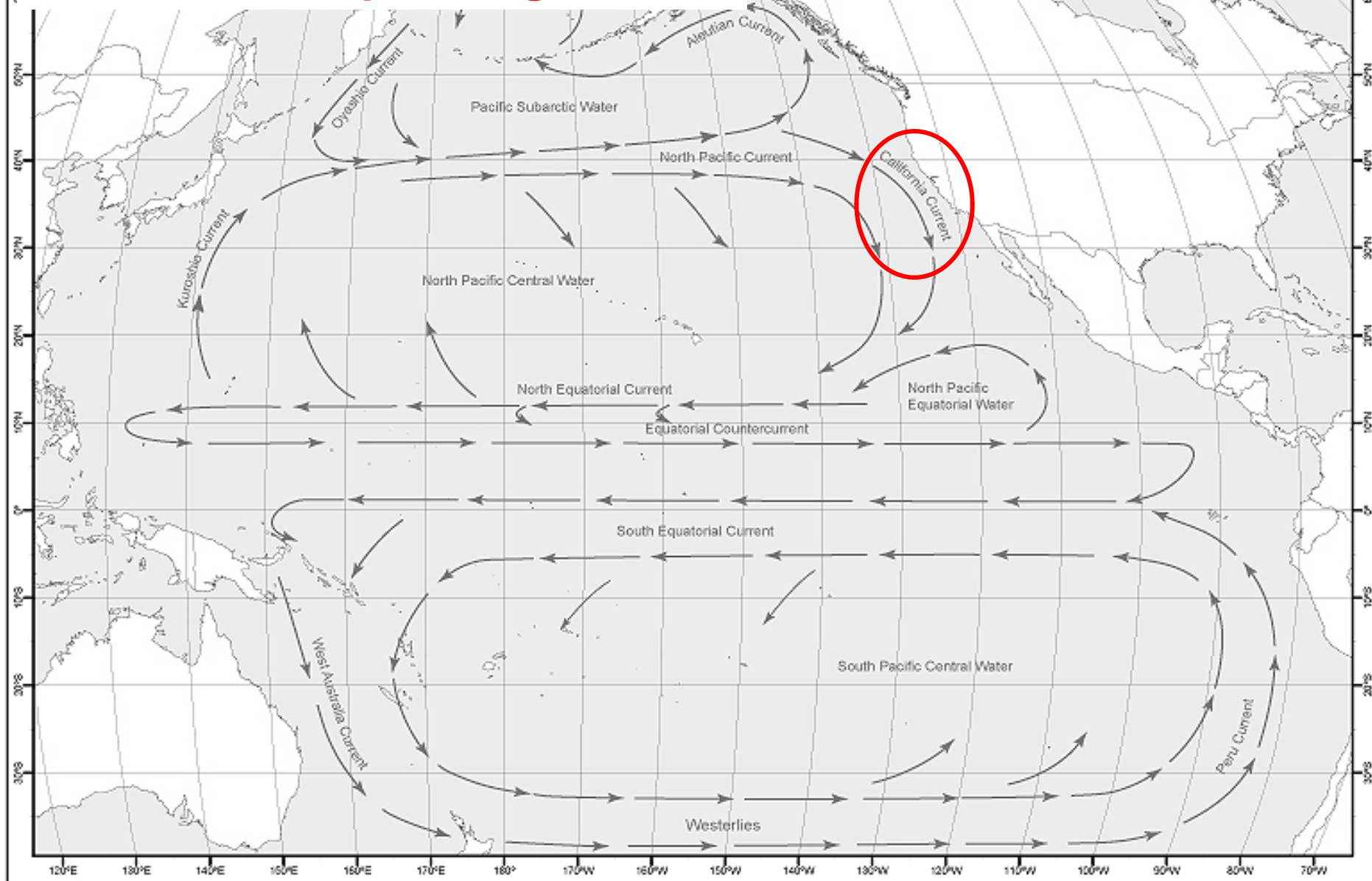


Seabirds breeding along the coast of Oregon

Common Murre	685,000
Pigeon Guillemot	4,500
Marbled Murrelet	estimated
Cassin's Auklet	400
Rhinoceros Auklet	500
Tufted Puffin	4,600
Fork-tailed Storm-Petrel	hundreds
Leach's Storm-Petrel	482,000
Double-crested Cormorant	30,400
Brandt's Cormorant	21,200
Pelagic Cormorant	10,100
Black Oystercatcher	470
Western/Glaucous-winged Gull	32,300
TOTAL ESTIMATE	1,290,000

