

NSRAA ADULT RETURNS 2017 & 2018 FORECAST

Steve Reifenstuhl & Chip Blair

November 2017

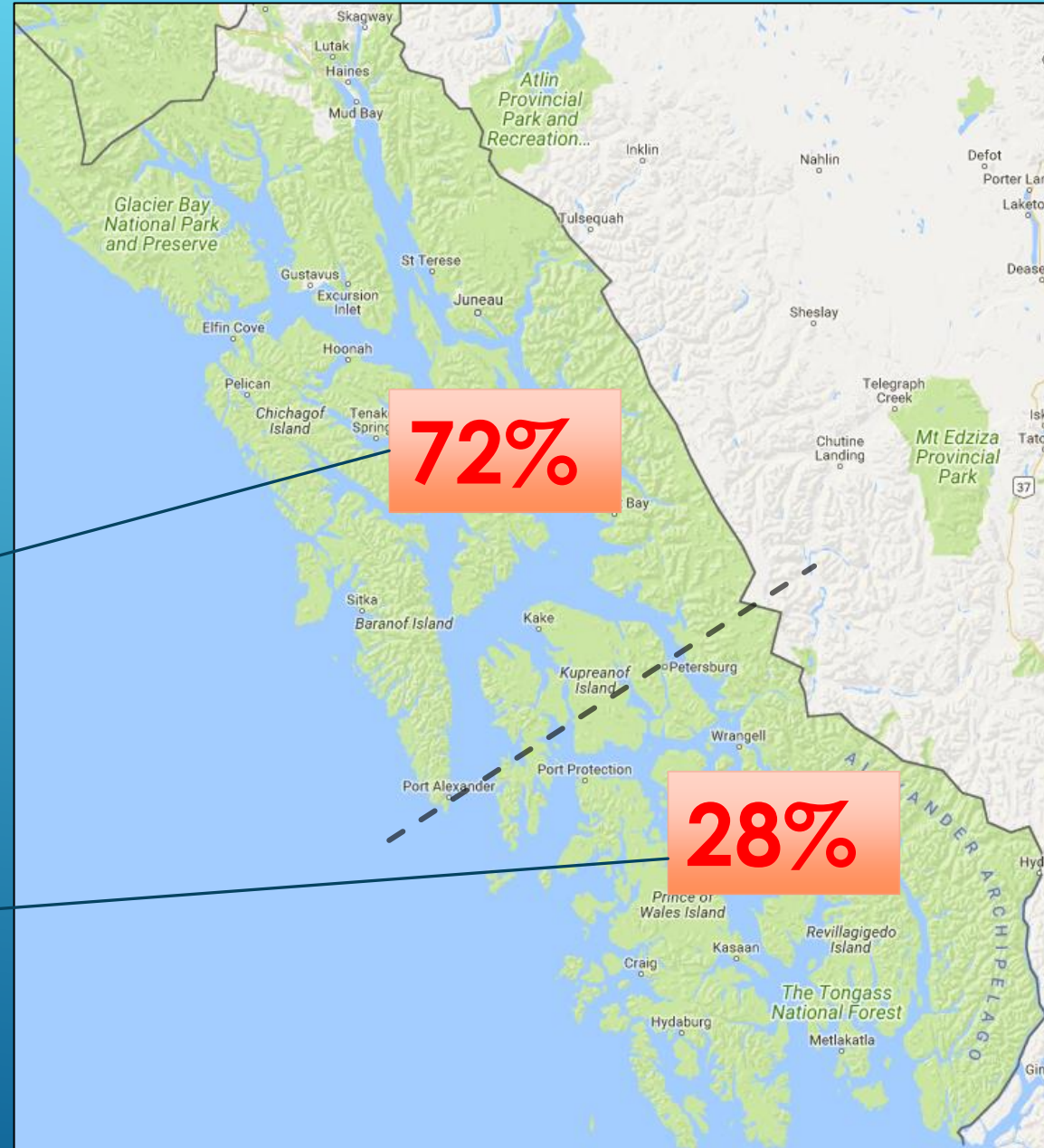


PART 1 – SOUTHEAST HARVEST 2017

**2017 Ex-vessel Value
of SEAK Salmon
Harvest**
\$132.5 million

Northern Districts
\$95.3 million

Southern Districts
\$37.2 million

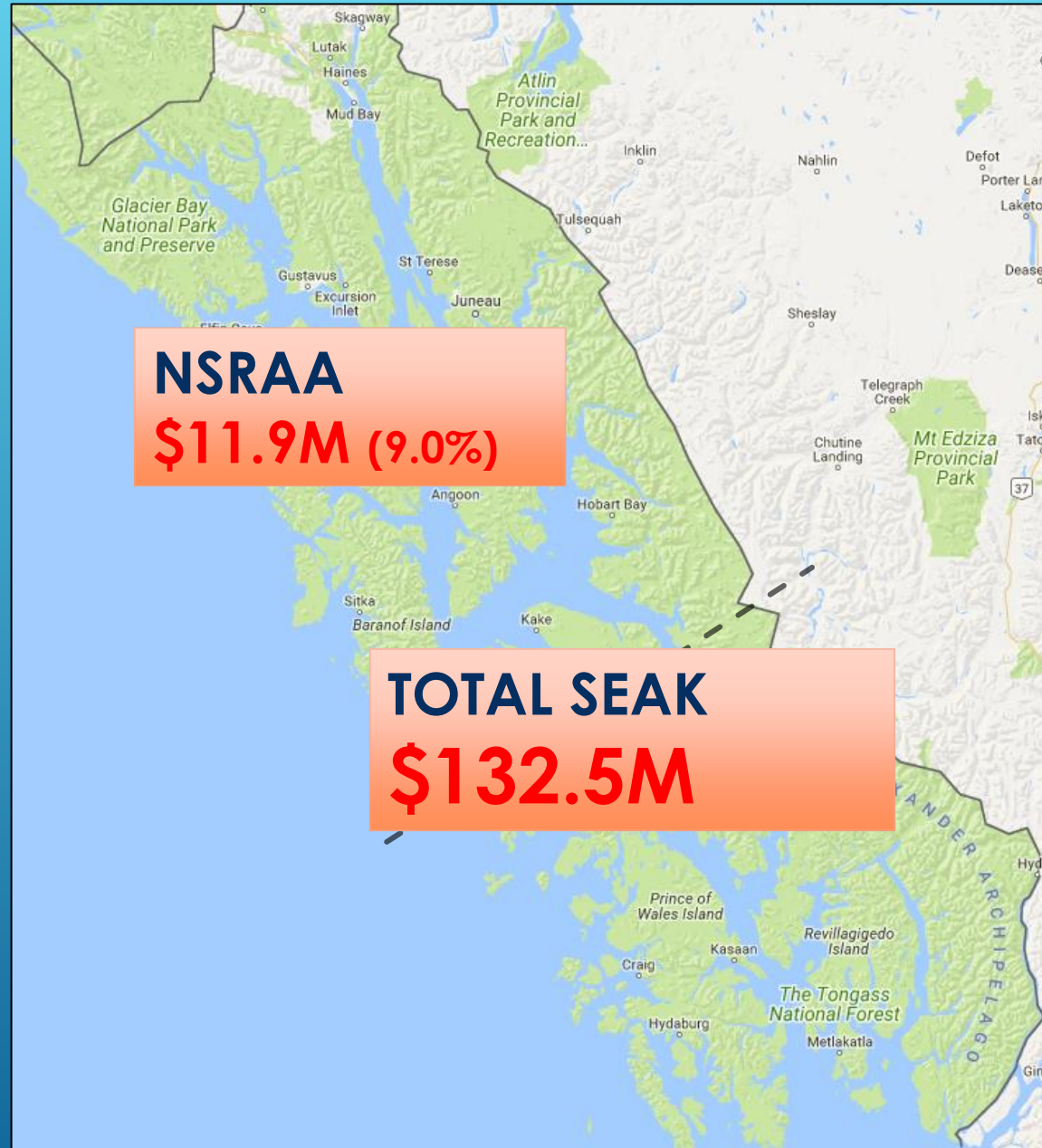


2017 Value of NSRAA Fish

\$11.9 million

9% of

SE Total Value
\$132.5M

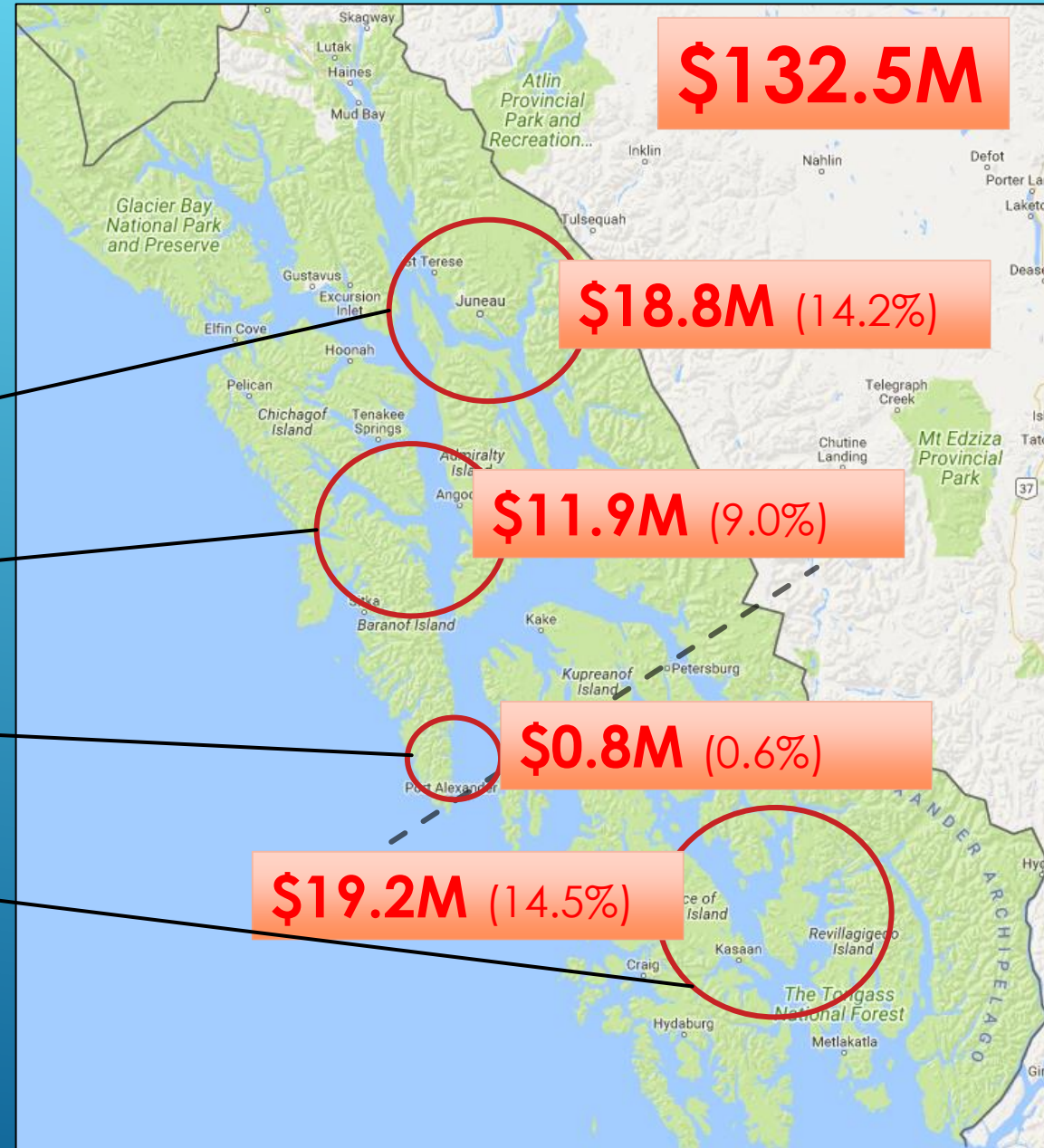


2017 Enhanced Value

\$50.6M

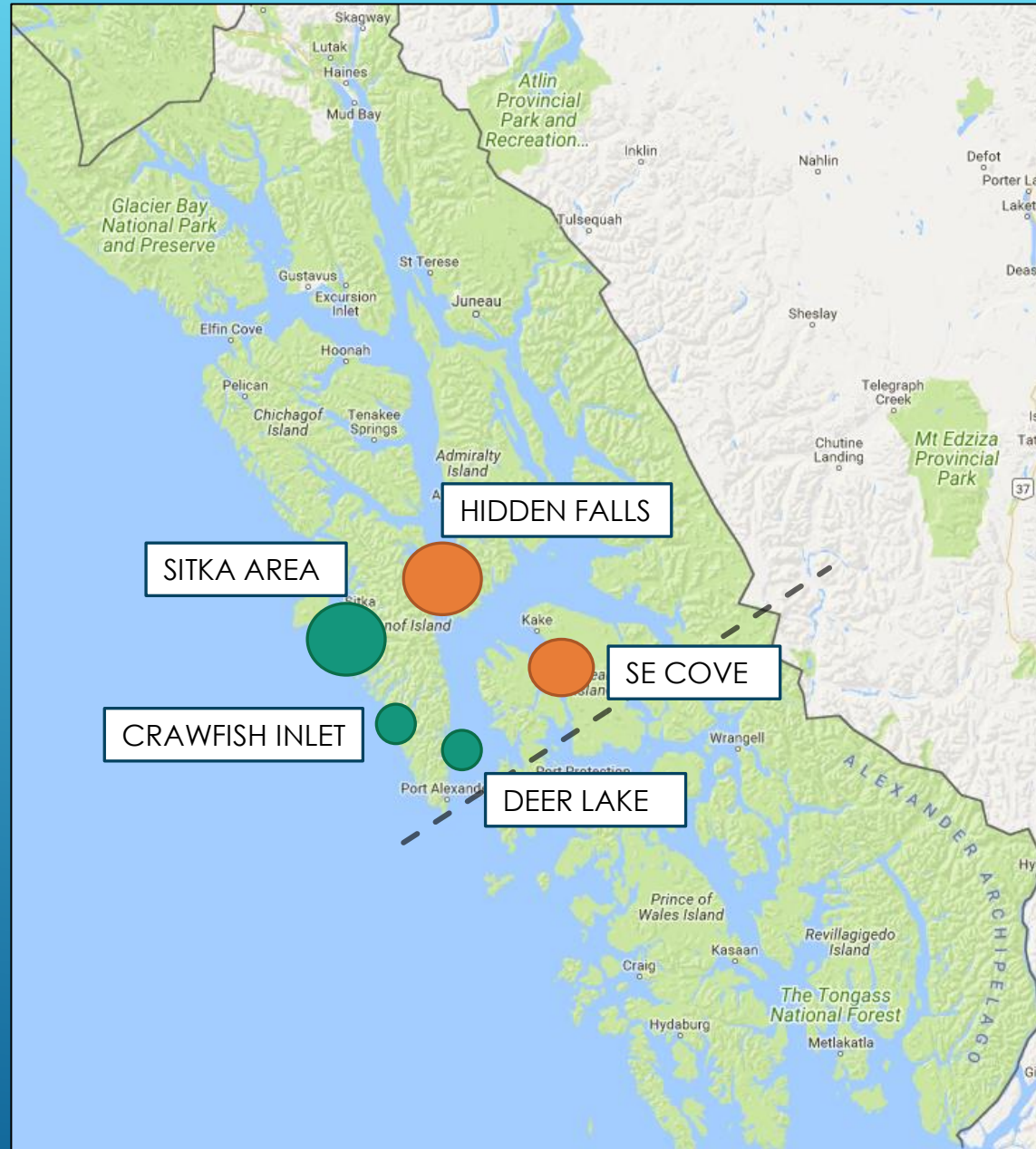
(38.2% of Total)

