

Status of Pinto abalone in Washington State

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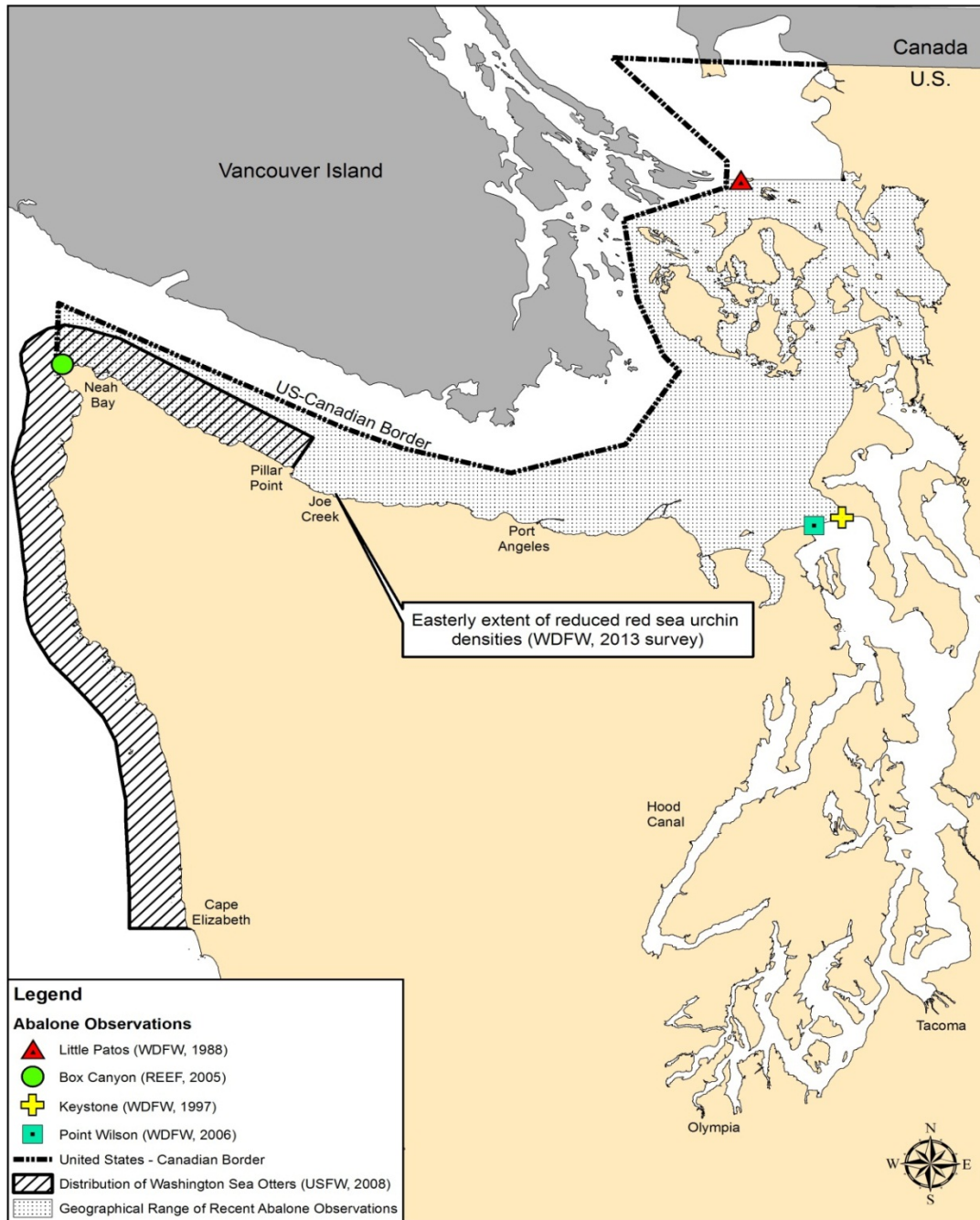