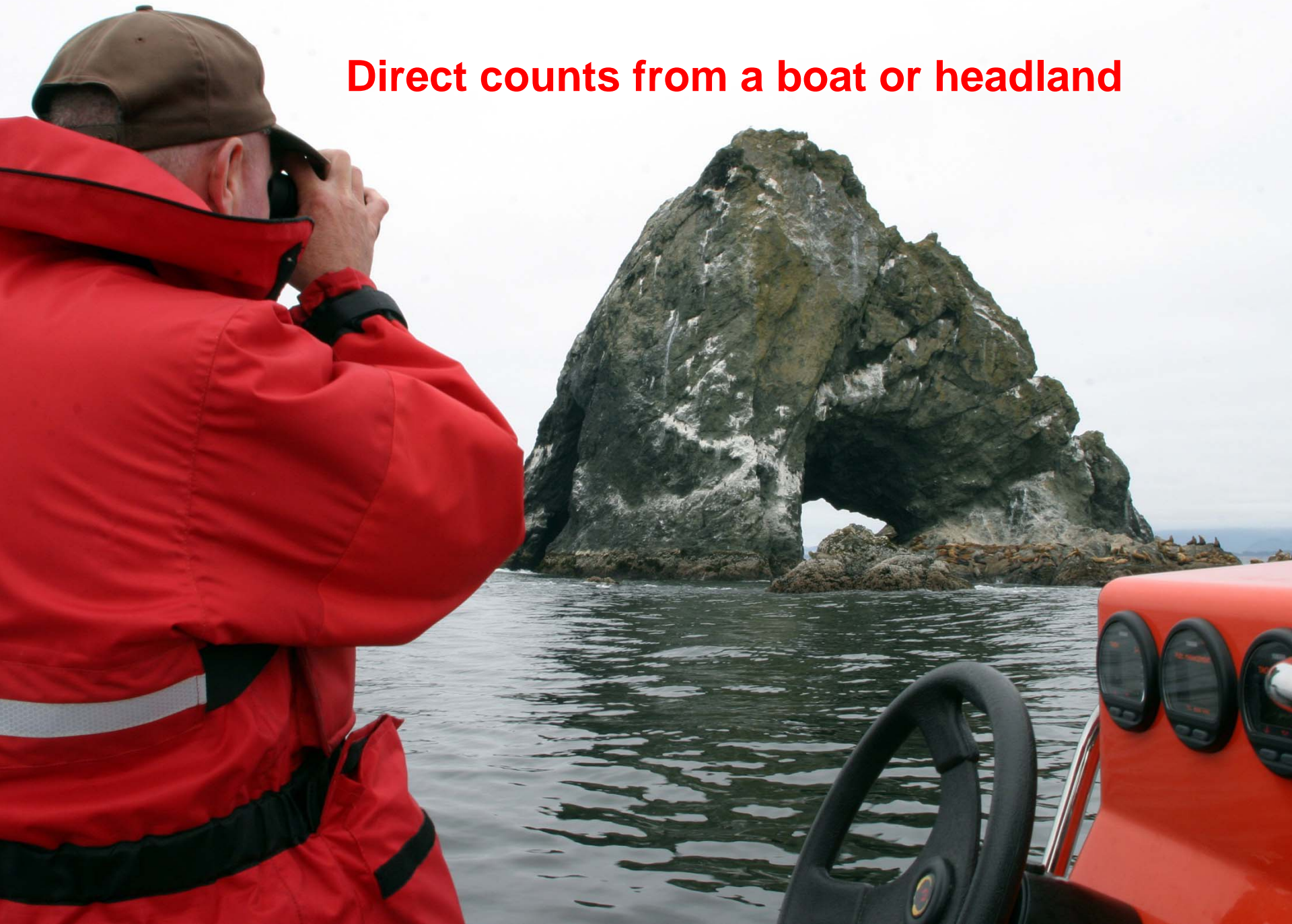
Large scale - California current

Local scale - Upwelling





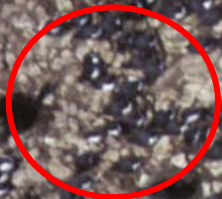
Direct counts from a boat or headland



Take photographs and count individual nests



BRCO

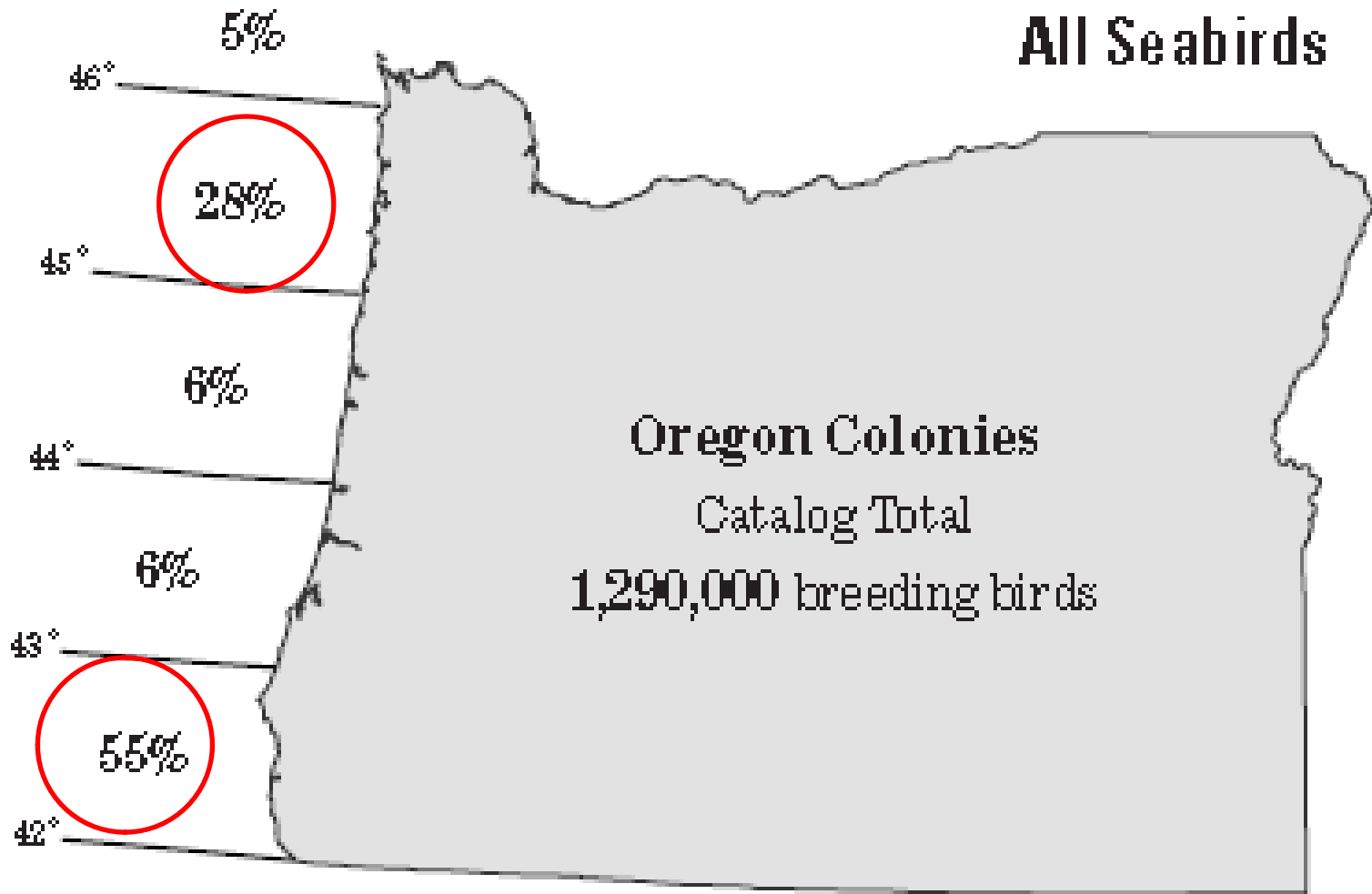


COMU



Use of radar for nocturnal spe

All Seabirds



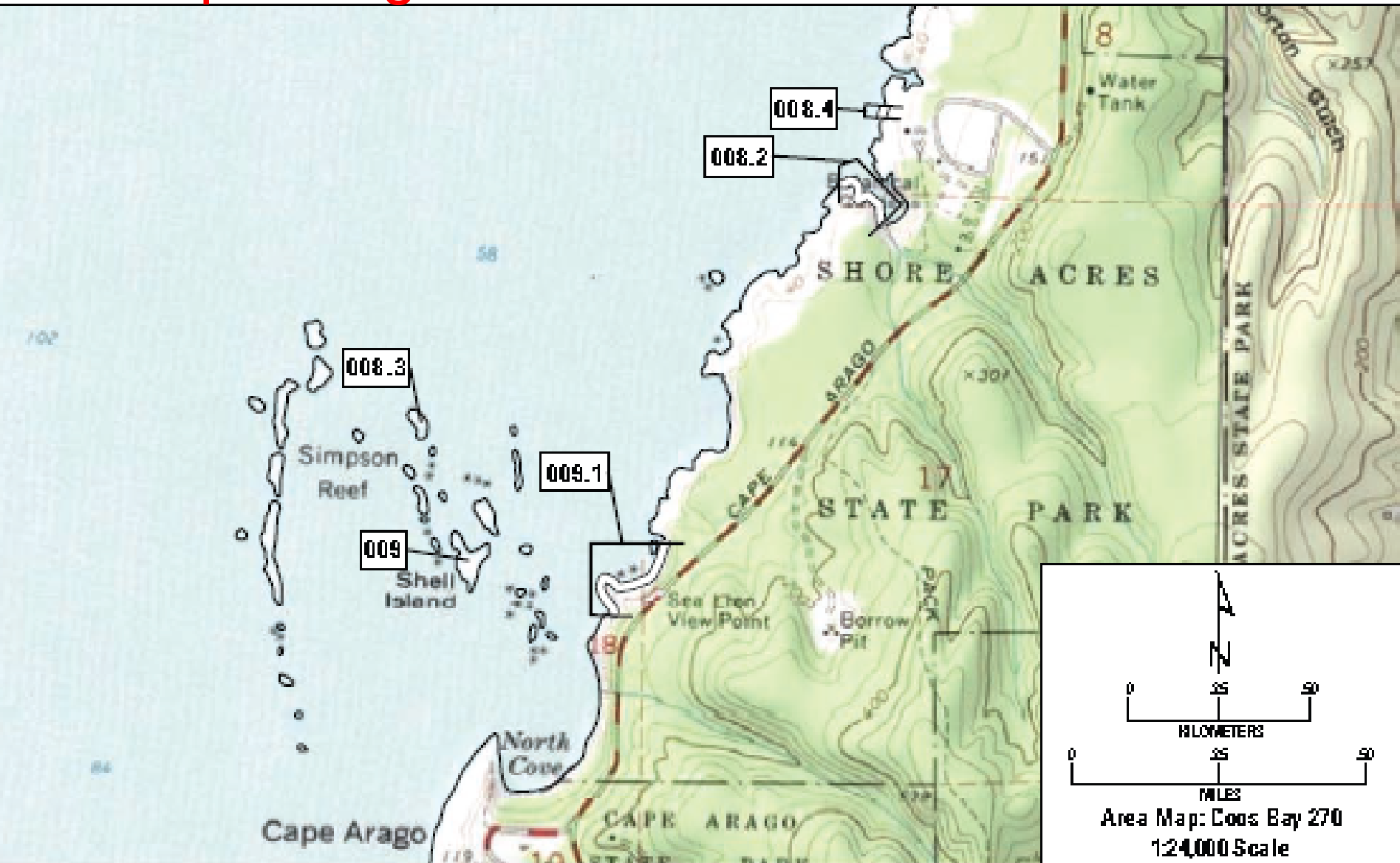
Percent of Oregon
Breeding Population



State is divided into four regions plus the Columbia River

Each colony is mapped and has a designated number with an accompanying dot indicating the number of birds nesting on that colony

Cape Arago



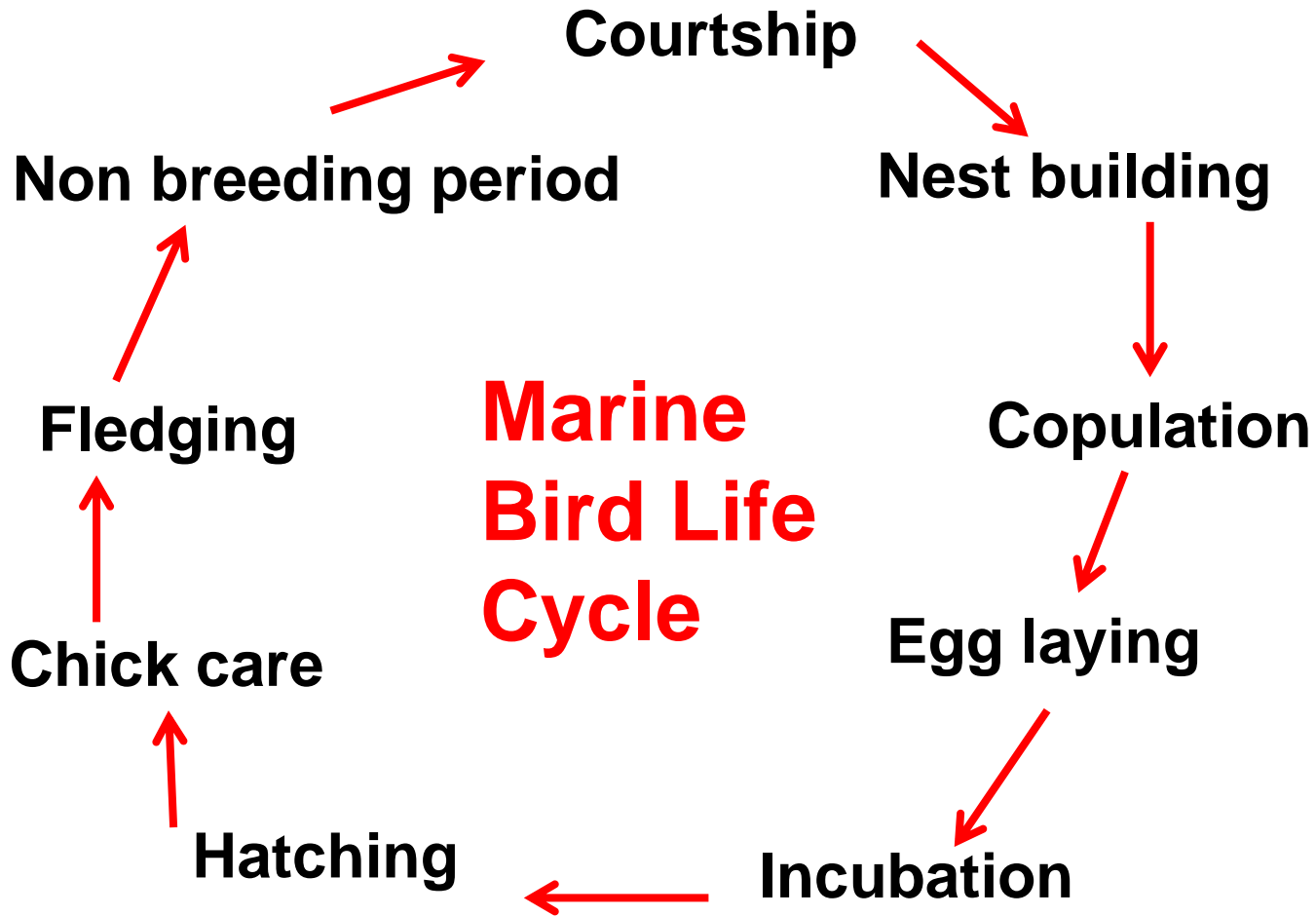


Area Map: 270 (Coos Bay)
 Site Number: 009

Colony Number: 270-009
 Coos County

Shell Island
 43° 18' 48" N, 124° 24' 6" W

Species	Est. # Breeding Birds	# of Nests	Actual Bird Count	W	Cov	Observers	Date	Surv. Type/Qual			
								ST	T	Q	Ref
Pelagic Cormorant	56	28		N	2	Pitkin/Wells	7/8/2003	B	W	1	3
West/Glaucous-winged Gull	20	10		N	2	Lowe/Anderson/Matthews	6/13/1988	B	W	1	2
Pelagic Cormorant	24	12		N	2	Lowe/Heingartner	7/21/1992	B	W	1	2
Black Oystercatcher	2	1		N	2	Rudy	7/11/1979	C	W	1	1
<i>Map on page 269</i>											





Commonalities to Oregon's Breeding Marine Birds

No sexual dimorphism – males and females
look alike

Both male and female participate in all
breeding activities.

Breeding is seasonal – occurs in the summer

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ALCIDS

Fork-tailed Storm-Petrel	hundreds
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Pigeon Guillemot



Common Murre

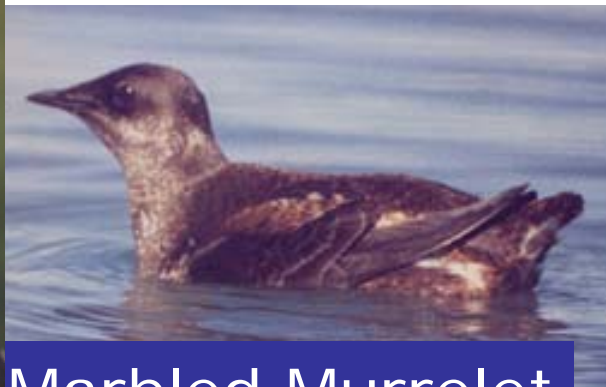


Cassin's Auklet

ALCIDS



Tufted Puffin



Marbled Murrelet



Rhinoceros Auklet

Alcids are wing propelled divers – they fly underwater to capture their food



Recorded diving depths

Common Murre – 180m = 585 ft

Rhinoceros Auklet – 65m = 210 ft

Pigeon Guillemot – 25m = 80ft

Cassin's Auklet – 40m = 130ft

Show strong site fidelity to their breeding site – return each year to the same colony and often to the same site or burrow

