

Wildlife

Dozens of starving seabirds grounded inland in Southcentral Alaska

Zaz Hollander | December 30, 2015

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Photos: Dozens of starving seabirds grounded inland in



KTOO Public Media

HOME NEWS

Murre die-off around Kachemak Bay estimated to be in the thousands

By Daysha Eaton, KBBI | December 26, 2015 | Featured News, Southcentral, Wildlife



Wildlife Biologist Leslie Slater holds one of about a dozen dead Common Murres found along a short stretch of beach at the Spit in Homer Tuesday, Dec. 22. (Photo by Daysha Eaton/KBBI)

SCIENCE

Animals Die in Large Numbers, and Researchers Scratch Their Heads

By JAMES GORMAN JAN. 18, 2016

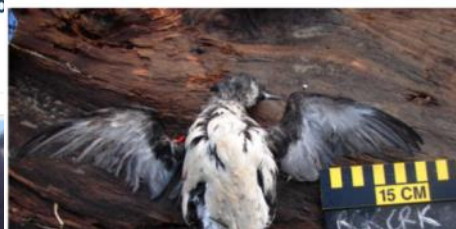


Mass Death of Seabirds in Western U.S. Is 'Unprecedented'

Why are so many auklets, from California to Canada, starving?

By Craig Welch, National Geographic

PUBLISHED JANUARY 24, 2015



CLIMATE

Thousands Of Starved Dead Birds Wash Up On Alaska's Coasts, And Climate Change Could Be The Culprit

BY ALEJANDRO DAVILA FRAGOSO JAN 15, 2016 9:25 AM



CREDIT: (AP PHOTO/MARK THIESSEN)

This photo taken Thursday, Jan. 7, 2016, shows dead common murres on a rocky beach in Whittier, Alaska. Federal scientists in Alaska are looking for the cause of a massive die-off of one of the Arctic's most abundant seabirds, the common murre.

THE MURRE DIE-OFF

Heather Renner et al. – Alaska Maritime NWR

Kathy Kuletz, David Irons, Robb Kaler, Liz Labunski – USFWS Migratory
Birds Management