*Washington
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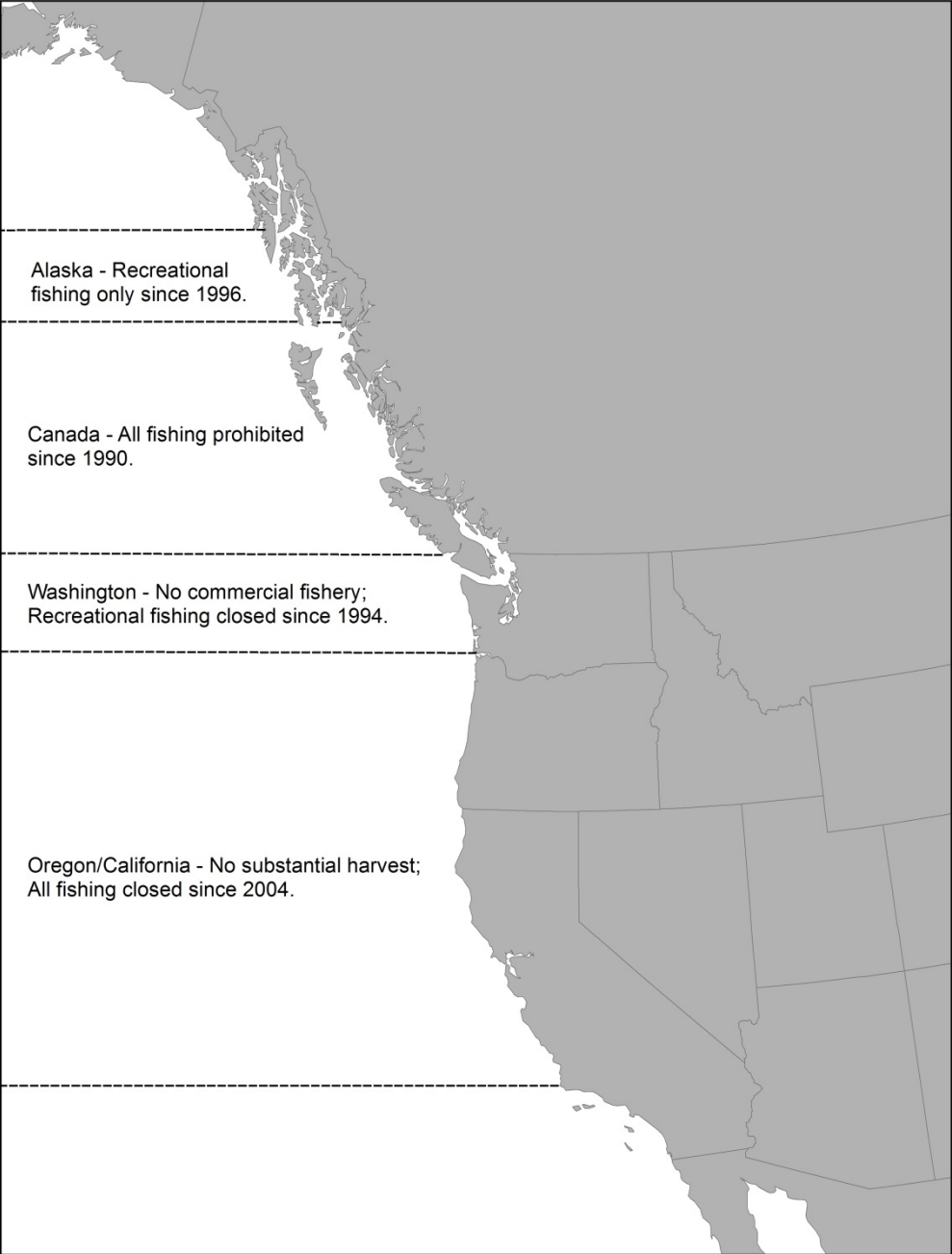
Outline