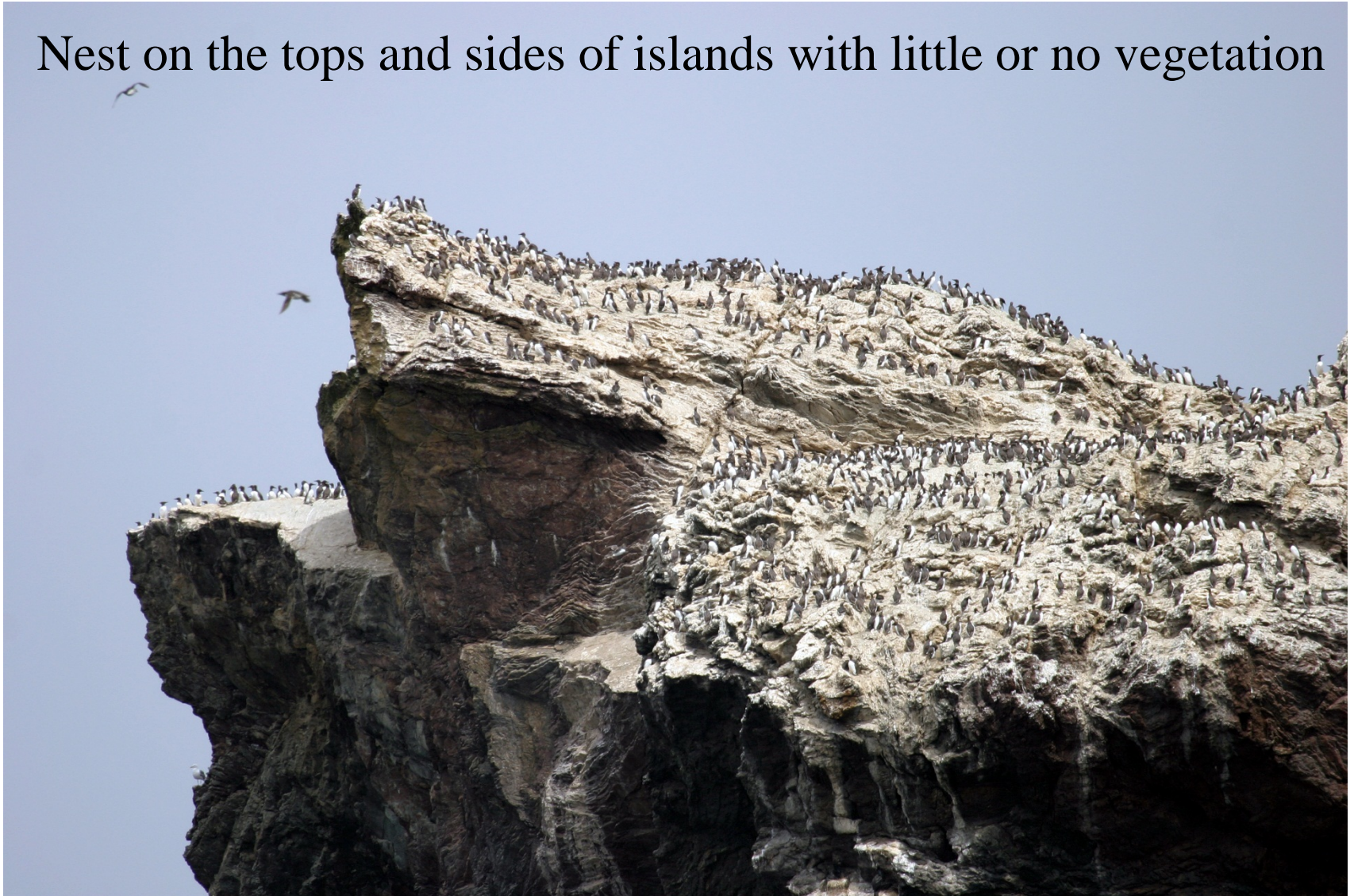
COMMON MURRE





Coquille Point COMU Colony

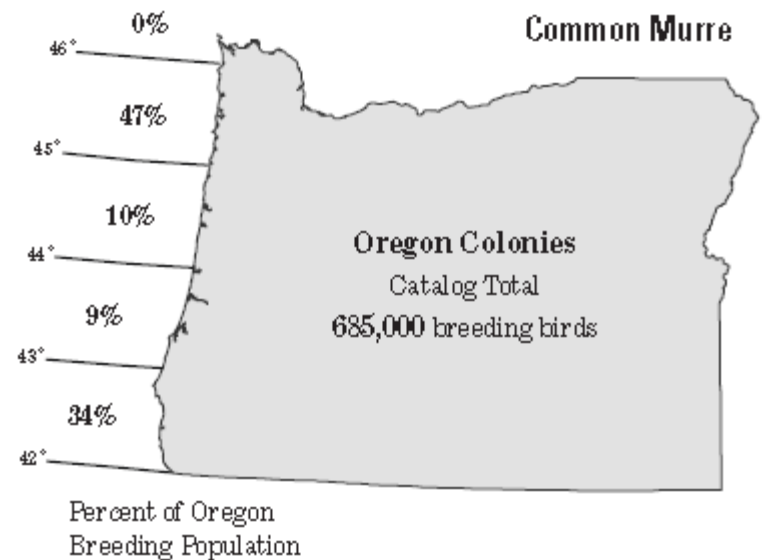
Nest on the tops and sides of islands with little or no vegetation