Julia Parrish and Hillary Burgess – COASST

Barbara Bodenstein – USGS National Wildlife Health Center

John Piatt and Sarah Schoen – USGS Alaska Science Center

Martin Renner – Tern Again Consulting



January 1, 2016
Whittier

7870 murrelets on 1725 meters
of beach

Photo: David Irons

By late
summer we
could tell
something
was up with
murres



Photo: Cornelius Schlawe



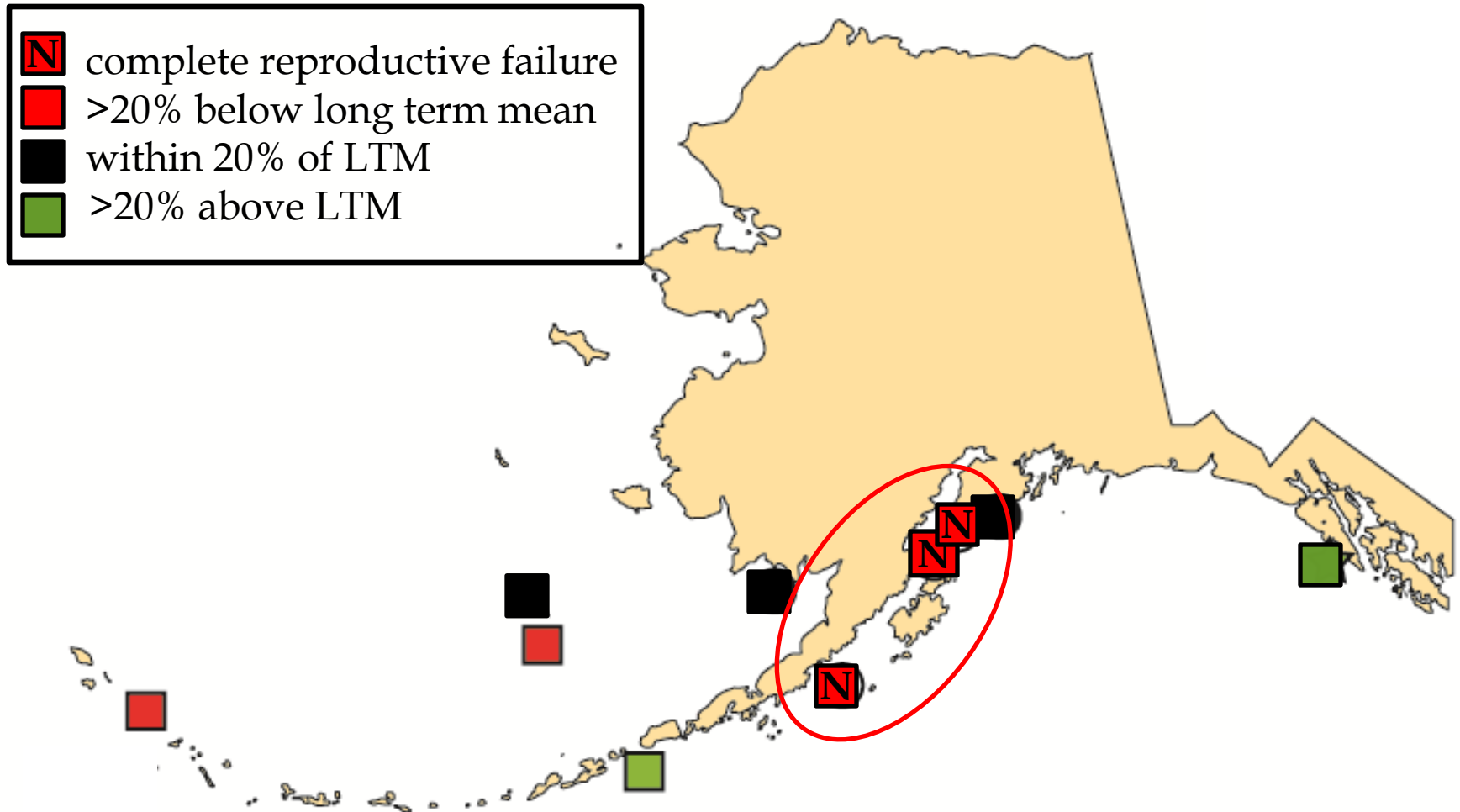
East Amatuli Island
6 September 2010



2 September 2015

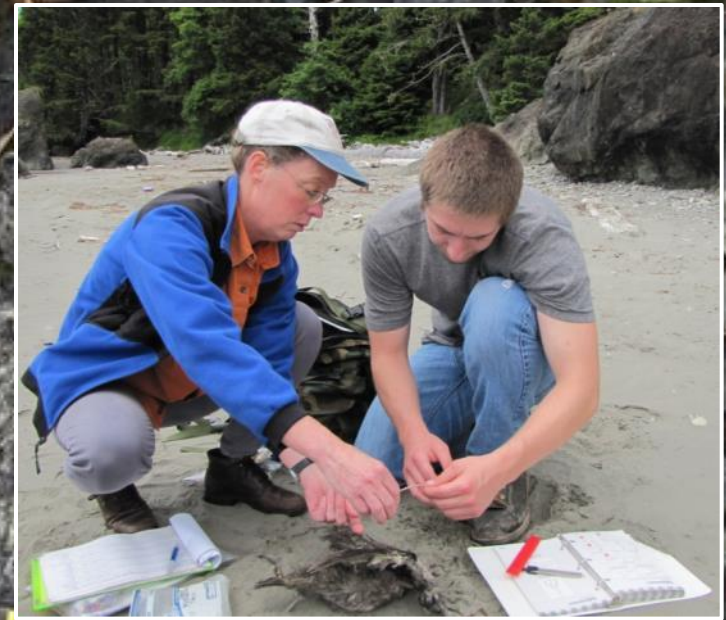
Photos: Arthur Kettle