- I. Historic overview
- II. Population status and trends
- III. Management recommendations



Photo by Josh Bouma





The Rise of the Pinto Abalone Fishery

1959

A recreational fishery in Washington is authorized.

1979-80

WDFW establishes 30 baseline abalone stations in the San Juan Archipelago using a 20 minute timed swim method.

Mid 1980's

WDFW data suggests recreational harvest of abalone in the San Juan Archipelago is 34,800 abalone/year (Bargmann, 1984).

Late 1980's early 1990's

- Peak years for sea urchin and sea cucumber dive fisheries.
- Approx. 200 vessels participated in the 1988 sea urchin fishery.
- Abalone are highly vulnerable to illegal harvest since they are found at divable depths in the same habitat as sea urchins and sea cucumbers.

The Decline of Pinto Abalone

1990

Declining abalone stocks force closure of British Columbia, Canada commercial and sport pinto abalone fisheries.

1991 - 1992

WDFW survey data shows a roughly 50% decline from 1981 data. Index stations were established to assess future changes in abalone abundance.

1994

Data from WDFW surveys shows an additional decline in abalone stocks, along with evidence of poaching, forces the closure of Washington pinto abalone sport fishery (pinto abalone were never commercially harvested in Washington).



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The Decline of Pinto Abalone (continued)

1996

Alaska closes commercial pinto abalone fishery

1998

Based on continued declines shown in survey data WDFW designates pinto abalone as a "State Candidate Species".

1999

Canadian Government list pinto abalone as a "Threatened Species" under COSEWIC (Committee On Sensitive and Endangered Wildlife In Canada).

2004

NOAA Fisheries Federally lists pinto abalone as a "Species of Concern".

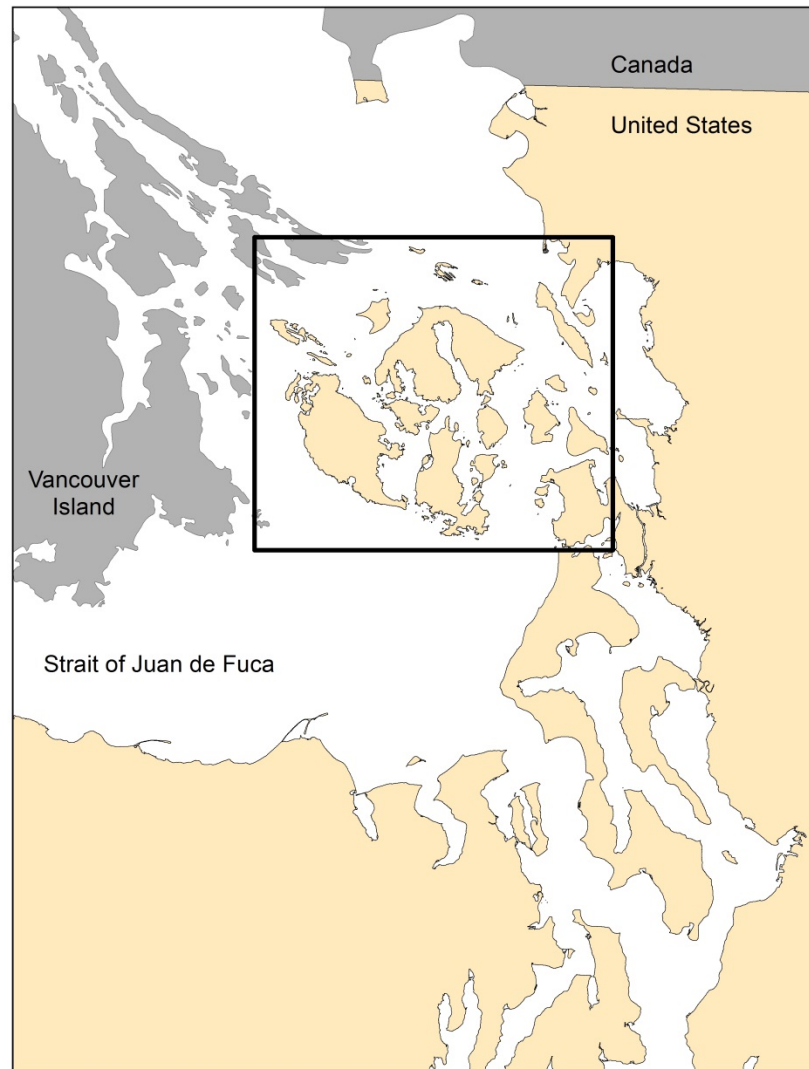
2009

Canadian Government list pinto abalone as a "Endangered Species".

