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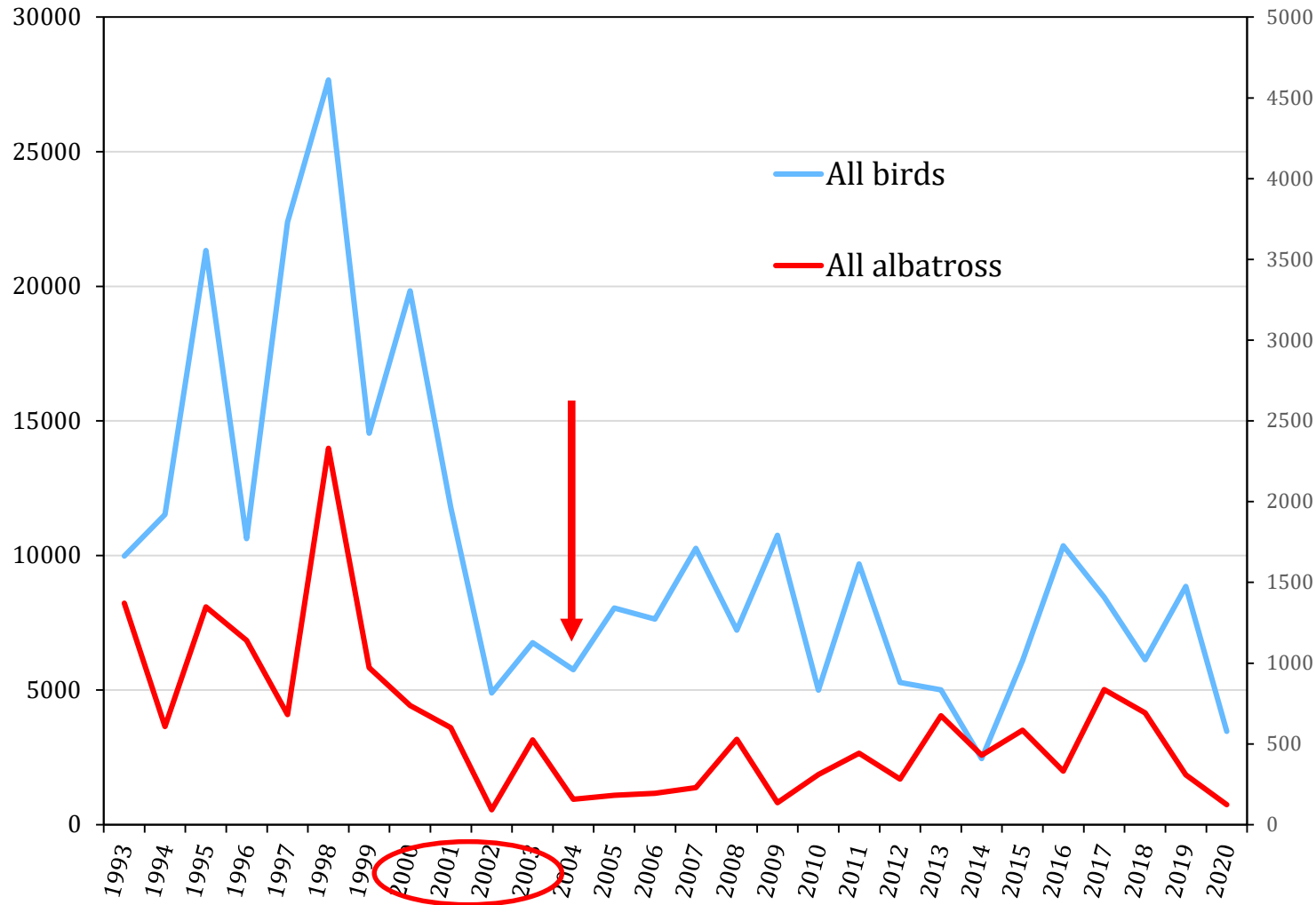
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Alaska Region

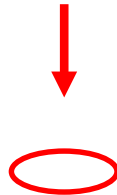
# SEABIRD REPORT TO THE SSC

Presented by Joe Krieger (NMFS), Elizabeth Labunski (USFWS), and Steve MacLean (Council Staff)  
April 2021

All  
Birds



All  
Albatross



Streamer line Regs.

Collaborative Research



# Observed Seabird Bycatch

- Groundfish fisheries 2011 - 2020
- Halibut fisheries 2013 – 2020 only
- Hook-and-line, trawl, and pot gear
- BSAI and GOA

Species/ Species Groups	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Ann Average
Unidentified Albatross	1	0	1	3	0	0	0	4	1	0	1
Short-tailed Albatross	1	0	0	2	0	0	0	0	0	2	1
Laysan Albatross	14	15	28	10	28	9	5	15	5	3	13
Black-footed Albatross	9	3	9	17	29	15	24	14	23	5	15
Northern Fulmar	889	425	500	139	592	834	539	457	444	293	511
Shearwaters	30	102	35	16	64	517	223	101	570	52	171
Storm Petrels	0	0	0	0	0	0	0	2	0	0	0
Gull	243	105	89	107	189	104	99	95	26	29	109
Kittiwake	1	1	1	2	2	1	4	5	4	4	3
Murre	4	1	1	2	0	4	3	0	0	1	2
Puffin	0	0	0	0	0	2	0	0	0	0	0
Auklets	0	1	1	3	4	1	1	2	0	0	1
Other Alcid	0	0	0	1	0	0	0	1	2	0	0
Cormorant	0	0	0	0	3	0	0	0	0	0	0
Other Birds	0	0	0	0	0	0	1	0	0	1	0
Unidentified	45	49	51	18	36	47	43	22	31	41	38
<b>Grand Total</b>	<b>1237</b>	<b>702</b>	<b>716</b>	<b>320</b>	<b>947</b>	<b>1534</b>	<b>942</b>	<b>718</b>	<b>1106</b>	<b>431</b>	<b>865</b>

\*2020 data is preliminary



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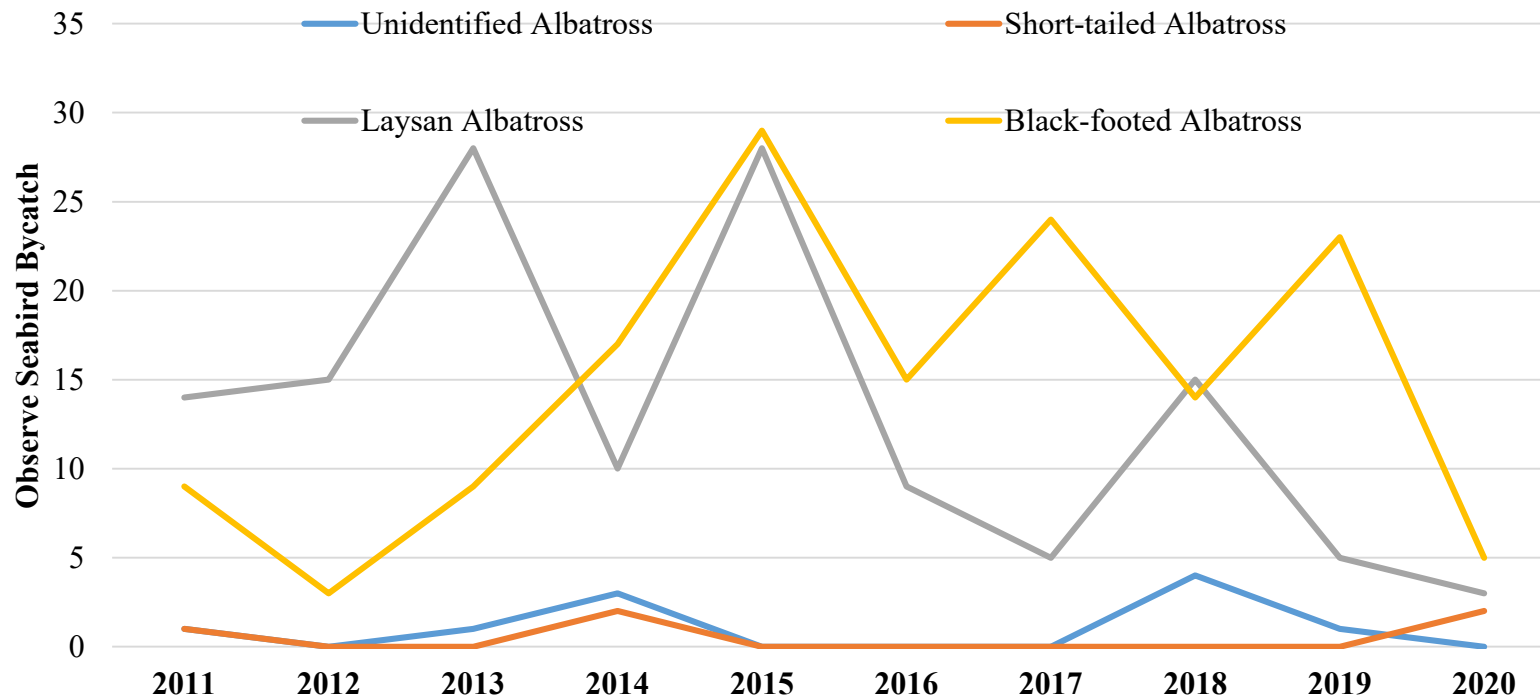


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# Observed Albatross Bycatch – Alaska-Wide

