



**Alaska's Ocean Sentinels:
Seabirds as Ecosystem Indicators**
LEO Network Webinar February 18th 2020



Hillary Burgess

Coastal Observation and Seabird Survey Team

Science Coordinator

Email Me: hkb10@uw.edu

Text Me: [424-262-7781](tel:424-262-7781)

Seabird mortality events: normal or not?

Oregon, late fall 2015

NORMAL

- Post-breeding mortality



NOT-NORMAL

Seabird mortality events:
normal or not?

- Food stress
- Molt

St. Paul Island, fall 2016



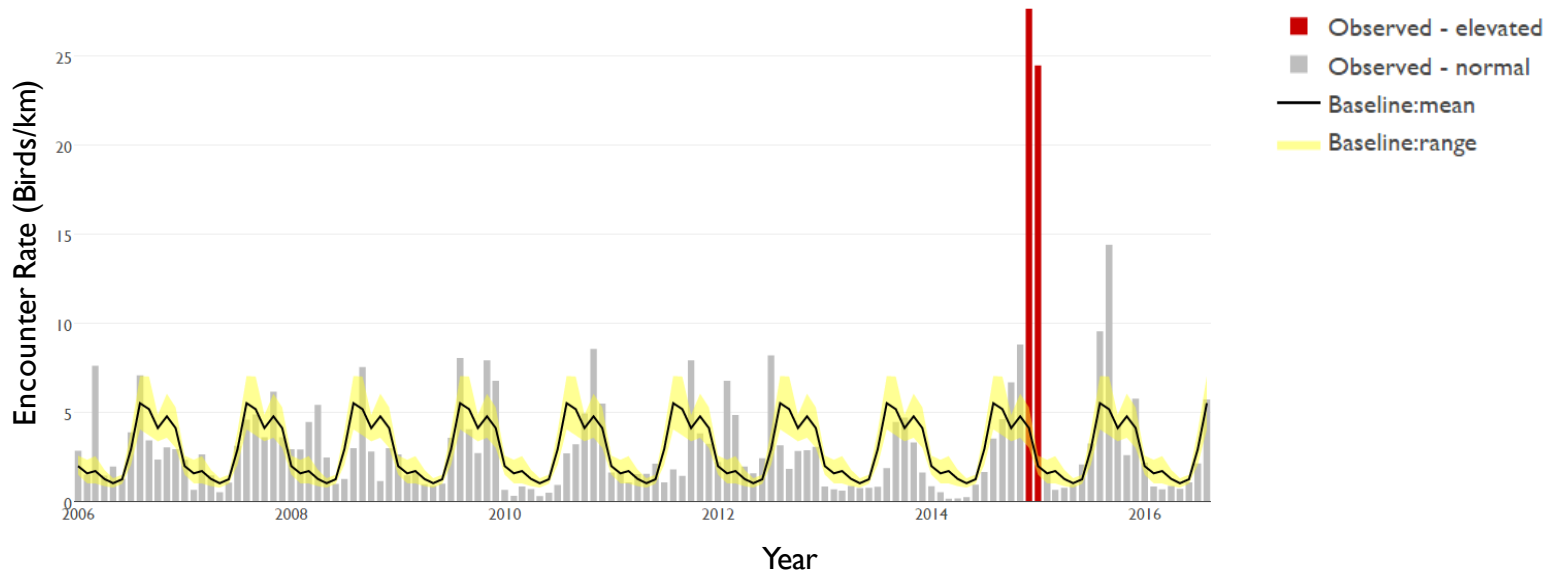
Identifying unusual mortality events

Within COASST

- Baseline - month-averaged encounter rate (ER - carcasses per km) for each COASST region
- Unusual/mass mortality events defined as periods with $ER > 5 \times \text{baseline}$

Outside Data

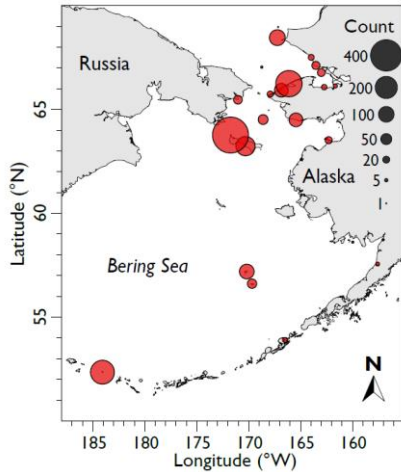
- Partner with other beached bird programs
- Reports from coastal communities submitted to USFWS and other opportunistic reporting