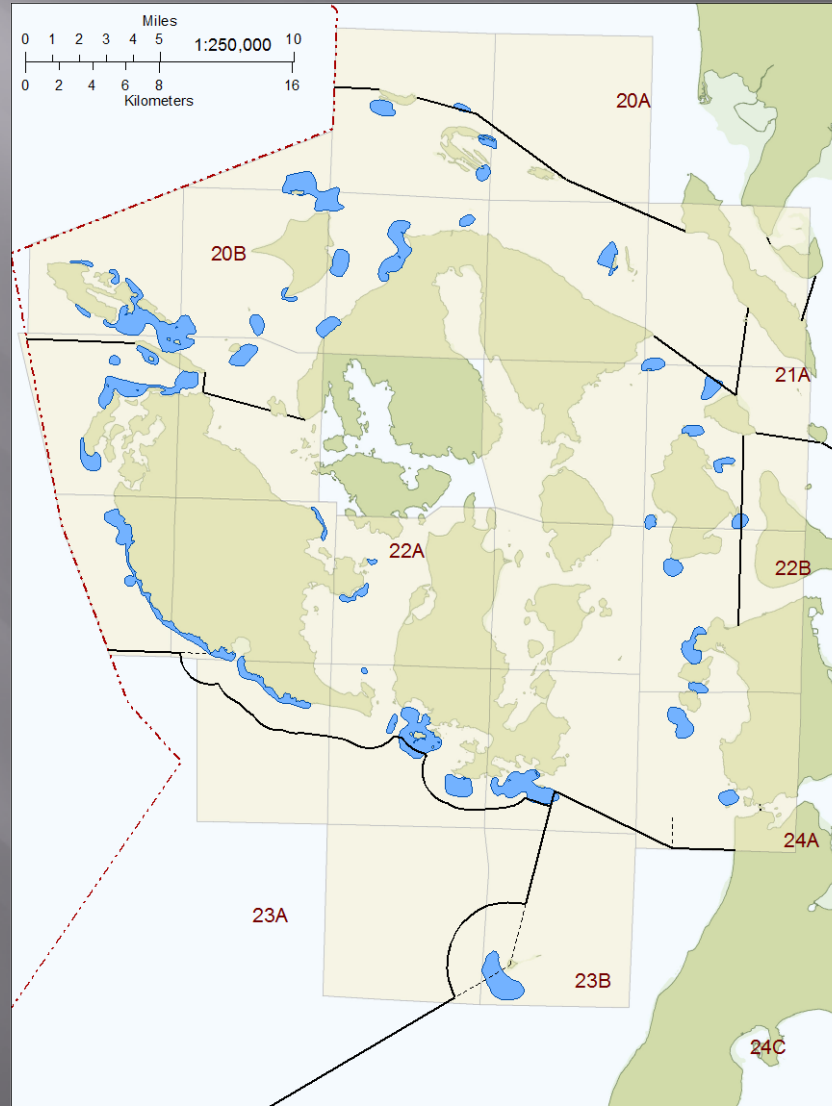
2013-2014

Two petitions were received by NOAA Fisheries to list pinto abalone as Threatened or Endangered under federal ESA. Pinto abalone status under ESA is currently under review by NOAA.