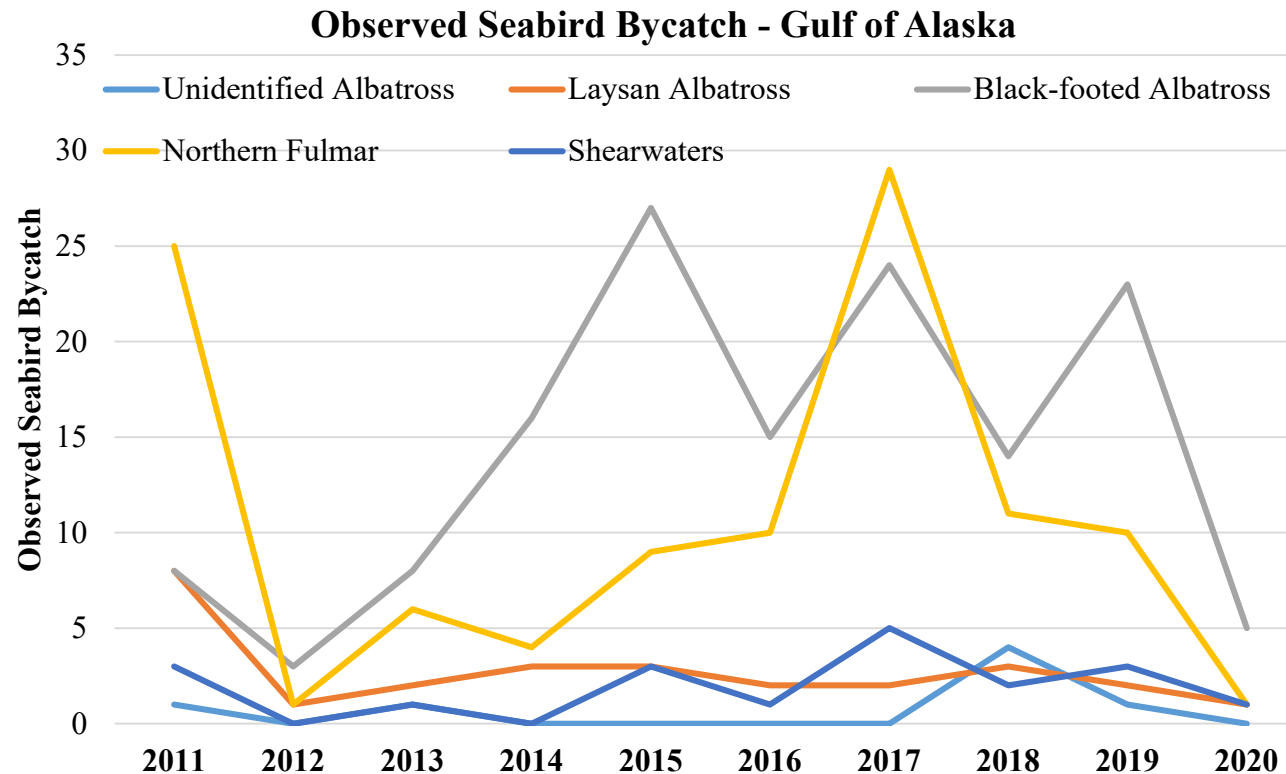
Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Ann Avg.
Unidentified Albatross	1	0	1	3	0	0	0	4	1	0	1
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Black-footed Albatross	9	3	9	17	29	15	24	14	23	5	15
<b>Grand Total</b>	<b>25</b>	<b>18</b>	<b>38</b>	<b>32</b>	<b>57</b>	<b>24</b>	<b>29</b>	<b>33</b>	<b>29</b>	<b>10</b>	<b>30</b>

Observed Albatross Bycatch - Alaska-Wide



# Observed Seabird Bycatch – Gulf of Alaska

Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Ann Avg.
Unidentified Albatross	1	0	1	0	0	0	0	4	1	0	1
Laysan Albatross	8	1	2	3	3	2	2	3	2	1	3
Black-footed Albatross	8	3	8	16	27	15	24	14	23	5	14
Northern Fulmar	25	1	6	4	9	10	29	11	10	1	11
Shearwaters	3	0	1	0	3	1	5	2	3	1	2
<b>Grand Total</b>	<b>45</b>	<b>5</b>	<b>18</b>	<b>23</b>	<b>42</b>	<b>28</b>	<b>60</b>	<b>34</b>	<b>39</b>	<b>8</b>	<b>30</b>



Sea Surface Temp

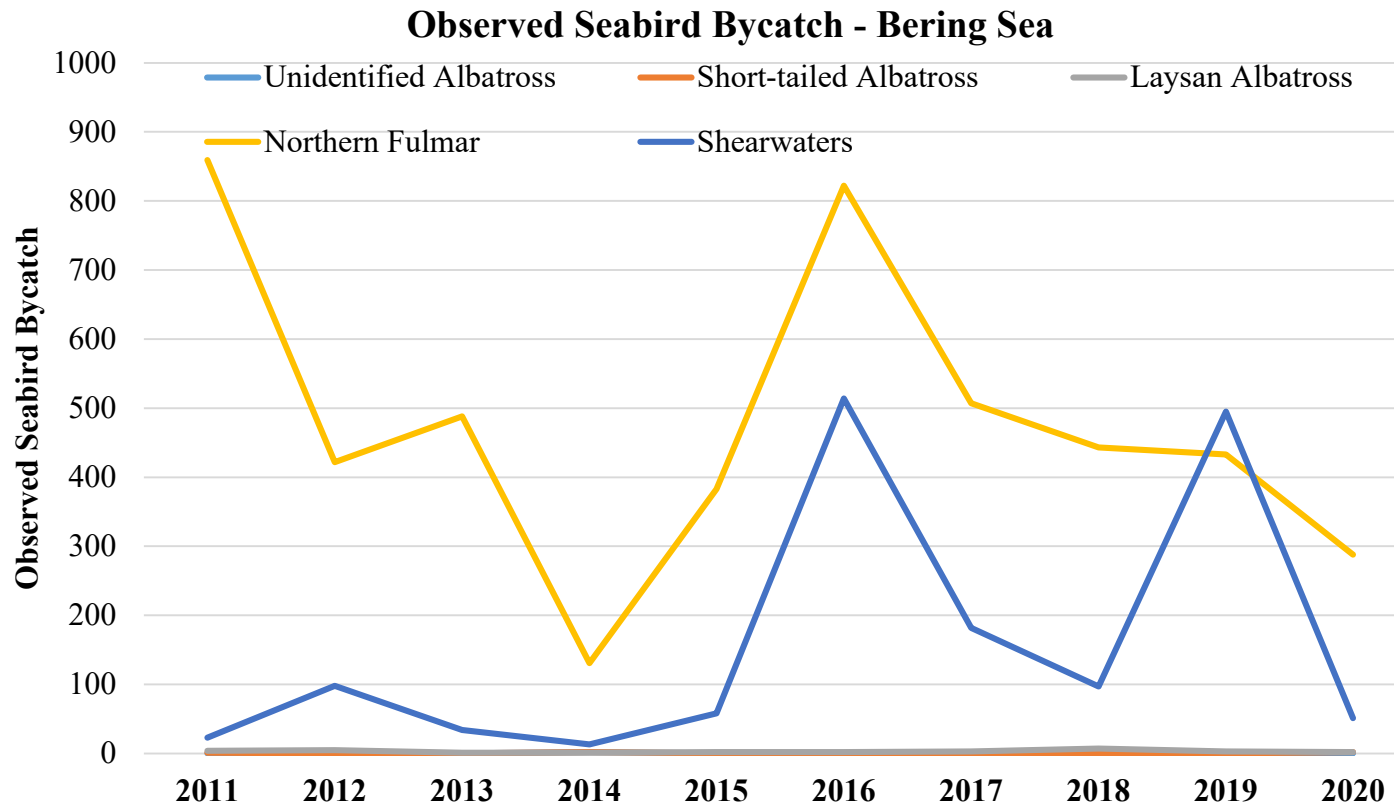
○ > 1 St. Dev above avg.

○ > 1 St. Dev below avg.



# Observed Seabird Bycatch – Bering Sea

Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Ann Avg.
Unidentified Albatross	0	0	0	2	0	0	0	0	0	0	0
Short-tailed Albatross	1	0	0	2	0	0	0	0	0	2	1
Laysan Albatross	4	5	1	1	2	2	3	7	3	2	3
Northern Fulmar	859	422	488	131	383	822	507	443	433	288	478
Shearwaters	23	98	34	13	58	514	182	97	495	51	157
<b>Grand Total</b>	<b>887</b>	<b>525</b>	<b>523</b>	<b>149</b>	<b>443</b>	<b>1338</b>	<b>692</b>	<b>547</b>	<b>931</b>	<b>343</b>	<b>638</b>



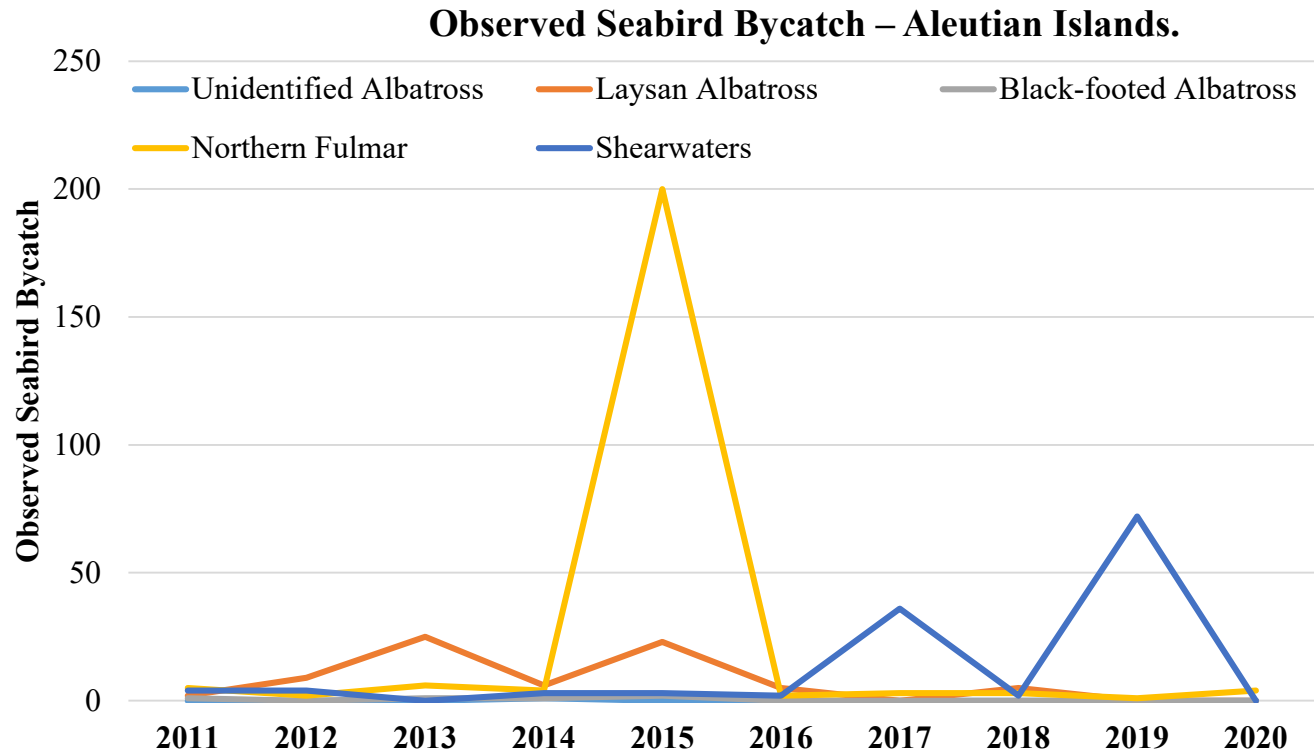
Sea Ice Extent  
 > 1 St. Dev below avg.