- **DIPAC** \$18.8 million
- **NSRAA** \$11.9 million
- **AKI** \$0.8 million
- **SSRAA** \$19.2 million



2017 NSRAA Returns

- Sitka Area - very good (except Chinook)
- Crawfish - very good
- Deer Lake – good
- Hidden Falls – poor with some improvement
- Southeast Cove - poor



PART 2 – QUICK ALLOCATION UPDATE

The image features a solid blue background with a vertical gradient, transitioning from a lighter blue at the top to a darker blue at the bottom. In the bottom right corner, there are several thin, white, parallel diagonal lines that create a sense of motion or a modern design element.

2017 Estimates

NSRAA Value

	Troll	Gillnet	Seine	Total
COHO	\$ 1,097,603.79	\$ 40,032.72	\$ 82,915.36	\$ 1,220,552
CHIN	\$ 229,054.60	\$ 123,393.87	\$ 53,890.85	\$ 406,339
CHUM	\$ 950,531.68	\$ 2,019,735.85	\$ 6,215,783.11	\$ 9,186,051
SJ Chum - Deep Inlet	\$ 116,423.16	\$ 268,055.69	\$ 693,061.47	\$ 1,077,540
ALL SPECIES:	\$ 2,393,613	\$ 2,451,218	\$ 7,045,651	
TOTAL COMMERCIAL VALUE:				\$ 11,890,482

NSRAA -10/26/2017. Chum includes all Deep Inlet catch (NSRAA + SJH contribution)

***NO HF ASSESSMENT ADJ THIS YEAR (NO TAX)

DIPAC Value

	Troll	Gillnet	Seine	Total
COHO	\$ 54,886.60	\$ 17,069.60	\$ 9,097.63	\$ 81,054
CHIN	\$ 14,250.72	\$ 48,152.09		\$ 62,403
CHUM	\$ 6,316.54	\$ 14,348,186.25	\$ 3,911,854.62	\$ 18,266,357
SOCKEYE		\$ 305,243.67	\$ 102,486.67	\$ 407,730
ALL SPECIES:	\$ 75,454	\$ 14,718,652	\$ 4,023,439	
TOTAL COMMERCIAL VALUE:				\$ 18,817,544

Adam Zaleski

SSRAA Value

	Troll	Gillnet	Seine	Total
COHO	1,282,049	240,101	23,061	\$ 1,545,211
CHIN	525,914	694,331	398,781	\$ 1,619,026
CHUM	1,985,975	5,799,955	8,226,145	\$ 16,012,075
SOCKEYE				\$ -
ALL SPECIES:	\$ 3,793,938	\$ 6,734,387	\$ 8,647,987	\$ 19,176,312
TOTAL COMMERCIAL VALUE:				\$ 19,176,312

John Holt- 10.26.17

AKI

	Troll	Gillnet	Seine	Total
COHO	\$ 741,424.00		\$ 6,732.00	\$ 748,156
CHIN	25,781	\$ 504.00	\$ 441.00	\$ 26,726
CHUM				
PINK				
ALL SPECIES:	\$ 767,205	\$ 504	\$ 7,173	\$ 774,882
TOTAL COMMERCIAL VALUE:				\$ 774,882

Chip est 10/26/17 need chum,pink

2017

	Troll	Gillnet	Seine	Total
Totals All Associations	\$ 7,030,210	\$ 23,904,761	\$ 19,724,250	\$ 50,659,220
Percent of Total	13.9%	47.2%	38.9%	100.0%

DATA SOURCE FOR 2017: POST-SEASON POLL OF AGENCIES

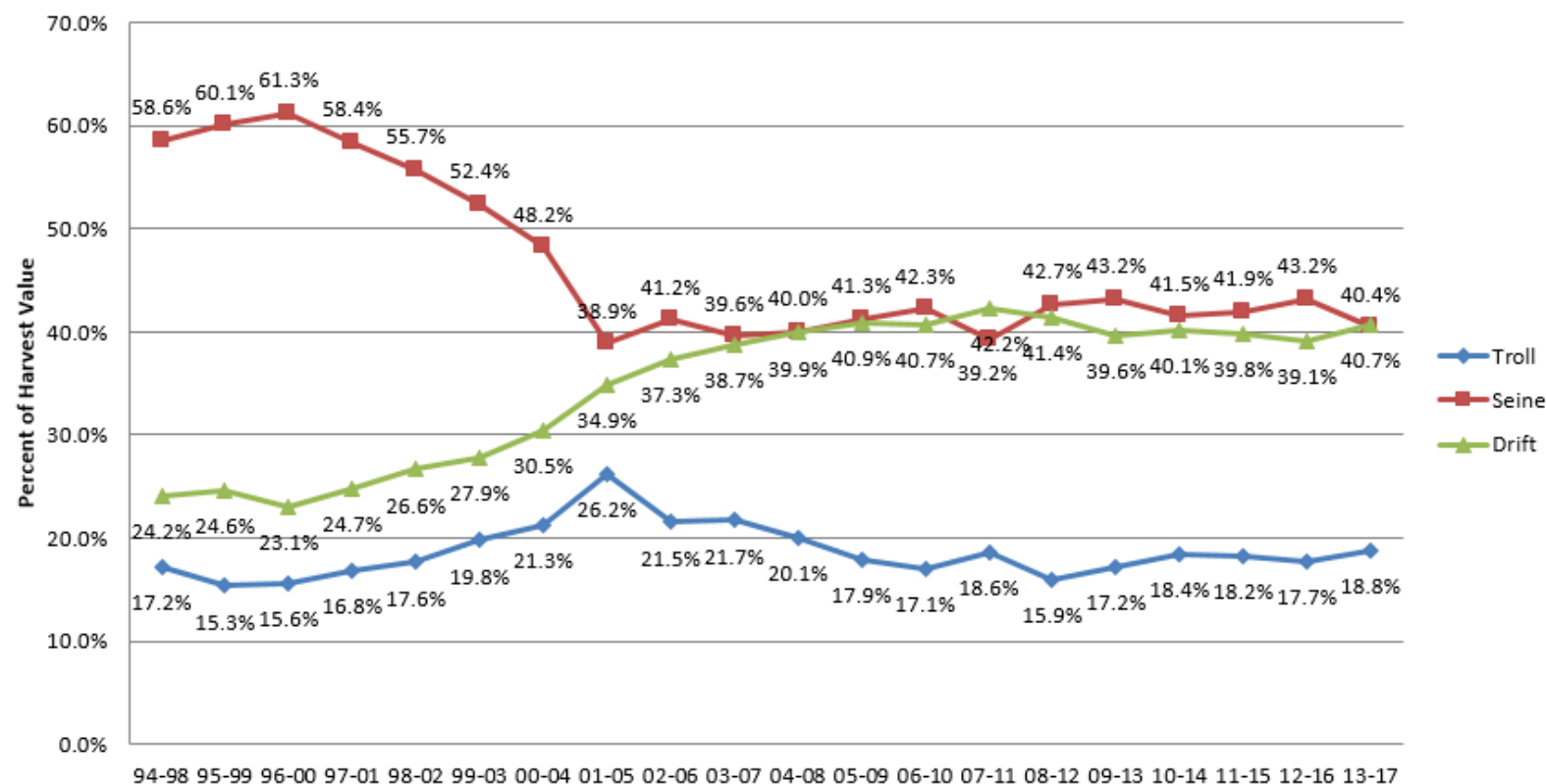
Summary Table - Annual Value Estimates by Gear

ALL SPECIES	TROLL	SEINE	GILLNET	TOTAL	SOURCE	RANK
1994	\$ 5,317,271	\$ 8,876,576	\$ 3,797,692	\$ 17,991,540	ADFG	16
1995	\$ 2,871,032	\$ 14,789,338	\$ 7,169,053	\$ 24,829,423	ADFG	13
1996	\$ 3,224,761	\$ 12,061,185	\$ 4,184,597	\$ 19,470,543	ADFG	15
1997	\$ 3,004,073	\$ 10,752,998	\$ 4,037,169	\$ 17,794,241	ADFG	17
1998	\$ 1,973,521	\$ 9,277,676	\$ 3,792,912	\$ 15,044,109	ADFG	20
1999	\$ 3,461,492	\$ 10,061,642	\$ 4,110,113	\$ 17,633,247	ADFG	18
2000	\$ 3,465,550	\$ 17,113,326	\$ 6,219,903	\$ 26,798,778	ADFG	12
2001	\$ 3,752,912	\$ 7,170,159	\$ 4,852,294	\$ 15,775,364	ADFG	19
2002	\$ 2,303,490	\$ 3,645,488	\$ 3,627,174	\$ 9,576,152	ADFG	24
2003	\$ 2,774,408	\$ 3,744,188	\$ 3,385,285	\$ 9,903,881	ADFG	23
2004	\$ 4,139,539	\$ 5,498,187	\$ 5,400,059	\$ 15,037,785	ADFG	21
2005	\$ 3,522,736	\$ 4,405,236	\$ 4,707,650	\$ 12,635,622	ADFG	22
2006	\$ 4,192,671	\$ 15,109,033	\$ 12,215,370	\$ 31,517,075	ADFG	9
2007	\$ 4,728,923	\$ 6,531,971	\$ 8,851,525	\$ 20,112,418	ADFG	14
2008	\$ 7,319,611	\$ 16,158,998	\$ 16,385,073	\$ 39,863,682	ADFG	6
2009	\$ 4,032,749	\$ 12,746,563	\$ 12,255,256	\$ 29,034,568	ADFG	11
2010	\$ 7,215,190	\$ 17,451,677	\$ 15,728,240	\$ 40,395,107	ADFG	5
2011	\$ 9,109,654	\$ 15,430,492	\$ 20,391,332	\$ 44,931,479	ADFG	4
2012	\$ 8,113,226	\$ 34,363,203	\$ 28,453,598	\$ 70,930,027	ADFG	1
2013	\$ 13,266,168	\$ 24,834,517	\$ 19,221,485	\$ 57,322,171	ADFG	2
2014	\$ 8,786,771	\$ 12,912,970	\$ 17,772,977	\$ 39,472,718	ADFG	7
2015	\$ 6,063,853	\$ 16,689,459	\$ 13,068,340	\$ 35,821,652	ADFG	8
2016	\$ 4,983,196	\$ 11,912,132	\$ 12,744,562	\$ 29,639,890	ADFG prelim	10
2017	\$ 7,030,210	\$ 19,724,250	\$ 23,904,761	\$ 50,659,220	Operators	3
1994-17 Total	\$ 124,653,008	\$ 311,261,264	\$ 256,276,420	\$ 692,190,692		
1994-17 Avg.	\$ 5,193,875	\$ 12,969,219	\$ 10,678,184	\$ 28,841,279		
1994-17 Percent	18%	45%	37%	100%		
2017 Percent	14%	39%	47%	100%		
Target	27-32%	44-49%	24-29%			

ENHANCED VALUE: OVERALL RANK = #3
GILLNET #2, SEINE #3, TROLL #7

2017 data is very preliminary; values are from end-of-season (Nov ' 17)
operator estimates from SSRAA, NSRAA, DIPAC, AKI.
(no AKI pink/chum estimate yet)