Common murre productivity in 2015



Other seabird species had mixed results but NOT widespread failures

Photo: COASST

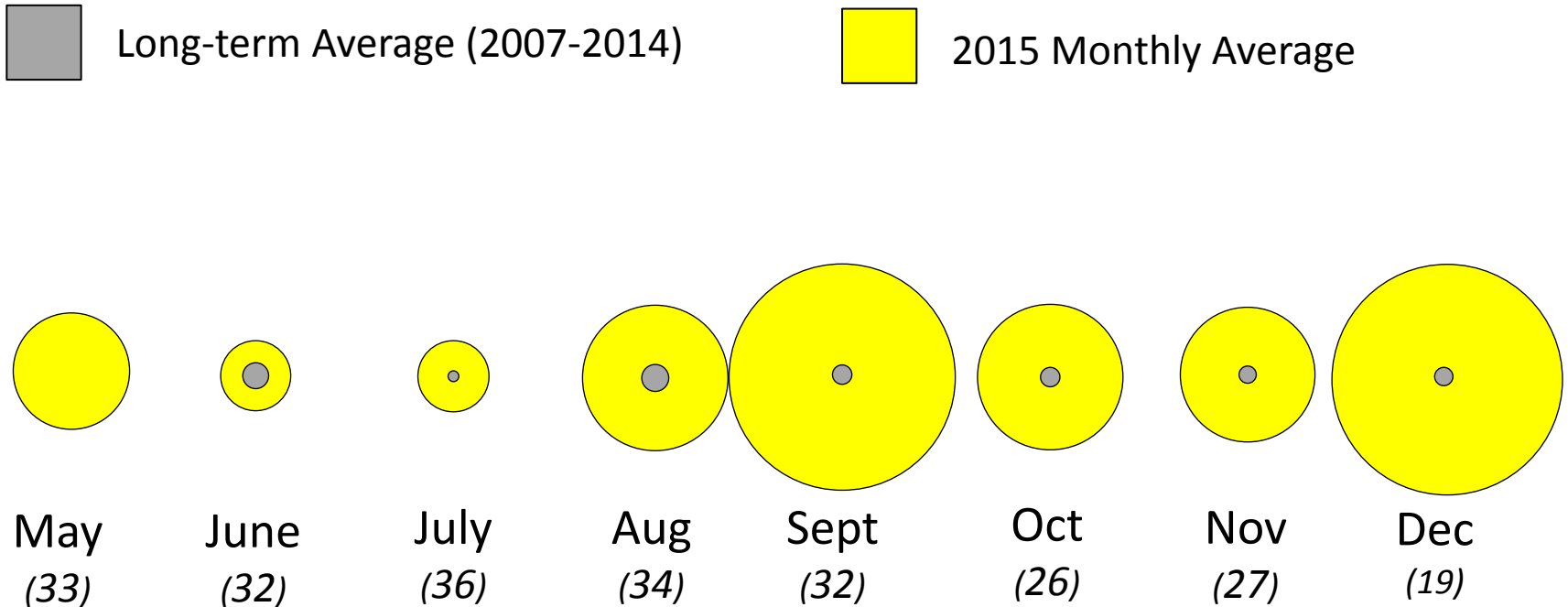


COASST beached bird surveys

Coastal Observation And Seabird Survey Team

Murre carcasses/km on COASST Gulf of Alaska beaches

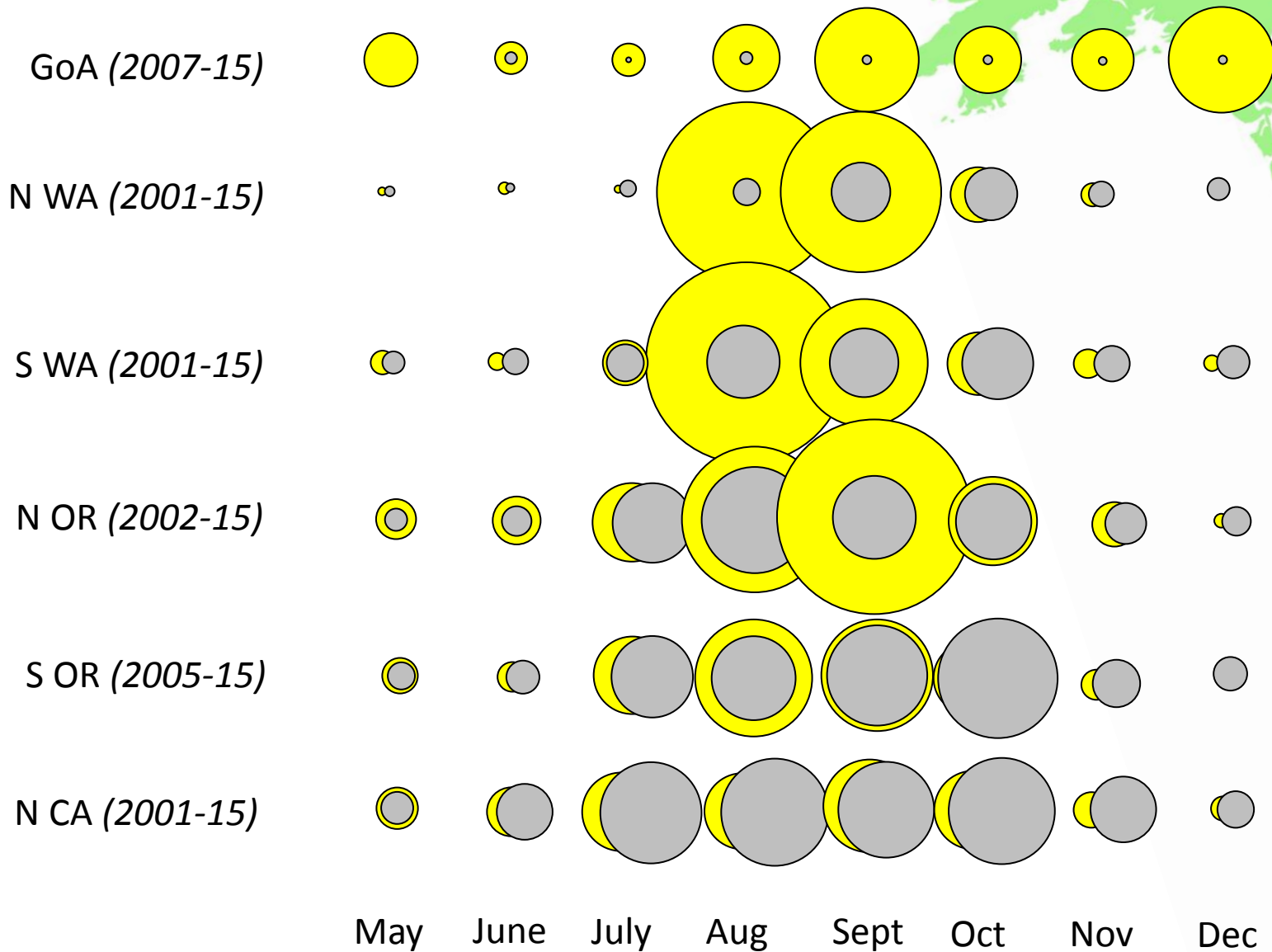
(monthly averages; sample size is # of beaches surveyed)



COASST

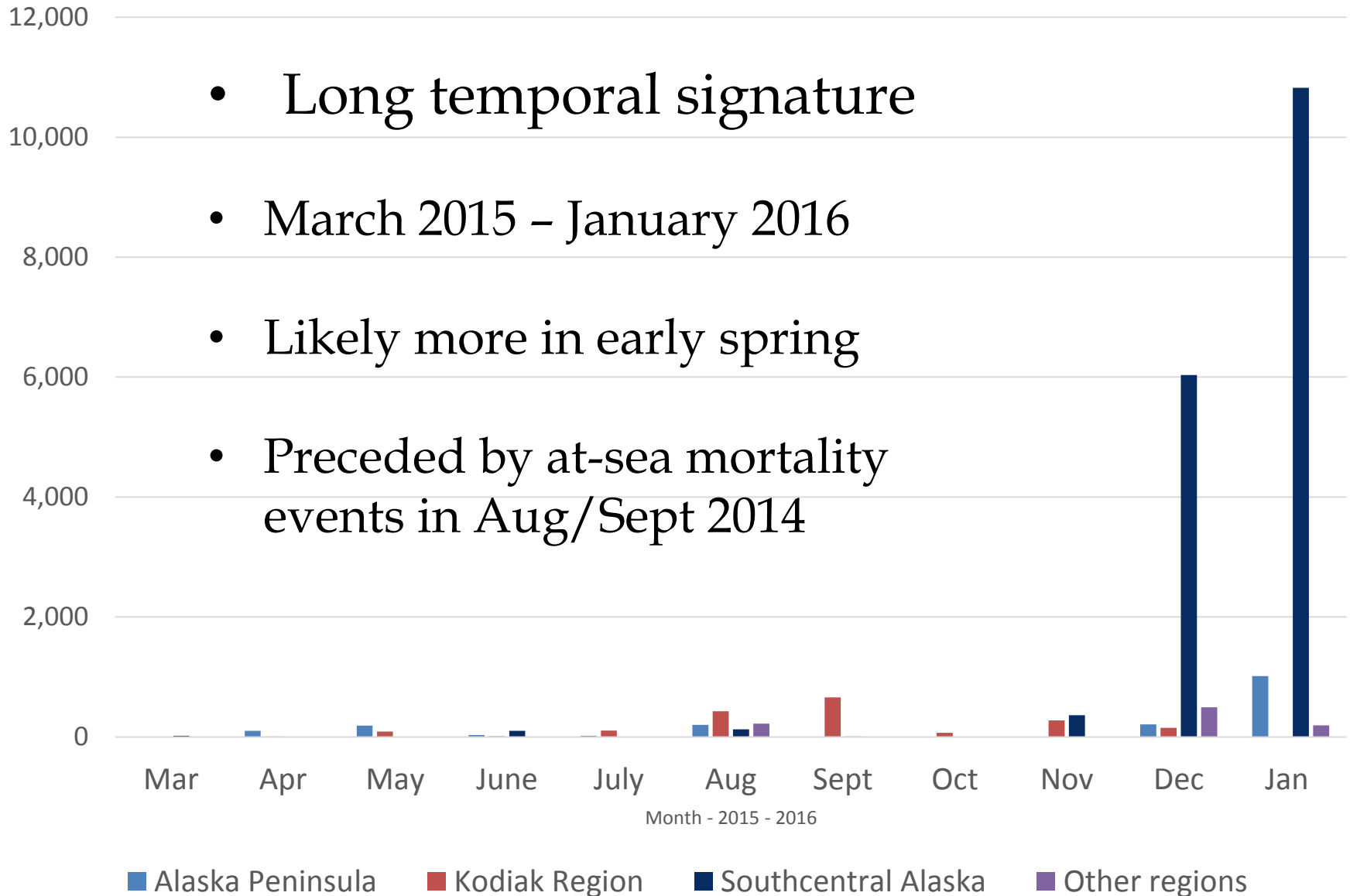
Murres on the Beach in 2015

Long-term Average
 2015 Monthly Average



Murre mortality reports (counts)