# Observed Seabird Bycatch – Aleutian Islands

Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Ann Avg.
Unidentified Albatross	0	0	0	1	0	0	0	0	0	0	0
Laysan Albatross	2	9	25	6	23	5	0	5	0	0	8
Black-footed Albatross	1	0	1	1	2	0	0	0	0	0	1
Northern Fulmar	5	2	6	4	200	2	3	3	1	4	23
Shearwaters	4	4	0	3	3	2	36	2	72	0	13
<b>Grand Total</b>	<b>12</b>	<b>15</b>	<b>32</b>	<b>15</b>	<b>228</b>	<b>9</b>	<b>39</b>	<b>10</b>	<b>73</b>	<b>4</b>	<b>44</b>



Sea Surface Temp

○ > 1 St. Dev above avg.



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## Endangered Species Act – Threatened and Endangered Seabirds of Alaska



Short-tailed Albatross  
Endangered



Spectacled Eider  
Threatened



Steller's Eider  
Threatened



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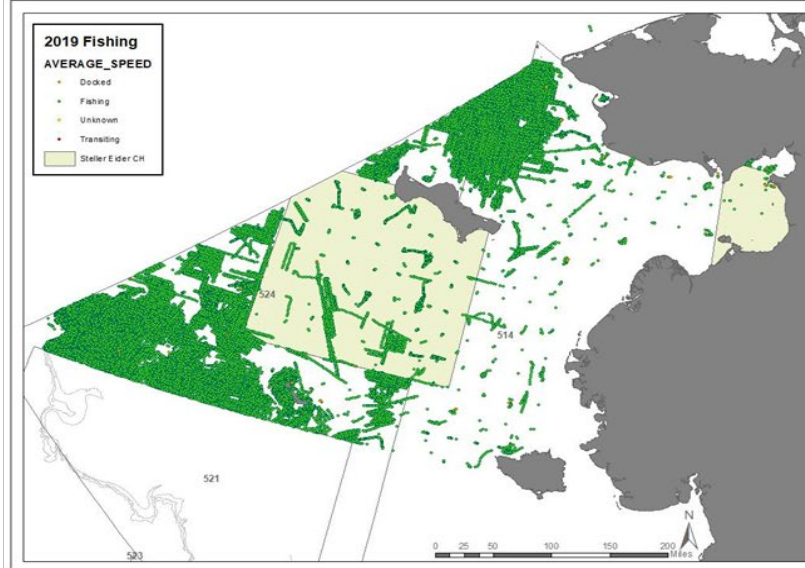
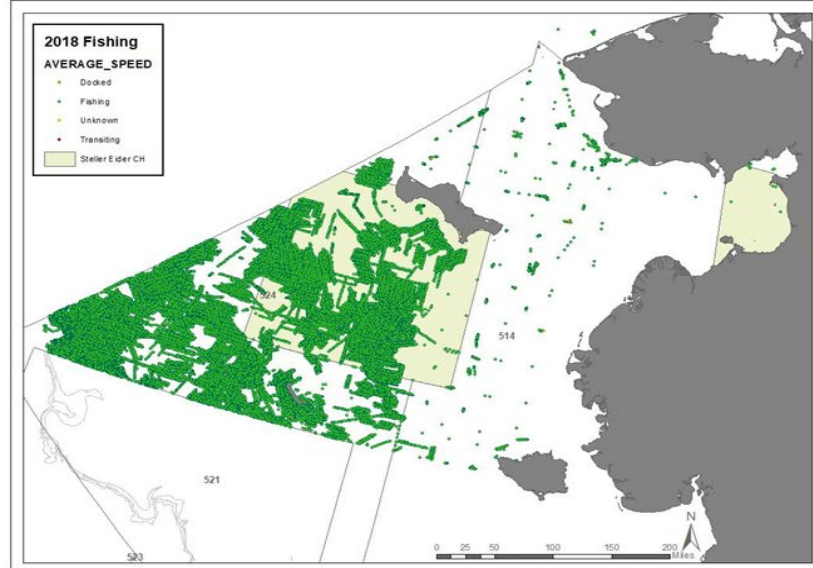
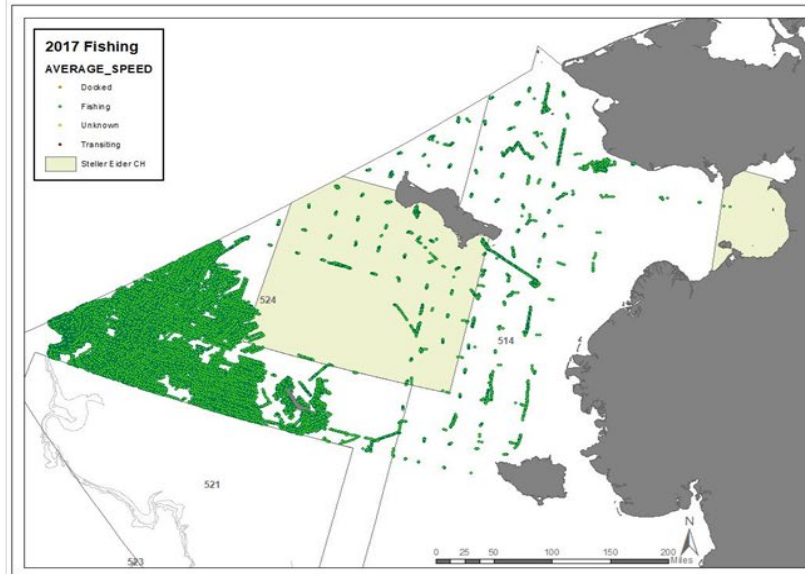
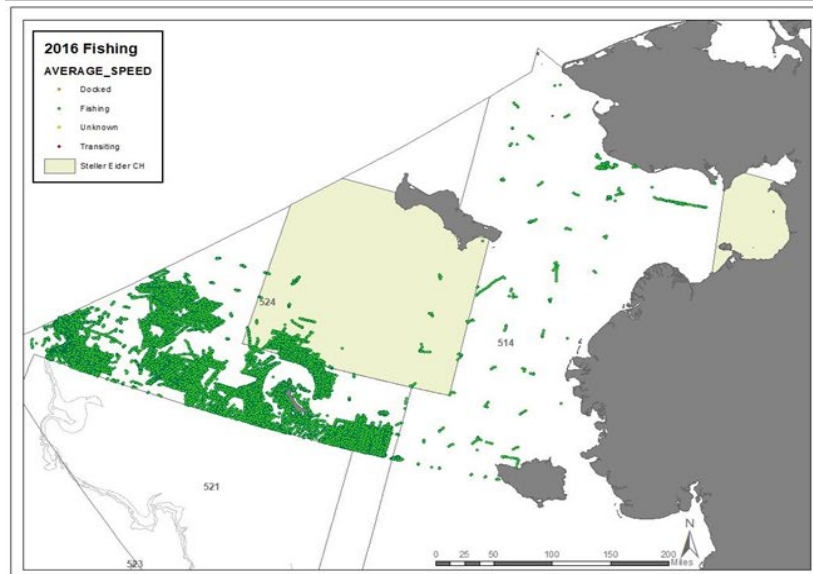
# 2021 Biological Opinion – BSAI and GOA Groundfish Fisheries

- -The 2021 Biological Opinion included an incidental take statement for both the spectacled eider and the Steller's eider. For the spectacled eider, the incidental take statement reads: **The reported take should not exceed 25 spectacled eiders in a floating 4-year period.** For Steller's eider, the incidental take statement reads: **The reported take should not exceed three Steller's eiders in a floating 4-year period.** The incidental take statement for short-tailed albatross did not change from that provided in the 2015 Biological Opinion: **The reported take should not exceed six albatrosses in a 2-year period.**
- -The NMFS will recommend that to the maximum extent practicable vessels will minimize the use of external lighting at night and avoid the use of sodium lighting and other high-wattage light sources, except when necessary for vessel and crew safety. The NMFS will also recommend that all lights should be angled or shielded downward toward the surface of the water, except when necessary for safe vessel operation.