Common Murre

- Single egg
- No nest material
- Both parents incubate
- Monogamous







- Chick is fed by both parents
- Chick leaves nest at ~ 25% of adult body weight







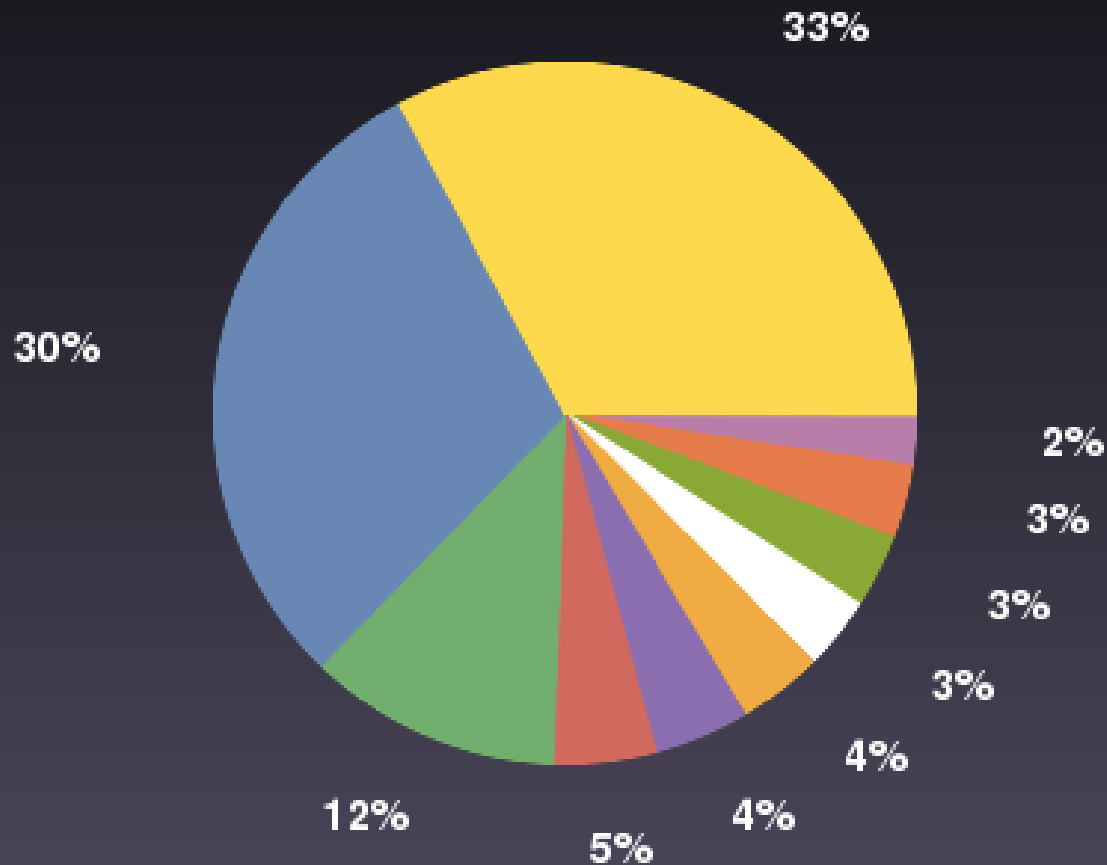


COASST Coastal Observation And Seabird Survey Team





Species Found in All Years





PIGEON GUILLEMOT





Crevice nester
Two eggs
Both parents
incubate and feed
chick



Chicks feathered on hatching







Breeding plumage

Pigeon Guillemot



Breeding and nonbreeding distribution similar



Nonbreeding plumage

All alcids have a breeding and a non breeding plumage



Common Murre



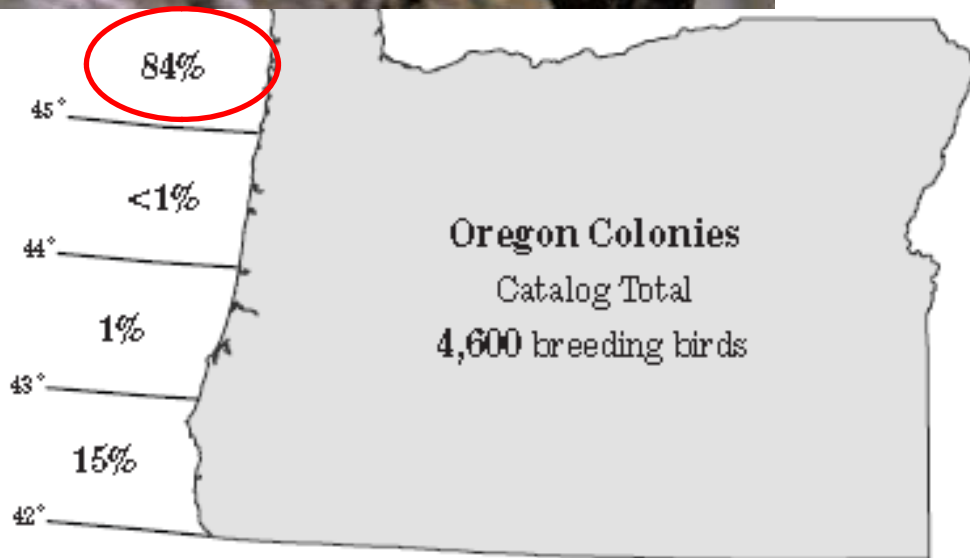
Pigeon Guillemot



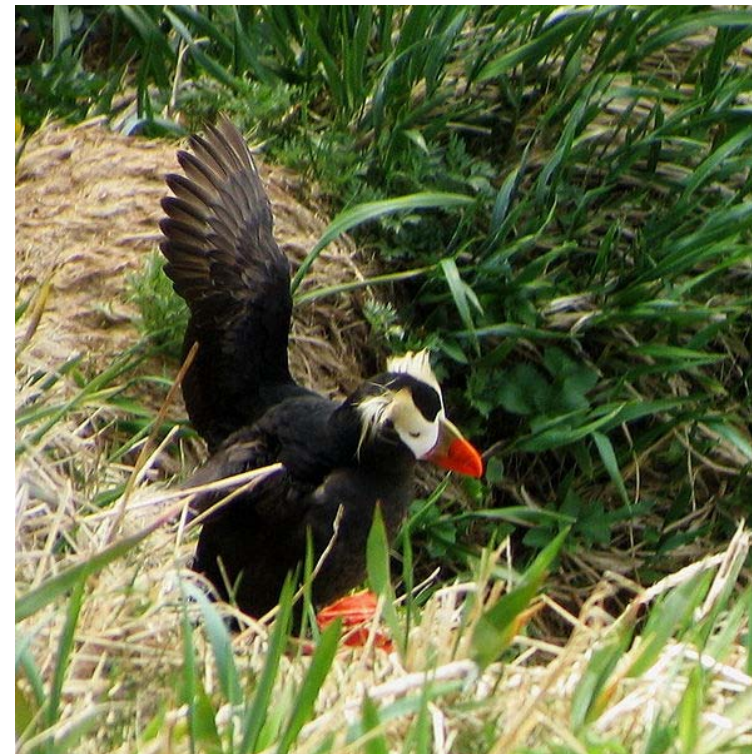
Photo by Luther Goldman

Tufted Puffin

Tufted Puffin
One egg
Burrow nester
Diurnal



Percent of Oregon
Breeding Population








<http://www.friendsofhaystackrock.org/index.html>

All alcids have a breeding and a non breeding plumage



Non breeding plumage Tufted Puffin



Cassin's Auklet

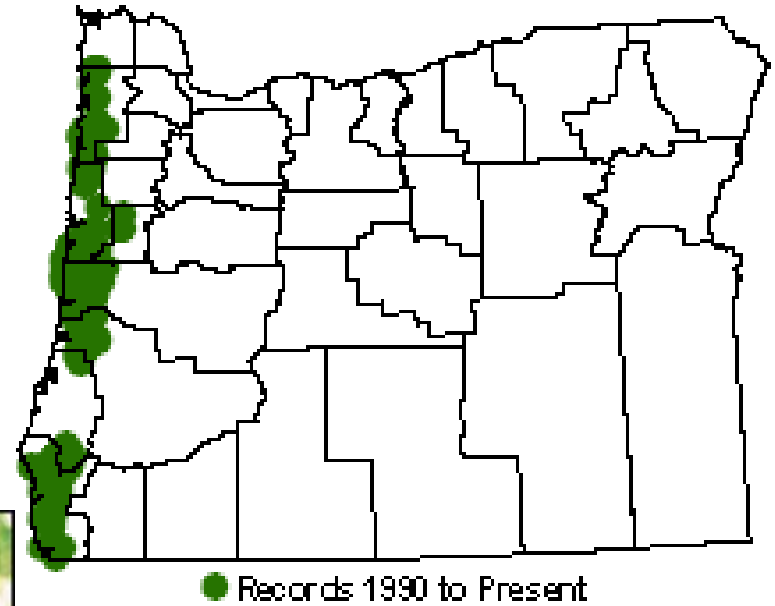


Rhinoceros Auklet



Burrow nesters
Single egg
Nocturnal

Marbled Murrelet



Nests in old growth trees

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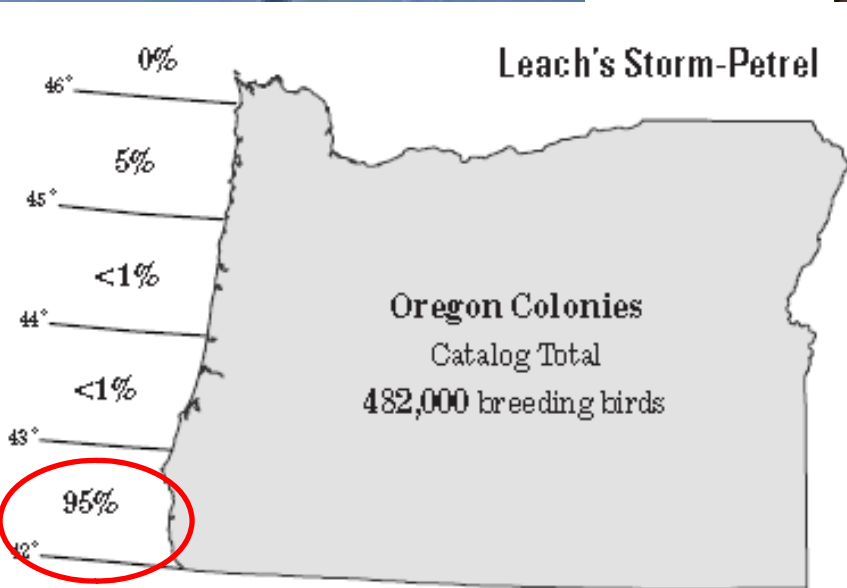
Fork-tailed Storm-Petrel	hundreds
Leach's Storm-Petrel	482,000

Double-crested Cormorant	30,400
Brandt's Cormorant	21,200
Pelagic Cormorant	10,100
Black Oystercatcher	470
Western/Glaucous-winged Gull	32,300