SE Alaska Enhanced Salmon Value 5-year Rolling Average



Troll
+1.1%

Gillnet
+1.6%

Seine
-2.8%

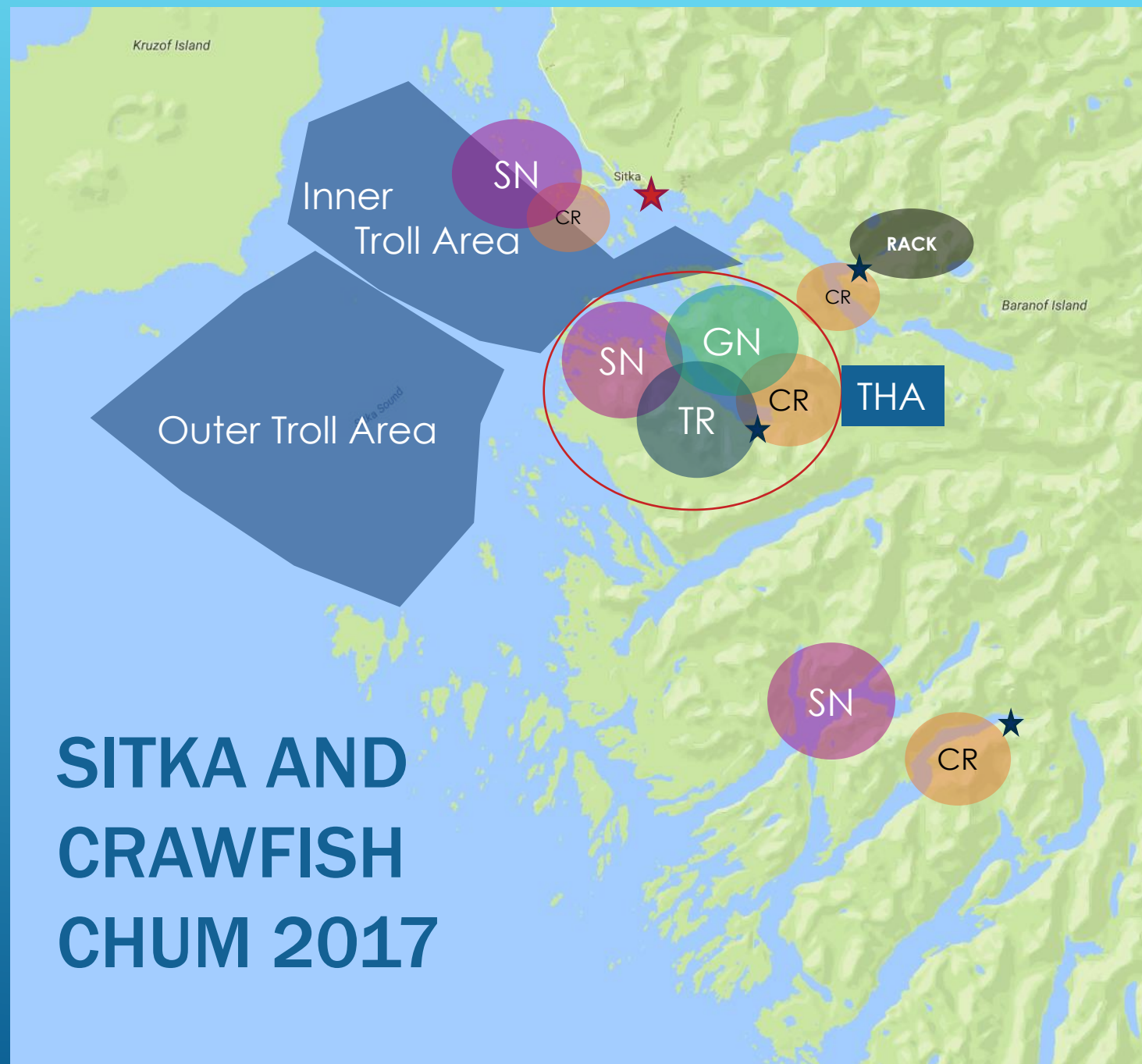
5-YEAR ROLLING AVERAGE

TARGET RANGES: TROLL 24-32% SEINE 44-49% GILLNET 24-29%

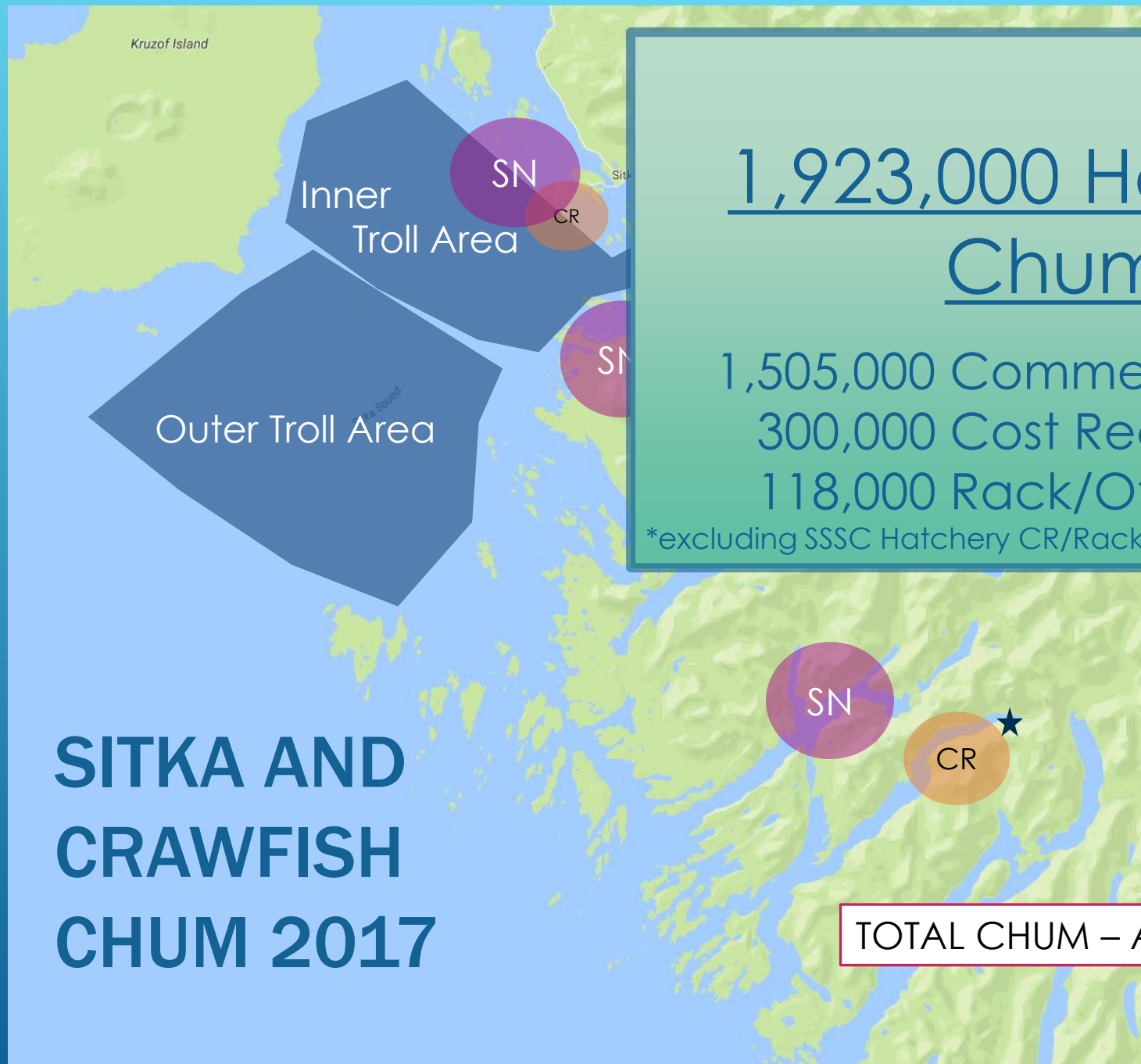
PART 3 – SITKA & CRAWFISH CHUM 2017



SITKA AND CRAWFISH CHUM 2017



SITKA AND CRAWFISH CHUM 2017

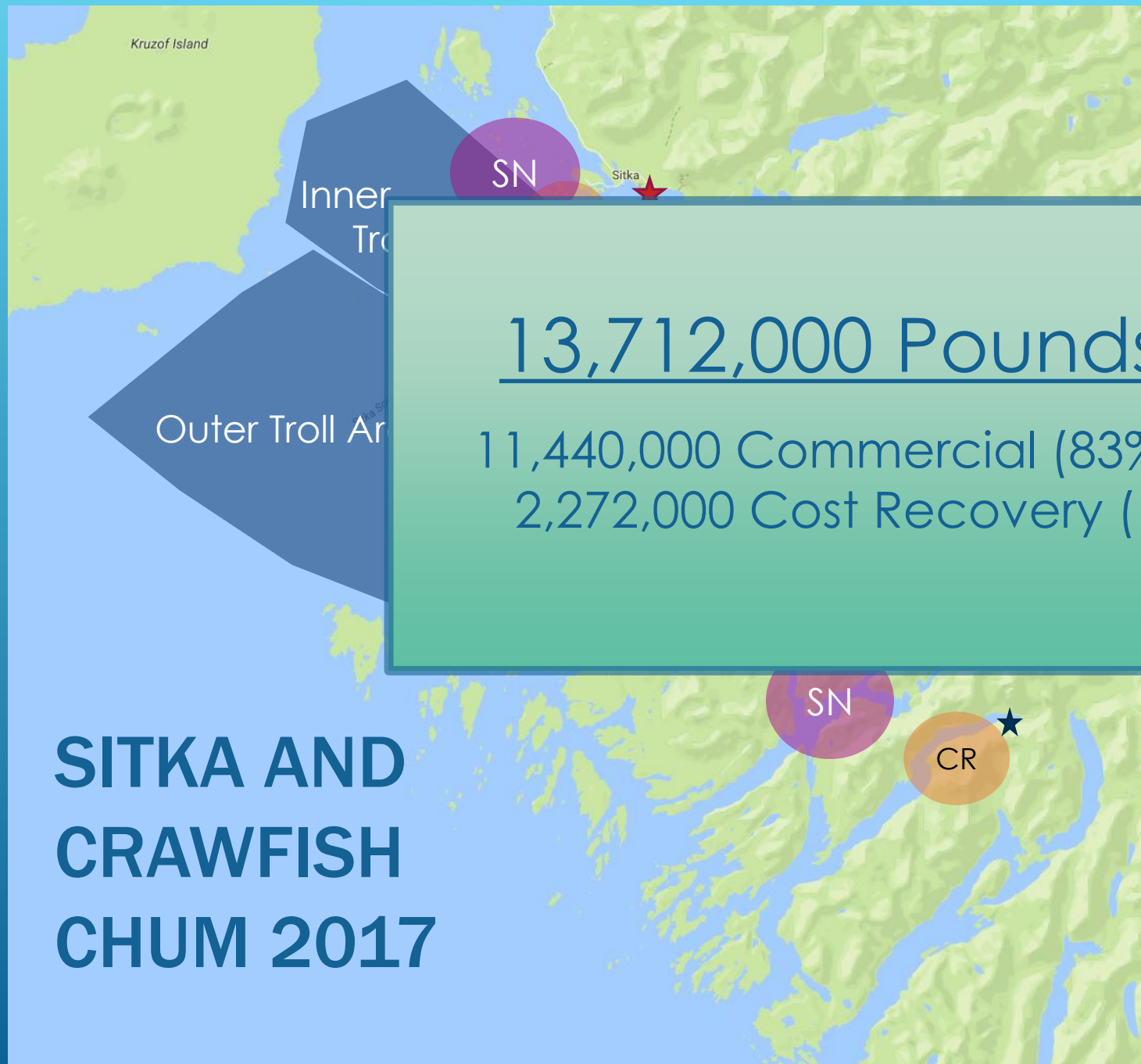


1,923,000 Hatchery
Chum*

1,505,000 Commercial (78%)
300,000 Cost Recovery (16%)
118,000 Rack/Other (6%)