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# Change In Seabird Bycatch

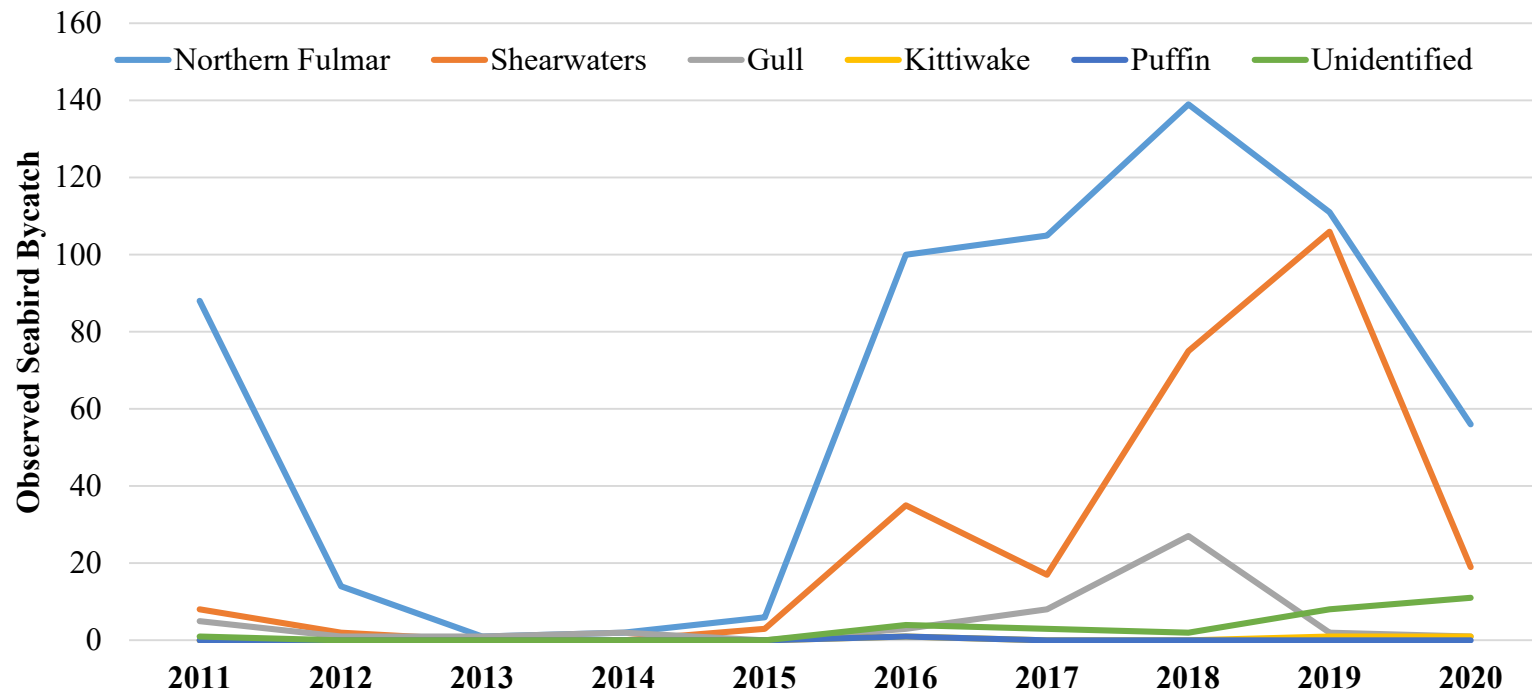


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# Observed Seabird Bycatch – Northern Bering Sea

Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Ann. Avg.
Northern Fulmar	88	14	1	2	6	100	105	139	111	56	62
Shearwaters	8	2	0	0	3	35	17	75	106	19	27
Gull	5	1	1	2	0	3	8	27	2	1	5
Kittiwake	0	0	0	0	0	1	0	0	1	1	0
Puffin	0	0	0	0	0	1	0	0	0	0	0
Unidentified	1	0	0	0	0	4	3	2	8	11	3
<b>Grand Total</b>	<b>102</b>	<b>17</b>	<b>2</b>	<b>4</b>	<b>9</b>	<b>144</b>	<b>133</b>	<b>243</b>	<b>228</b>	<b>88</b>	<b>97</b>

Observer Seabird Bycatch - Northern Bering Sea



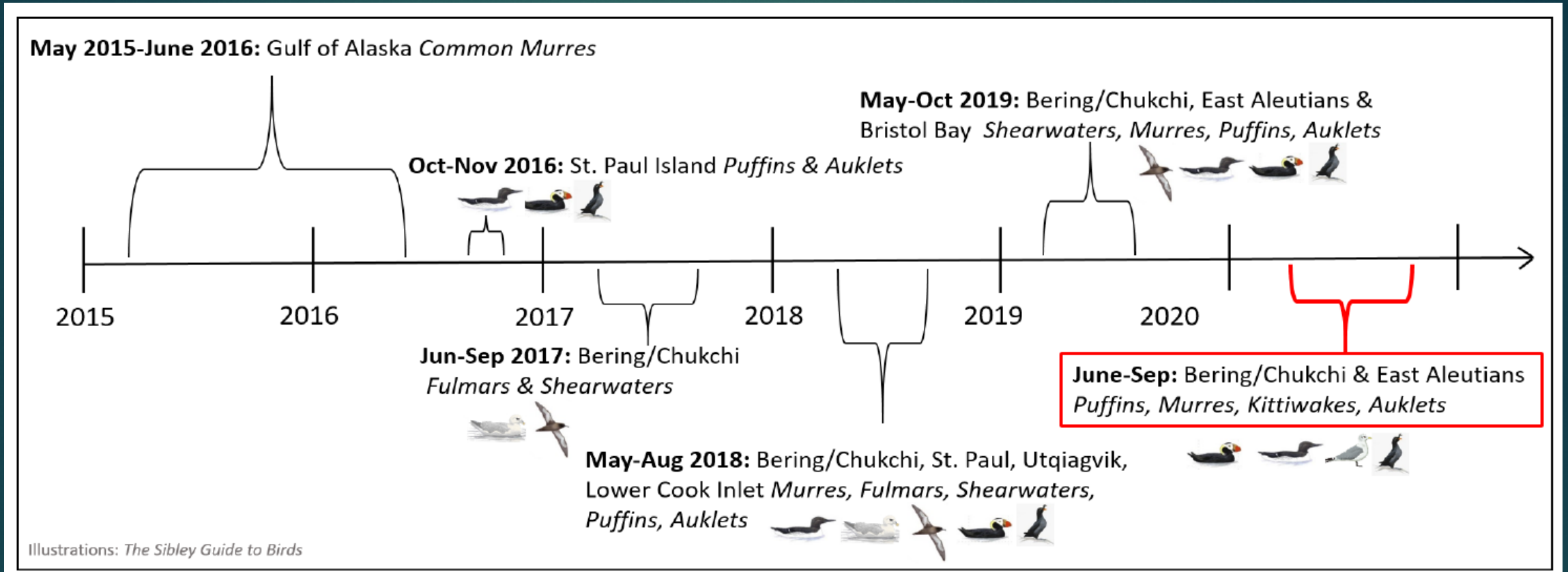
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## 2020 Seabird Updates

- Seabird trends and productivity data not available for 2020. Majority of seabird monitoring projects were cancelled due to COVID-19
- Update on 2020 Seabird Die-off Events
- Distribution of seabirds in Gulf of Alaska based on limited offshore surveys in July & Sept 2020
- Highlight recent publication on the change of seabird distribution in the northern Bering and Chukchi seas
- Highlight upcoming seabird data analysis projects



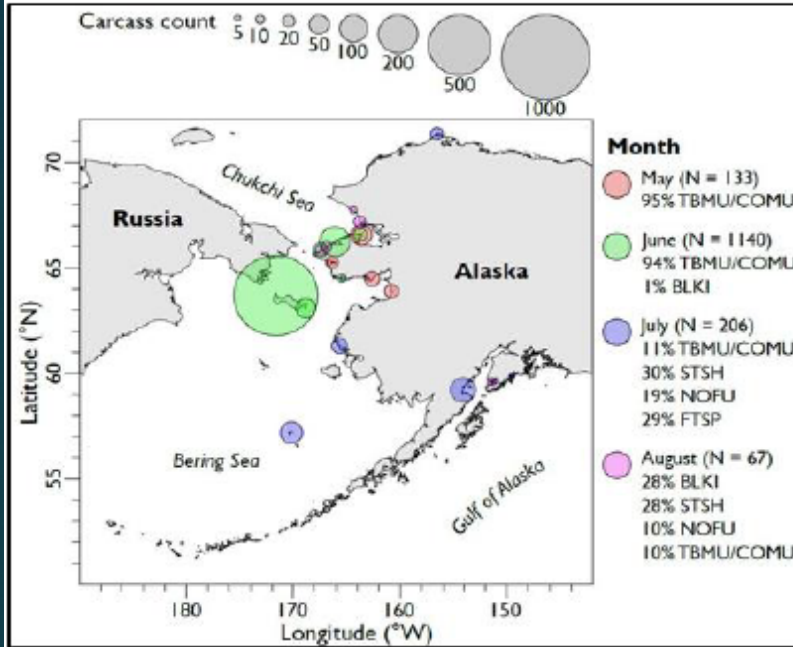
# Alaska Seabird Die-off Timeline



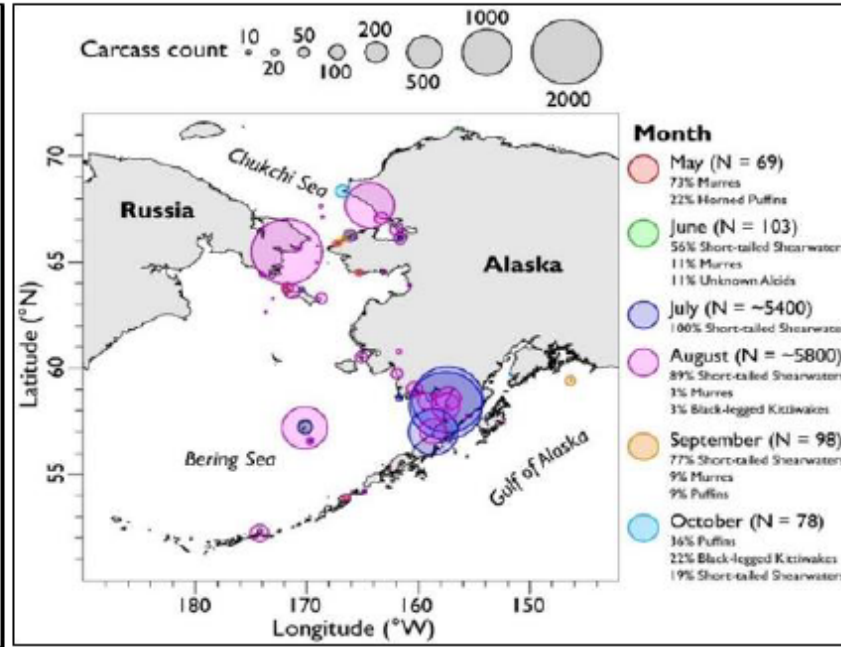
- Die-offs typically reported May – October annual since 2015
- Primary species: murres, puffins, auklets, shearwaters, fulmars and kittiwakes
- In 2020 the number of seabird carcasses reported was lower than previous years primarily in the northern Bering Sea

