

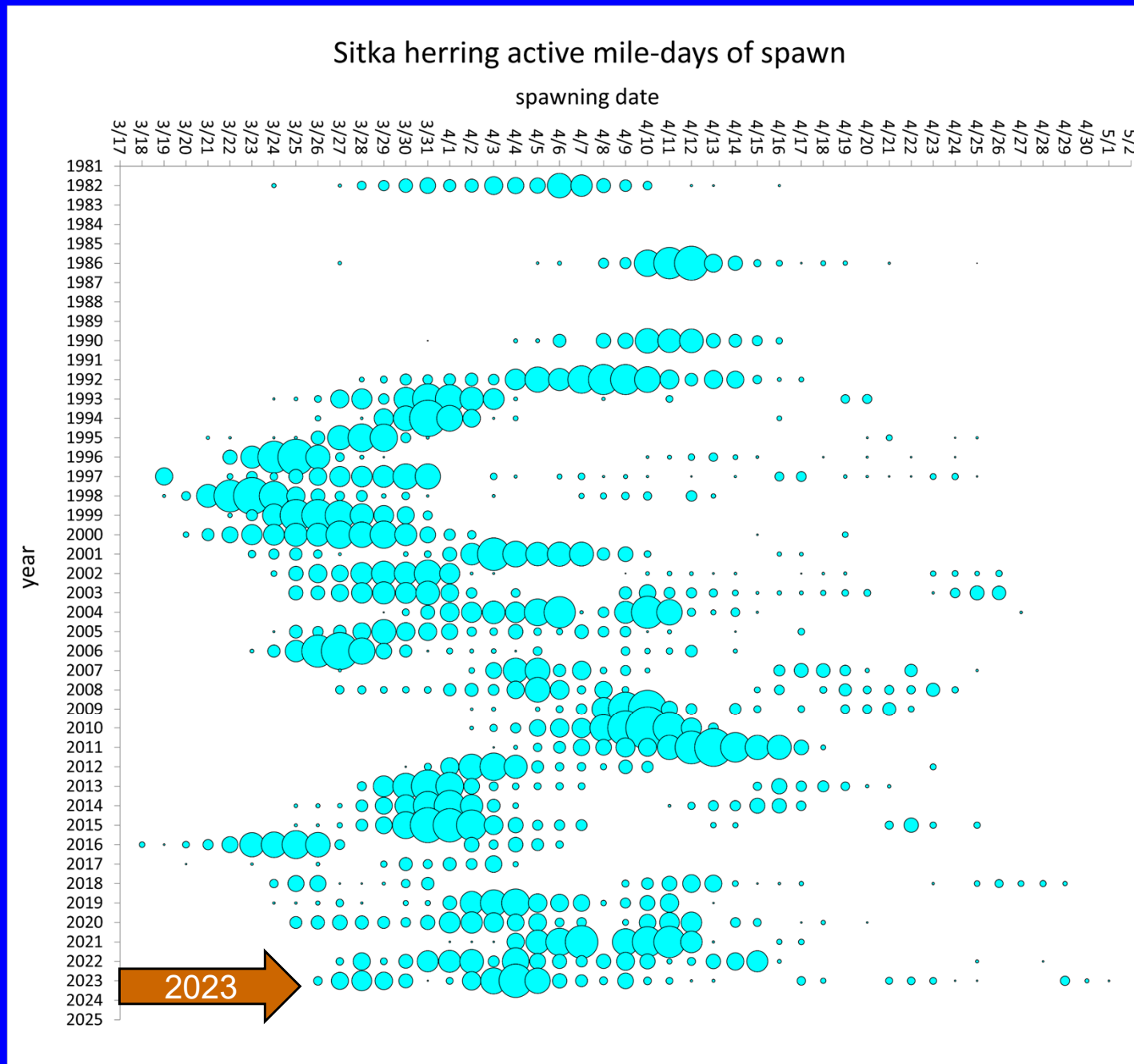
2023 Herring Stock Assessment Surveys in Sitka Sound