Identifying unusual mortality events

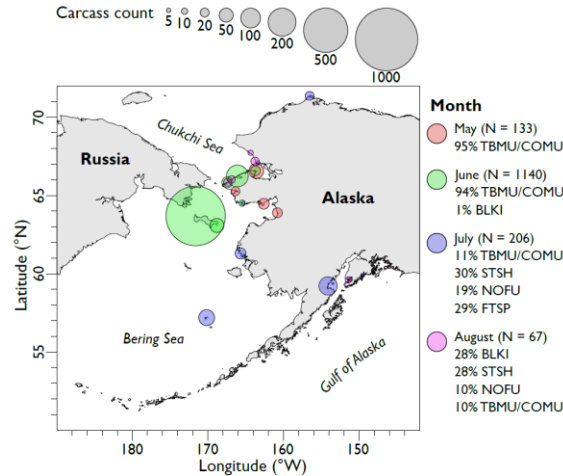
Within COASST

- Baseline - month-averaged encounter rate (ER - carcasses per km) for each COASST region
- Unusual/mass mortality events defined as periods with ER > 5×baseline



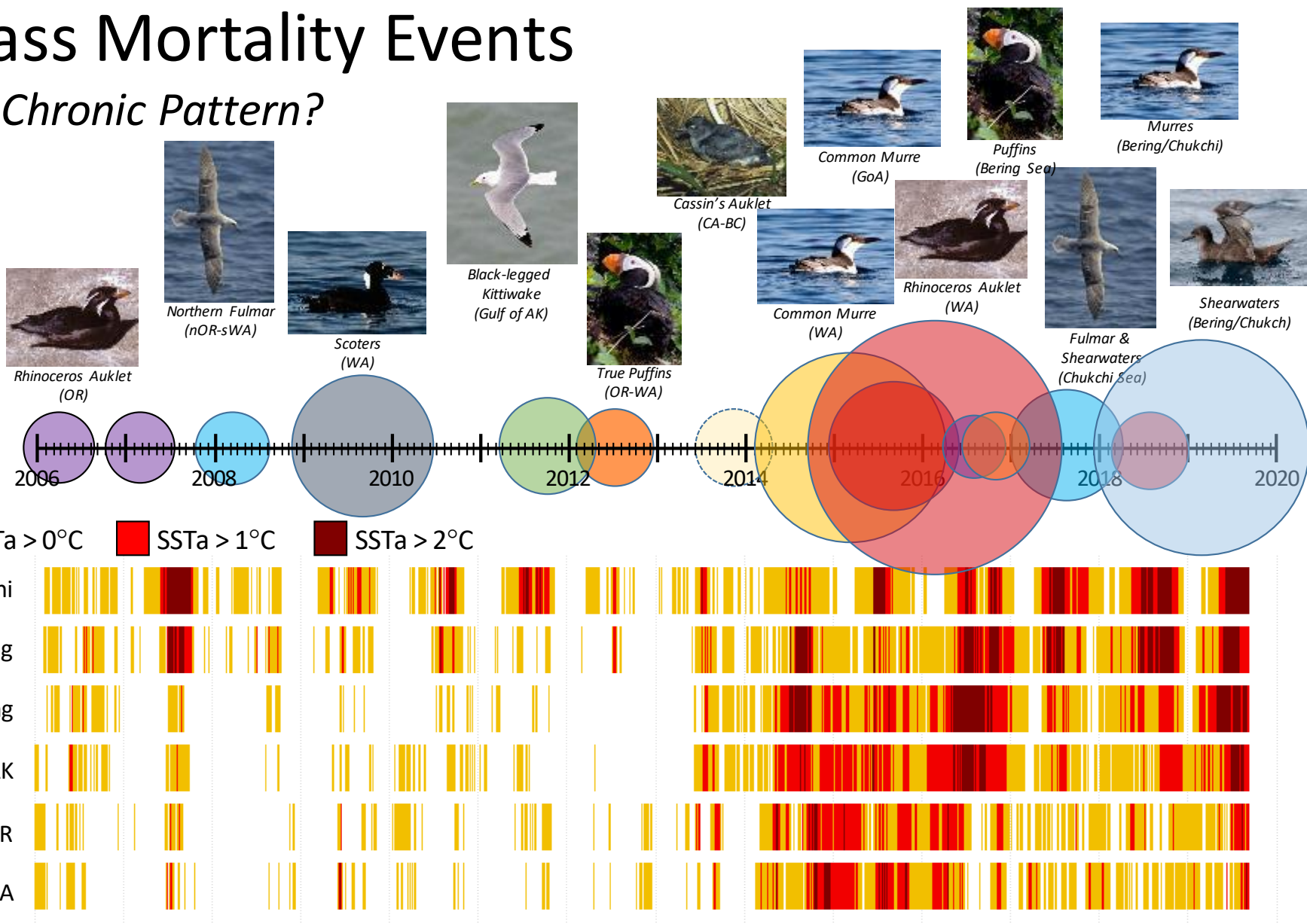
Outside Data

- Partner with other beached bird programs, agencies
- Reports from coastal communities submitted to USFWS and other opportunistic reporting