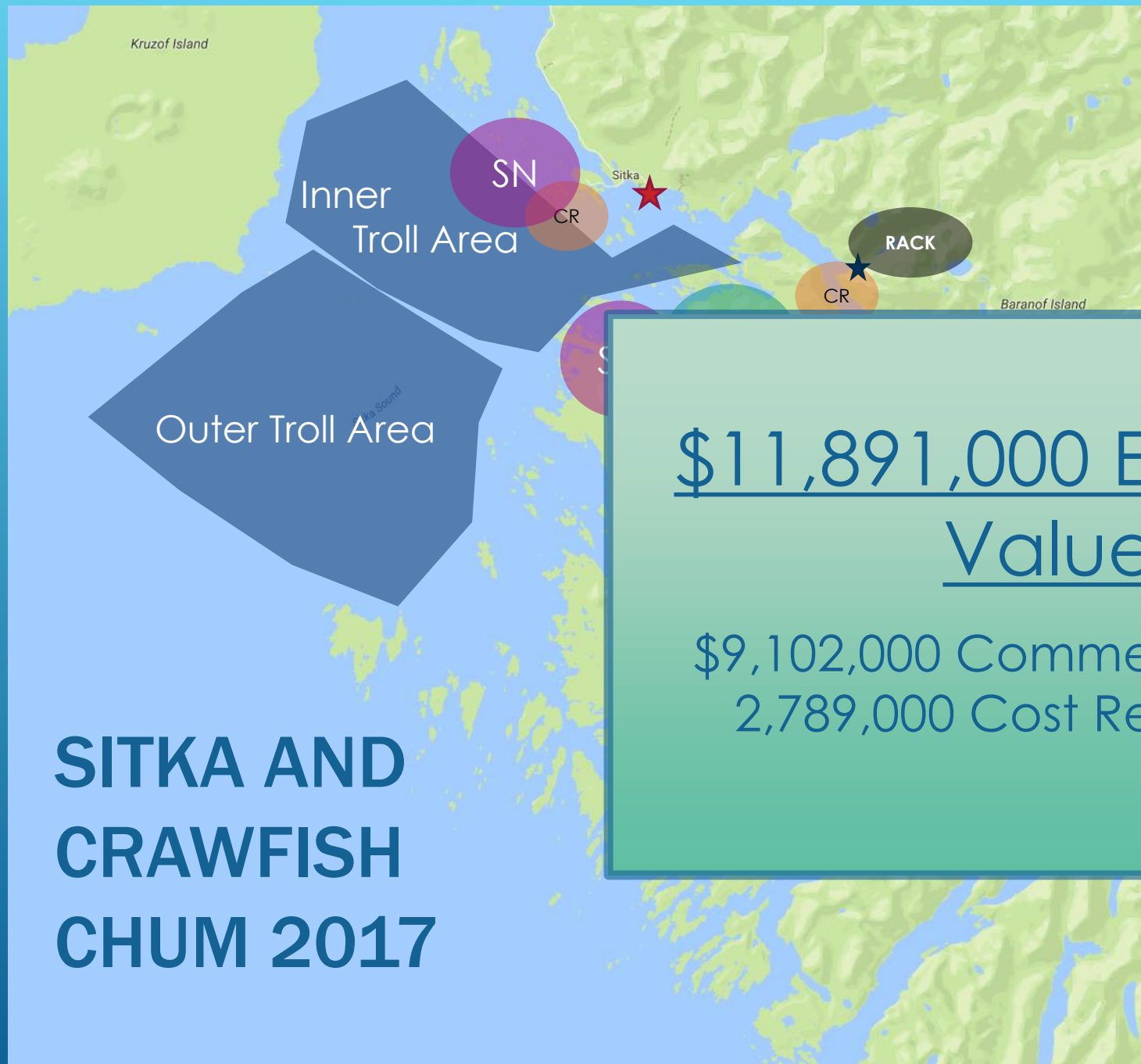
*excluding SSSC Hatchery CR/Rack

TOTAL CHUM – Approx. 1.96 – 2.0 M



SITKA AND CRAWFISH CHUM 2017

SITKA AND CRAWFISH CHUM 2017

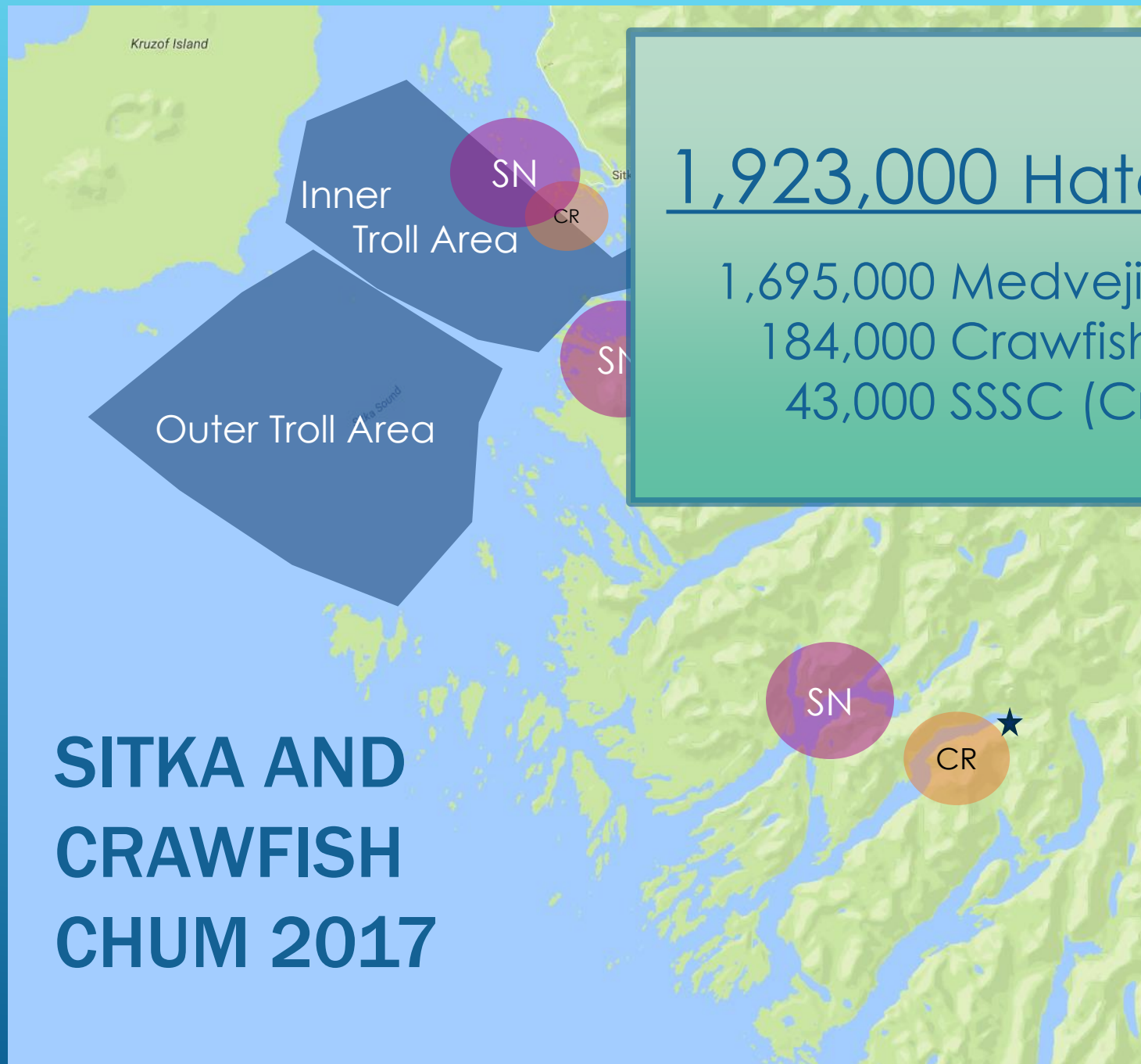


\$11,891,000 Ex-vessel
Value

\$9,102,000 Commercial (77%)

2,789,000 Cost Recovery (23%)

SITKA AND CRAWFISH CHUM 2017



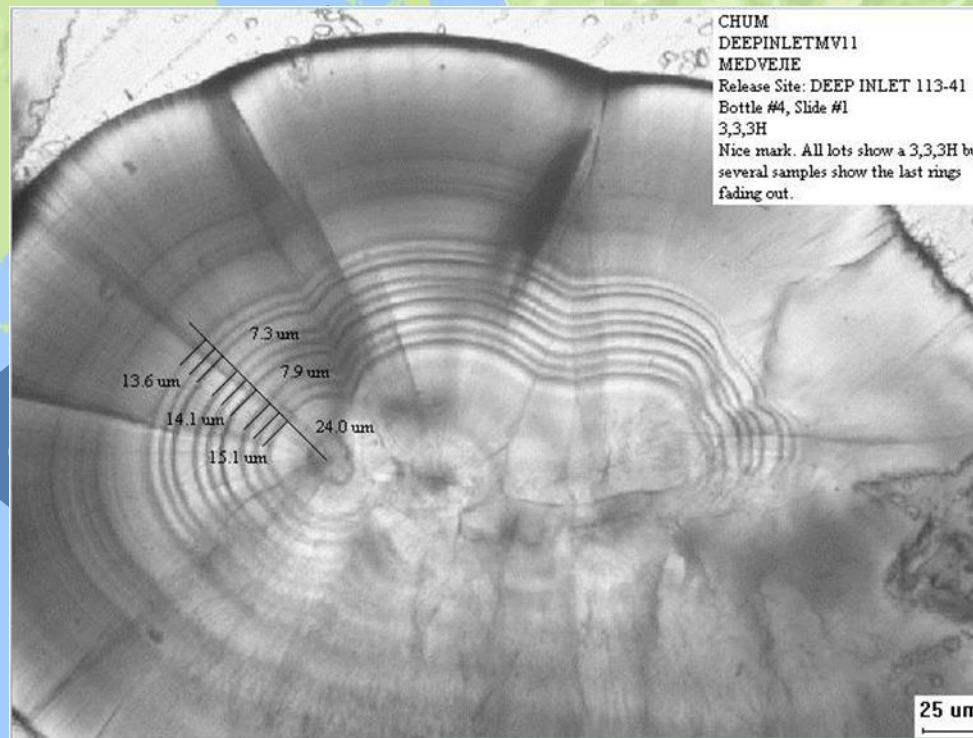
1,923,000 Hatchery Chum

1,695,000 Medvejie/DI (88%)

184,000 Crawfish (3-yr-olds) (10%)

43,000 SSSC (Crescent) (2%)