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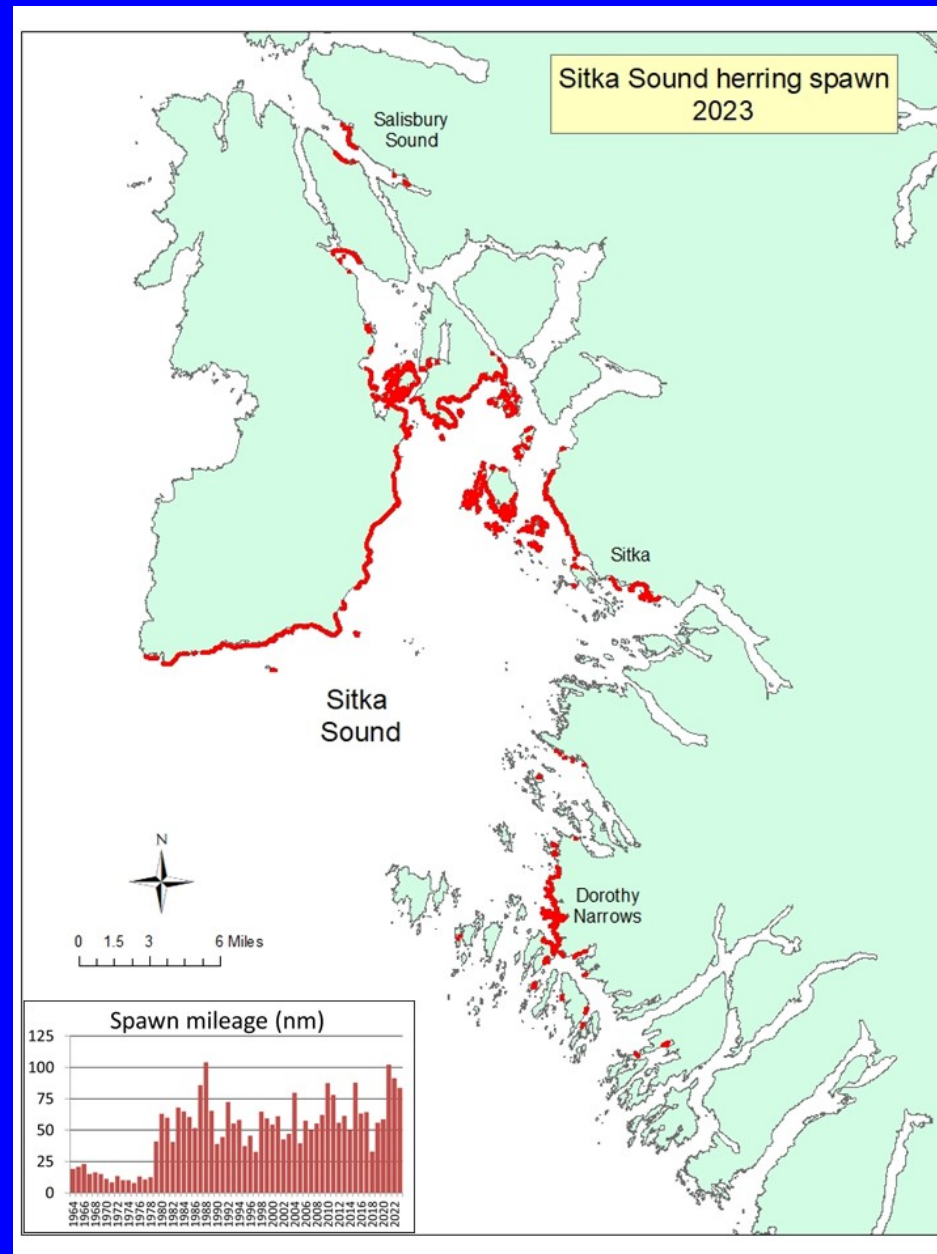
March 19, 2024

Spawn Timing



Largest bubble in 2022 = 29 nm; largest bubble all years = 49 nm (2010)