- Long temporal signature
- March 2015 – January 2016
- Likely more in early spring
- Preceded by at-sea mortality events in Aug/Sept 2014



Historic murre wrecks



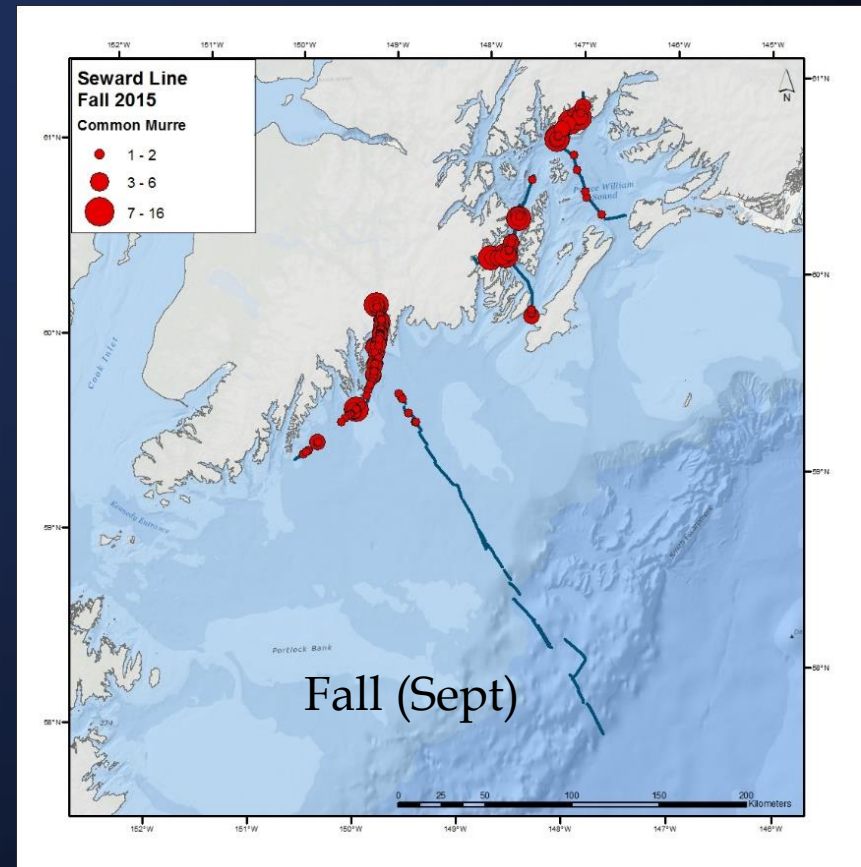
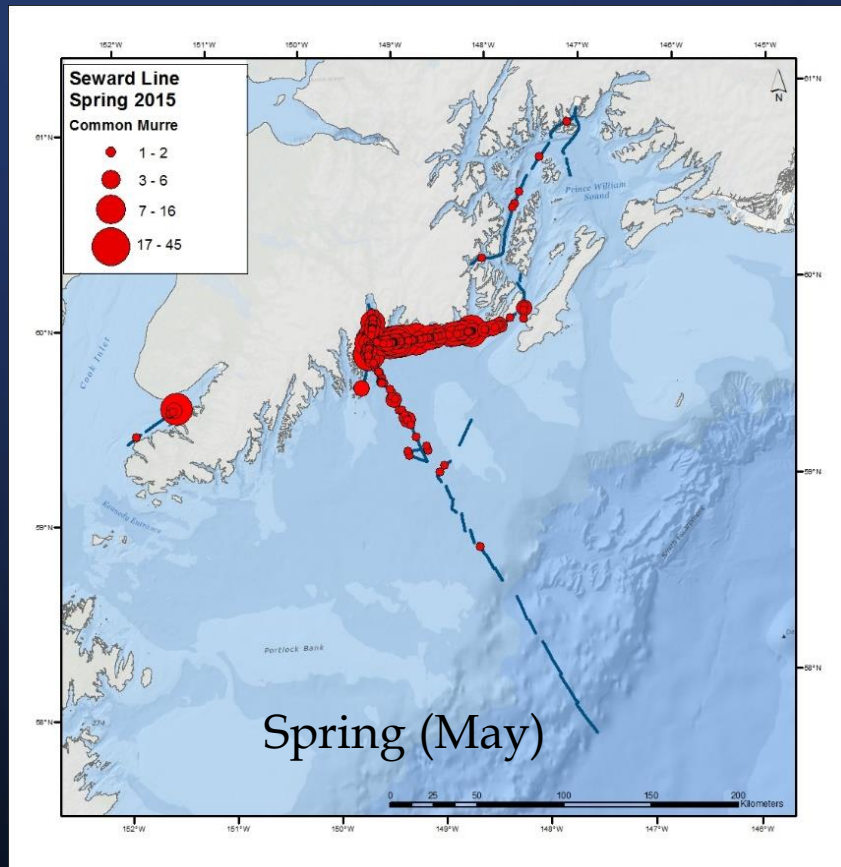
Previous seabird die-offs in Alaska

- 1970 190,000 murres – Bristol Bay – April; **starvation**
- 1983 10-100's thousands murres, other spp – AK Penin - Aug/Sept
- 1993/94 120,000 murres – Southcentral AK – March/ April; **starvation**
- 1997 600,000 short-tailed shearwaters – Bering Sea – Aug/Sept
apparent **starvation** (with cocolithophore bloom)
- 1997/98 common murres – southcentral AK - no est.
- 2013 7,000-36,000 murres, auklets, other spp – St. Lawrence Is - Nov
avian cholera
- 2014 7,000 – 32,500 murres, others – SE Bering Sea – Aug

Characteristics of murre wrecks attributed to starvation

(Piatt & Van Pelt 1998)

- Mass mortality over short time
- **Weak and dying birds concentrated in protected waters**
- Disoriented birds far inland



Seward Line Long-term Surveys

The numbers

▣ How many dead?