Mass Mortality Events

the Chronic Pattern?



fine print: bubbles scaled to peak regional encounter rate estimate. smallest: RHAU@2.7 carcasses/km, largest: COMU in AK@61 carcasses/km. Average sea-surface temperature anomaly (SSTa) by day for each region (≤ 300 km from shore). Relative to SST climatology 1971-2000. NOAA High Resolution SST data provided by the NOAA/OAR/ESRL PSD, Boulder, Colorado, USA, from their website at <https://www.esrl.noaa.gov/psd/>

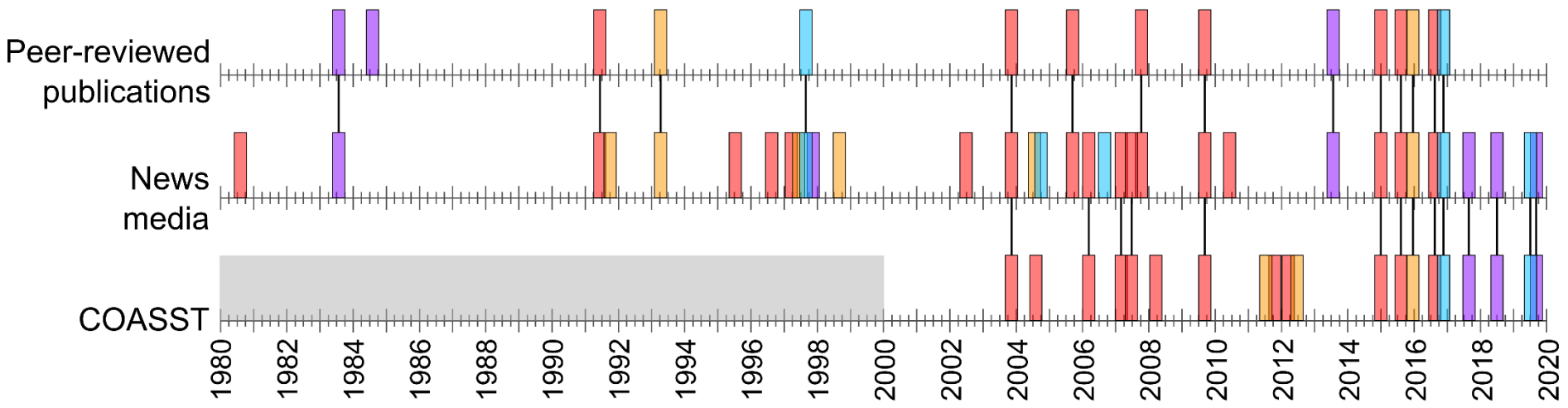
Peer-reviewed publications

News media

COASST

1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020

█ N California Current
 █ Gulf of Alaska
 █ S Bering
 █ N Bering/Chukchi



Die-off CSI

Disease



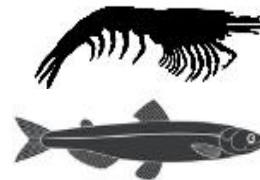
HABs



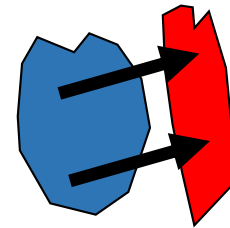
Storms



Prey



Distribution shifts





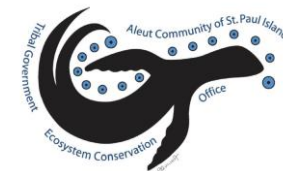
Center for Alaskan Coastal Studies
Homer, Alaska