2023 Sitka Sound Herring Spawn



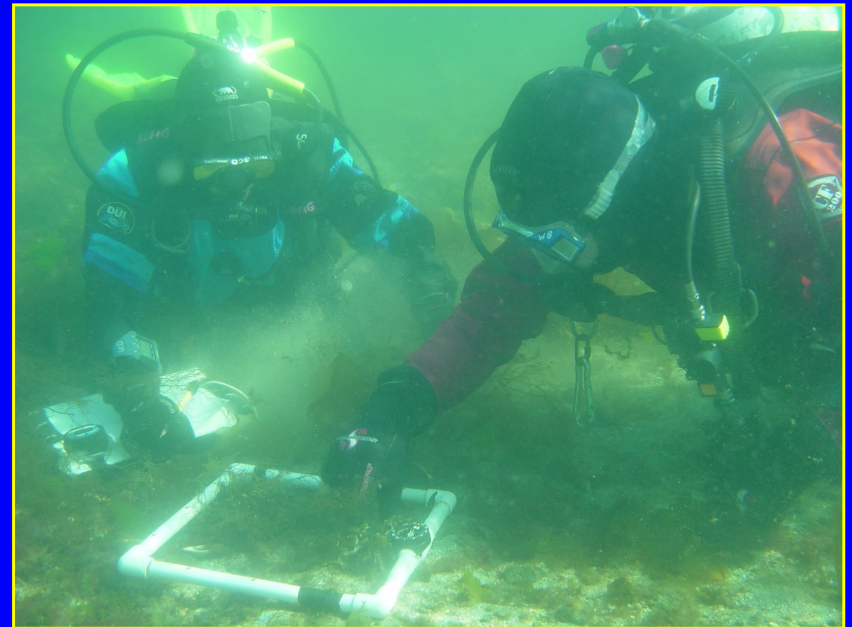
(total spawn – 83.8nm; mean 1980 - 2022 is 60.8 nm)