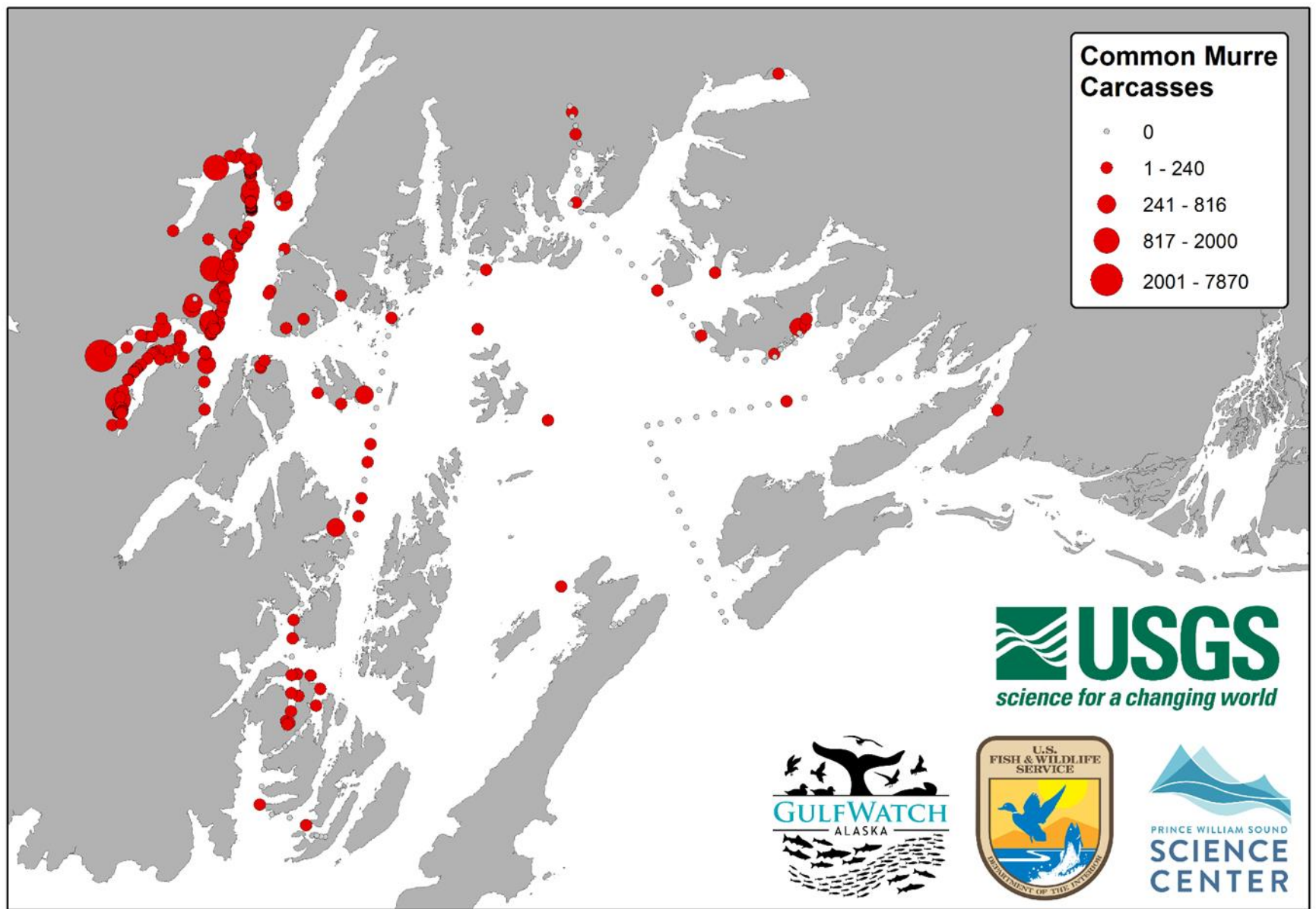
- >21,000 carcasses reported with no systematic searching except COASST beaches
- Small percentage of Alaskan beaches have been checked
- Previous studies suggest ~15% of carcasses make it to the beach

▣ How many murres in Alaska?

- Best estimate is 2.8 million common murres in Alaska
- 1.8 million of those are in Gulf of Alaska