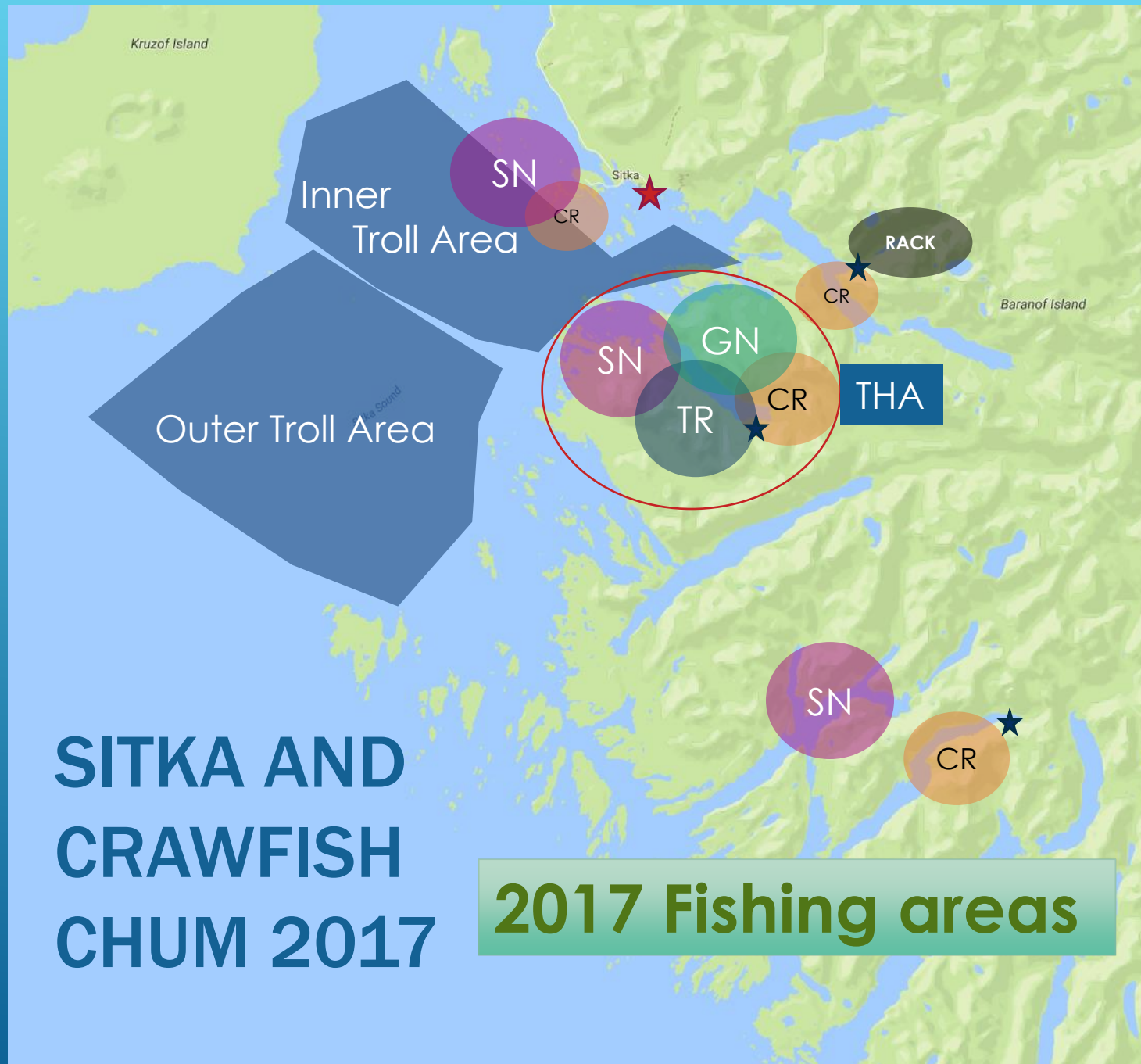
Kruzof Island



Baranof Island

SITKA AND
CRAWFISH
CHUM 2017

OTOLITHS TELL THE
STORY



**SITKA AND
CRAWFISH
CHUM 2017**

SITKA AND CRAWFISH CHUM 2017

CRAWFISH INLET FISH CATCH - 184 K

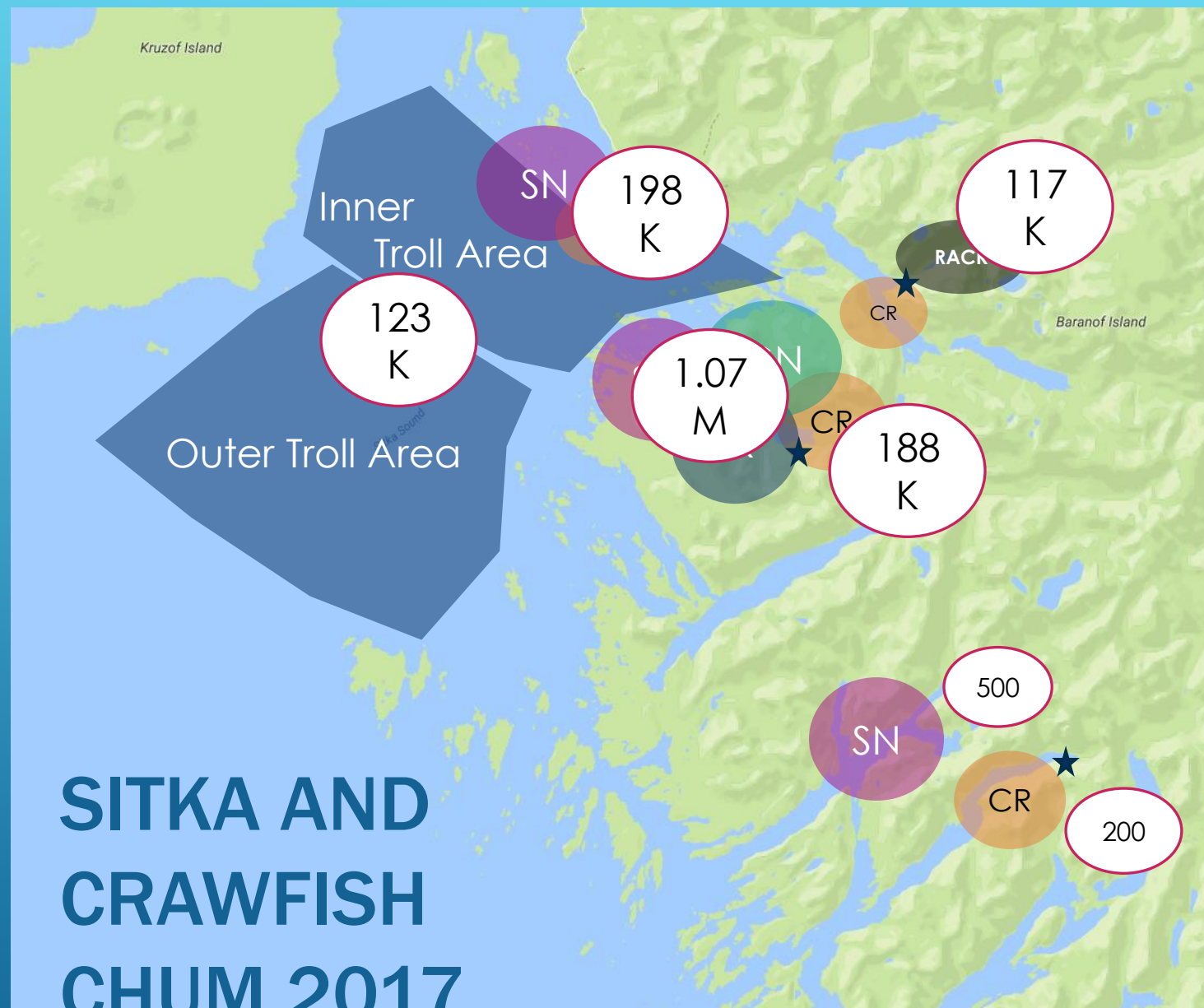
The map displays the following fish catch data by area:

Area	Fish Catch (K)
Inner Troll Area	7 K
Outer Troll Area	17 K
Area 1 (Top Center)	30 K
Area 2 (Top Right)	1 K
Area 3 (Center)	9 K
Area 4 (Bottom Center)	20 K
Area 5 (Bottom Right)	99 K

Other labels on the map include: Kruzof Island, Baranof Island, RACN, CR, SN, and the Sound.

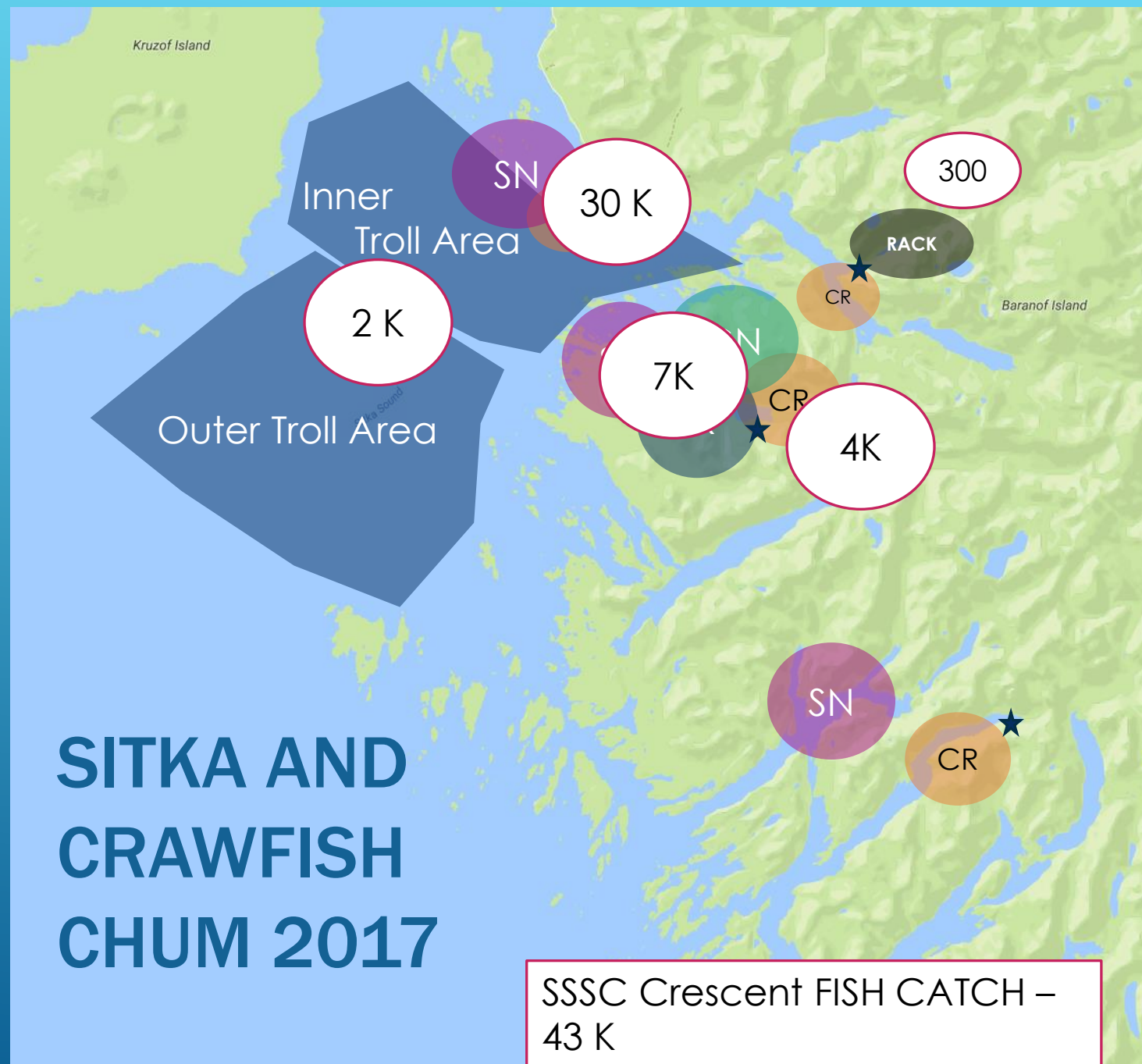
CRAWFISH INLET FISH CATCH - 184 K

SITKA AND CRAWFISH CHUM 2017

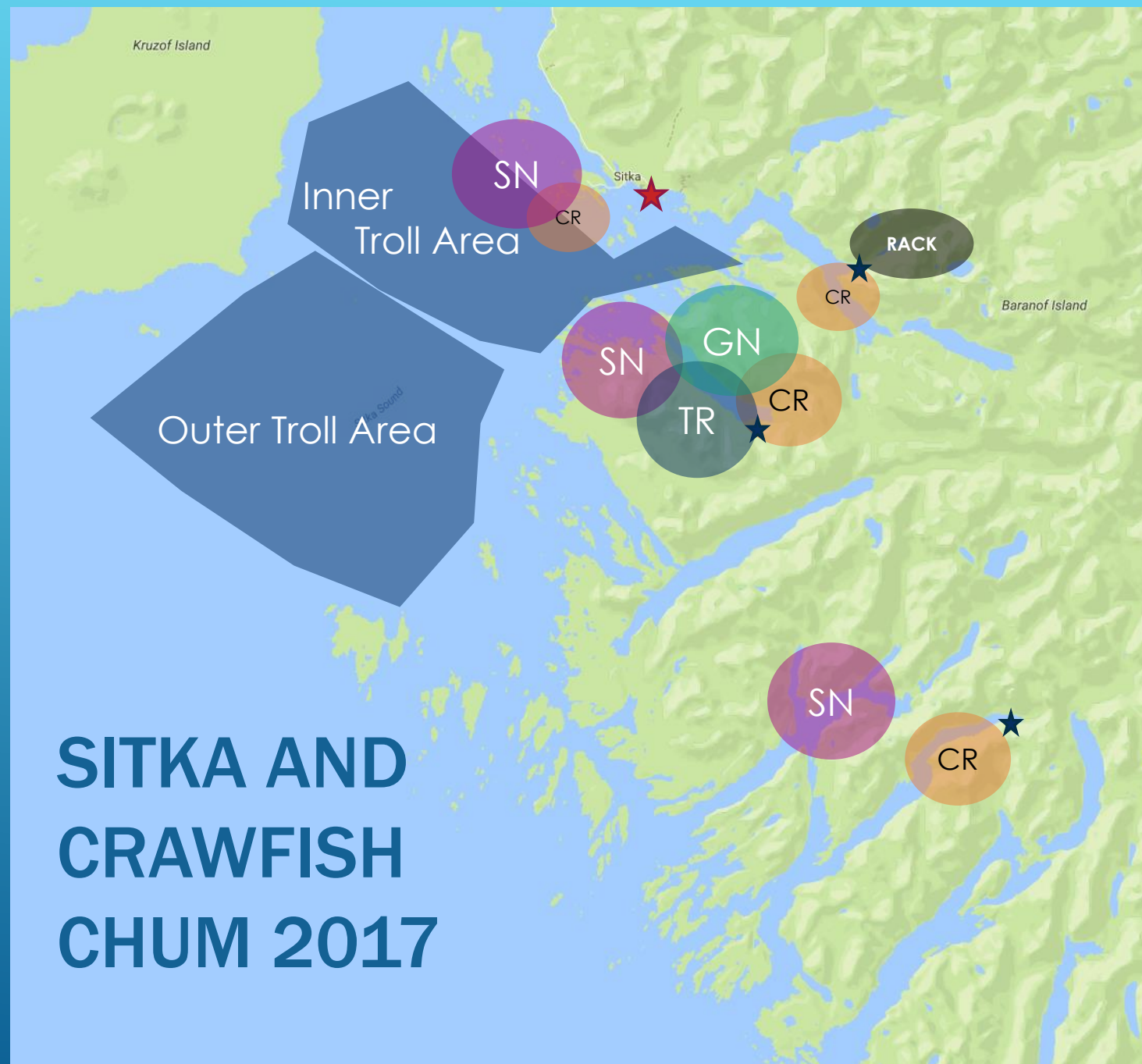


Medvejie / Deep Inlet FISH CATCH –
1.7 million

SITKA AND CRAWFISH CHUM 2017



SITKA AND CRAWFISH CHUM 2017





Silver Bay
Cost Recovery 2017

PART 4 – 2018 FORECAST

2018 NSRAA FORECAST

Chum

- Sitka Area – 1,250,000
- Crawfish – 681,000
- Hidden Falls – 593,000
- Southeast Cove – 143,000



2018 NSRAA FORECAST

Chum – 2016 SECM TRAWL SAMPLING

- NSRAA 28%:
 - Medvejie/DI – 2.2%
 - Crawfish – 0.5%
 - Hidden Falls – 5%
 - **Southeast Cove – 20%**
- DIPAC 21%
- AKI 7%
- SSRAA 12%
- UNMARKED 31%