Recent Stock Assessment

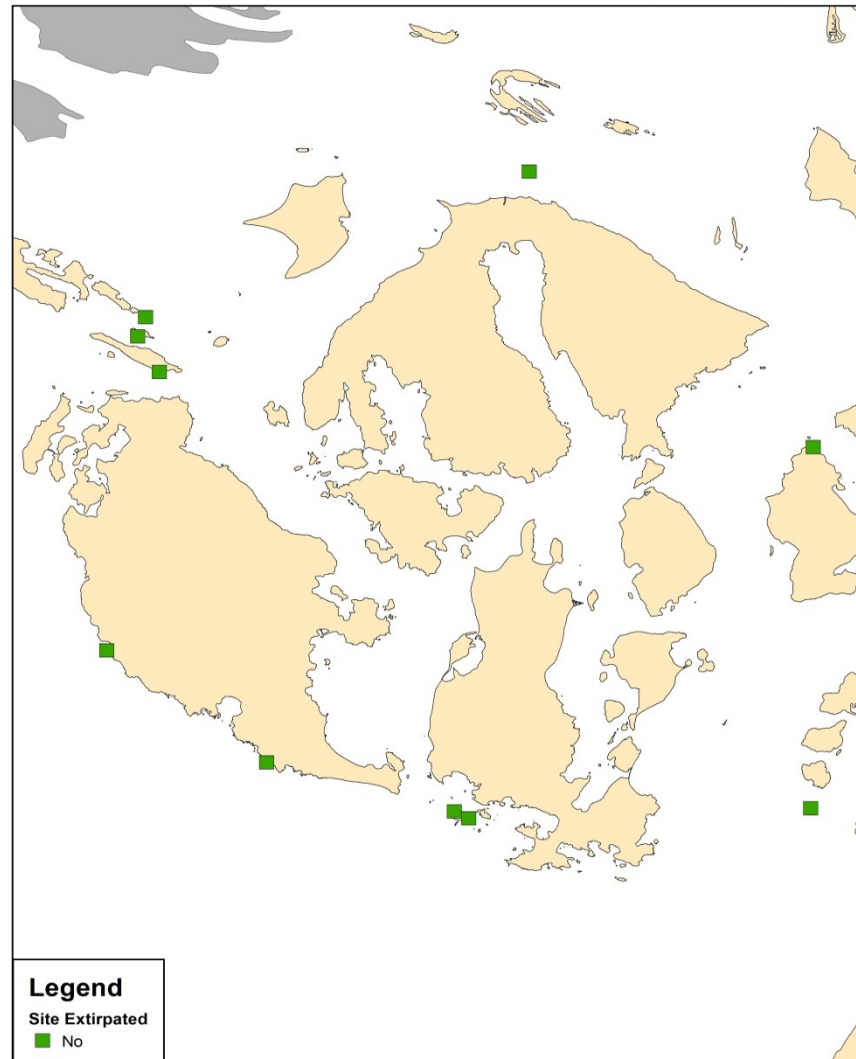


Historic Abalone Distribution in the San Juan Islands

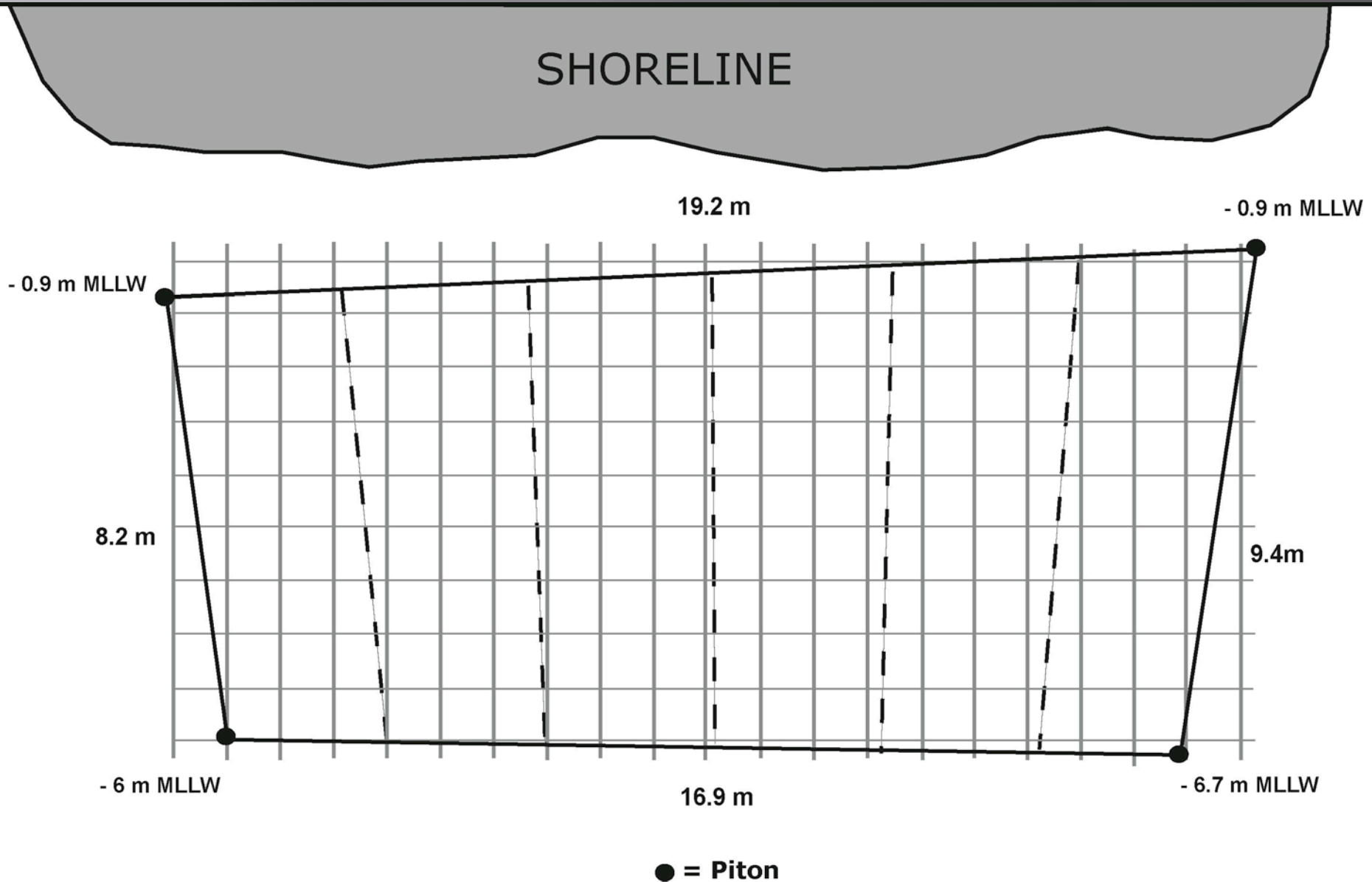