# 2018-2020 Seabird Die-off Maps

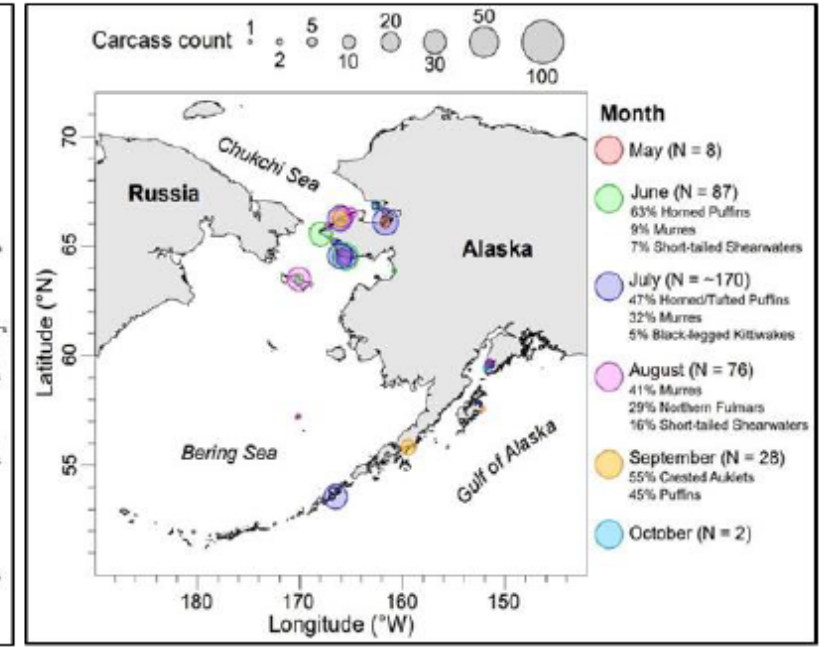
2018



2019



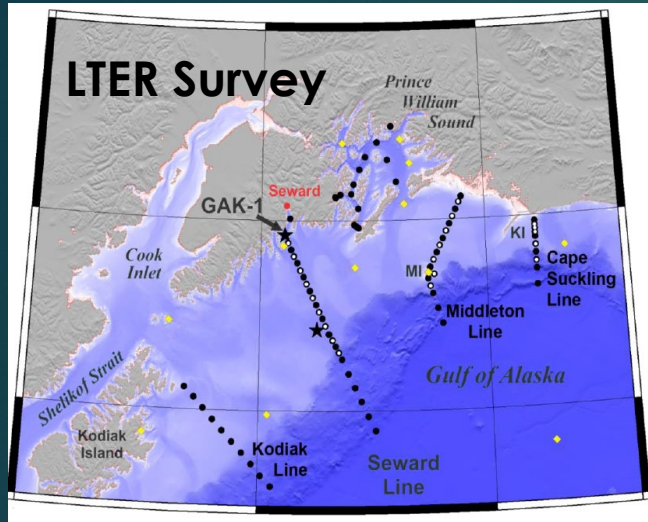
2020



- Size of circles indicate magnitude of total seabird carcasses reports per month
- In 2020 we recorded a total of 330 seabird carcasses, of those 18 were necropsied.
- Cause Of Death was determined to be emaciation
- Emaciation likely caused by lack of food availability
- Reports courtesy of tribal, state and federal partners, maps courtesy of COASST



# Marine Bird Surveys- GOA 2018-2020



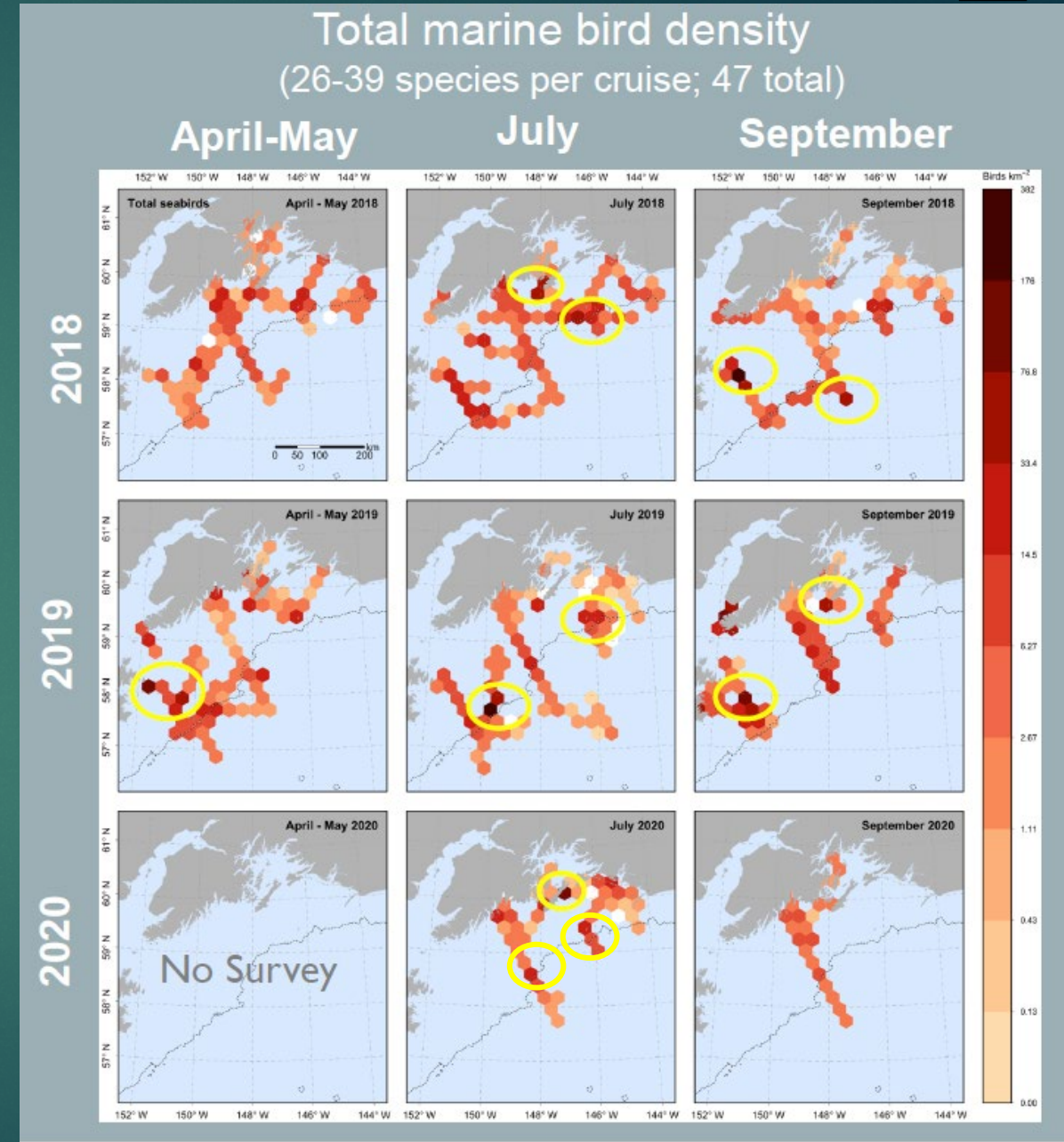
Survey Effort (km)			
	Apr-May	Jul	Sep
2018	1851	2204	1557
2019	1414	2160	1440
2020	0	1370	756
<b>Total</b>			<b>12752</b>

## July 2020: Seward Line

- Highest density shelf-break & nearshore
- Different species use these areas
- Middleton & Copper River
- High density inshore, lower mid-shelf
- Middleton Island summer hotspot

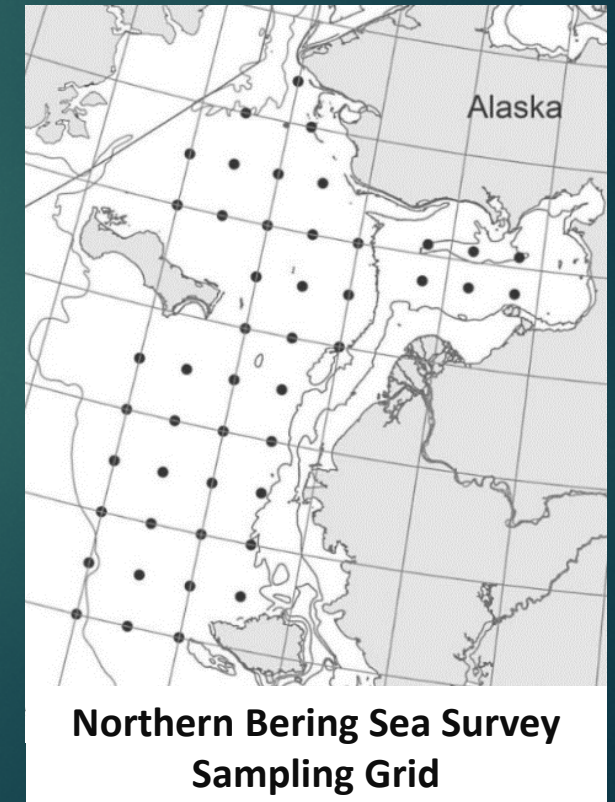
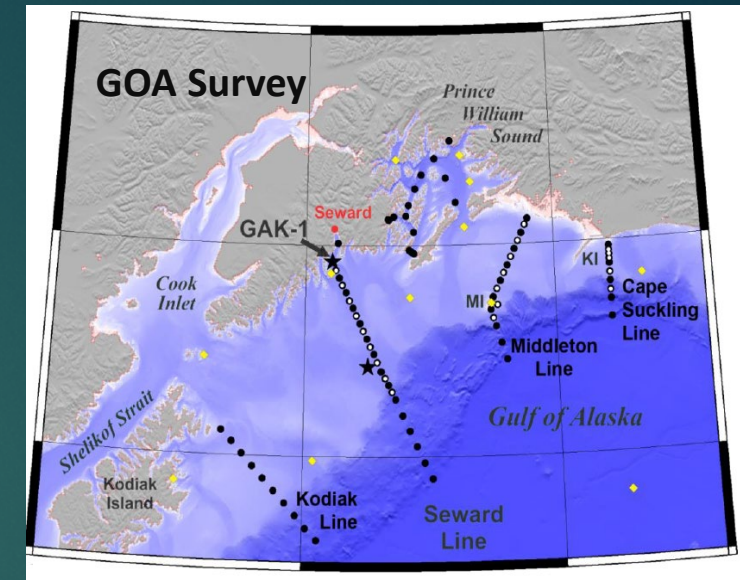
## September 2020: Seward Line