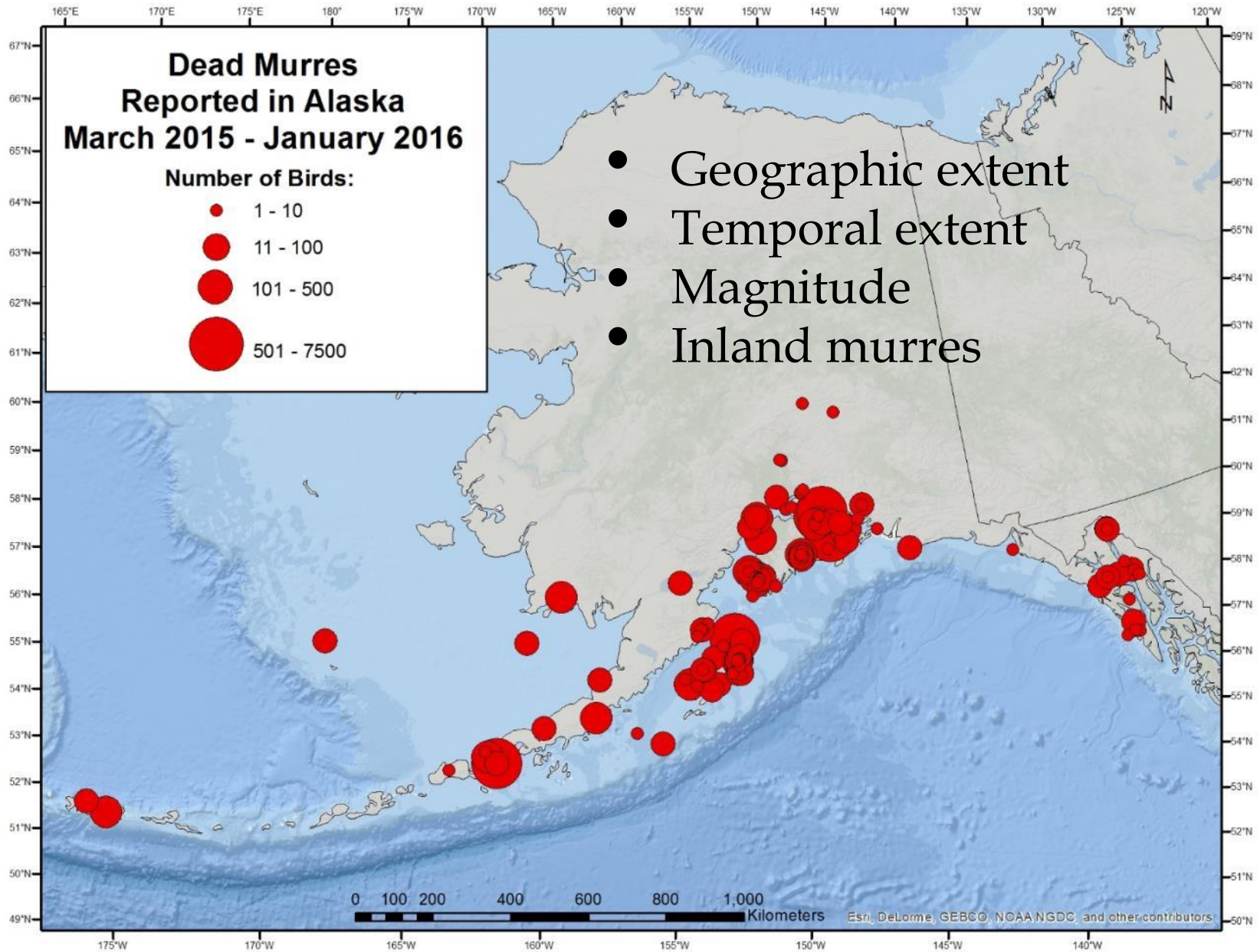
▣ For context: *Exxon Valdez* oil spill 1989

- Common murre carcasses recovered: 22,000
- Mortality estimates ranged from 74,000-315,000



Distribution of ca. 25,000 dead murres observed on beach and at-sea surveys in Prince William Sound during December 2015 and early January 2016.

What's unusual this time?



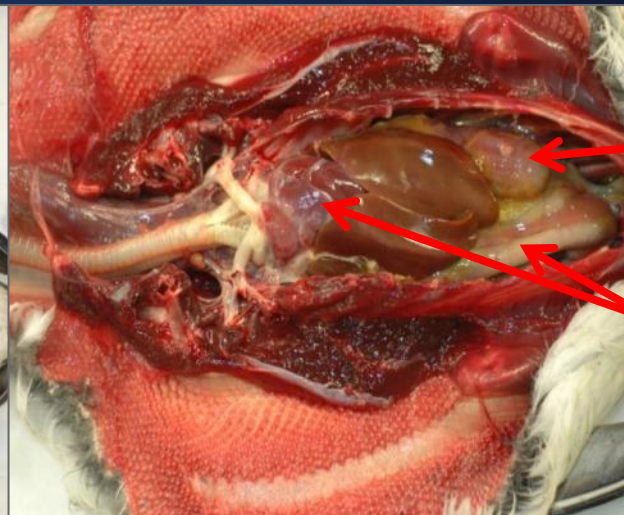
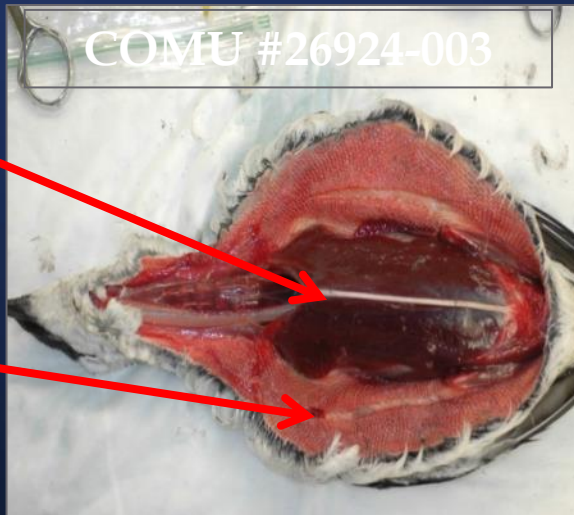
Why are the birds dying?

Carcass investigations: National Wildlife Health Center

- Consistent finding is **emaciation** and **starvation**
- 106 carcasses since March 2015
81 common murre