Index Stations in San Juan Islands

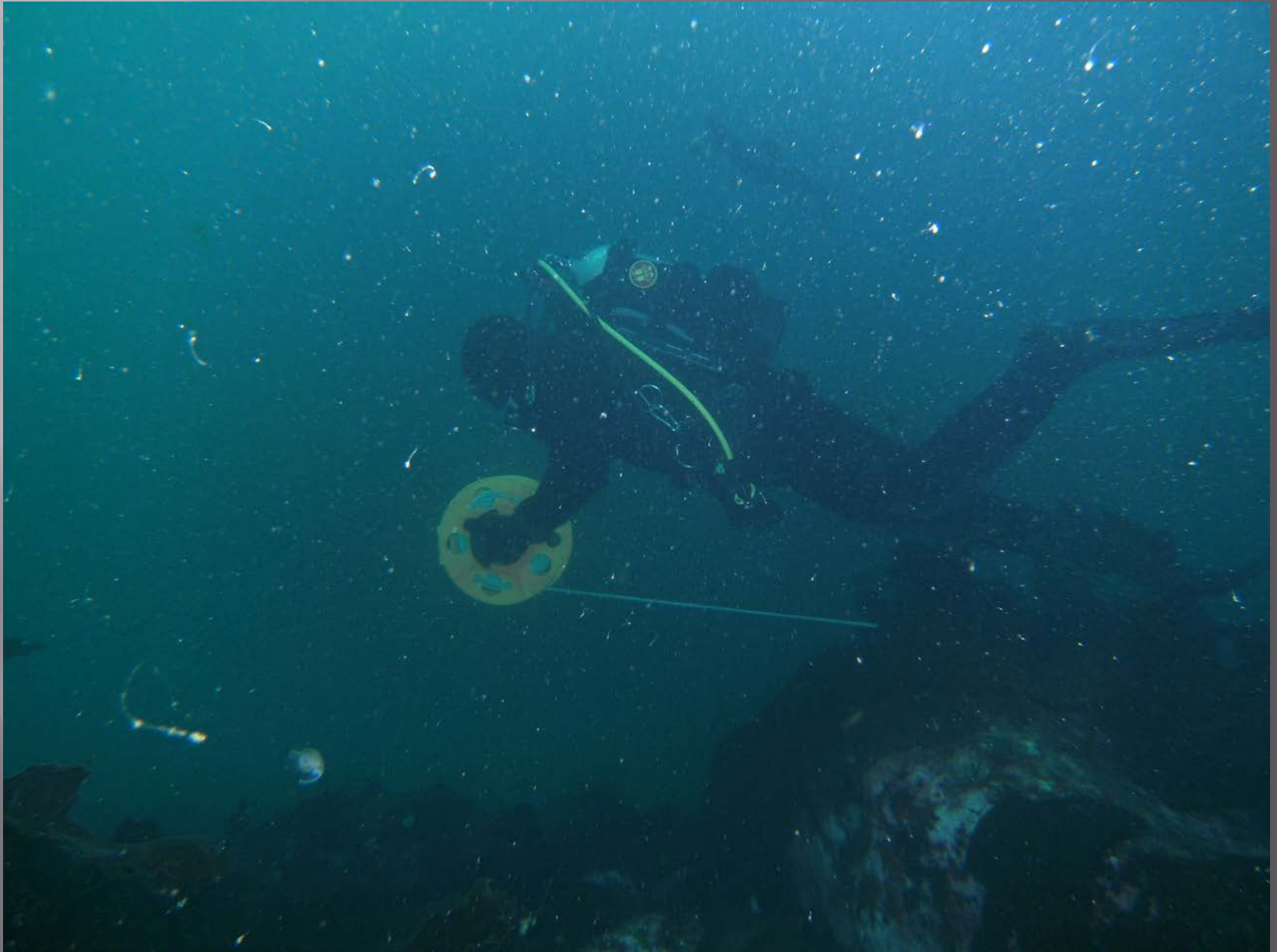
Abalone Index Sites in the San Juan Islands, Washington