Egg Deposition Dive Survey



1st - Aerial survey
to map length of
spawn zone

2nd – Dive survey
to estimating width
of spawn zone and
egg density

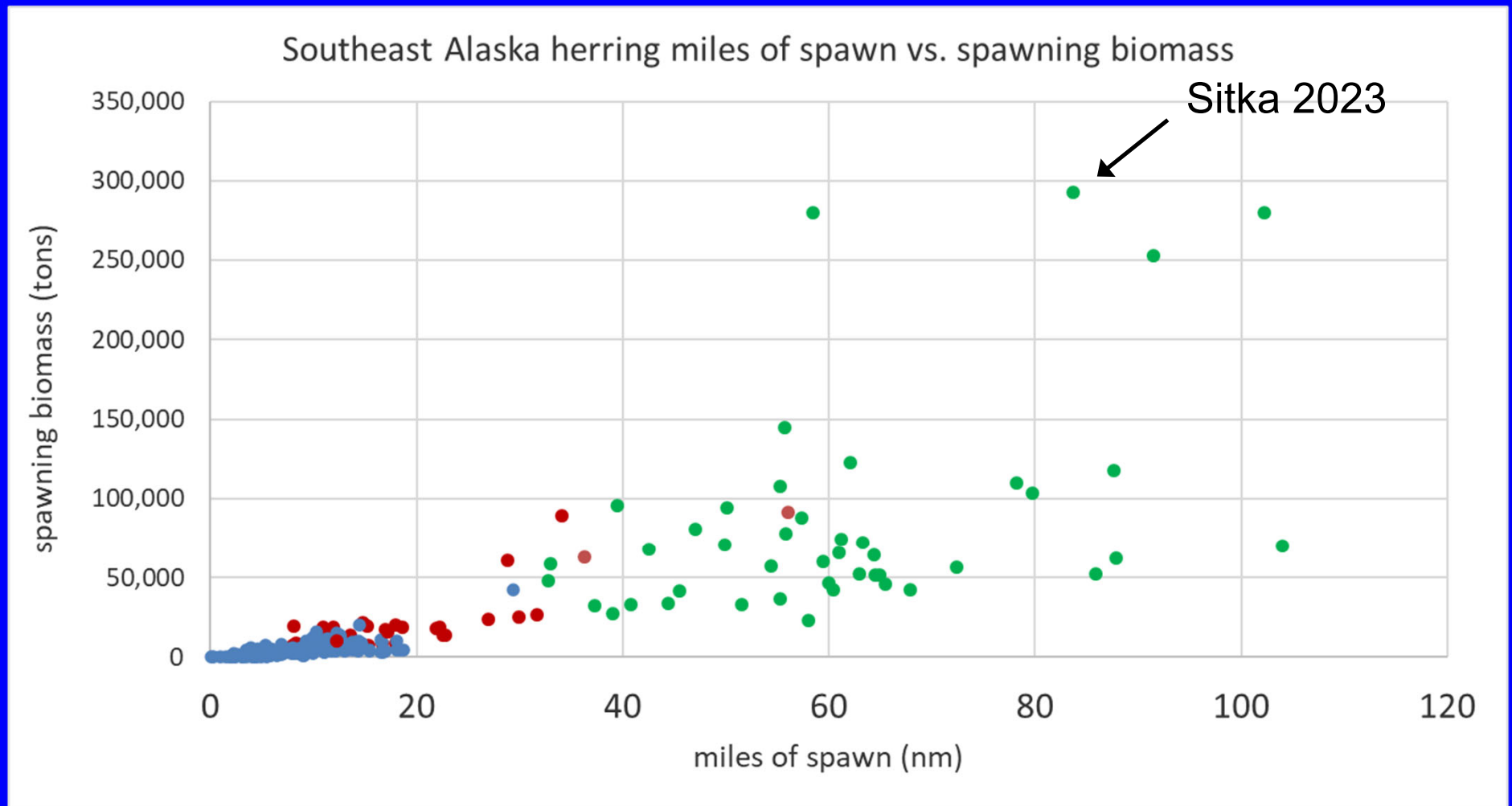


Dive Survey



Goal –
unbiased estimate of
total herring eggs for