- Density variable in recent years
- 2020 avg, 2019 high, 2018 low



# 2021 Seabird Monitoring & Surveys:

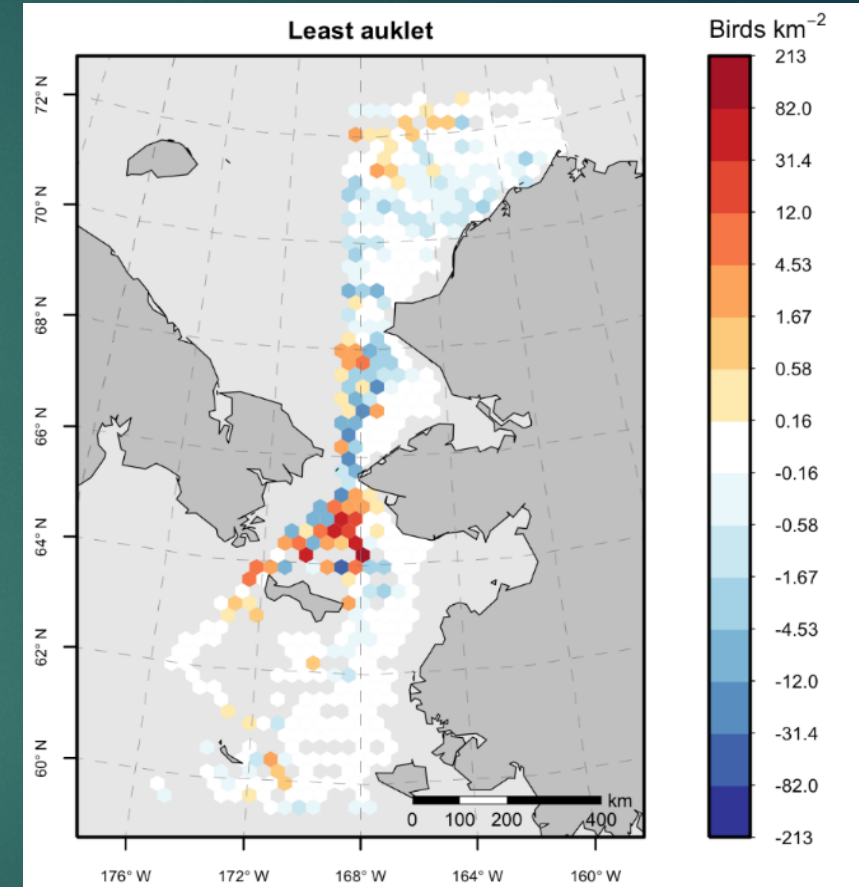
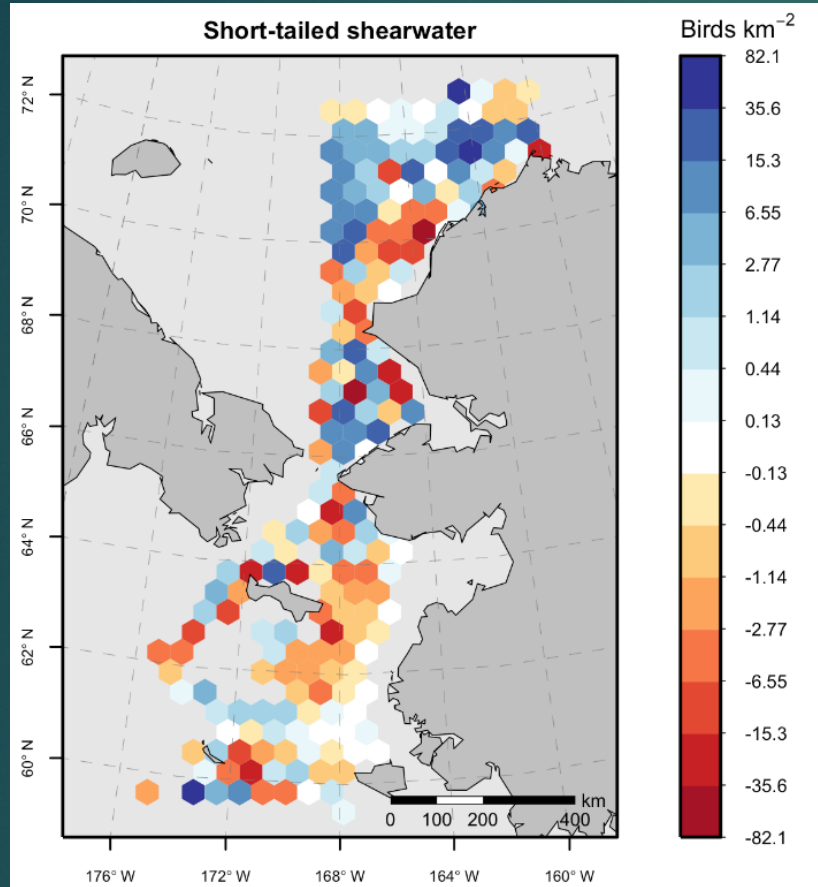
- Alaska Maritime Refuge plans to establish field camp this summer at long-term seabird monitoring colony sites. Update information on seabird population trends & status
- FWS-MBM is coordinating at-sea surveys to provide annual distribution & abundance data on seabirds across Alaska
- Potential surveys:
  - Gulf of Alaska- April, July, and Sept
  - Bering Sea- May (FOCI), and August (NBS)



# Changes in distribution: 2017-2019, compared to 2007-2016

## Increase or decrease in warmest years (2017-2019)

Two examples



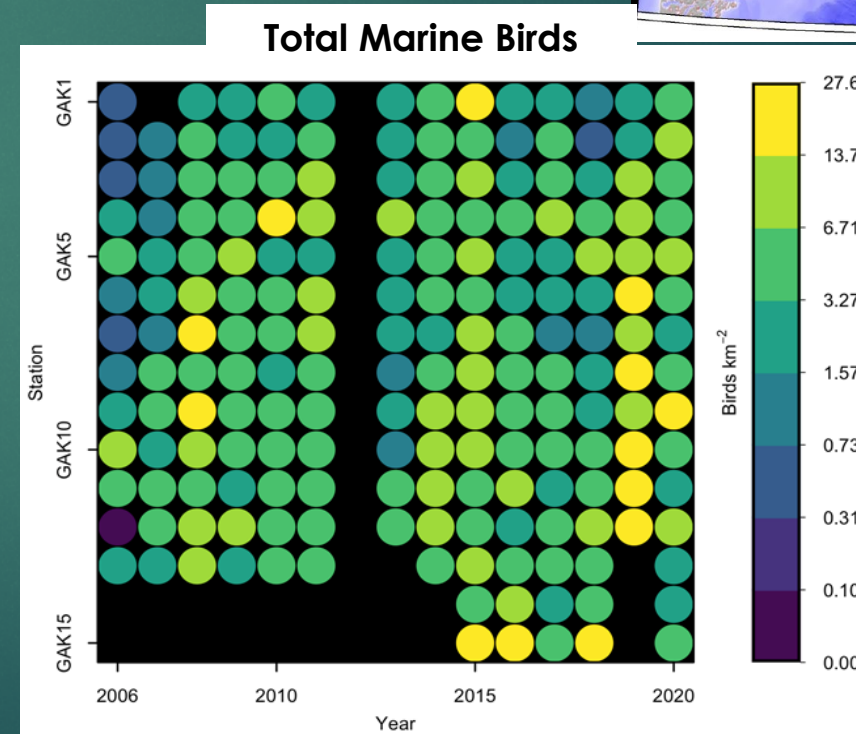
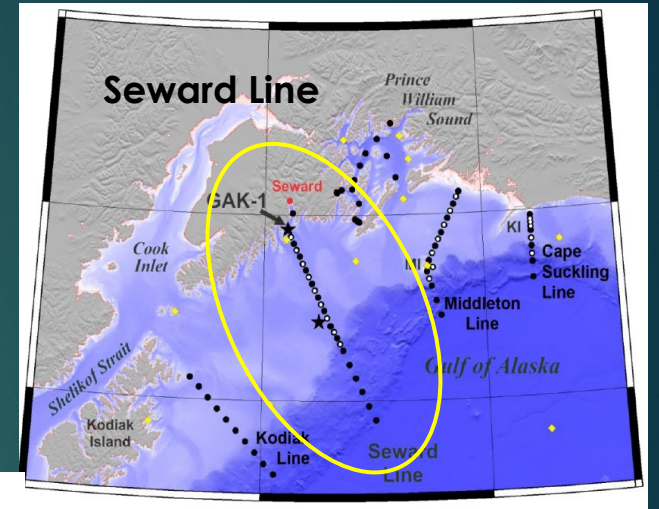
Short-tailed shearwaters increased (reds) in N. Bering & parts Chukchi, mostly decreased (blues) in Chukchi

Least auklets increased (reds) in N. Bering, mostly decreased (blues) in Chukchi

*From:* Distributional shifts among seabird communities of the Northern Bering and Chukchi seas in response to ocean warming during 2017–2019. Kuletz, Cushing, Labunski, 2020, Deep Sea Research II