Index Stations Set-up



Index Stations Set-up



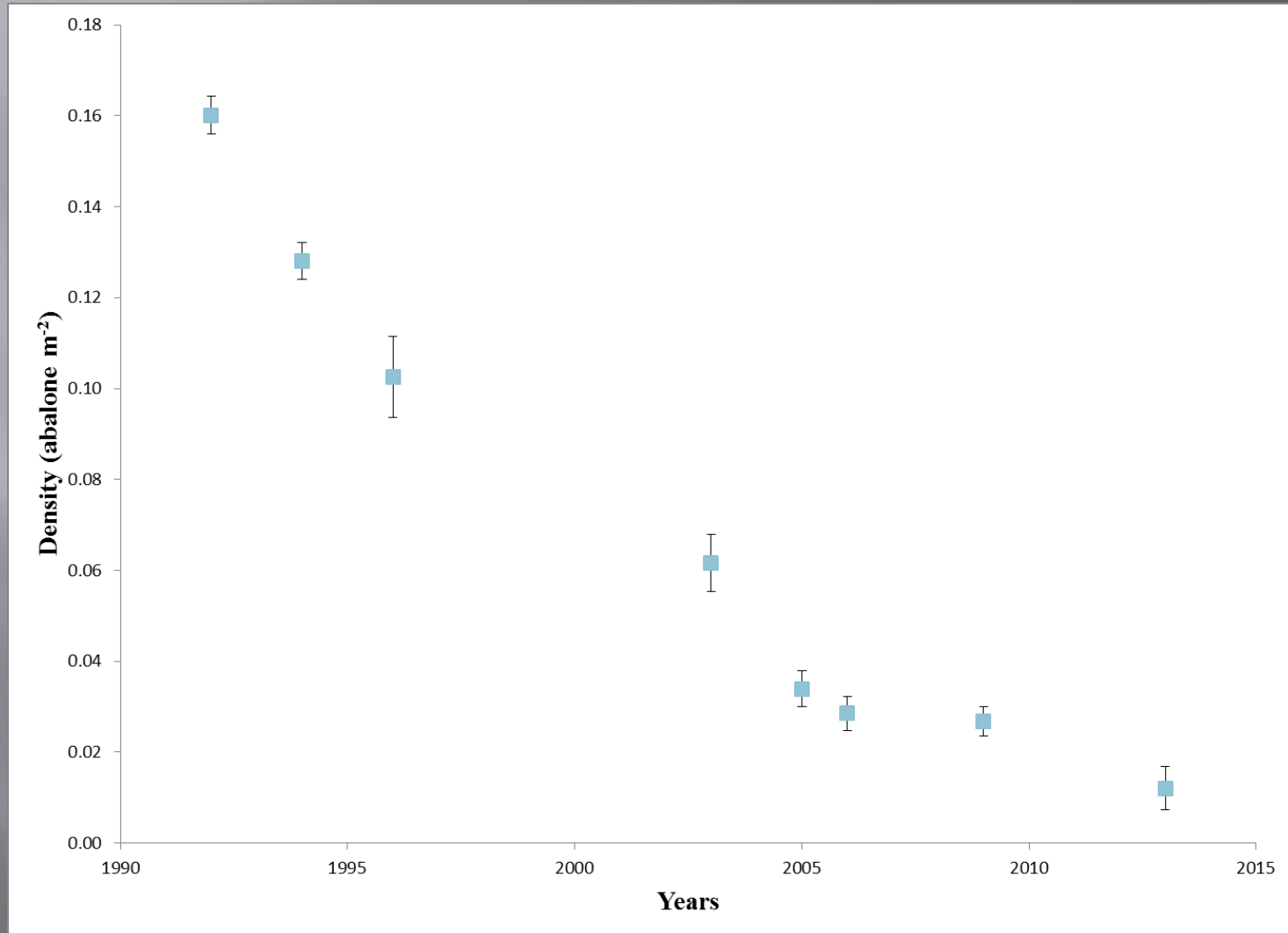