Sitka Sound stock

Spawn Miles vs Biomass (Why dive surveys are so important)



Green - Sitka (ASA modeled)

Red - Craig (ASA modeled; except 2022 is biomass accounting)

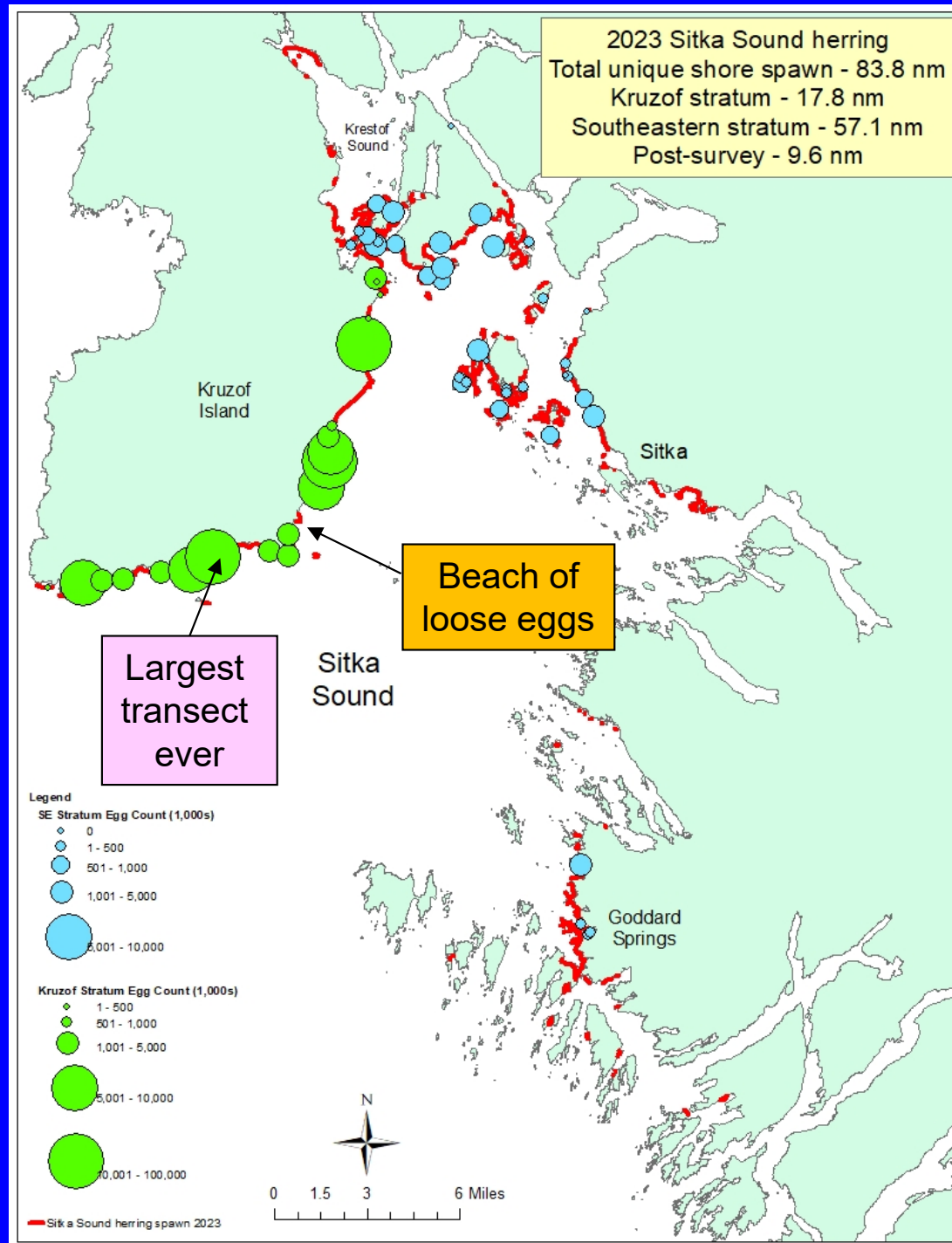
Blue - All other SEAK stocks (spawn deposition estimate)