# Seward Line Spring Survey Analysis (1998-2019)- *in progress*

- Analysis will focus on long-term trend of 8 focal seabird relative to water mass properties
- Best predictors: Year, depth, salinity, temperature and water column properties
- Species:
  - Shearwaters
  - Northern Fulmars
  - Fork-tailed Storm-petrels
  - Black-footed Albatross
  - Glaucous-winged Gull
  - Black-legged Kittiwakes
  - Tufted Puffin
  - Murres (common & thick-billed)



Since 2006-  
higher  
seabird  
densities near  
shelf edge,  
fewer puffins;  
other fish  
eaters  
possibly lower

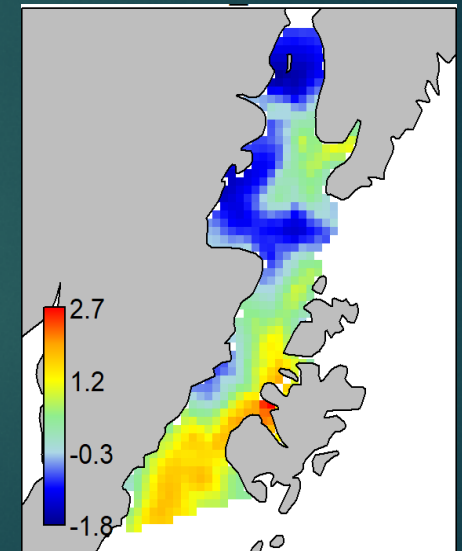
Anticipate draft manuscript by fall 2021

# VAST Spatio-temporal Model for Bering & Chukchi Seas- *in progress*

- Provide information on seasonal spatial patterns of seabirds
- Collaborative efforts with USGS, NOAA, others
  - Use vectorized autoregressive spatio-temporal (VAST) models
  - Can be applied to at-sea survey data for conservation and management purposes
  - Will use North Pacific Pelagic Seabird Database (NPPSD) + new survey data not yet incorporated
  - Gridded model densities (by month) will inform efforts to assess risk and mitigate impacts of resource development

## Linear Combinations of:

- Temporal effects
- Spatial effects
- Spatiotemporal effects
- Covariate effects
- Catchability effects



Common murre spatial niche locations in Lower Cook Inlet/Kodiak ; courtesy USGS



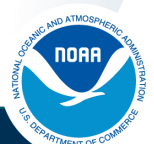
Primary funding agency



Jim Thorson, VAST developer



# Thank You!



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# Seabird Bycatch Estimates

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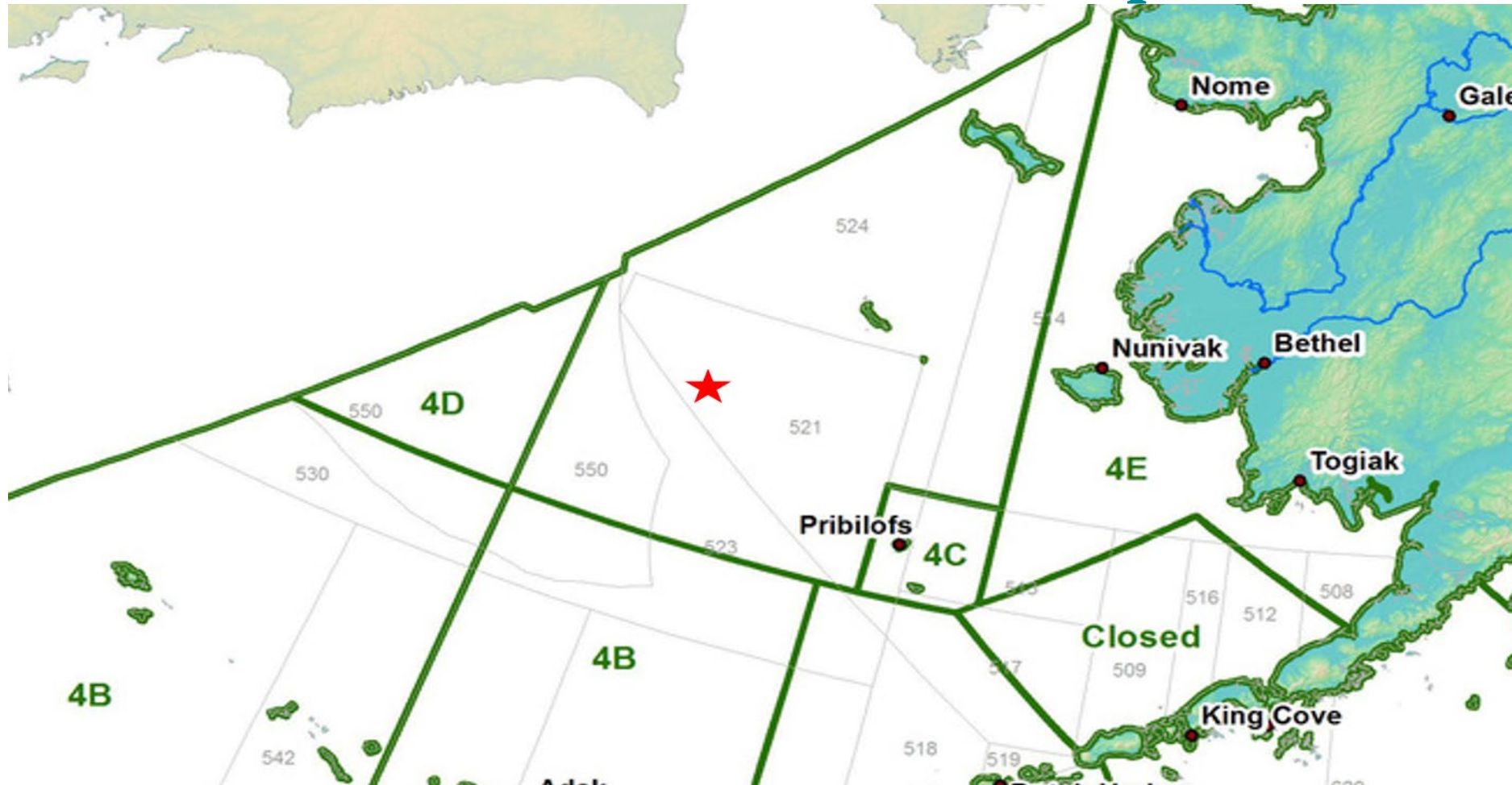
Species/ Species Group	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Annual Average
Unidentified Albatross	10	0	28	35	0	0	0	53	19	0	15
Short-tailed Albatross	5	0	0	11	0	0	0	0	0	11	3
Laysan Albatross	210	140	207	97	222	129	72	279	53	31	144
Black-footed Albatross	221	142	449	283	363	200	733	312	218	82	300
Northern Fulmar	6,347	3,149	3,196	822	3,547	5,455	4,443	3,359	2,975	2,437	3,573
Shearwaters	265	575	253	187	392	3,416	2,102	726	5,272	333	1,352
Storm Petrels	0	0	0	0	0	0	0	177	0	0	18
Gull	2,264	899	639	742	1,258	762	858	753	219	180	857
Kittiwake	6	5	3	4	12	5	22	37	18	24	14
Murre	14	6	3	47	0	58	10	0	0	6	14
Puffin	0	0	0	0	0	10	0	0	0	0	1
Auklets	0	7	4	107	69	29	36	102	0	0	35
Other Alcid	0	0	0	39	0	0	0	6	6	0	5
Cormorant	0	0	0	0	31	0	0	0	0	0	3
Other Birds	0	0	0	0	0	0	63	0	0	8	7
Unidentified Birds	387	343	293	78	193	301	292	221	193	350	265
<b>Grand Total</b>	<b>9,729</b>	<b>5,267</b>	<b>5,075</b>	<b>2,452</b>	<b>6,087</b>	<b>10,365</b>	<b>8,631</b>	<b>6,025</b>	<b>8,974</b>	<b>3,462</b>	<b>6,607</b>

\*2020 data is preliminary



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# Short-tailed albatross take – Sept 26, 2020