Environment Canada



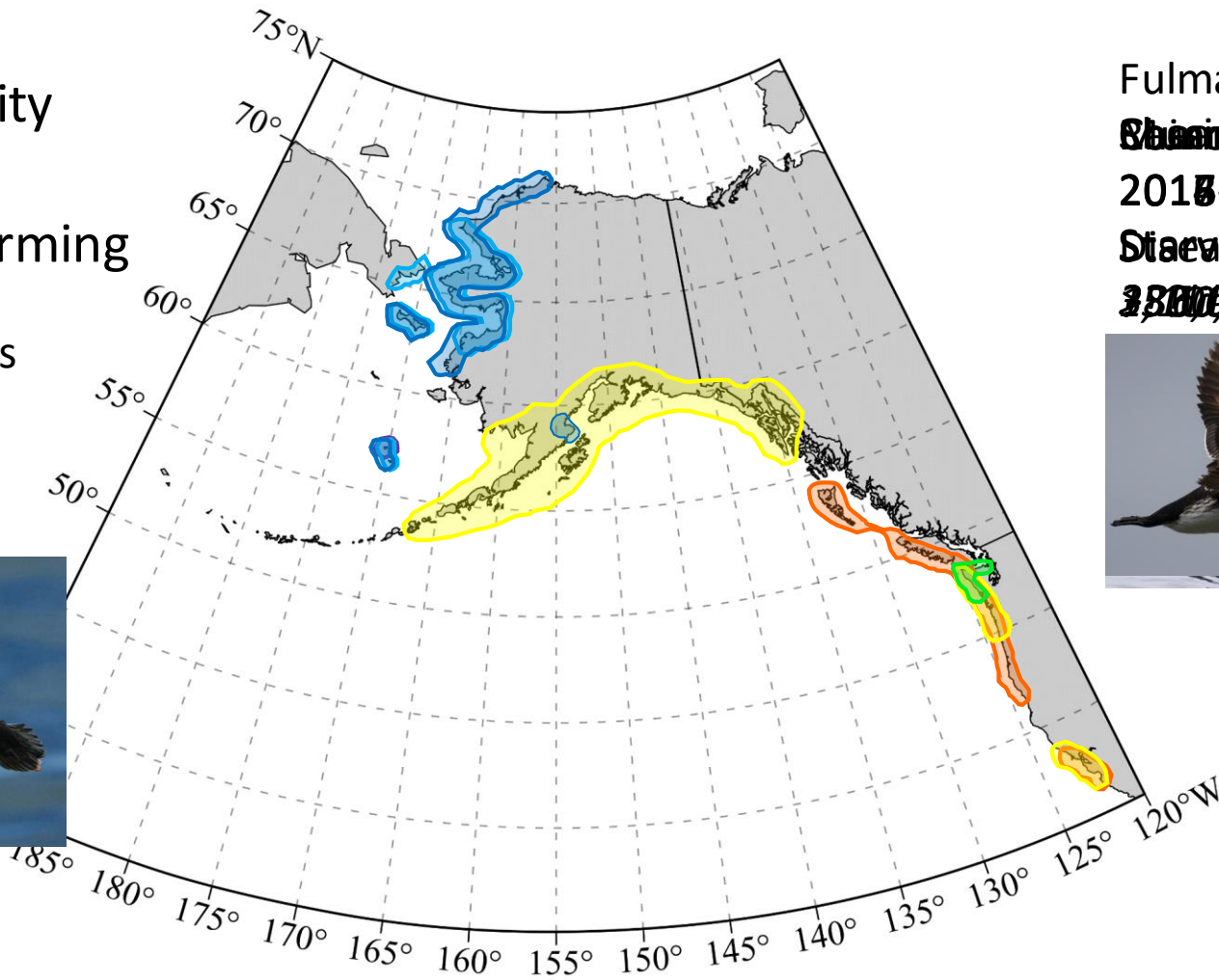
Washington Department of FISH and WILDLIFE



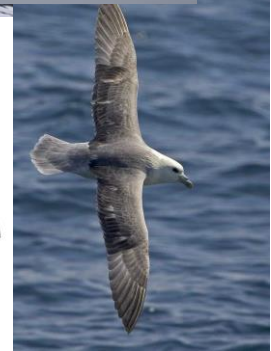
COASST participants and coastal community members who contribute their observations!



Marine Bird
 Mass Mortality
 Events
 Assoc. w Warming
 2014-2018
 Tufted Puffins
 2016-17
 Starvation
 6,800+ died