TOTAL ESTIMATE 1,290,000



Leach's Storm-Petrel
Single Egg
Burrow nester
Nocturnal



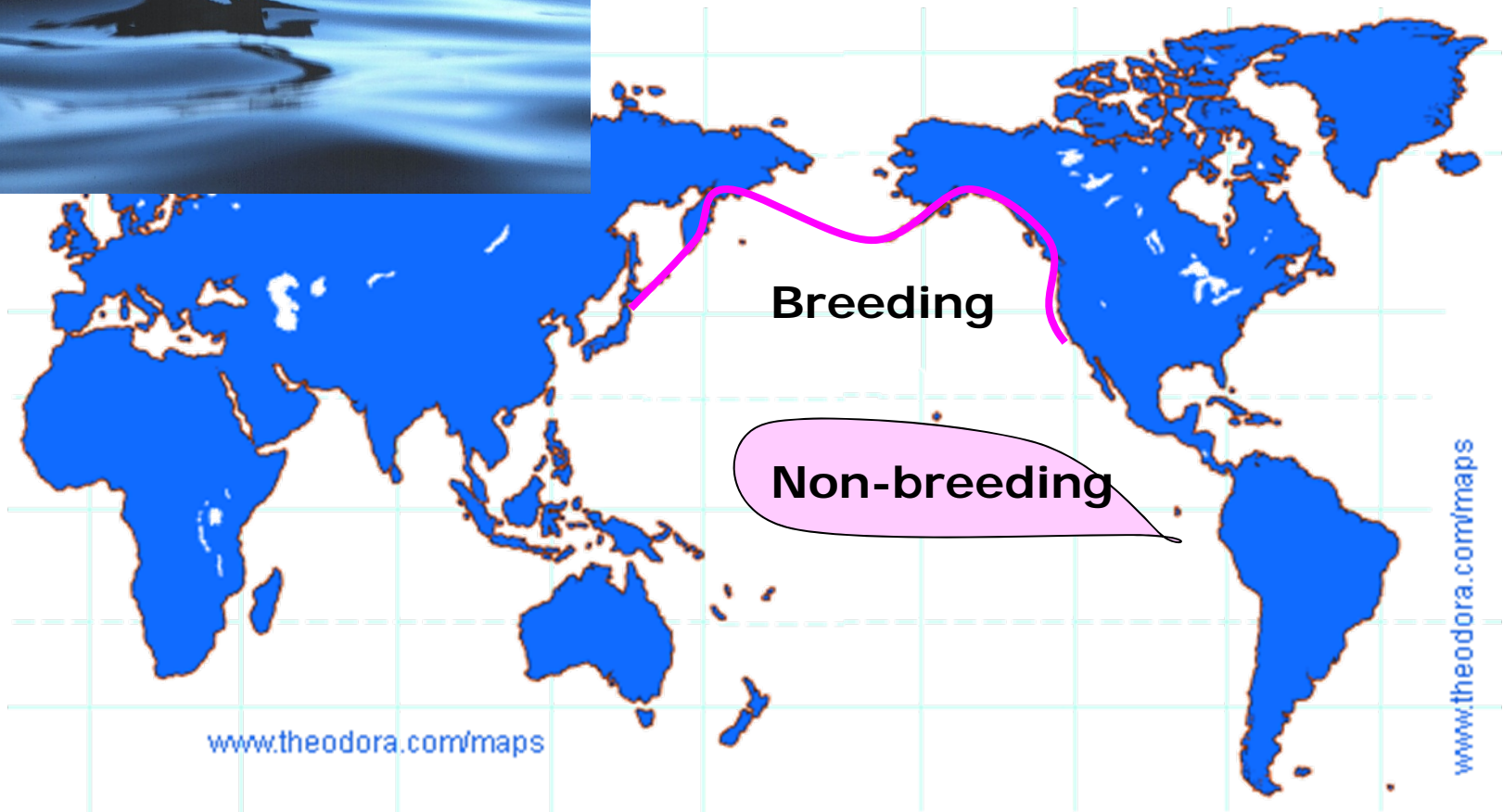
Percent of Oregon
Breeding Population

BURROW



Leach's Storm -petrel

Breeding and non-breeding distribution is different



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Cormorants

Foot propelled divers

Lay 4-8 eggs

Moderate site fidelity

No life time monogamy





**Mainland
cliffs**



Trees



Offshore islands



Artificial structures

Nesting

Breeding Plumage

Gular pouch colored
Plumes
Iridescence

Brandt's Cormorant



Double-crested Cormorant



Stereotypical
behaviour for mate
attraction and pair
bonding

bill clapping
wing waving
head wagging
sky pointing
neck rubbing
bowing



**Advertising display of
Brandt's Cormorant**



Nest building

Vegetation
herbaceous – sticks

Behaviors

Material presentation
Nest worrying



Clutch size 3 - 4

Incubation
Uses feet



Altricial chicks

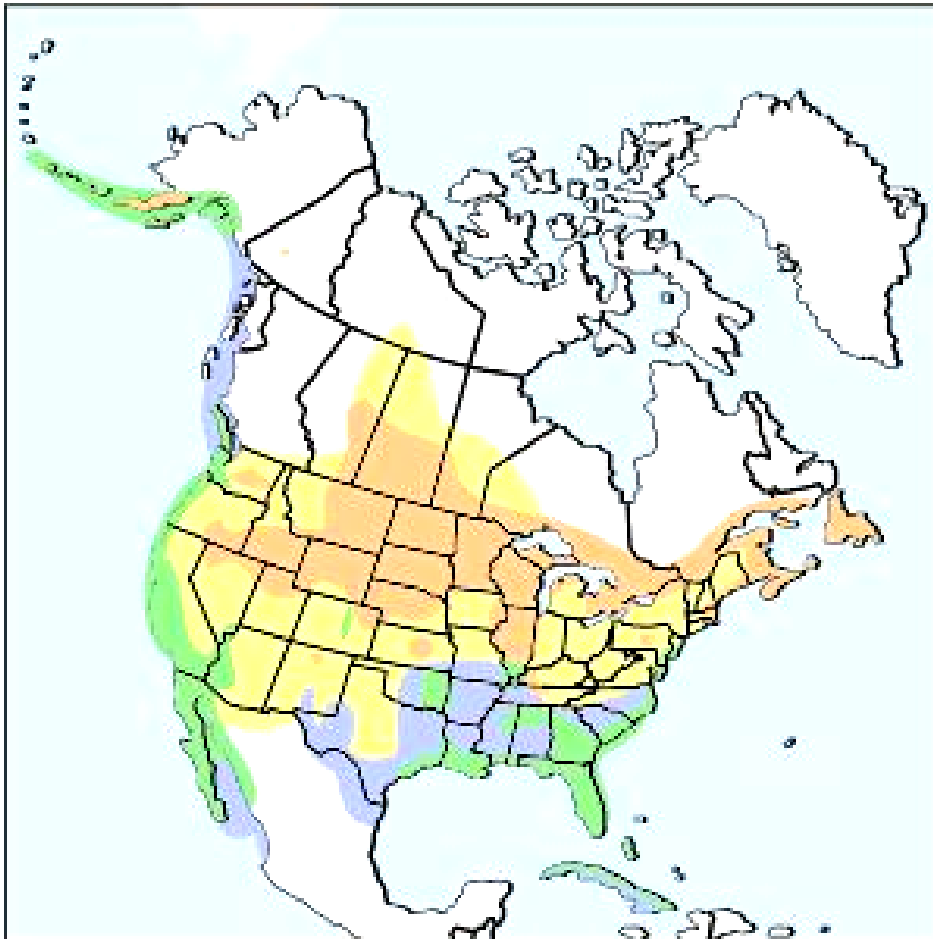


Fed by both parents
via regurgitation
until fledging

RANGE MAP

Double-crested Cormorant

Phalacrocorax auritus



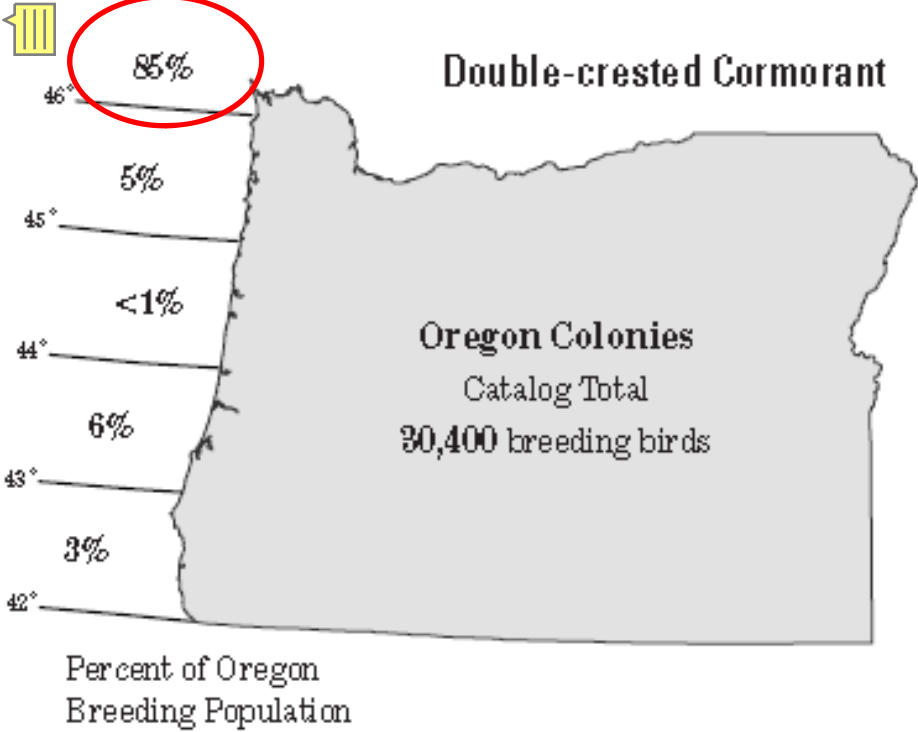
LEGEND

- | | |
|---|---|
|  Summer (breeding) |  Winter (non-breeding) |
|  Year-round |  Migration |



orange gular
and face

Populations in marine and inland environments



Diverse nesting habitats

Offshore islands and cliffs

Human-made structures



East Sand Island, Columbia River
dredge spoils



Trees



East Sand Island Columbia River

1989

200 DCCO

2004

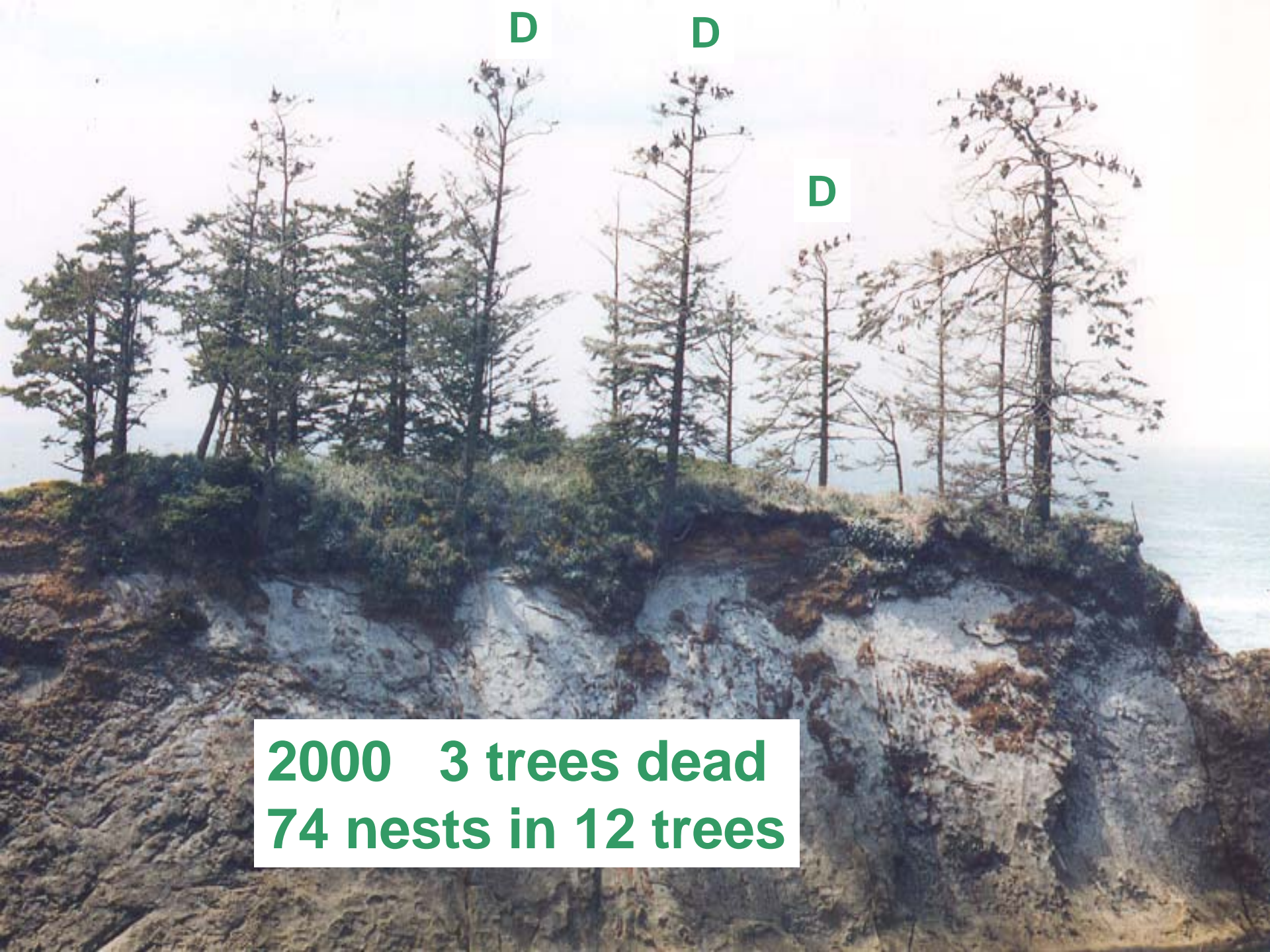
30,000 DCCO



- **Cooperative feeding**
- **Fisheries concerns**
- **Cormorant control - hazing**

QOCHYAX ISLAND SUNSET BAY





D

D

D

**2000 3 trees dead
74 nests in 12 trees**



2005 All trees dead
101 nests in 15 trees

RANGE MAP

Brandt's Cormorant *Phalacrocorax penicillatus*



LEGEND

- | | |
|---|---|
|  Summer (breeding) |  Winter (non-breeding) |
|  Year-round |  Migration |



blue gular
when breeding

brown feathers at
base of gular

Breeding plumage

Non breeding and
immature plumage





RANGE MAP

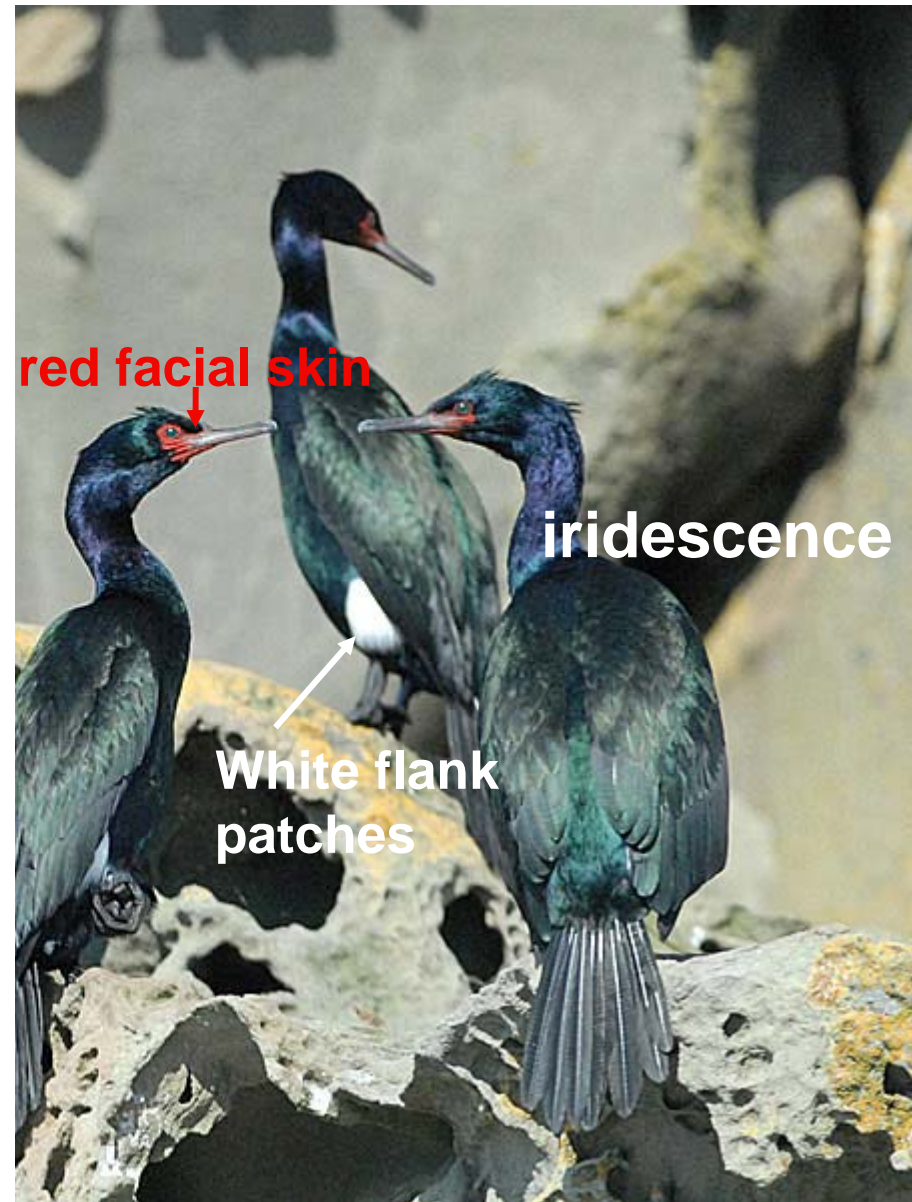
Pelagic Cormorant *Phalacrocorax pelagicus*



LEGEND

- | | |
|---|---|
|  Summer (breeding) |  Winter (non-breeding) |
|  Year-round |  Migration |

Breeding Plumage





Cliff nesting



A

B

C

D

E

1

2

3

4

5

6

7

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10

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50

51

39 →



MEASURED

Number of nests built

Number of nests with eggs

Number of chicks hatched

Number of chicks fledged

Breeding success =

No. of fledged chicks/ no.
of nests with eggs

PECO Data OIMB Colony 1973-2004						
YEAR	Number of nests	Nests with eggs	%nests with eggs	Total no. of chicks fledged	Breeding Success	Last day of observation
1973	31	29	94	82	2.83	5-Aug
1974	23	22	96	nd	nd	22-Jul
1975	56	45	80	140	3.11	6-Aug
1976	36	27	75	55	2.04	8-Aug
1977	32	28	88	60	2.14	29-Jul
1978	29	16	55	44	2.75	7-Aug
1979	NO DATA COLLECTED					
1980	19	15	79	40	2.67	11-Aug
1981	45	39	87	75	1.92	10-Aug
1982	35	34	97	79	2.32	9-Aug
1983	42	22	52	27	1.23	8-Aug
1984	44	35	80	60	1.71	8-Aug
1985	39	38	97	57	1.50	7-Aug
1986	37	34	92	80	2.35	26-Jul
1987	39	29	74	89	3.07	11-Aug
1988	35	28	80	57	2.04	7-Aug
1989	40	13	33	18	1.38	27-Jul
1990	36	31	86	33	1.06	8-Aug
1991	39	27	69	64	2.37	30-Jul
1992	28	23	82	47	2.04	4-Aug
1993	23	10	43	3	0.30	5-Aug
1994	21	18	86	42	2.33	5-Aug
1995	33	32	97	72	2.25	10-Aug
1996	35	29	83	40	1.38	10-Aug
1997	30	22	73	15	0.68	3-Aug
1998	17	11	65	4	0.36	11-Aug
1999	25	23	92	29	1.26	10-Aug
2000	14	14	100	24	1.71	6-Aug
2001	27	27	100	41	1.52	9-Aug
2002	37	36	97	52	1.44	13-Aug
2003	40	40	100	49	1.23	10-Aug
2004	48	45	95	69	1.53	15-Aug
Mean 73-04	33	27	81.5	52	1.82	



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Stand. Dev	9.2	9.1	17.3	28.6	0.74	



WHAT ACCOUNTS FOR THIS VARIABILITY?