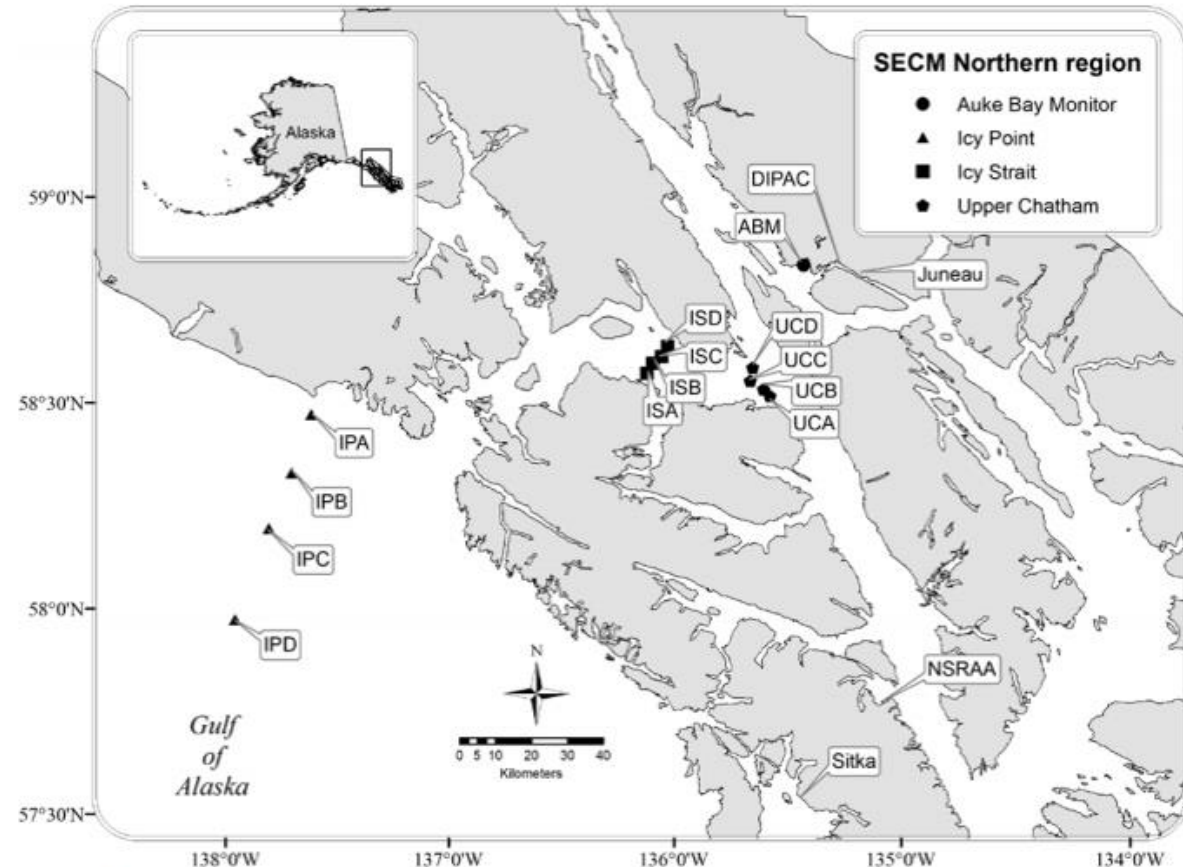


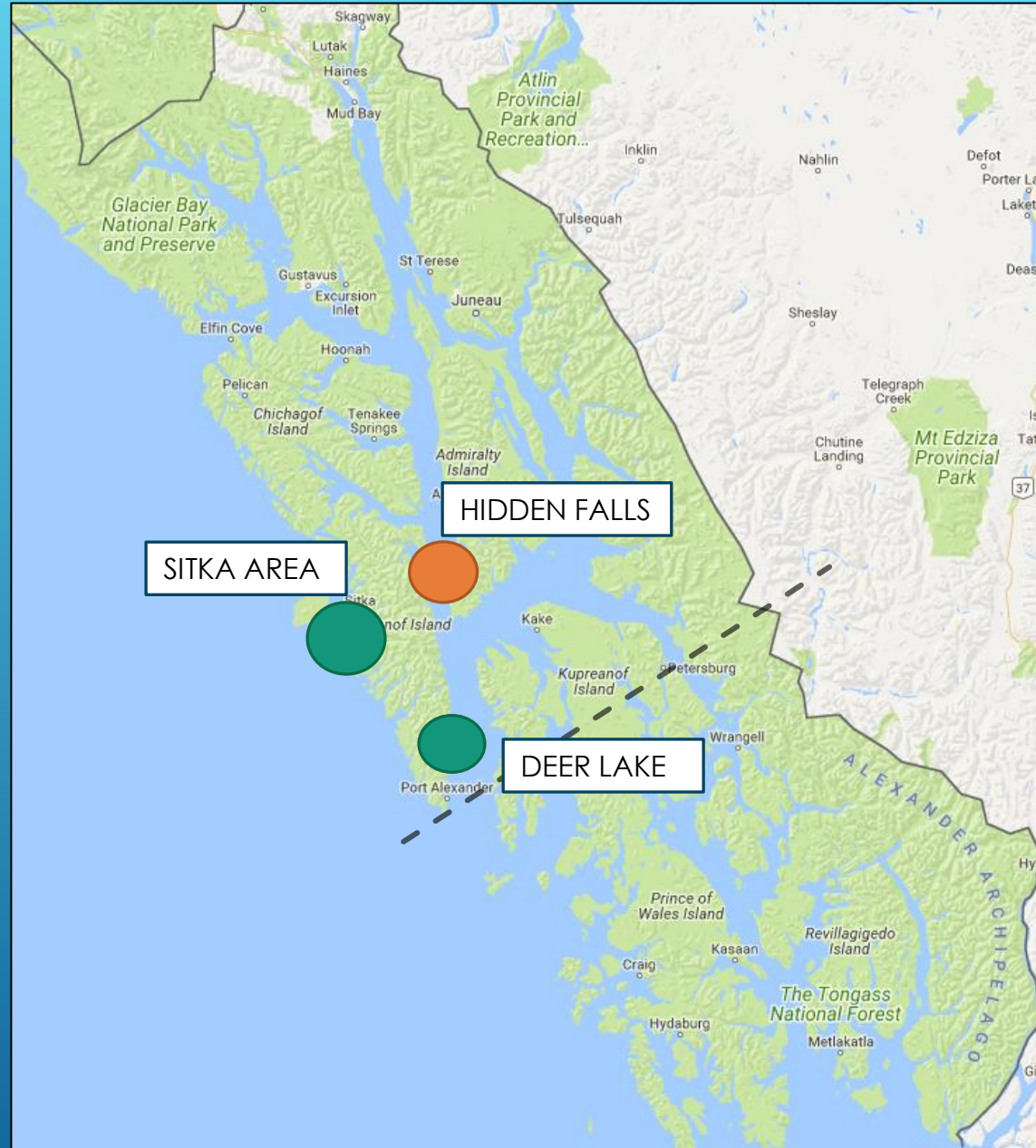
Figure 1.—Stations sampled at inshore, strait, and coastal habitats in the marine waters of the northern region of southeastern Alaska, May–August 2015 by the Southeast Coastal Monitoring (SECM) project. Transect and station coordinates and station code acronyms are shown in Table 1.

These are BY15 fry; 2018 3-year-olds

2018 NSRAA FORECAST

Coho

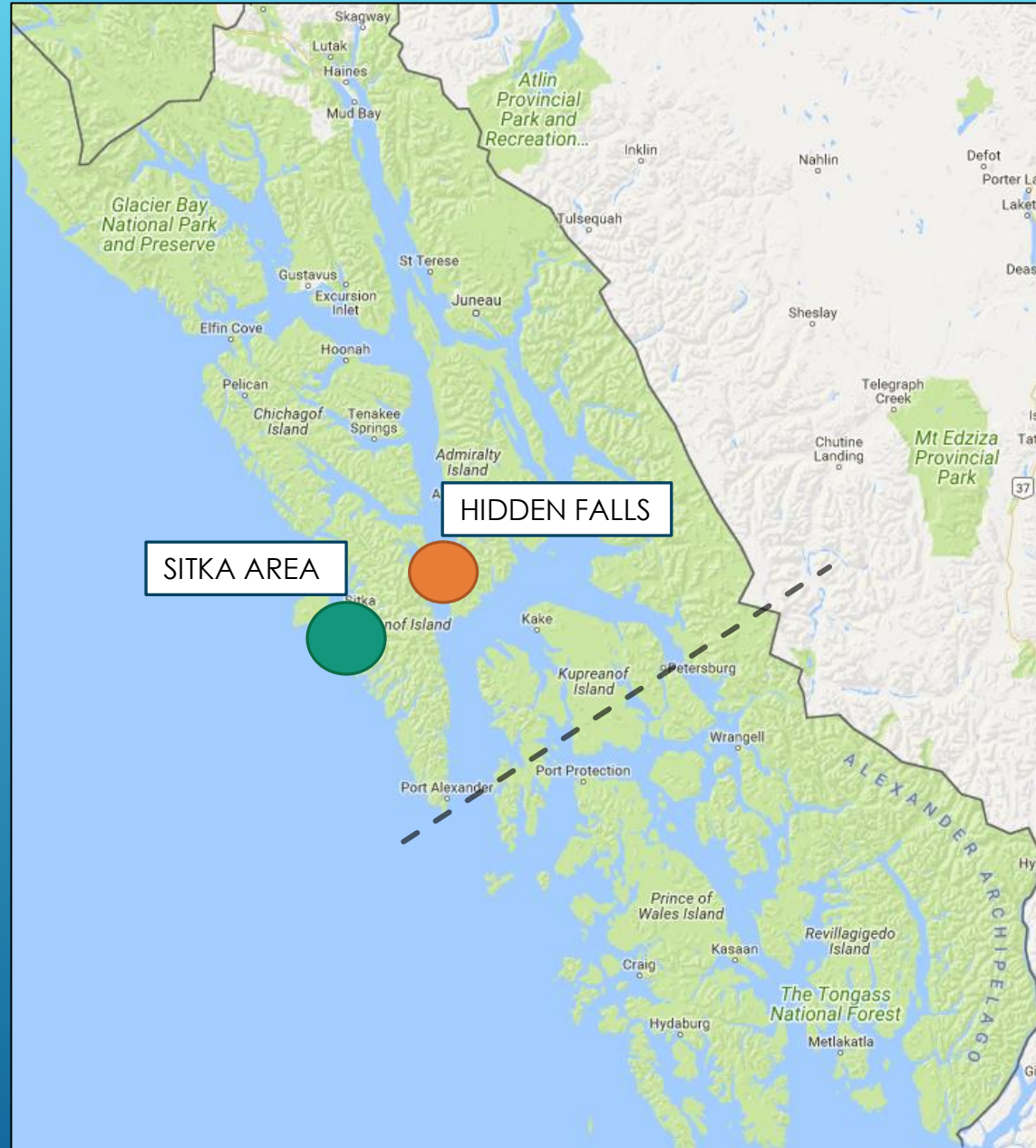
- Sitka Area – 66,000
- Deer Lake – 153,000
- Hidden Falls – 191,000