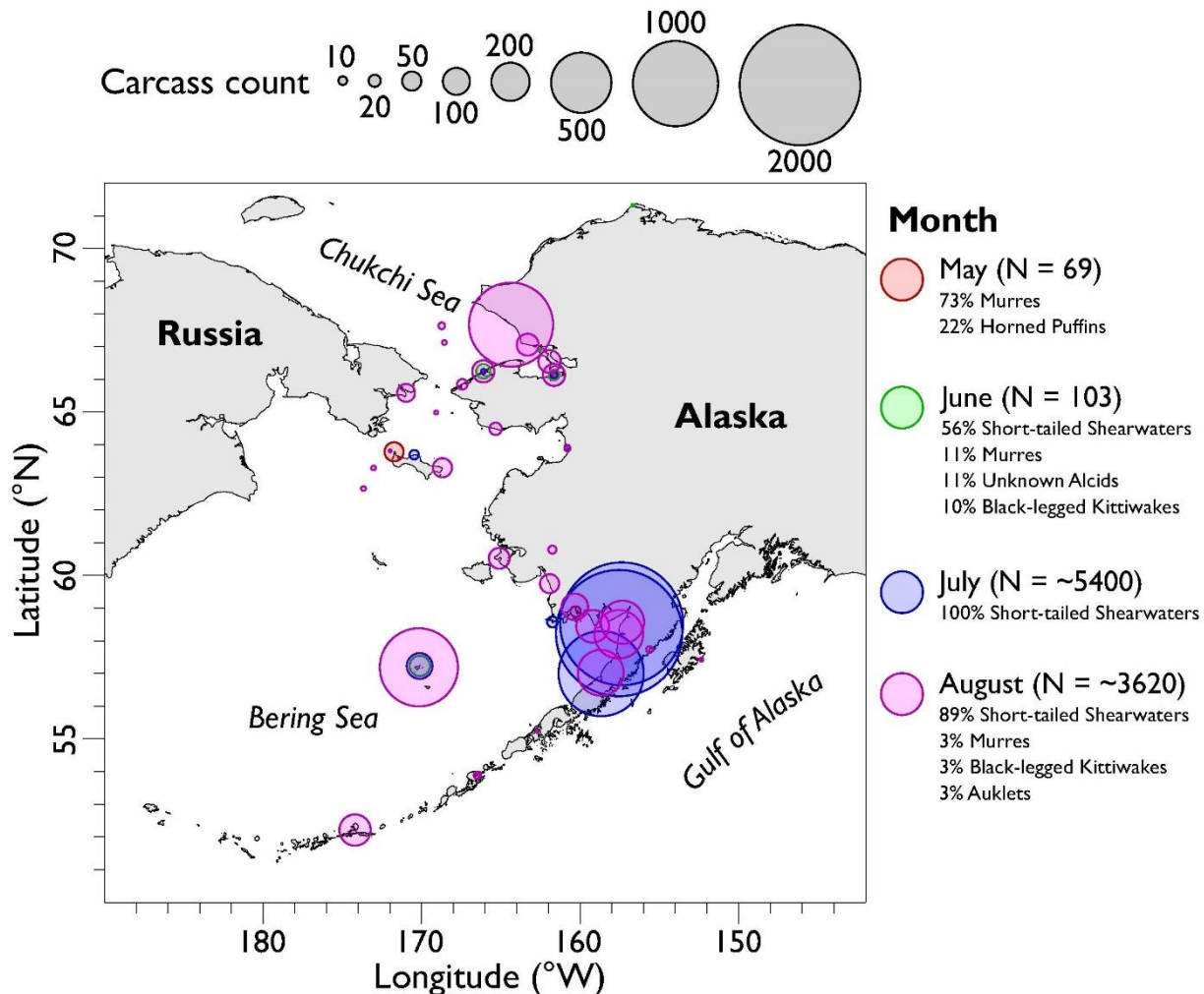


Fulmars &
 Shearwaters
 2017-18
 Starvation
 3,800+ birds died



What Happened?

- Beginning May 2018, an unusual seabird mortality event occurred throughout the Bering and Chukchi seas regions
- The events continued into July and August and expanded north to Utqiagvik (Barrow) and south to St. Paul Island and the Lower Cook Inlet/Alaska Peninsula.
- Mostly thick-billed murres were reported early spring, followed by kittiwakes, gulls, puffins & auklets into summer
- FWS collaborated with multiple partners to monitor beaches and gather reports from coastal communities
- >1,200 beached birds were counted
- Of 20 carcasses examined by the USGS National Wildlife Health Center, starvation was determined to be the cause of death