2023 Relative Egg Abundance

Survey
split into
two strata:

Kruzof
20 transects
(green)

Southeastern
40 transects
(blue)



Stratifying allows:

- 1) Spreading transects throughout
- 2) Lowering overall variance by grouping similar spawning habitats

Kruzof Island Egg Deposition



Sitka Sound herring spawn metrics

Year	spawn mileage (nm)	mean transect length (m)	spawn area (m ²)	egg density (eggs/m ²)	total egg deposition (trillions)
2014	50.0	62.5	5,784,311	616,221	3.960
2015	87.9	43.9	7,142,409	578,850	4.594
2016	63.3	80.4	9,428,167	592,993	5.979
2017	62.3	48.7	5,810,652	508,433	3.618
2018	33.1	94.4	5,540,258	692,405	4.262
2019	55.8	90.4	9,339,573	789,657	8.195
2020	58.5	145.5	12,984,592	1,598,671	23.065
2021	102.3	91.6	17,221,563	1,426,809	27.302
2022	91.5	97.4	16,125,602	813,231	14.571
2023	83.8	85.9	12,837,517	1,395,411	19.904
Average	68.9	84.1	10,221,464	901,268	11.545

Aerial
survey

Dive
survey

Newest data point for ASA model

Age / Size Data Collection



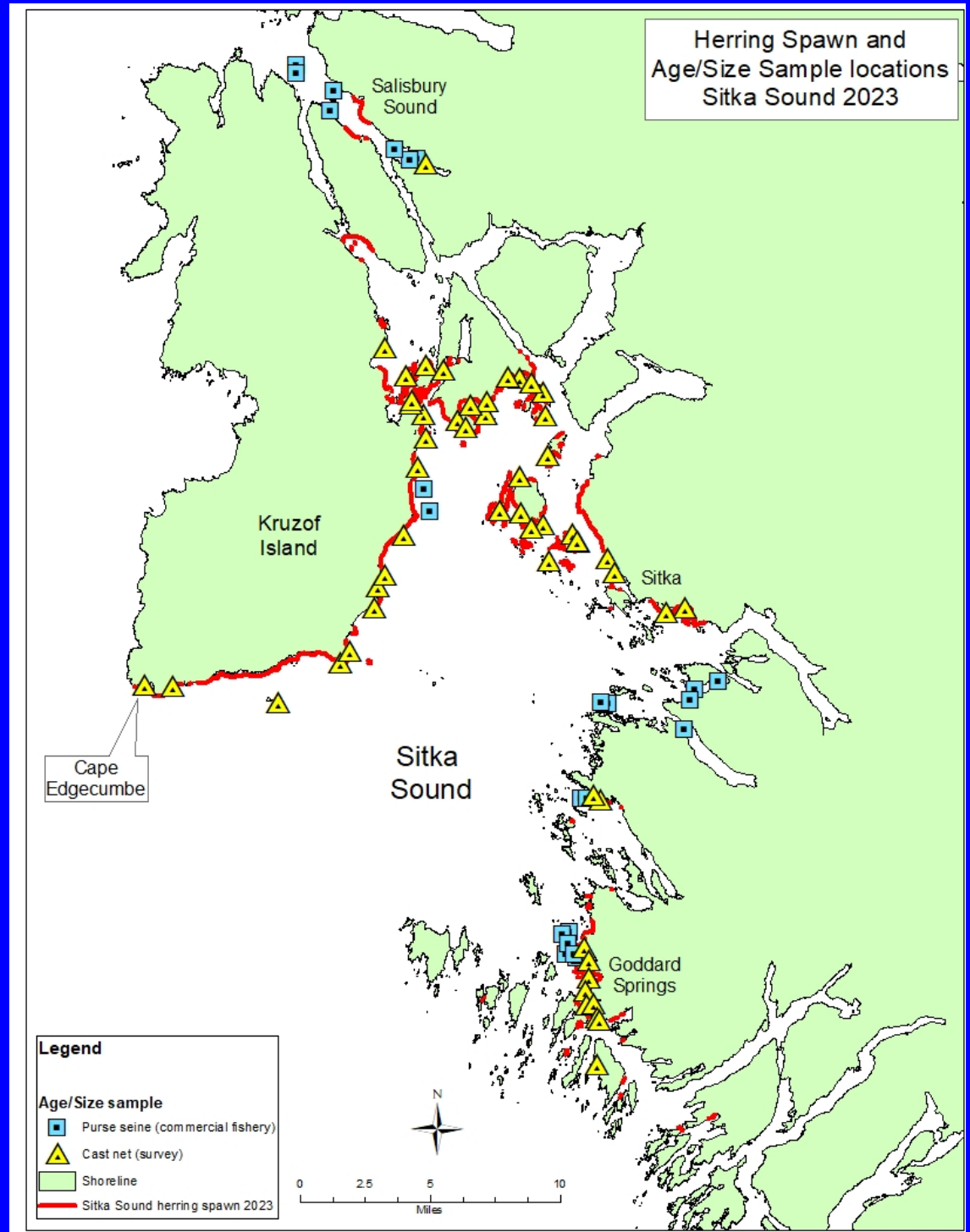
Spawning population
(cast net)