RESULTS

**BREEDING SUCCESS OF PELAGIC CORMORANTS IS
RELATED TO OCEANOGRAPHIC CONDITIONS WHICH IN
TURN INFLUENCES THEIR FOOD SUPPLY**

When upwelling is good PECO's do well

They do not appear to be affected by ENSO events

Birds are a good indicator of the marine environment at a number of different time scales

Annual variations in ocean conditions influence breeding success – upwelling is a major factor

Longer term ocean variation can influence breeding success
- El Nino/Southern Oscillation ENSO but it influences different species in different ways

Seabirds breeding along the coast of Oregon.

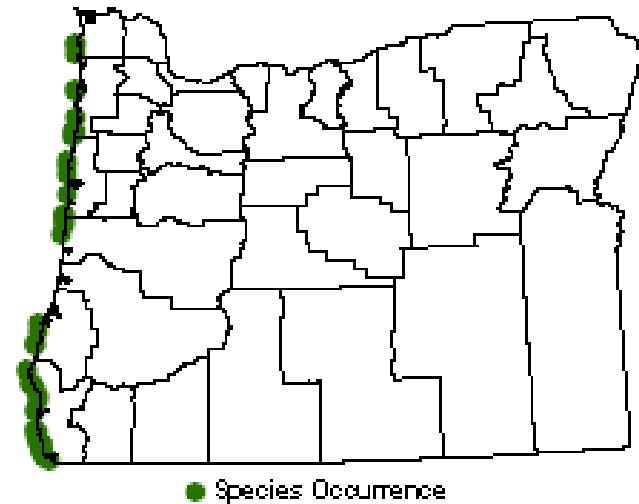
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Shorebirds

Black Oystercatcher



Nest is a scrape in rocks

Often very vocal





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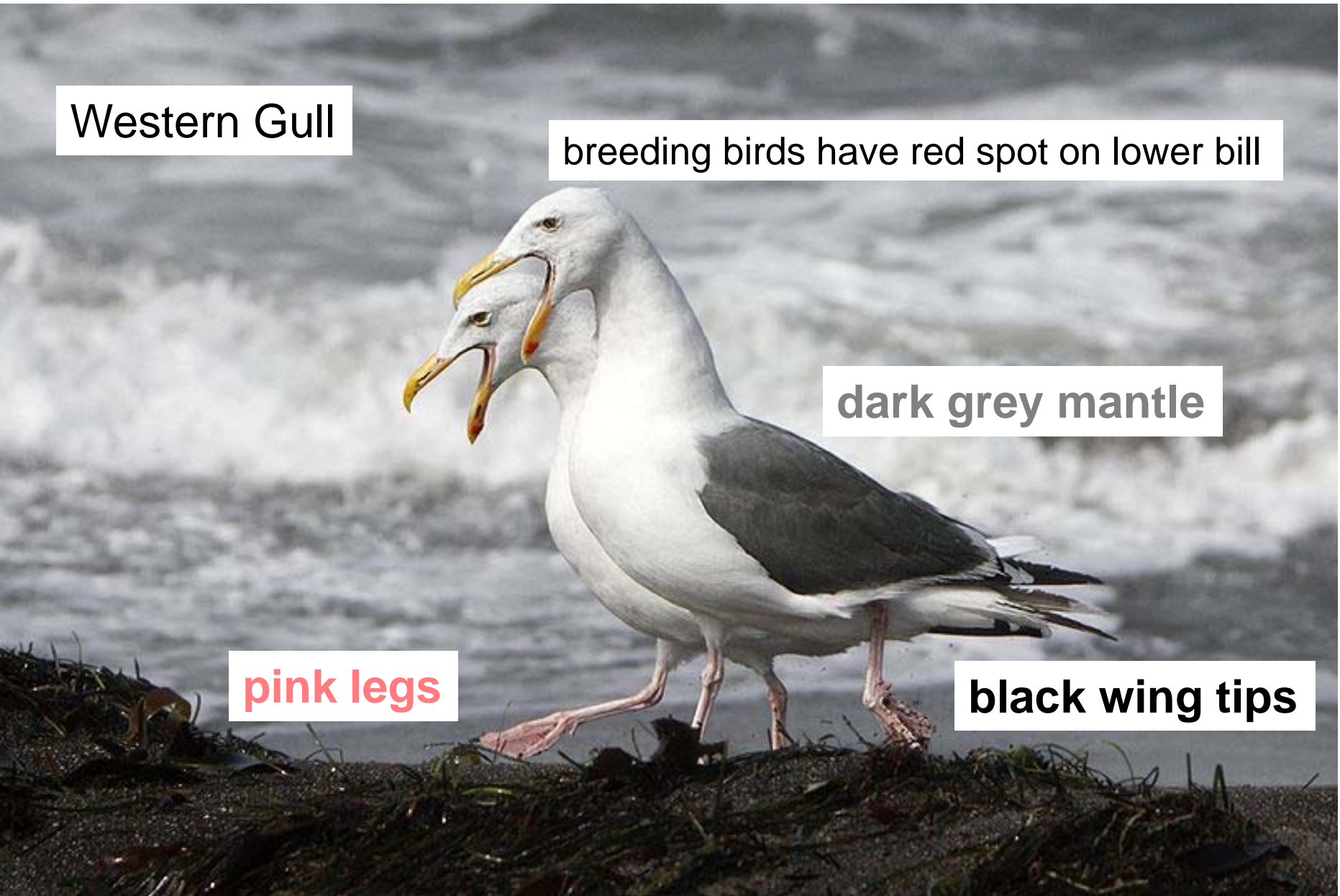
Western Gull

breeding birds have red spot on lower bill

dark grey mantle

pink legs

black wing tips



Glaucous-winged Gull

breeding birds have red spot on lower bill

light grey mantle
and wing tips

pink legs



Western/Glaucous-winged Hybrid



Intermediate grey mantle
Wing tips gray rather
than black

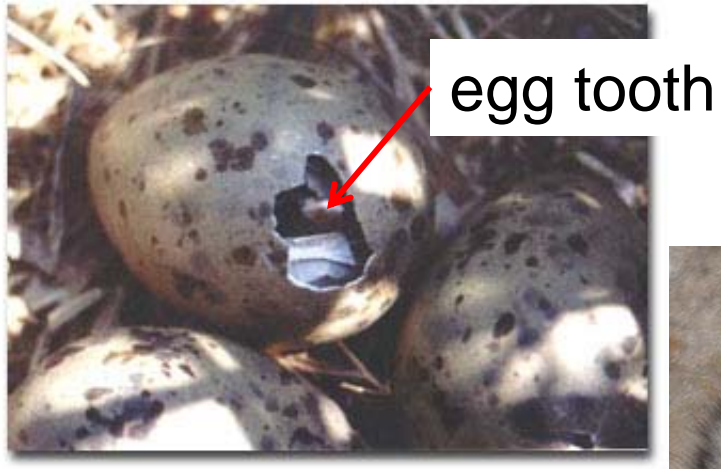
Pink legs

Elephant Rock,
Coquille Point
Bandon



Nest of vegetation on tops and sides of islands
3 eggs
Lifetime monogamy

Chicks hatch fully feathered and are mobile soon after hatching





Parents feed by regurgitating food
fish
invertebrates
garbage







Western Gull Plumage





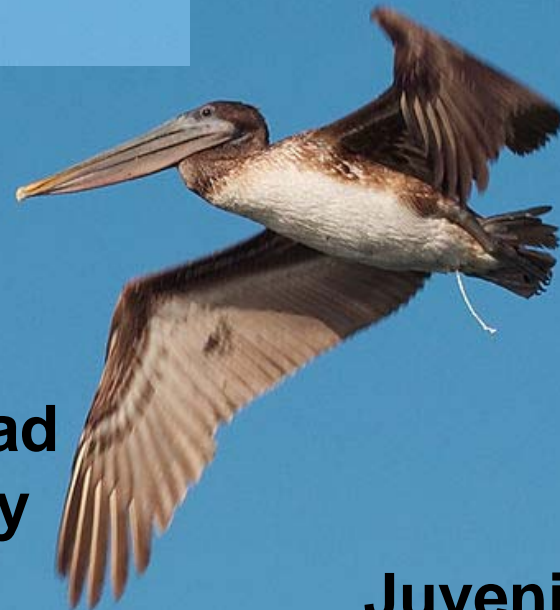
White head
Brown belly



BROWN PELICAN

Adult

Brown head
White belly



Juvenile

RANGE MAP

Brown Pelican

Pelecanus erythrorhynchos

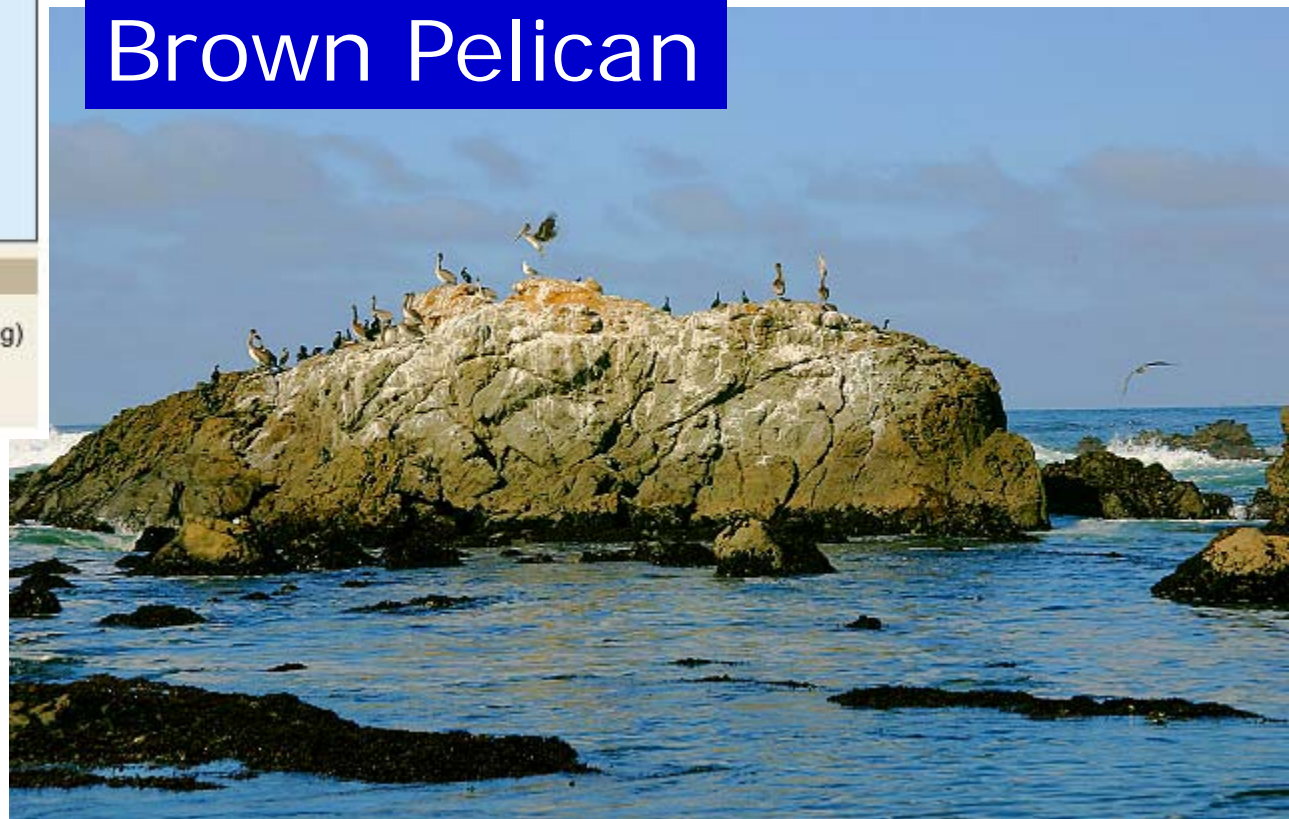


LEGEND

- | | |
|---|---|
|  Summer (breeding) |  Winter (non-breeding) |
|  Year-round |  Migration |