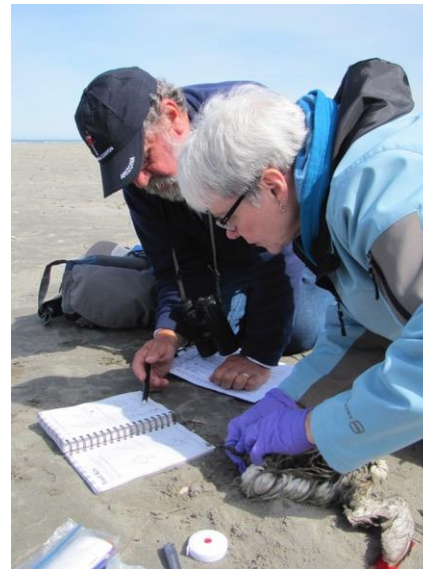


Beached Birds

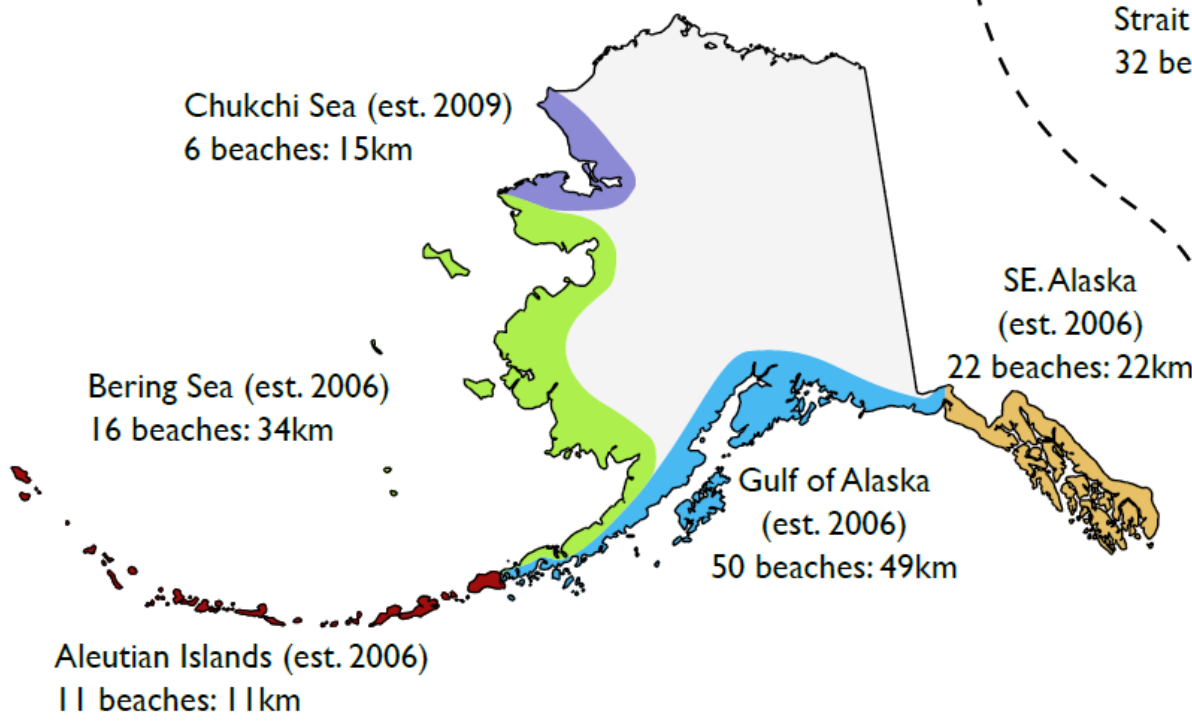
What does it mean to participate?

*(5-6 hour training; then 1-5 hours/month,
depending on the beach)*

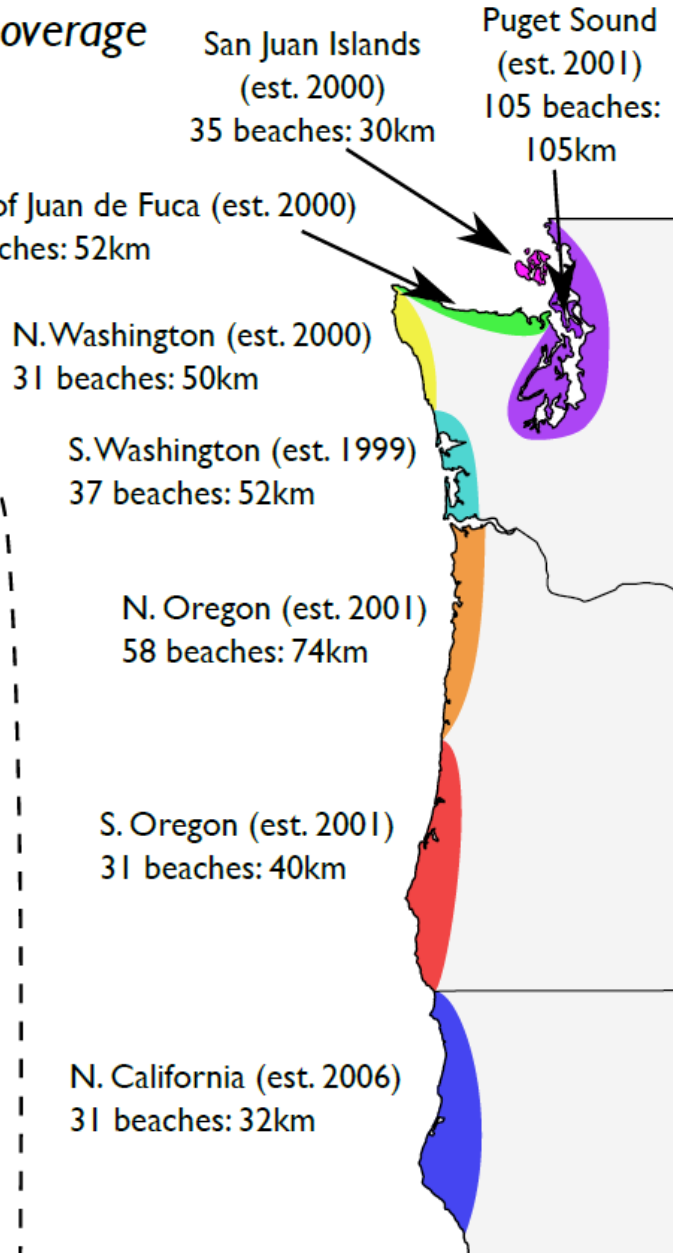
- **survey** for beachcast carcasses of marine birds on *your* beach monthly
- **measure, collect condition information, identify** and **photograph** carcasses