2018 NSRAA FORECAST

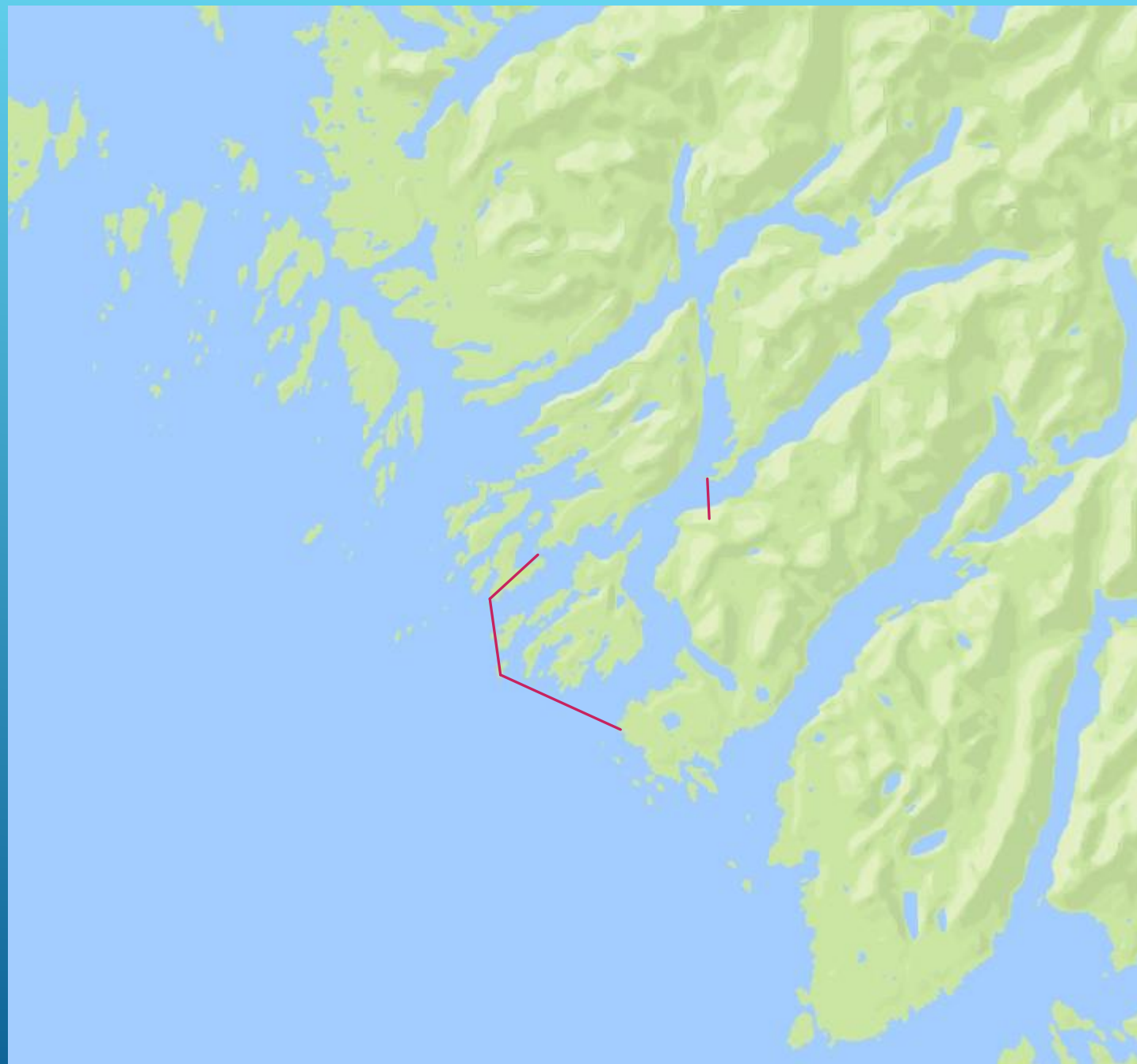
Chinook

- Sitka Area – 12,700
- Hidden Falls – 2,000

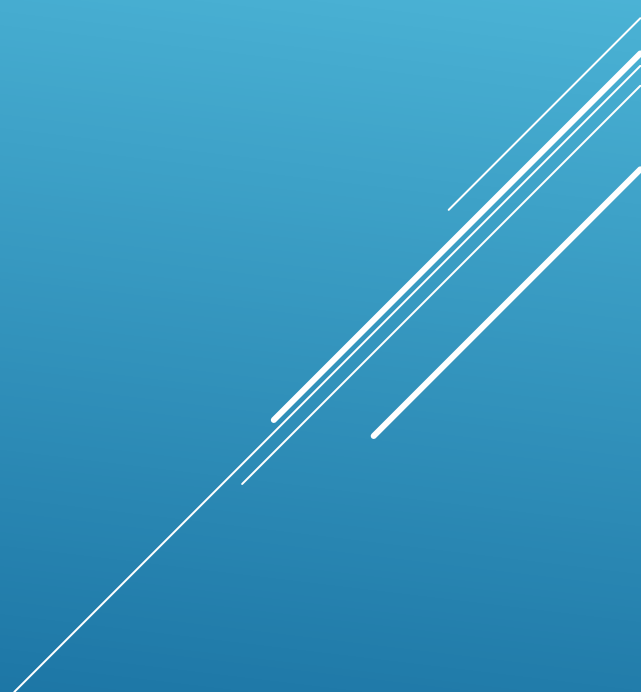


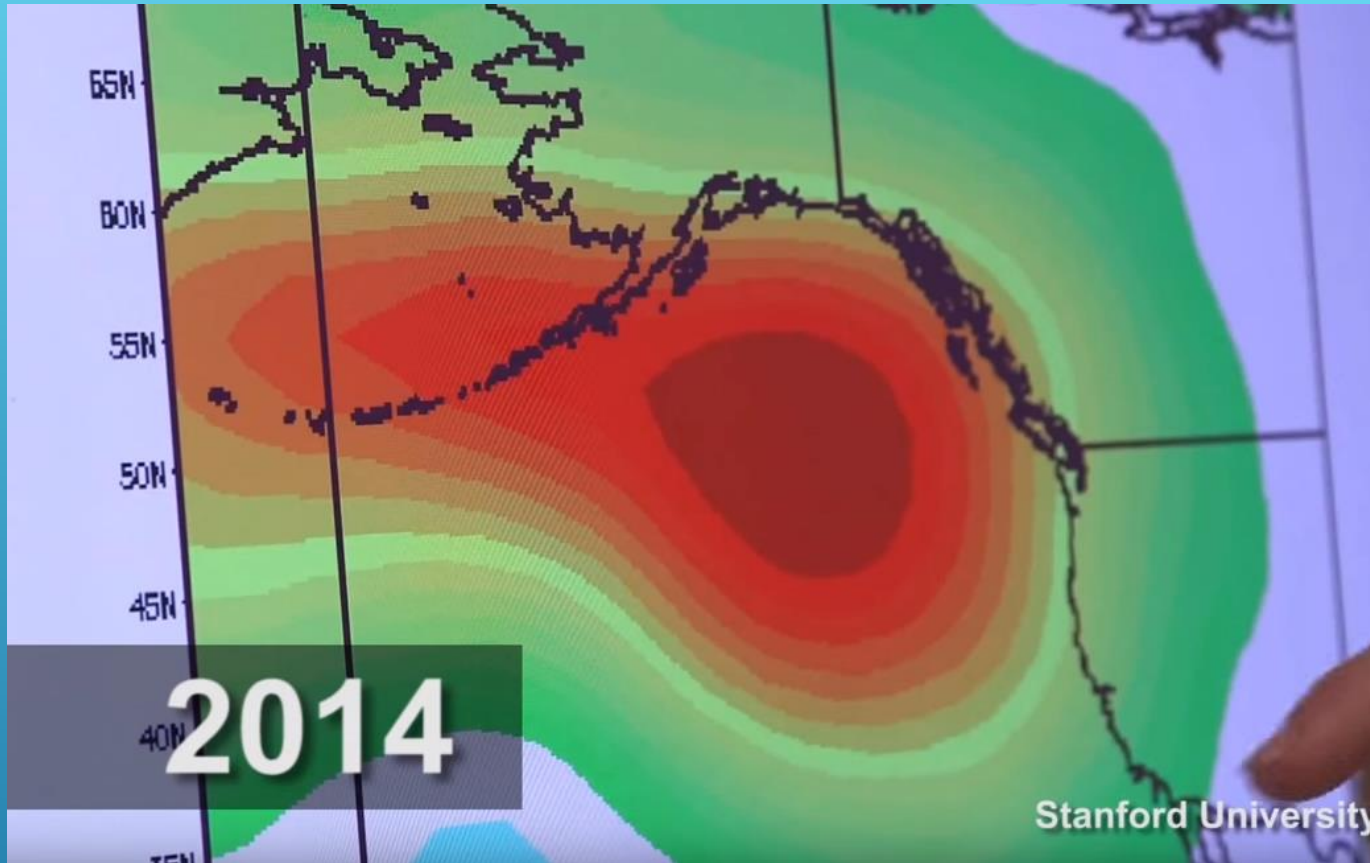
PART 6 – OTOLITH UPDATE





PART 4 – THE “BLOB” 2013-2015





SST ANOMALIES – THE “BLOB” – WARM
OCEAN TEMPS 2013-15

- ▶ Sea Surface Temperature Anomaly: A measure of how far sea surface temperatures depart from what is “normal” for the time of year. Measured against a long term average (e.g. 30-year average)
- ▶ El Nino 1.5 – 3.5+ °C above normal
- ▶ Blob reached ~3 - 5 °C above normal (5-9 °F) with a long duration – most of three years from 2013-15

SST ANOMALIES – THE “BLOB”

- ▶ Phytoplankton – reduced productivity/ different composition
- ▶ Zooplankton – affected by phytoplankton / different species with lower lipid / fat content
- ▶ Krill – reduced/ absent
- ▶ Predators – different composition / southern predators move north
- ▶ Fish more active, require more food at a time when less is available

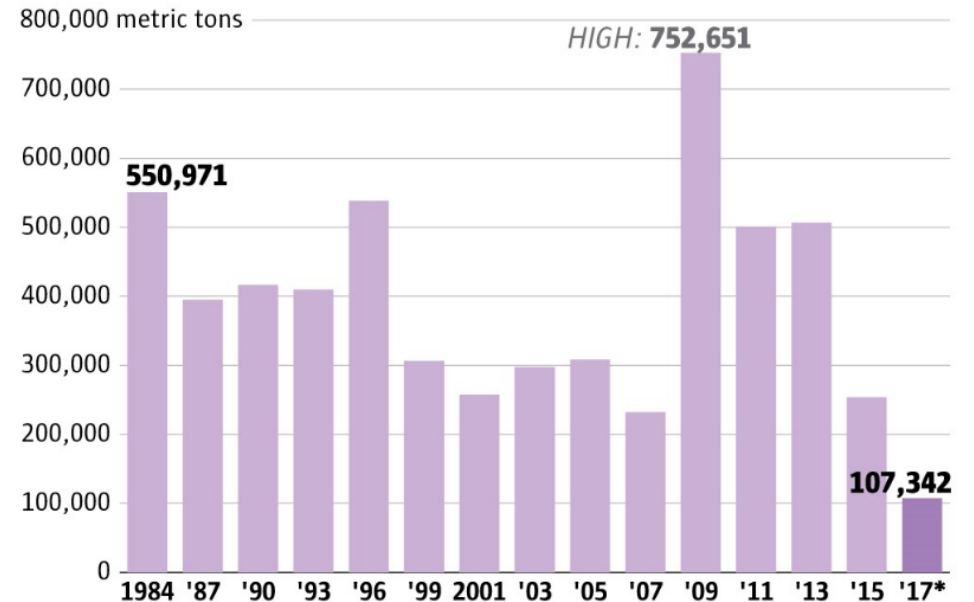
SST ANOMALIES – EFFECTS OF THE “BLOB”

- ▶ Cod – sharp decline
- ▶ Chinook – sharp decline
- ▶ Coho – below average
- ▶ Pinks – below forecast
- ▶ Chum – mixed results?

Gulf of Alaska cod on decline

Preliminary 2017 trawl surveys show a steep drop off, which scientists believe is linked to a period of warmer ocean conditions.

Pacific Cod abundance measured as biomass during federal trawl surveys
(in metric tons)

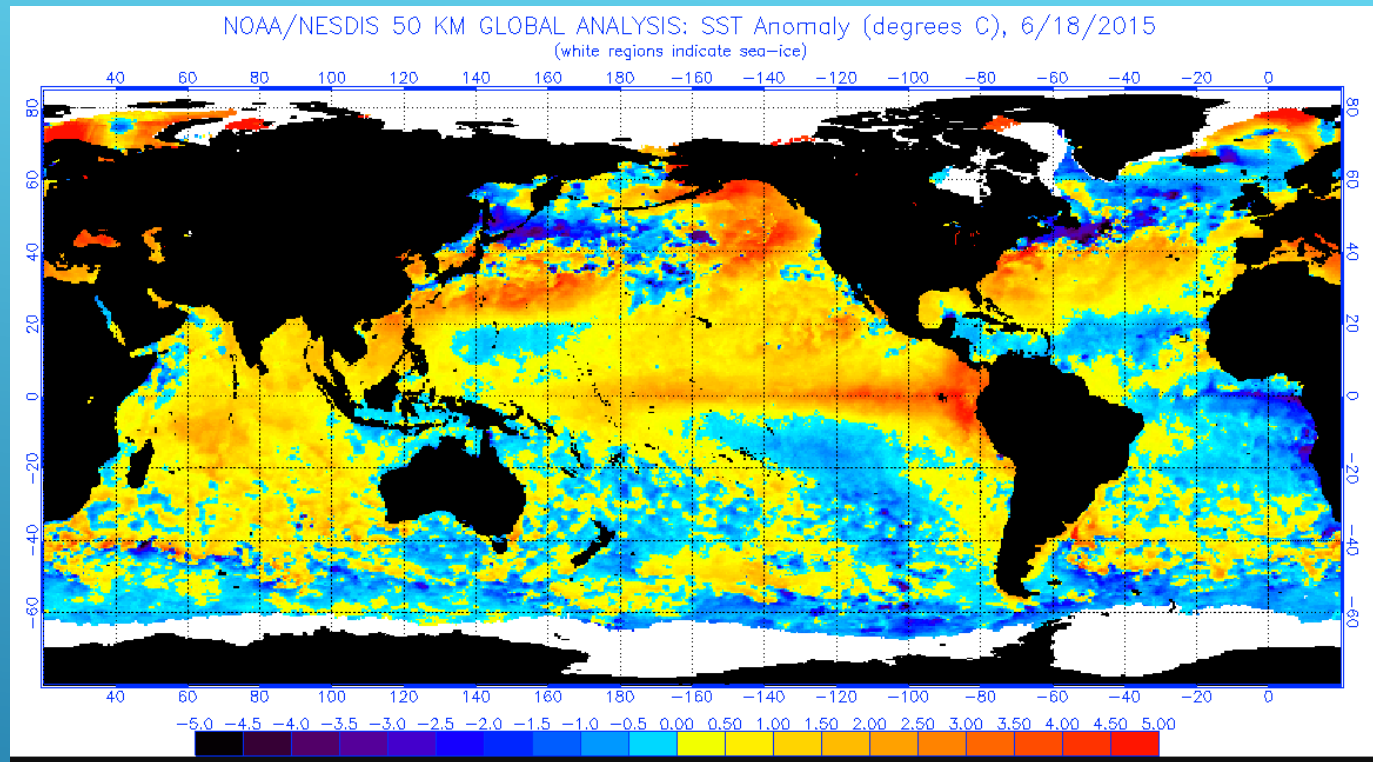


*2017 is preliminary estimate

Source: NOAA Fisheries

MARK NOWLIN / THE SEATTLE TIMES

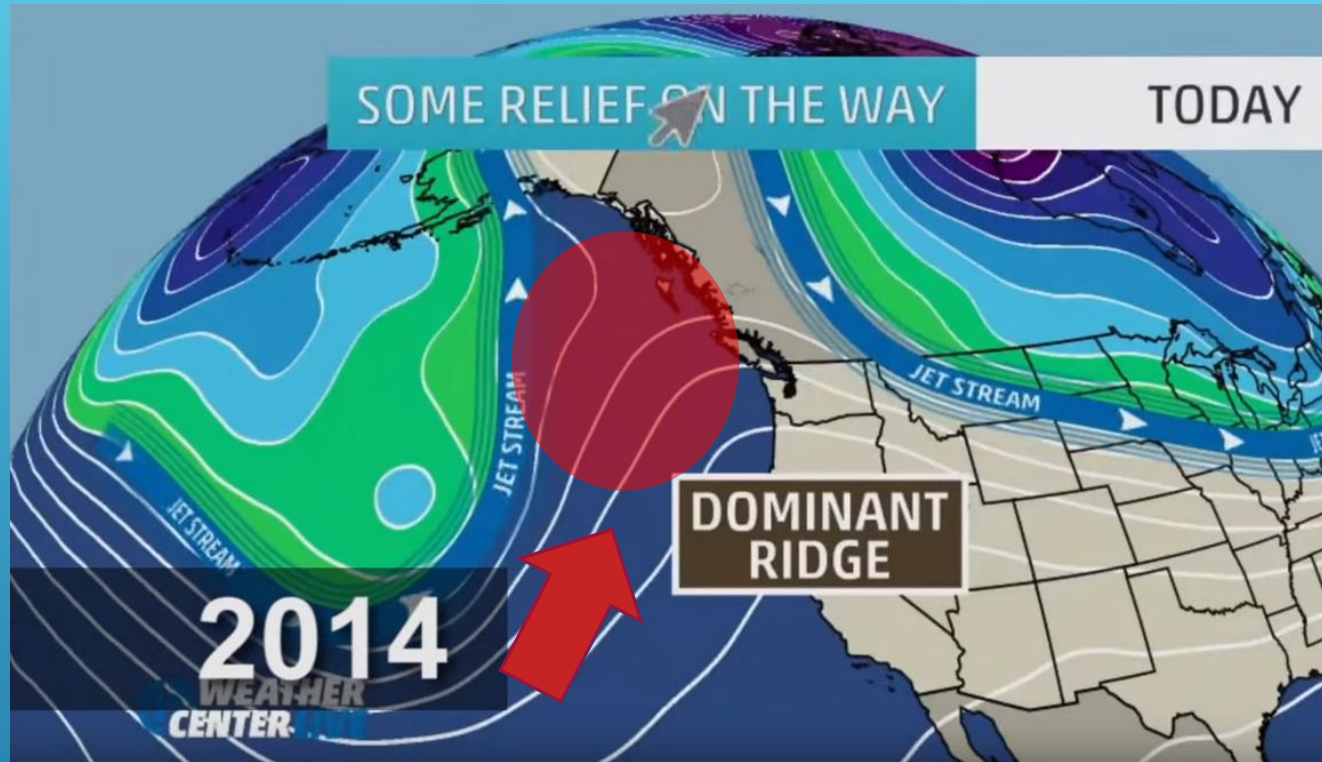
SST ANOMALIES – THE “BLOB”