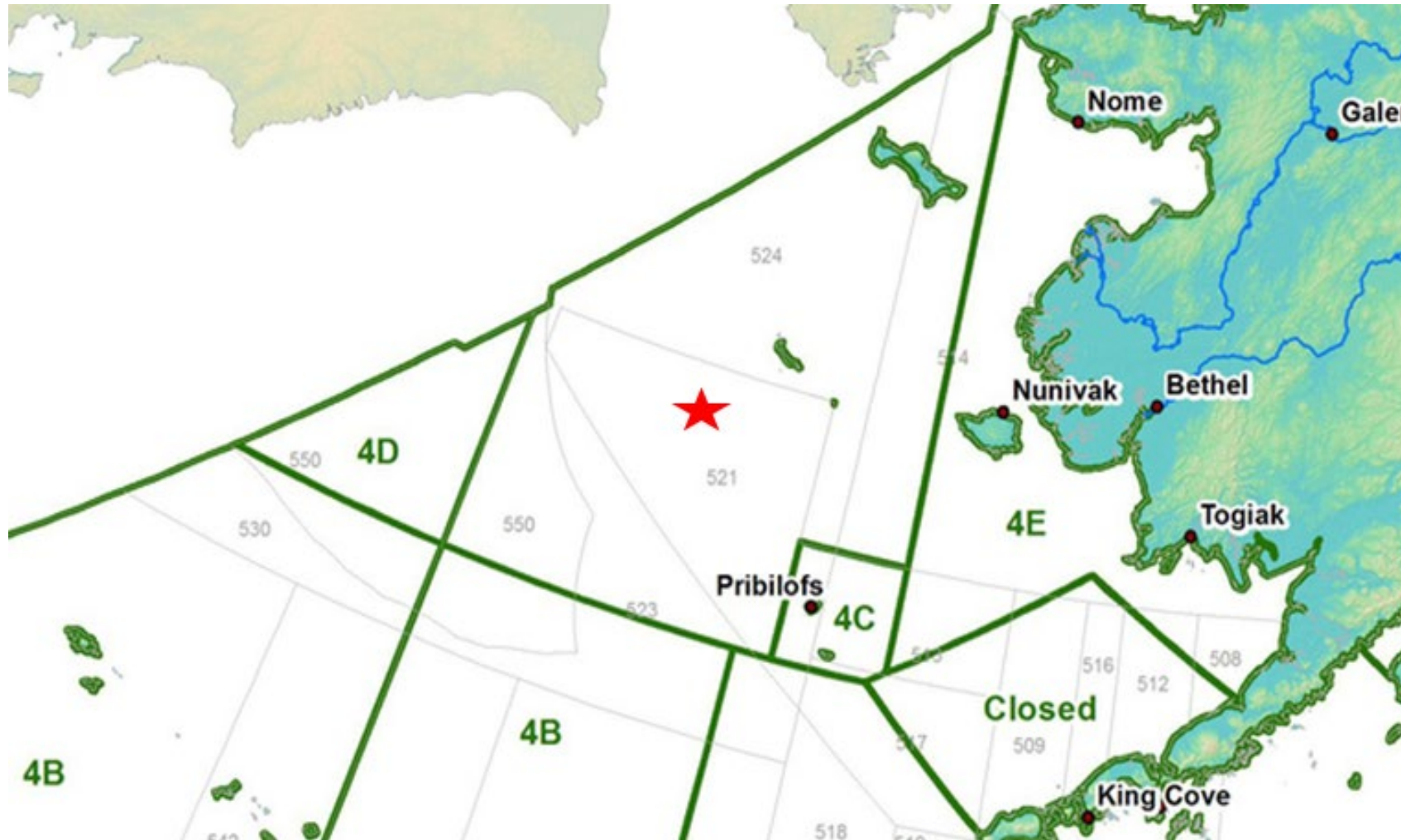


<https://www.fisheries.noaa.gov/bulletin/ib-20-76-noaa-fisheries-reports-take-short-tailed-albatross-bsai>





# Short-tailed albatross take – Oct 16, 2020

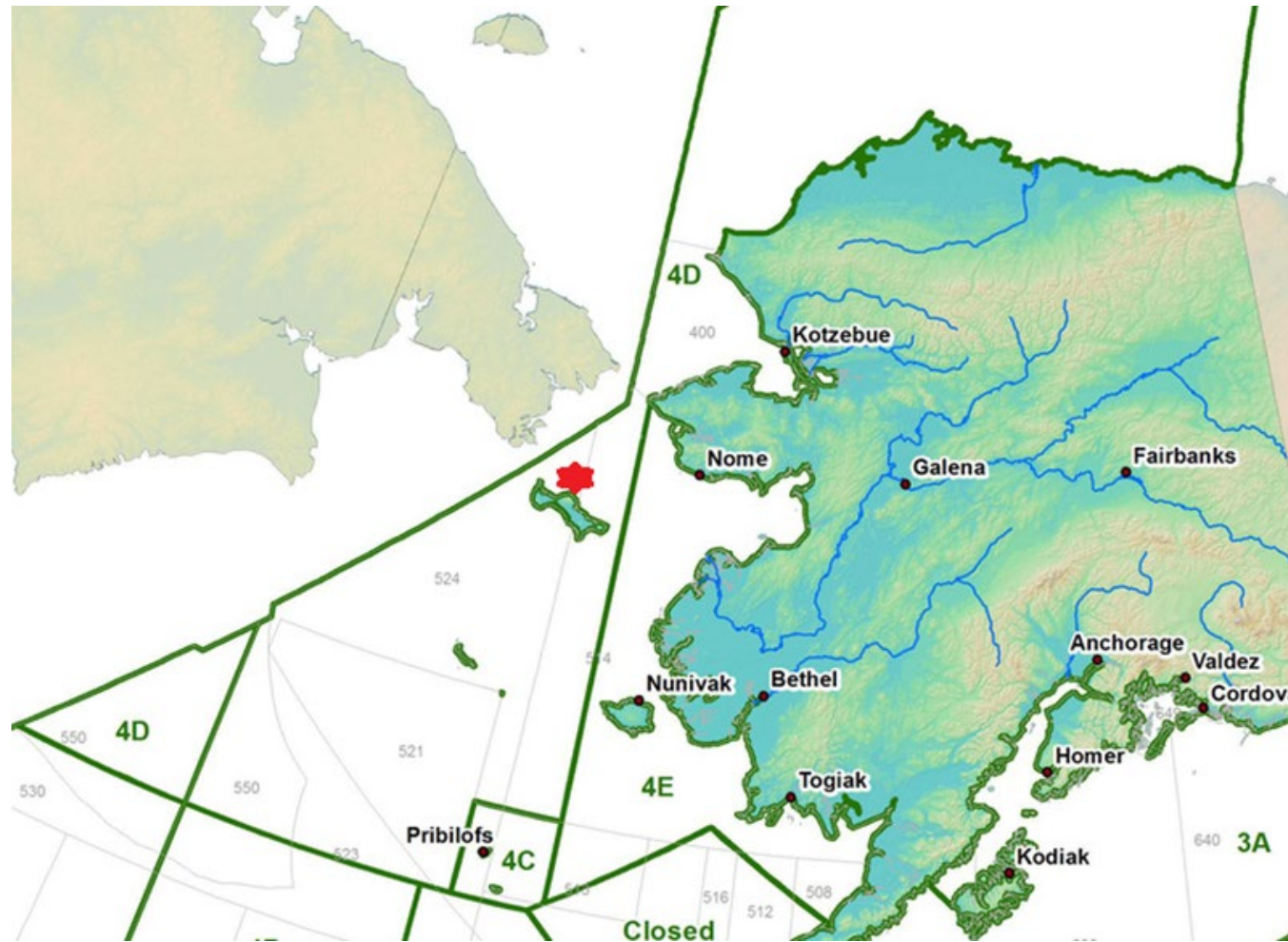


<https://www.fisheries.noaa.gov/bulletin/ib-20-80-noaa-fisheries-reports-take-second-short-tailed-albatross-bsai>



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FISHERIES

# Spectacled eider take – Oct 10, 2019

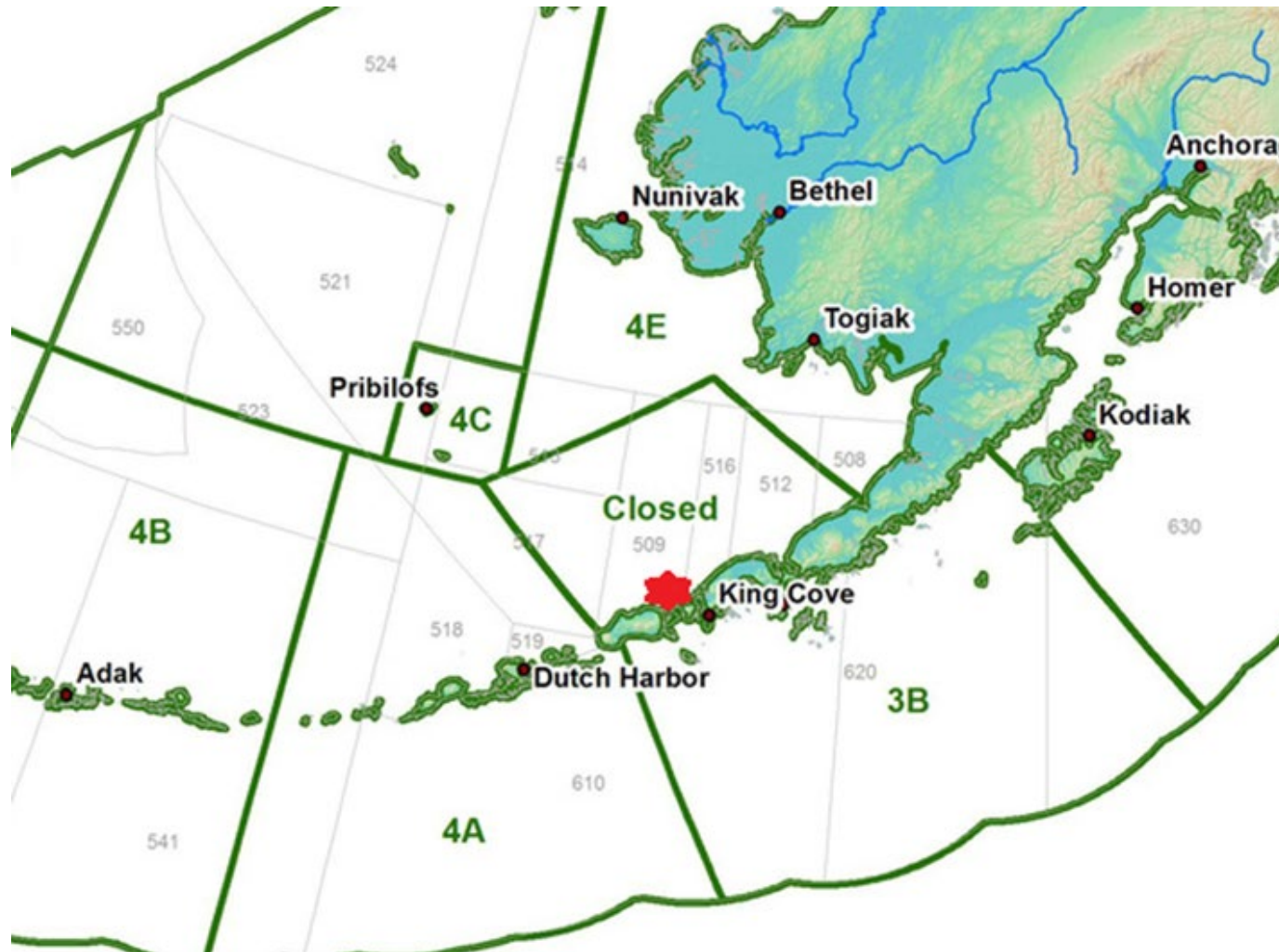


<https://www.fisheries.noaa.gov/bulletin/ib-20-26-nmfs-reports-vessel-strike-mortality-event-22-spectacled-eiders-bering-sea>



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# Steller's eider take – Oct 16, 2020



<https://www.fisheries.noaa.gov/bulletin/ib-20-32-nmfs-reports-vessel-strike-mortality-alaska-breeding-population-stellers>



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# Alaska Region Annual Seabird Bycatch Report



<https://www.fisheries.noaa.gov/alaska/bycatch/seabird-bycatch-alaska>