Primary birds that breed elsewhere but use offshore islands in their non-breeding season

Brown Pelican

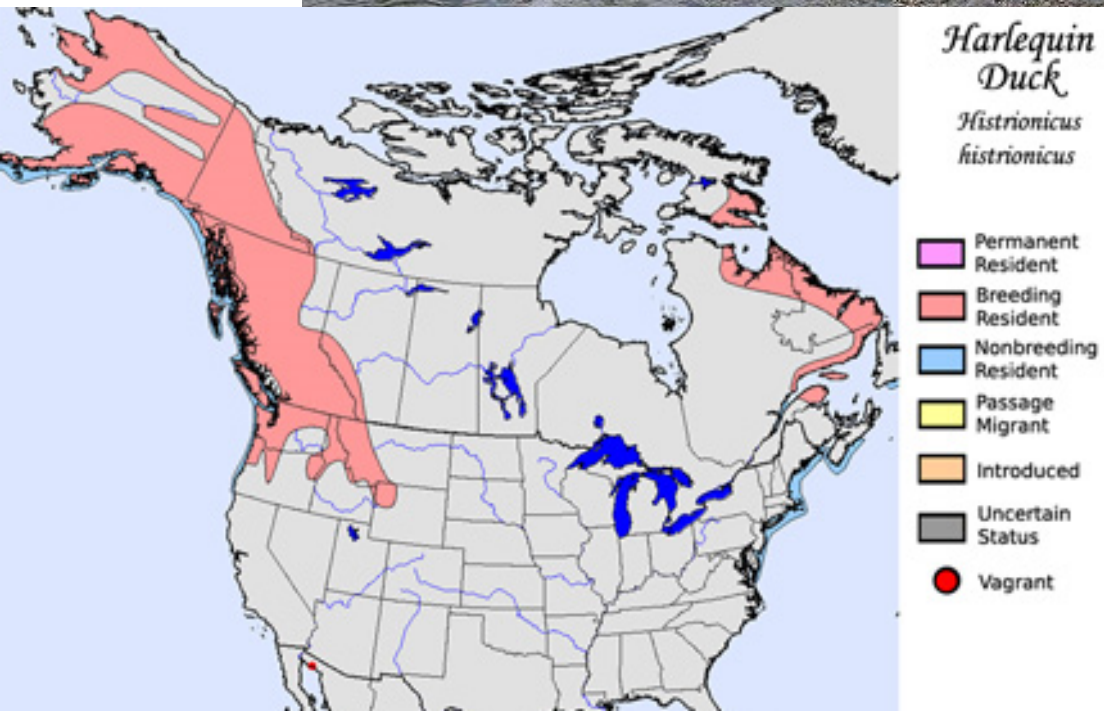




Aleutian Cackling Goose



Stops on offshore islands during spring migration



Harlequin Duck



Disturbance by Bald Eagles



Eagle carrying a Murre





Photo by Roy W. Lowe/USFWS



Native and introduced mammals



Photo by NPS



Puffin burrows



Humans accessing the breeding colonies





Cape Perpetua

Blast Rock

Human and
mammal access
possible



1987 explosives used to remove a portion of rock adjacent to Blast Rock





Blast Rock - 2003 Brandt's Cormorants - 290 Nests
Double-crested Cormorants 50 Nests
Tufted Puffins



2005 Common Murres nested



Disturbance by boats

ALL COASTAL ROCKS AND ISLANDS ARE CLOSED TO PUBLIC ACCESS AND ALL WATERCRAFT SHOULD STAY AT LEAST 500 FEET AWAY.

<http://www.flickr.com/photos/92186477@N00/996866445>



Help Protect Marine Wildlife

Seabirds and marine mammals are extremely sensitive to human disturbance. Because they view humans as predators, they will not tolerate close approach at any time. Disturbance often causes adults to flee their colonies, which can result in losses of eggs and young or complete colony abandonment.

Stay More Than
500 Feet
Away From Rocks,
Islands and Cliffs

Please Observe Boating and Recreational Guidelines

Stay Back. Studies have shown that seabirds and marine mammals may flee their colonies when closely approached by humans. Please do not approach rocks and islands closer than 500 feet, in boats or on foot. Aircraft are requested to maintain a minimum of 2,000 feet above the rocks and islands at all times.

Use Caution. Approach and depart areas near rocks and islands cautiously. Minimize noise and abrupt movements.

Observe. Take a few moments to observe the birds and mammals. If you see animals bobbing their heads, making alarm calls or departing from the colony, you are too close and should move away immediately.

Conditions Change. Don't assume a safe operating distance one day will be the same as the next, even at the same site. Be cautious and observant every time out.

Wildlife Harassment is Against the Law. Federal and State laws prohibit harassment of seabirds and marine mammals. Violators will be cited. Help protect Oregon's wildlife by reporting suspected violators to the Refuge Manager (541) 867-4550.



Seabirds and marine mammals are especially vulnerable to disturbance during the breeding season which extends from April through September.



The Oregon coast is home to over a million nesting seabirds and tens of thousands of seals and sea lions. They depend on coastal rocks, islands and steep mainland cliffs where they are protected from mammalian predators.

Tenjo Maru Oil Spill

In July, 1991, the Japanese fishing vessel, Tenjo Maru and the Chinese freighter, Tuo Hai collided in heavy fog off the coast of Cape Ramsey, Washington. The Tenjo Maru carried 475,000 gallons of oil and fuel that killed thousands of seabirds. This education panel was funded by the Tenjo Maru Natural Resource Trust as one of a number of restoration projects designed to educate the public and to restore natural resources, particularly migratory birds injured by the oil spill. The Trusts include the U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, the Marine Mammal Trust and the State of Washington.

Marine Wildlife Need Places Free from Disturbance

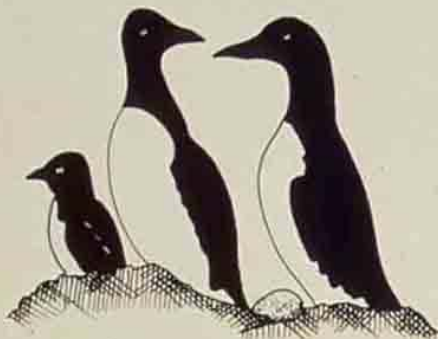
All rocks, reefs and islands along the Oregon coast are part of the Oregon Islands National Wildlife Refuge or Three Arch Rocks National Wildlife Refuge. Managed by the U.S. Fish and Wildlife Service, these refuges are closed to public access at all times.

Most rocks and islands along the coasts of Washington and California are also closed to public access at all times. When visiting these states, please stay a safe distance away from rocks and islands to prevent disturbance to sensitive wildlife.

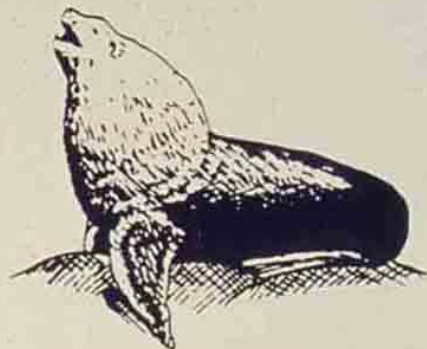
Three Arch Rocks National Wildlife Refuge



ATTENTION BOATERS & ANGLERS



THREE ARCH ROCKS 500' SEASONAL CLOSURE MAY 1 - SEPT. 15

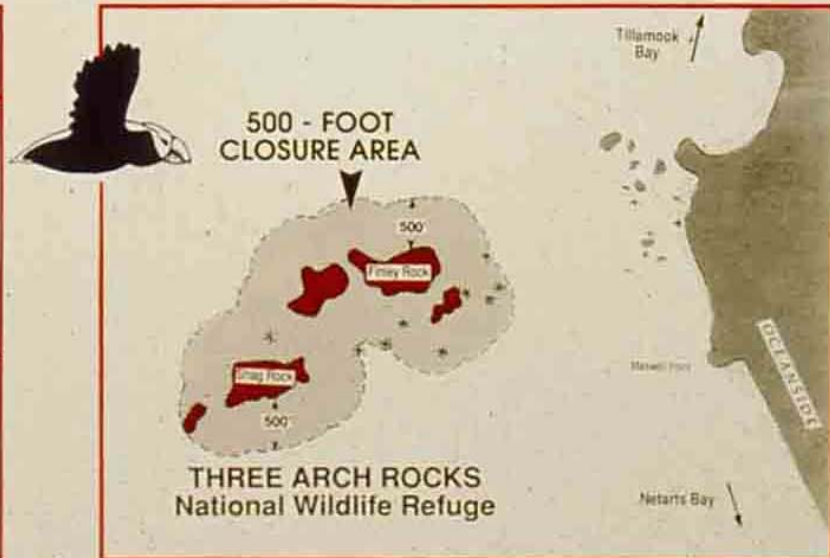


Boats and aircraft near Three Arch Rocks can cause nesting seabirds to flee, knocking eggs or chicks off the rocks. Sea lions may stampede, trampling and killing their pups. This seasonal closure prevents these disturbances from May 1 - Sept. 15.