- June 2015 full global chart

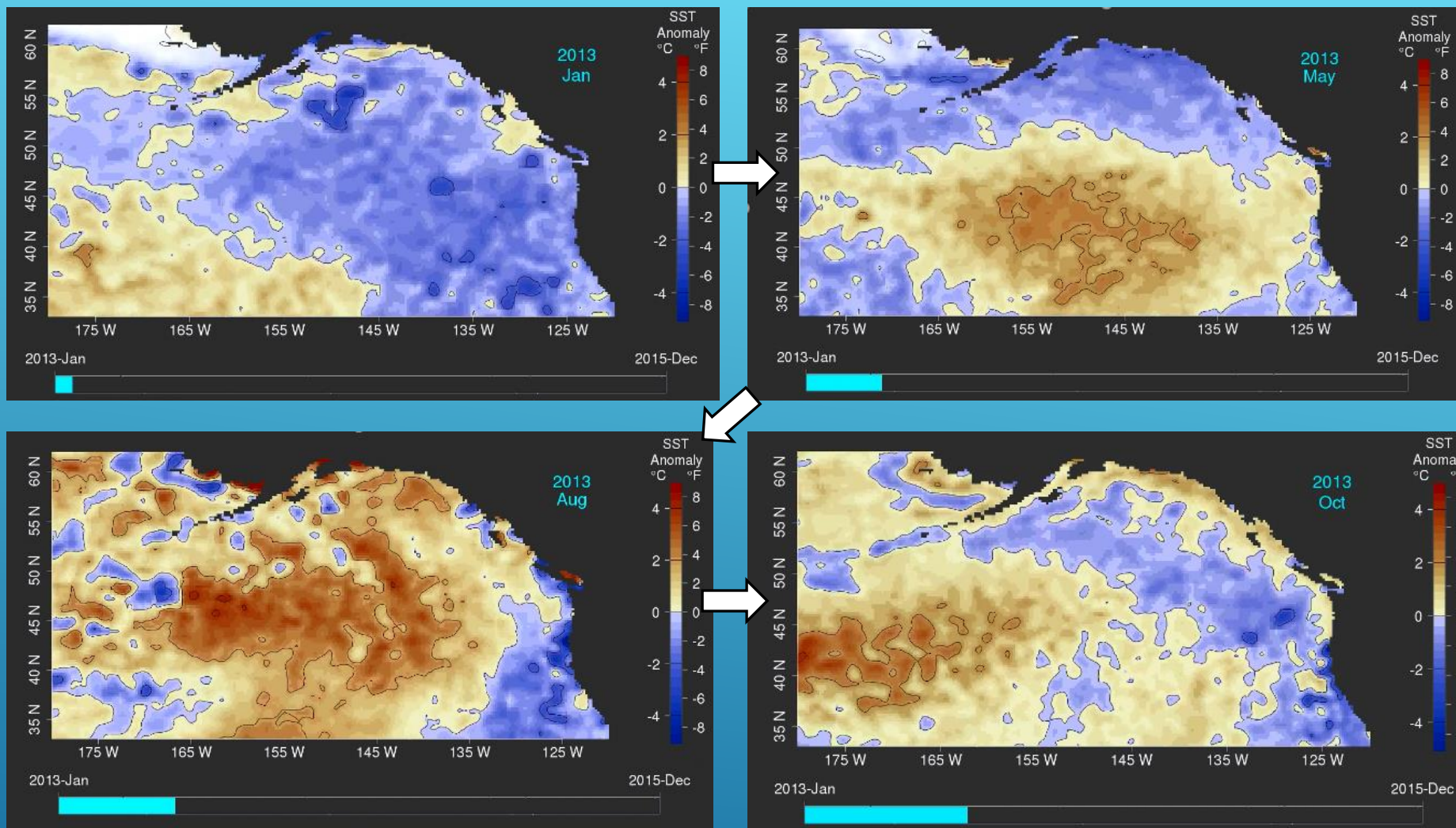
SST ANOMALIES – NOAA CHARTS

[HTTP://WWW.OSPO.NOAA.GOV/PRODUCTS/OCEAN/SST/ANOMALY/2015.HTML](http://www.ospo.noaa.gov/products/ocean/sst/anomaly/2015.html)



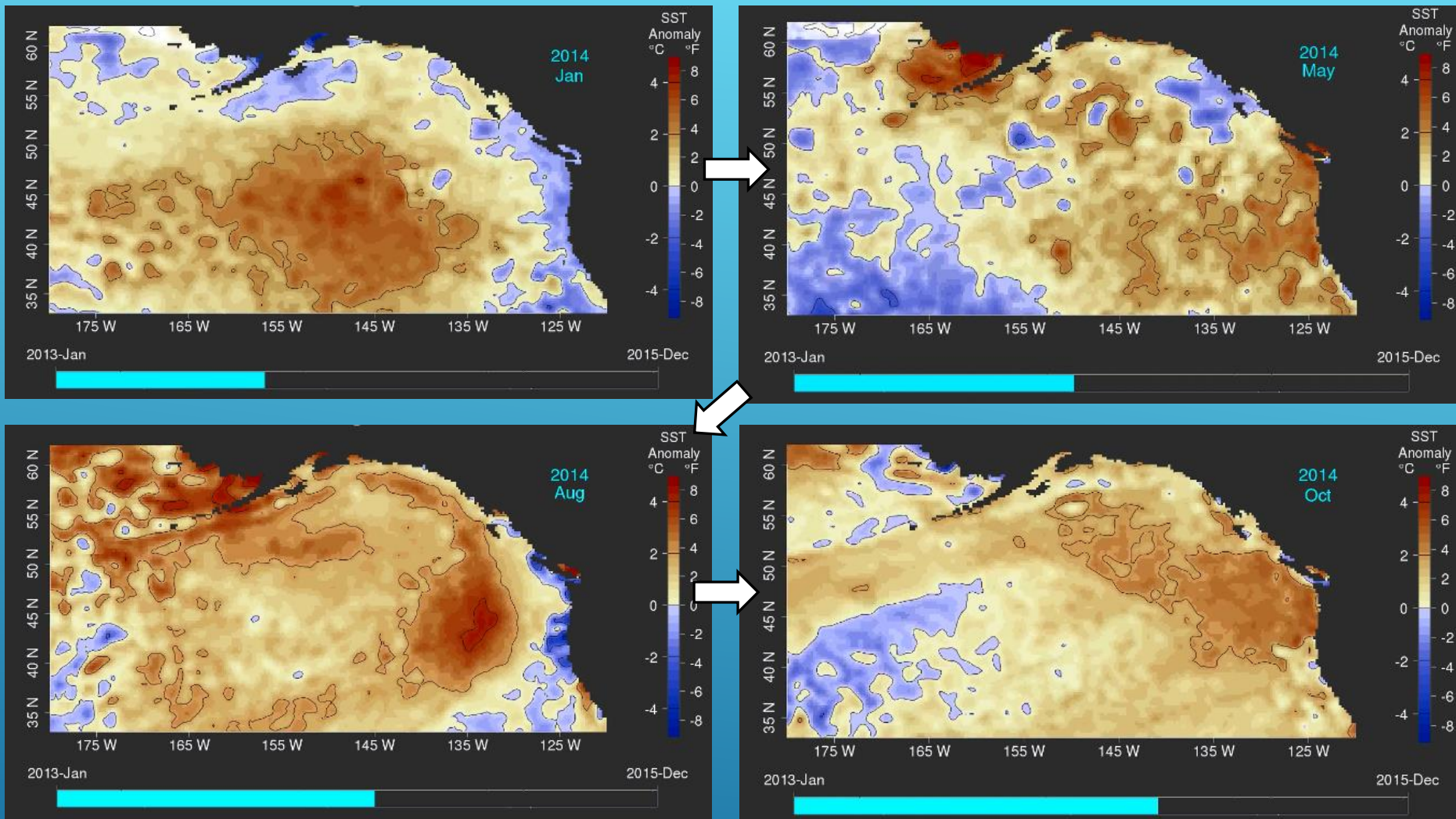
- Warmer water moves north into Gulf of Alaska & Bering Sea
- California drought

SST ANOMALIES – “RRR” = RIDICULOUSLY RESILIENT RIDGE OF HIGH PRESSURE



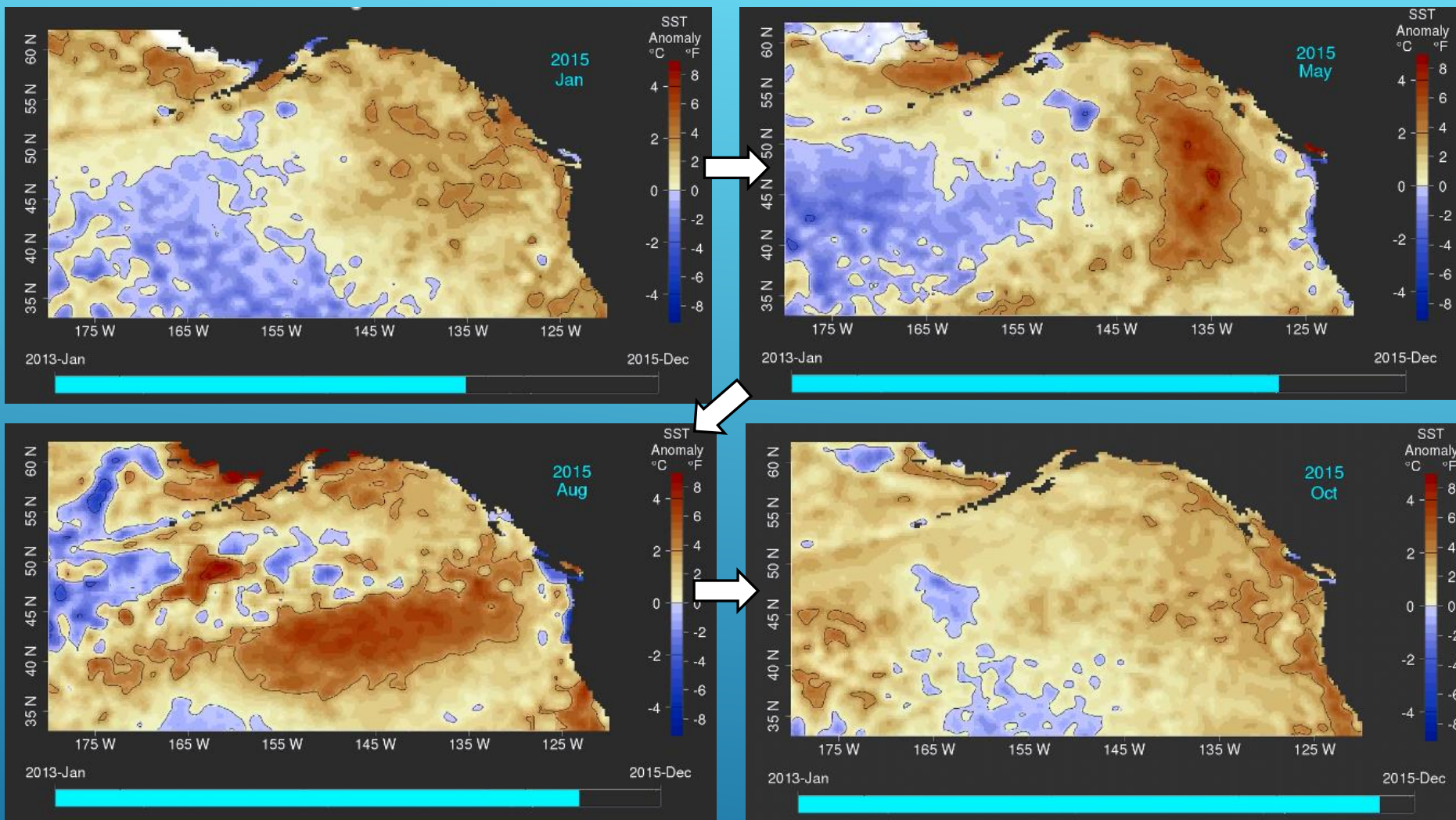
2013 BLOB

Charts from animated graphic
produced by Tom Wainwright
NOAA FISHERIES, Newport, OR



2014 BLOB

Charts from animated graphic
produced by Tom Wainwright
NOAA FISHERIES, Newport, OR



2015 BLOB

Charts from animated graphic
produced by Tom Wainwright
NOAA FISHERIES, Newport, OR

- ▶ **Spring 2013** = **BY12 Chum** = 2017 5's = est. 2.1% m.s. **GOOD**
= **BY11 Coho** = 2014 Adults = est. 7.7% m.s. **GOOD**
= **BY 11 Chinook** = 2017 4-ocean = est. 0.90% m.s. **BELOW AVERAGE**
- ▶ **Spring 2014** = **BY13 Chum** = 2017 4's = est. 3.5% m.s. **GOOD**
= **BY12 Coho** = 2015 Adults = est. 3.6% m.s. **BELOW AVERAGE**
= **BY 12 Chinook** = 2017 3-ocean = est. 0.50% m.s. **POOR**
- ▶ **Spring 2015** = **BY14 Chum** = 2017 3's = est. ~1.4% m.s. **too little data**
= **BY13 Coho** = 2016 Adults = est. 1.7% m.s. **BELOW AVERAGE**
= **BY 13 Chinook** = 2017 2-ocean = est. 0.50% m.s. **POOR**

“BLOB” 2013-15 – NSRAA SITKA
RELEASES & RETURNS

- ▶ Another effect of the “Blob”: warmer ocean temps = warmer terrestrial water temps (less snowpack, etc).
- ▶ These warmer temps have caused issues with holding adults at some hatcheries and with incubation and rearing.
- ▶ An example is Medvejie’s fungus/ incubation problems.

“BLOB” 2013-15 – EFFECT ON HATCHERIES