Severe
muscle
atrophy

No fat



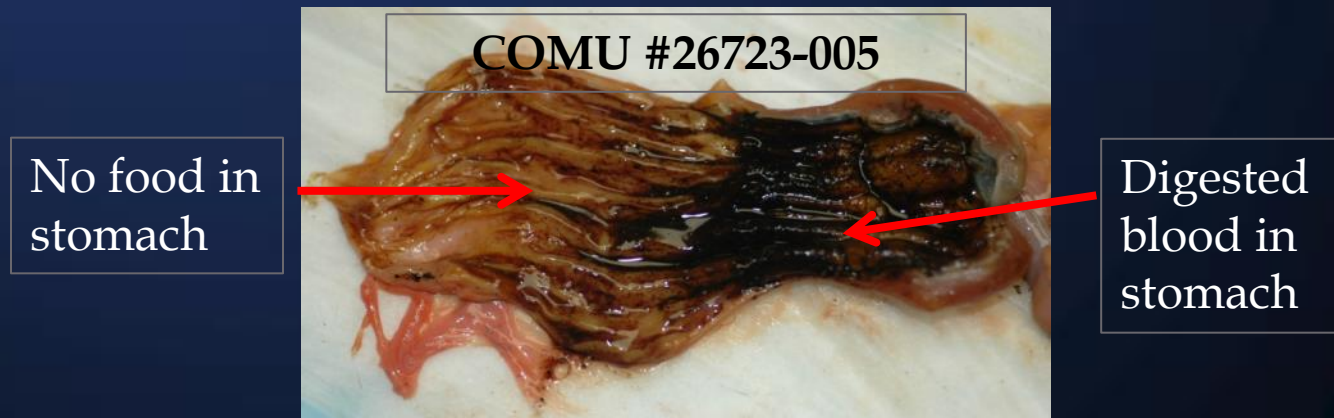
Empty
stomach

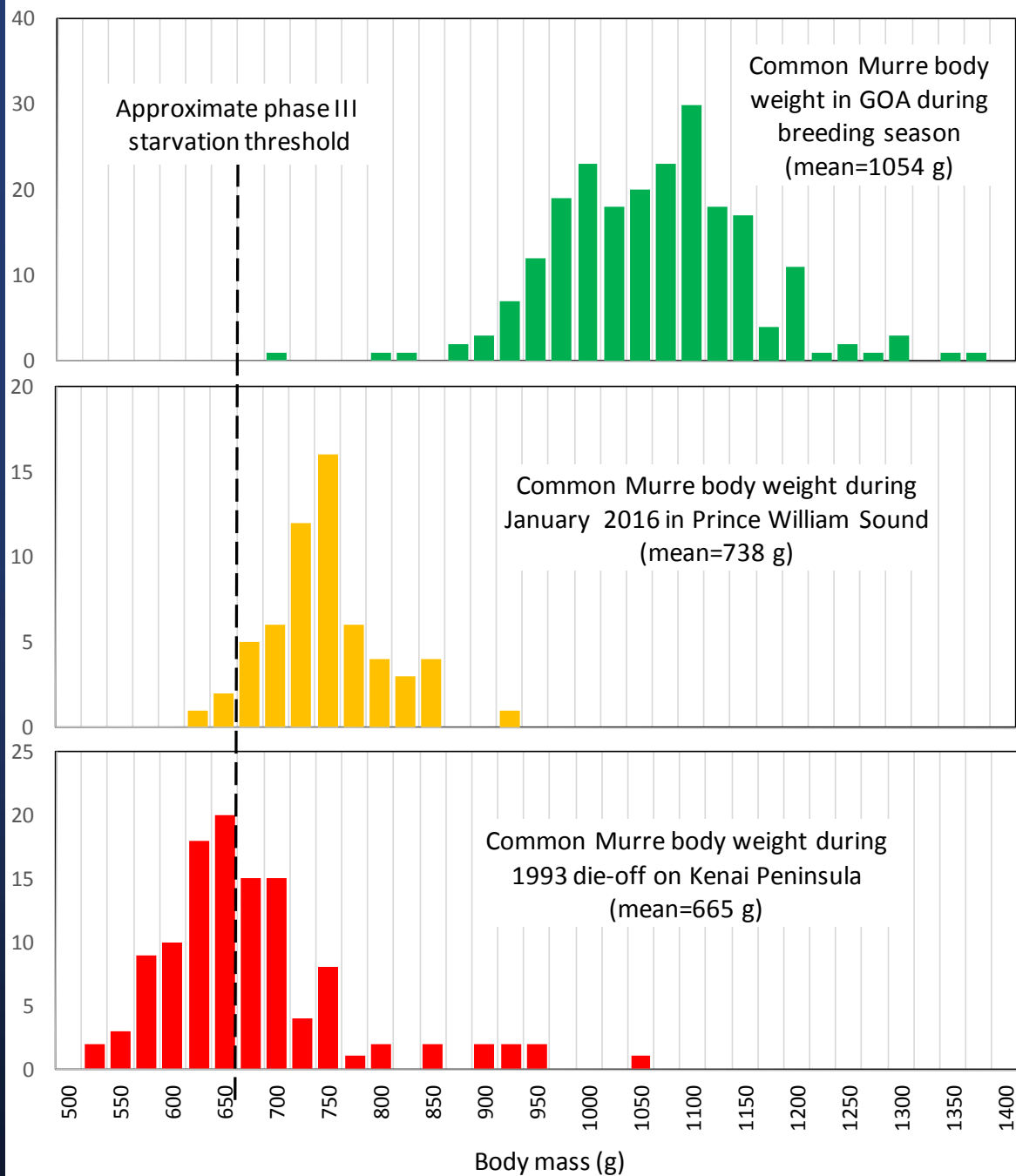
No
epicardial or
visceral fat
reserve

Carcass investigations

National Wildlife Health Center, Madison WI

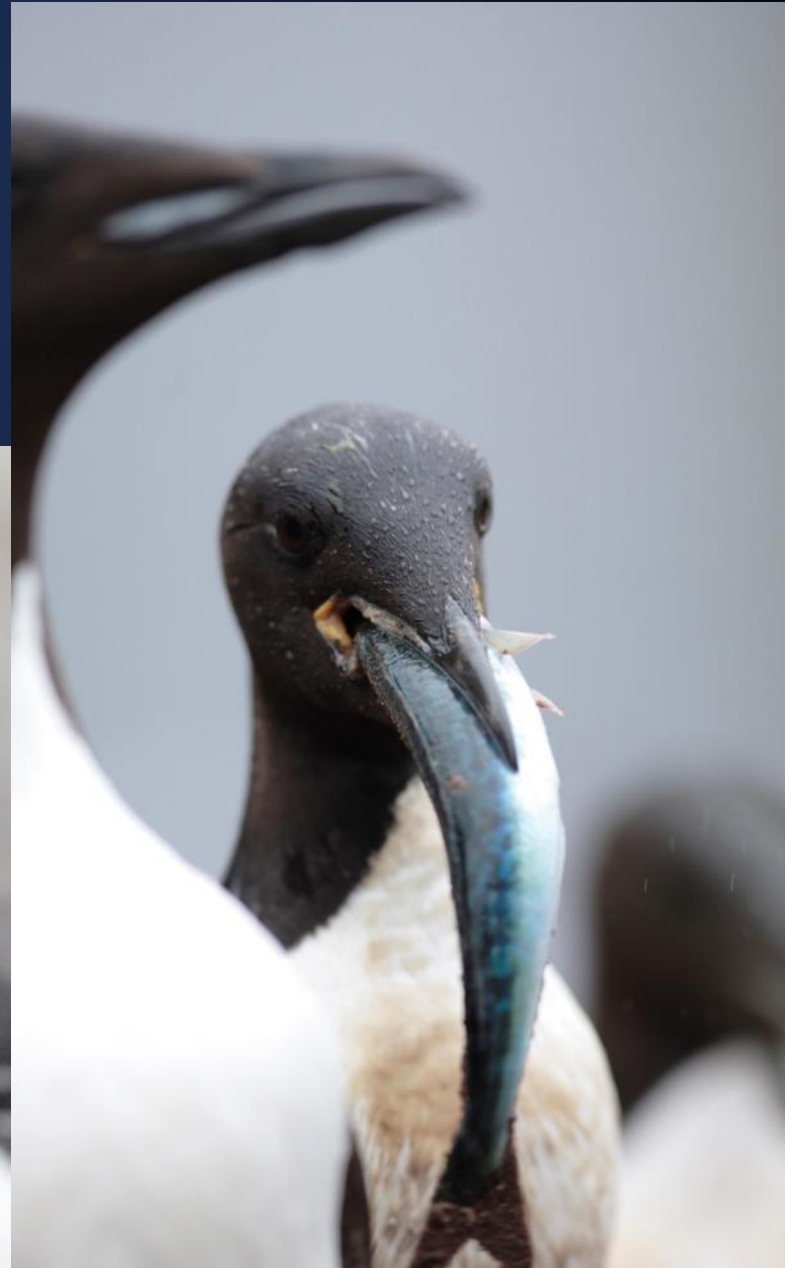
- Lack of food throughout gastrointestinal tract
- Digested blood throughout gastrointestinal system
- No evidence of infectious or non-infectious diseases
- <1% positive for avian influenza (tracheal/cloacal swabs)





What do murrelets eat?

- ▣ Summer, mostly fish
- ▣ Winter, ?, mostly euphausiids and amphipods

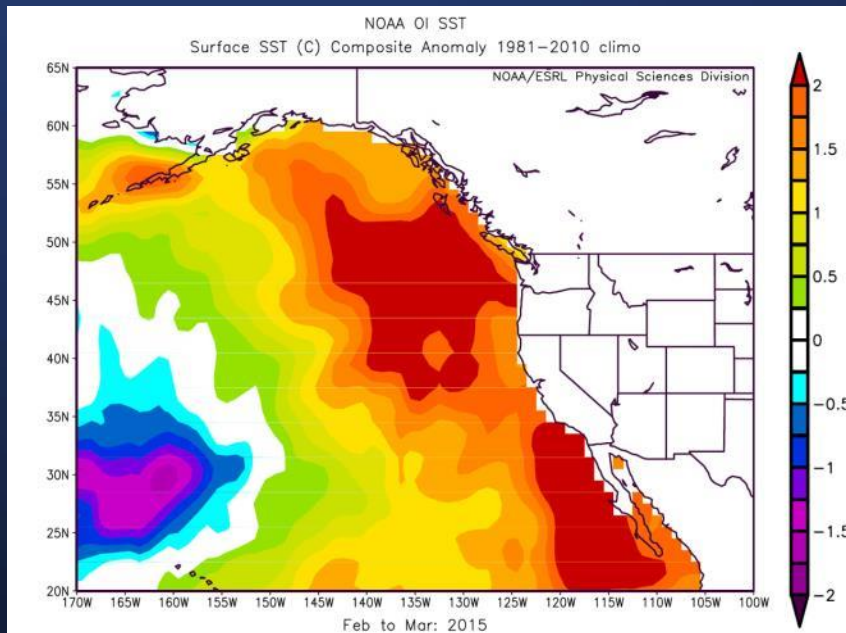


Why are they starving?

Hypotheses:

- ▣ Warm water effects
 - on species distribution –accessibility or quality of prey
 - on metabolism of both predators & prey

“The Blob” and associated marine anomalies in 2015



- ❑ Harmful algal blooms
- ❑ Unusual Mortality Event for whales
- ❑ Unusual Mortality Event for sea otters (disease)

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 - on species distribution -accessibility & quality of prey
- ▣ Strong storm events on stressed animals
- ▣ Harmful algal bloom effects
 - on birds, limiting ability to forage