Commercial Catch
(from vessels)

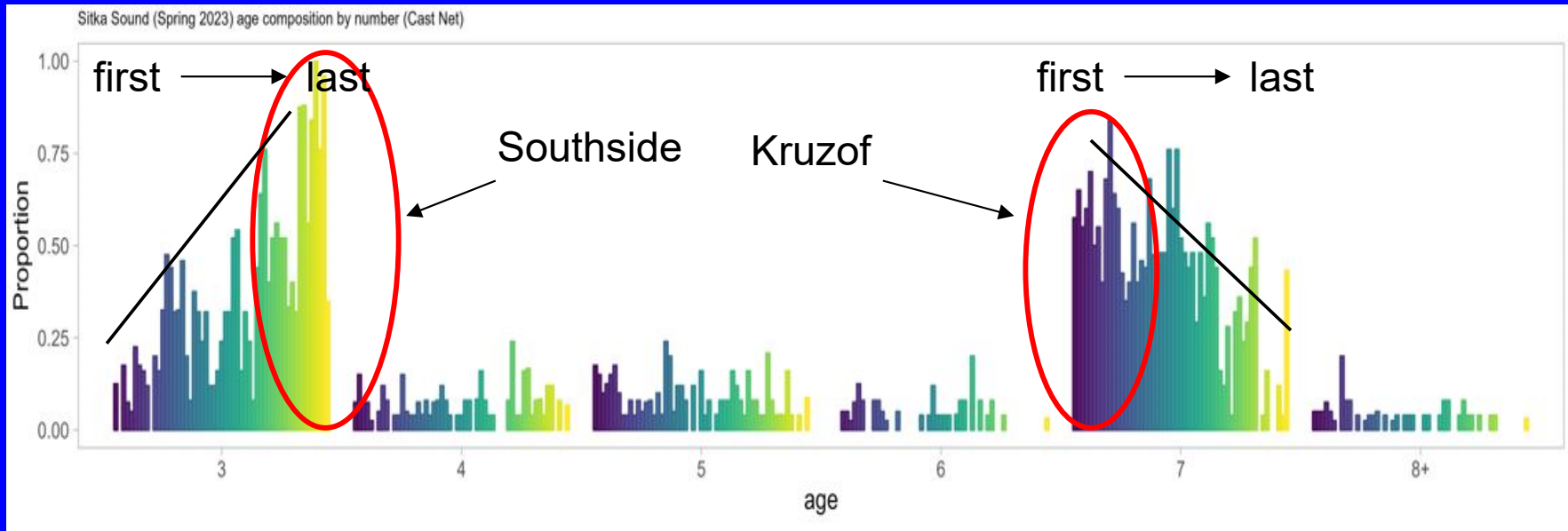
Age/size sample locations in Sitka Sound 2023