Alaska coverage

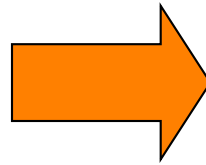
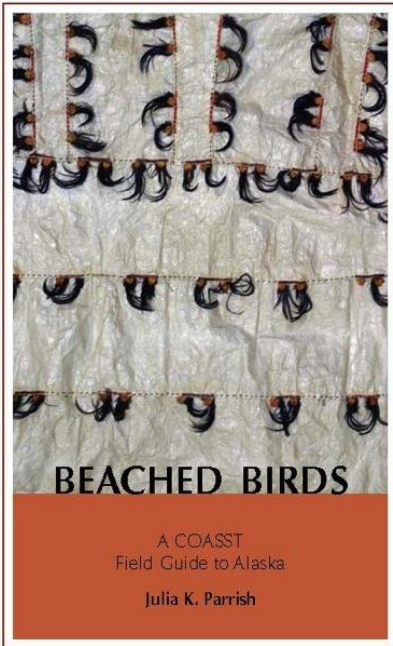


Lower 48 coverage



COAST

19 years old
3,000 people trained
900 current participants
465 active beaches
77,500 carcasses found
183 species found



Foot Key

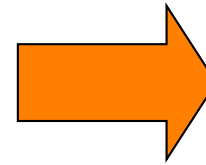
Q1 Are the front toes free, lobed or webbed?

free
(go to Q2)

lobed
(go to Q5)

webbed
(go to Q6)

22



Thick-billed Murre

EA sakiḡ, WA ulguḡtaḡ, YUACU alpa *Uria lomvia*

PLUMAGE VARIATION
A-I B-NB M-F

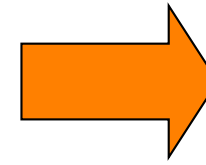
1 BILL
dark, smooth, straight
B: thin white moustache

2 HEAD
B: dark
NB & I: dark face,
white chin

3 WING
white-tipped SS
(missing in young chicks)

4 UNDERWING
white linings
(missing in young chicks)

AL5



Alcids

FT: Alcids
murre, puffins, guillemots
aulets, murreslets

FOOT DESCRIPTION: 3 webbed toes

WING CHORD:
w> 15 cm
Large Alcids

w< 15 cm
Small Alcids

BILL COLOR & SHAPE:
dark, slender,
featurless

UPPERWING:
dark, w/ trailing
white SS
Common Murre, AL3
Thick-billed Murre, AL5

dark, w/ large
white patch
Pigeon Guillemot, AL7
Black Guillemot, AL7

dark, w/ pale serridge
along leading edge
Tufted Puffin, AL9
Lined Puffin, AL11
Rhincoceros Auks, AL13

AL1

COASST
Bird ID



Die-off Alert

What does it mean to participate?