 - on lower trophic levels reducing prey species from copepods to fishes

Algal Toxin Analysis

Saxitoxin:

Detected in 0 of 21 murre carcasses

Detected in 5 of 15 carcasses other species

(all early summer; 2 puffins had high level, 3 gulls had low level)

Domoic Acid :

Detected in 0 of 7 murre carcasses

Detected in 0 of 7 carcasses other species

Additional algal toxin testing for Saxitoxin and Domoic Acid
pending on 22 specimens. Algal toxin analysis done by NOAA, Greenwater WA

Summary

- ▣ Perhaps the largest murre die off ever recorded
 - Synchronous with mortality events for other marine species
- ▣ Why are the birds dying? **Starvation**
- ▣ Why are they starving? **Unknown but warm water implicated**
- ▣ Are there population level effects? **Unknown; may be difficult to tell if breeding failure occurs in 2016**
- ▣ Need targeted studies on lower trophic levels at same spatial scale as bird data

Photo: Cornelius Schlawe



Thank you

COASST volunteers and
the many people who
have reported unusual
seabird observations

ALSO

Leslie Slater, Marc
Romano, Nora Rojek, Don
Dragoo, Brie Drummond,
Arthur Kettle, Greg
Thomson, Steve Ebbert,
Gary Drew

Report dead seabirds to:

1-866-527-3358

Or email: AK_MBM@fws.gov