PLEASE COOPERATE WITH THIS CLOSURE TO HELP PROTECT MARINE WILDLIFE

AREA CLOSURE RULES (OAR 250-20-309)

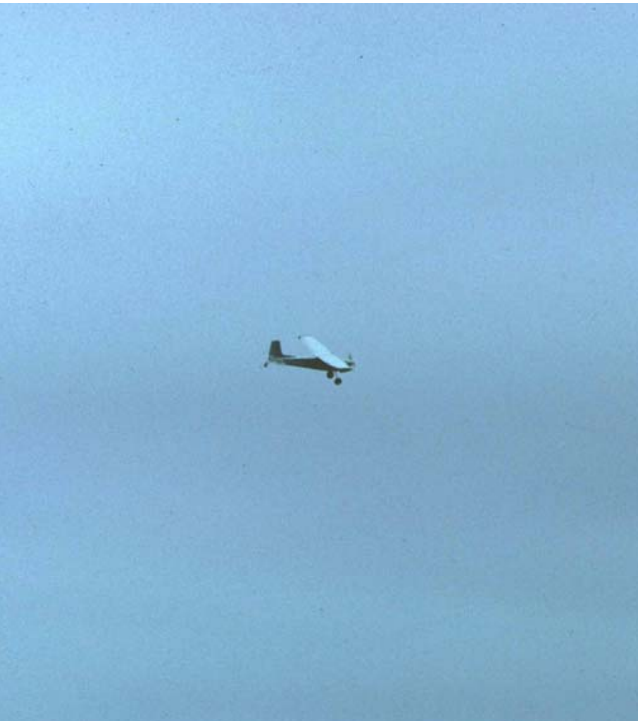
1. No person shall operate a boat FOR ANY PURPOSE within 500 feet of the principal rocks at Three Arch Rocks National Wildlife Refuge during the period May 1 to September 15. VESSEL TRANSIT THROUGH THE CLOSED AREA, INCLUDING THE ARCHES OF THE ROCKS, IS PROHIBITED. Storm Rock, to the west of Shag Rock, is the westerly boundary of the seasonal closed area.
2. Persons operating boats near Three Arch Rocks National Wildlife Refuge should exercise caution to avoid any disturbance of nesting birds and marine mammals. Harassment of birds and marine wildlife is strictly prohibited under federal and state law.



Seasonal closure marking with buoys



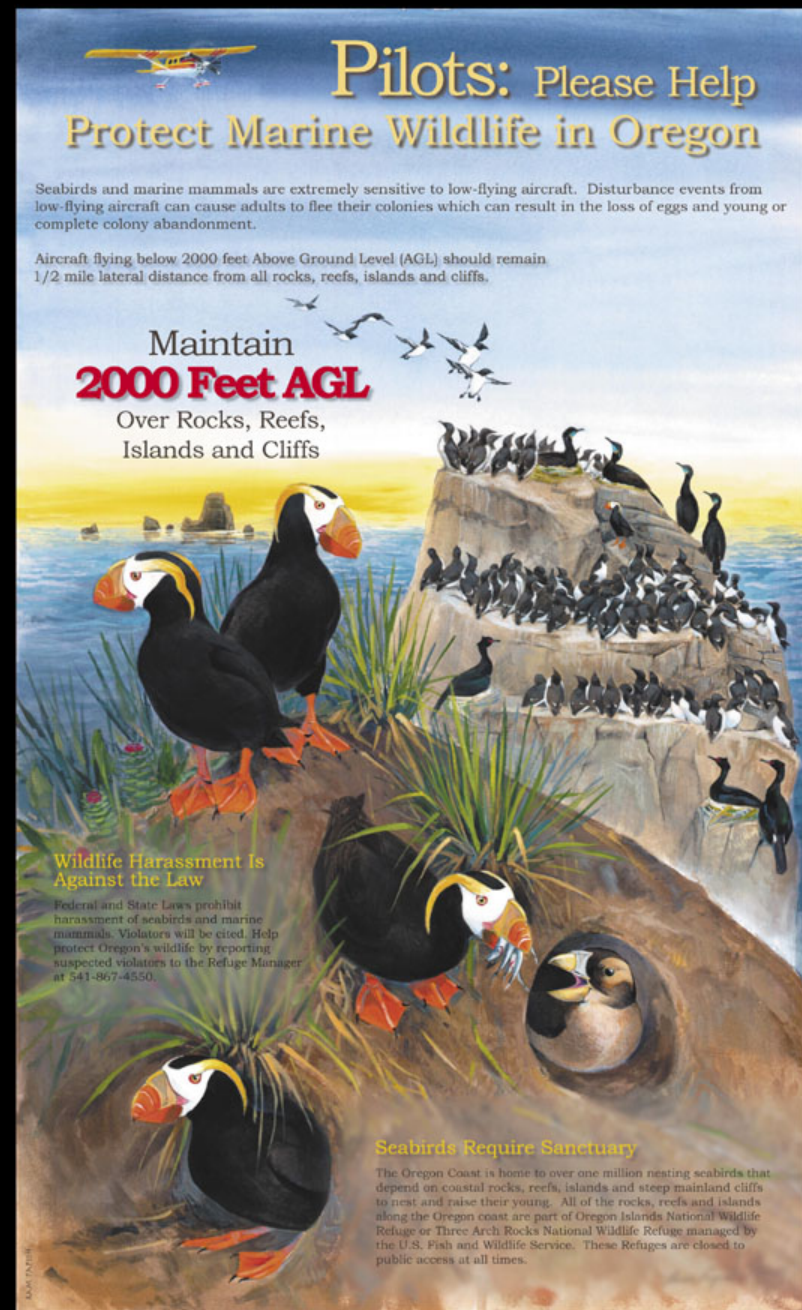
Aircraft



**aircraft must
maintain at least
2,000 ft clearance**

Aircraft are requested to maintain 2000 feet above ground level.

Aircraft poster funded by the Tenyo Maru Oil Spill Trustees.



Pilots: Please Help Protect Marine Wildlife in Oregon

Seabirds and marine mammals are extremely sensitive to low-flying aircraft. Disturbance events from low-flying aircraft can cause adults to flee their colonies which can result in the loss of eggs and young or complete colony abandonment.

Aircraft flying below 2000 feet Above Ground Level (AGL) should remain 1/2 mile lateral distance from all rocks, reefs, islands and cliffs.

Maintain 2000 Feet AGL
Over Rocks, Reefs, Islands and Cliffs

Wildlife Harassment Is Against the Law

Federal and State Laws prohibit harassment of seabirds and marine mammals. Violators will be cited. Help protect Oregon's wildlife by reporting suspected violators to the Refuge Manager at 541-867-4550.

Seabirds Require Sanctuary

The Oregon Coast is home to over one million nesting seabirds that depend on coastal rocks, reefs, islands and steep mainland cliffs to nest and raise their young. All of the rocks, reefs and islands along the Oregon coast are part of Oregon Islands National Wildlife Refuge or Three Arch Rocks National Wildlife Refuge managed by the U.S. Fish and Wildlife Service. These Refuges are closed to public access at all times.

© 2000, P. J. V. N. S.

Tenyo Maru Oil Spill In July 1991, the Japanese fishing vessel Tenyo Maru and the Chinese freighter Tin Tin collided in heavy fog northeast of Cape Henry, Washington. The Tenyo Maru sank immediately, releasing 475,000 gallons of oil and fuel (and 1000) thousands of seabirds. This environmental disaster was funded by the Tenyo Maru National Research Trustee as one of a number of restoration projects designed to educate the public and to restore natural resources, particularly migratory birds injured by the spill. The Trustees include the U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, Marine Inland, Tiller and the State of Washington.





Call the
Oregon Coast National
Wildlife Refuge Office
541-867-4550

Please provide details:

1. Photos of disturbance and cause
2. Date
3. Time
4. Who's involved
5. Description of disturbance
6. Contact number and address
7. Aircraft N #, color, description, altitude, direction of flight

Threats to marine birds

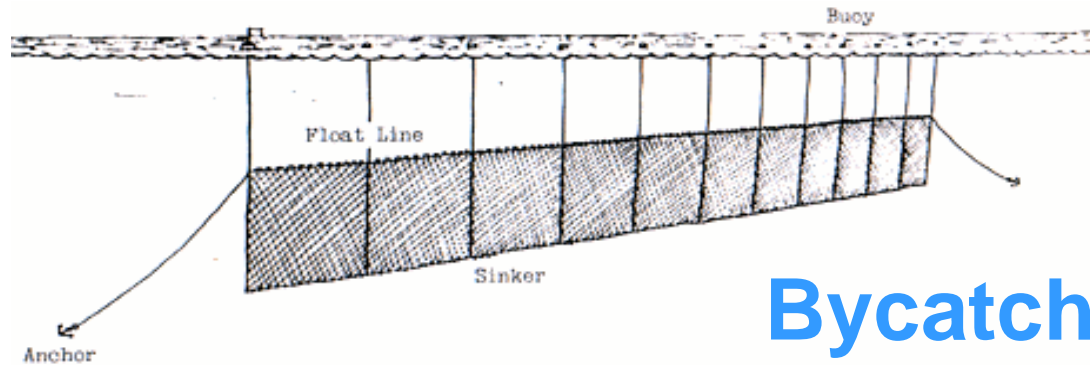
Plastics Fisheries



Direct entanglement



Consumption of plastic particles



Bycatch in fisheries

Peregrine falcon



[IBA Home Page](#)

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[IBA Program Status](#)
[IBA Criteria](#)
[How Will IBAs Help Birds?](#)
[IBA Success Stories](#)
[What's Next?](#)
[What You Can Do](#)
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"IBAs have the unique power to unite people, communities, and

[Bird Conservation](#) > [Important Bird Areas](#) >

[Select another state.](#)

OREGON'S IMPORTANT BIRD AREAS PROGRAM

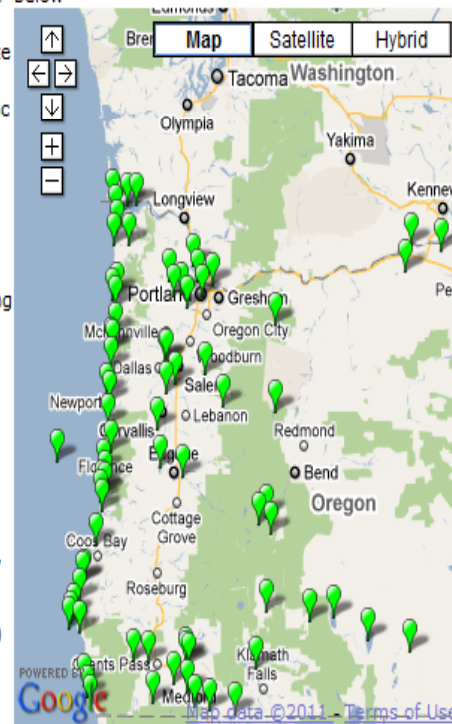
Contact: [Bob Sallinger](#)
[Mary Coolidge](#), Assistant Conservation Director, Oregon IBA Coordinator,
 Audubon Society of Portland

 Visit local web site: [Important Bird Areas of Oregon](#)

The Audubon Society of Portland initiated the Oregon Important Bird Area (IBA) program in 2002 to identify the sites in our state most important to bird conservation, and to promote the continuation, restoration, or improvement of avian values at these sites through scientific monitoring, education, and appropriate public or private approaches to protection. The rapidly declining availability of many critical habitats for birds in Oregon makes proactive conservation essential.

Oregon hosts a bird list of 486 species, ranking about fifth in the nation for species richness. Fostering this diversity are all four of the world's major terrestrial biomes: alpine, desert, grassland, and forest, as well as over 300 miles of coastline bordering a tremendously productive region of the northeastern Pacific Ocean. Some species for which Oregon is well known are the Harlequin Duck, Marbled Murrelet, Spotted Owl, Wrentit, and Hermit Warbler.

Goals for the Oregon IBA Program include: 1) Identifying sites in Oregon most important to avian conservation, 2) Increasing local awareness of sites and their importance, 3) Assembling a team of 'friends' to adopt public sites, 4) Initiating volunteer avian and habitat monitoring at most sites, 5) Promoting management and conservation measures that

 See list and profiles for [Oregon IBAs](#) or click points below


[Global](#)
 [Continental](#)
 [State](#)
[View Large Map](#)



Good Viewing Areas for Seabirds:

Ecola State Park

Haystack Rock, Cannon Beach

Cape Meares State Scenic Viewpoint

Yaquina Head Outstanding Natural Area

Heceta Head State Scenic Viewpoint

Coquille Point in Bandon

Harris Beach State Park



Simpson Reef at Cape Arago