(1.5 hour training; then dependent on mortality event, the beach, the weather and your time)

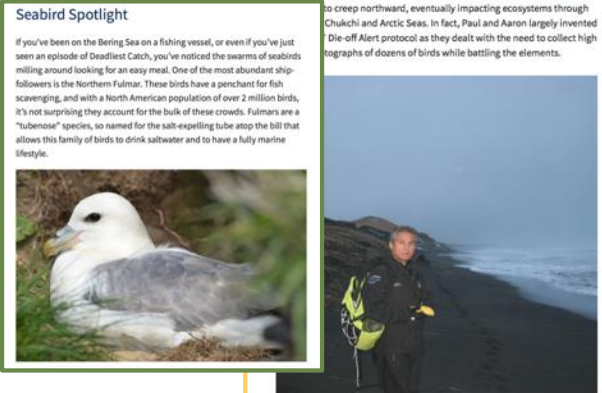
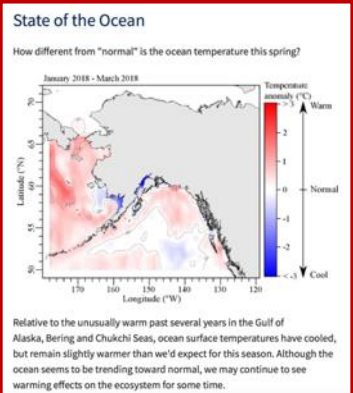
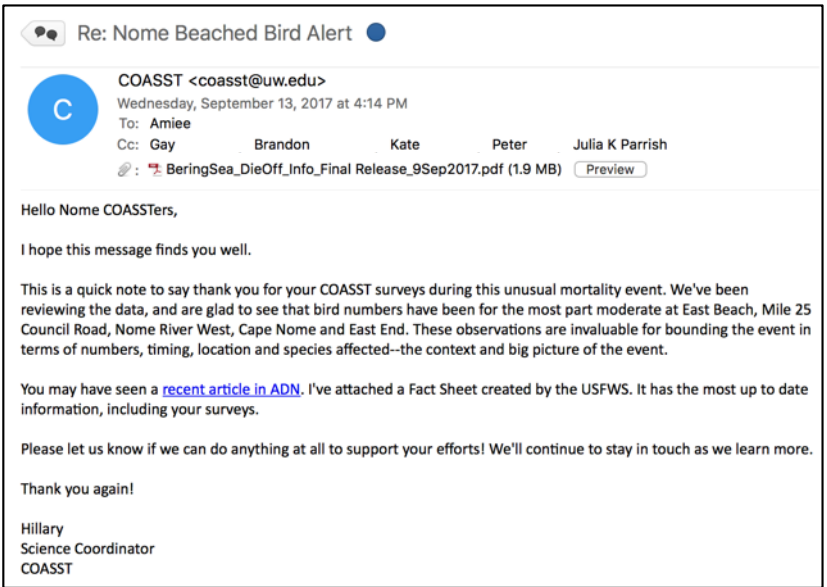
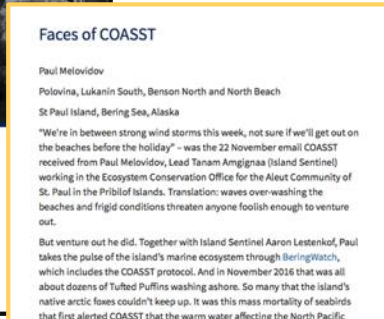
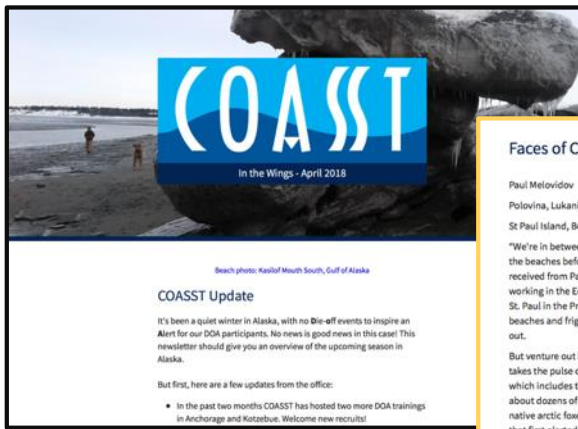
- **search** for beachcast carcasses of marine birds on *your* beach **during die-offs**
- **arrange** and **photograph** carcasses



Die-off Alert

What to expect from COASST

- **Quarterly** newsletter – “*In the Wings*” (unsubscribe any time).
- **Alerts and updates** about any known die-offs in your area.



What Information?

from a well-arranged high resolution photo?

Species Identity: Tufted Puffin

1. body size
2. body plumage
3. bill shape & color





Die-off Alert

Arranging Carcasses to Photograph

- sort by “look-alikes”
 - size
 - body and wing color
 - bill and feet color
 - bill shape
- within “look alike” sort by whether the bird is whole – no punctures and no wounds – or not
- brush off sand (stiff paintbrush is useful)
- arrange all birds face up, with wings slightly pulled out
- in rows but not overlapping

Die-off Alert

How to Send Data & Images to COASST

Email: coasst@uw.edu

Text: 424-262-7781

LEO Network



Thank you!