Survey – yellow
Commercial – blue



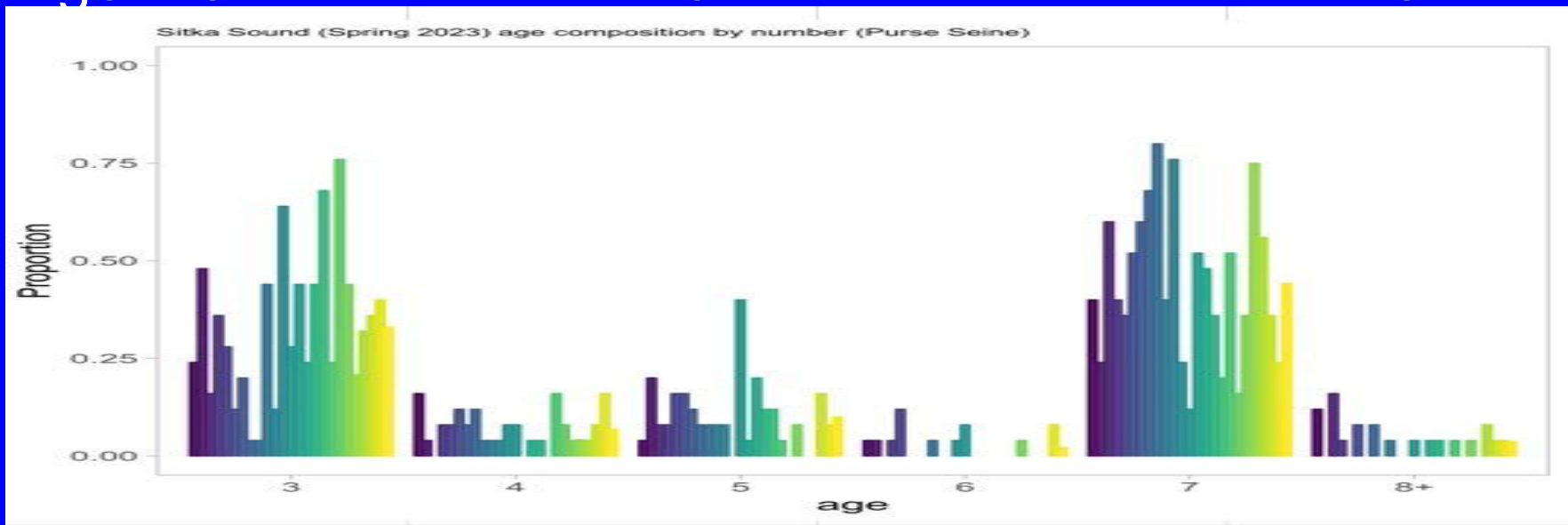
2023 Observed Age Composition

Cast Net
54 samples



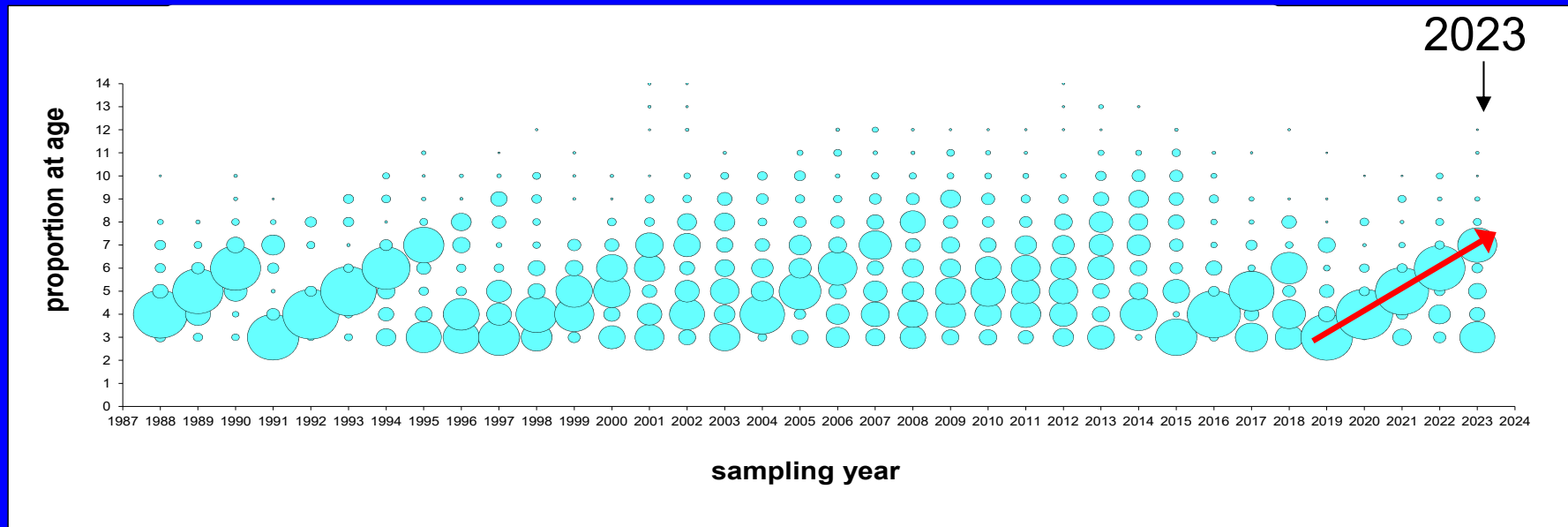
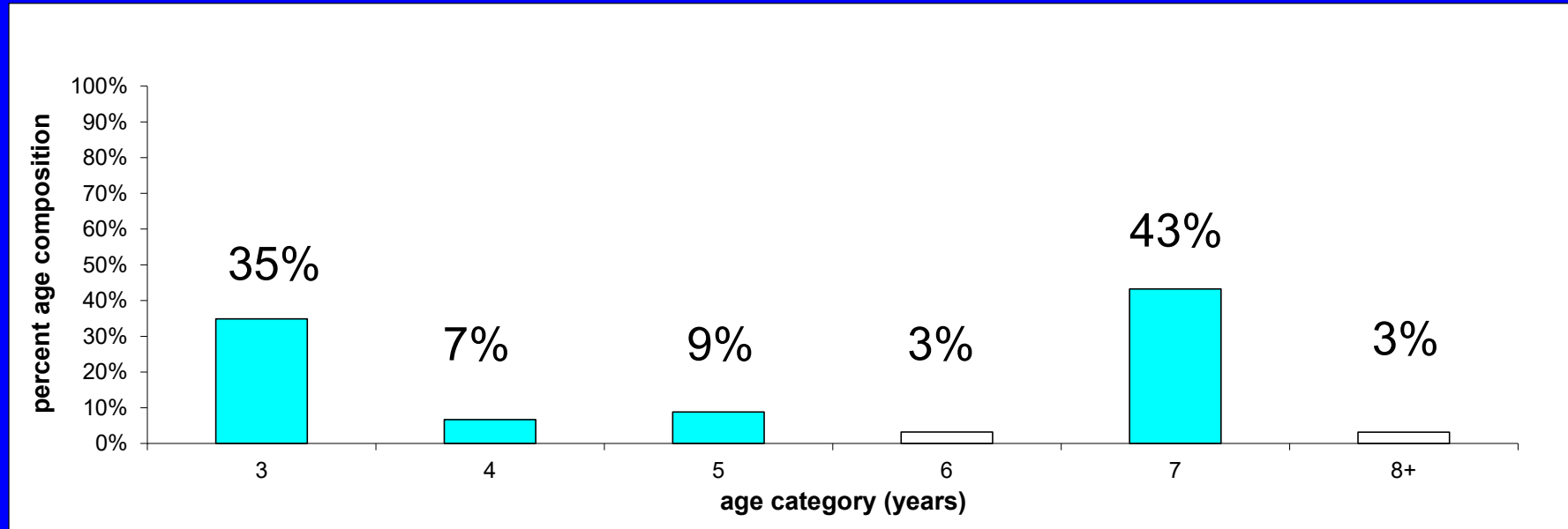
Age 3 4 5 7 8+

Purse
Seine
24 samples



Overall Age composition

(observed, spawning population)



Observed size at age / Condition