Index Stations Set-up



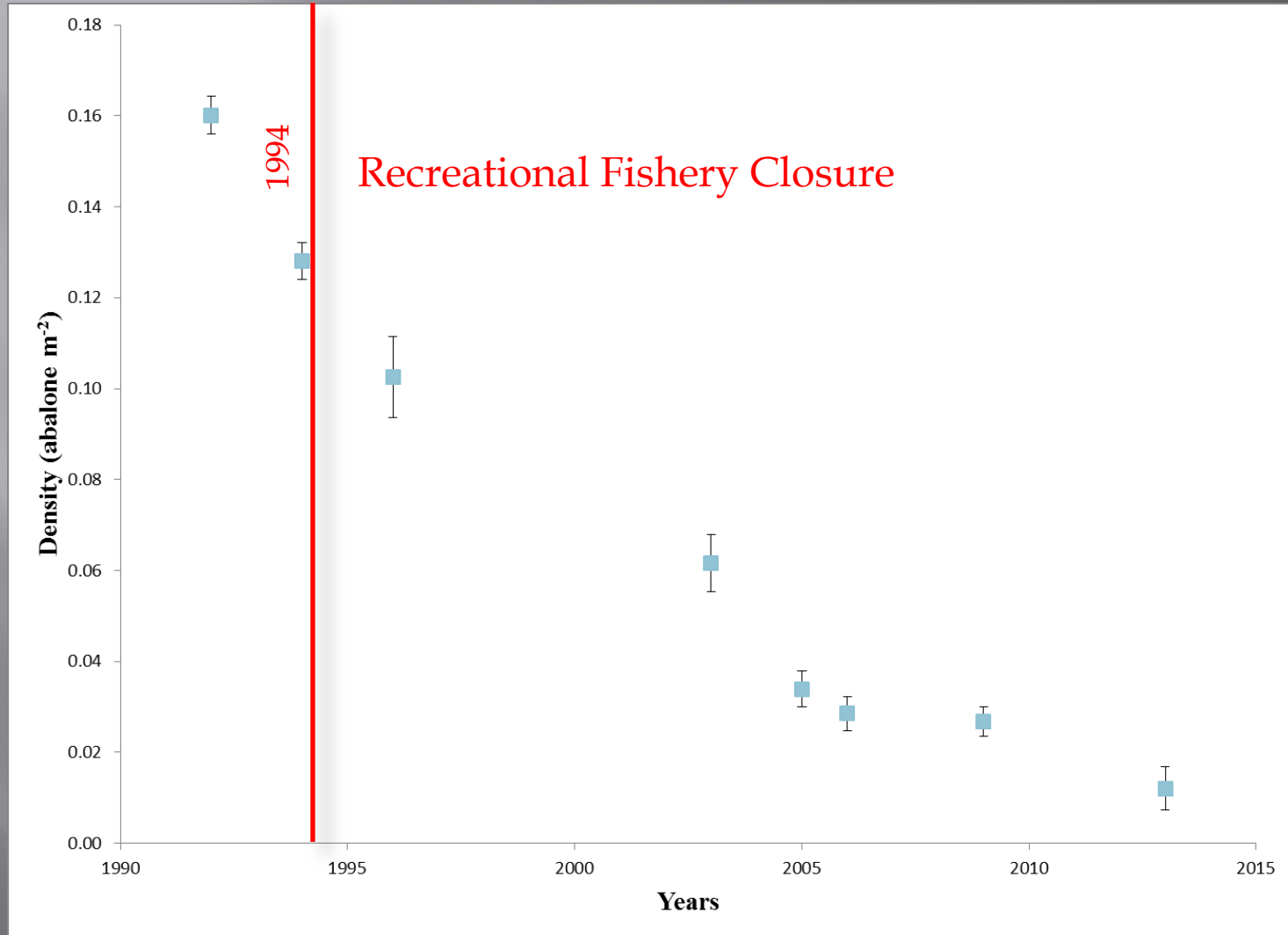
Index Stations Survey Timing



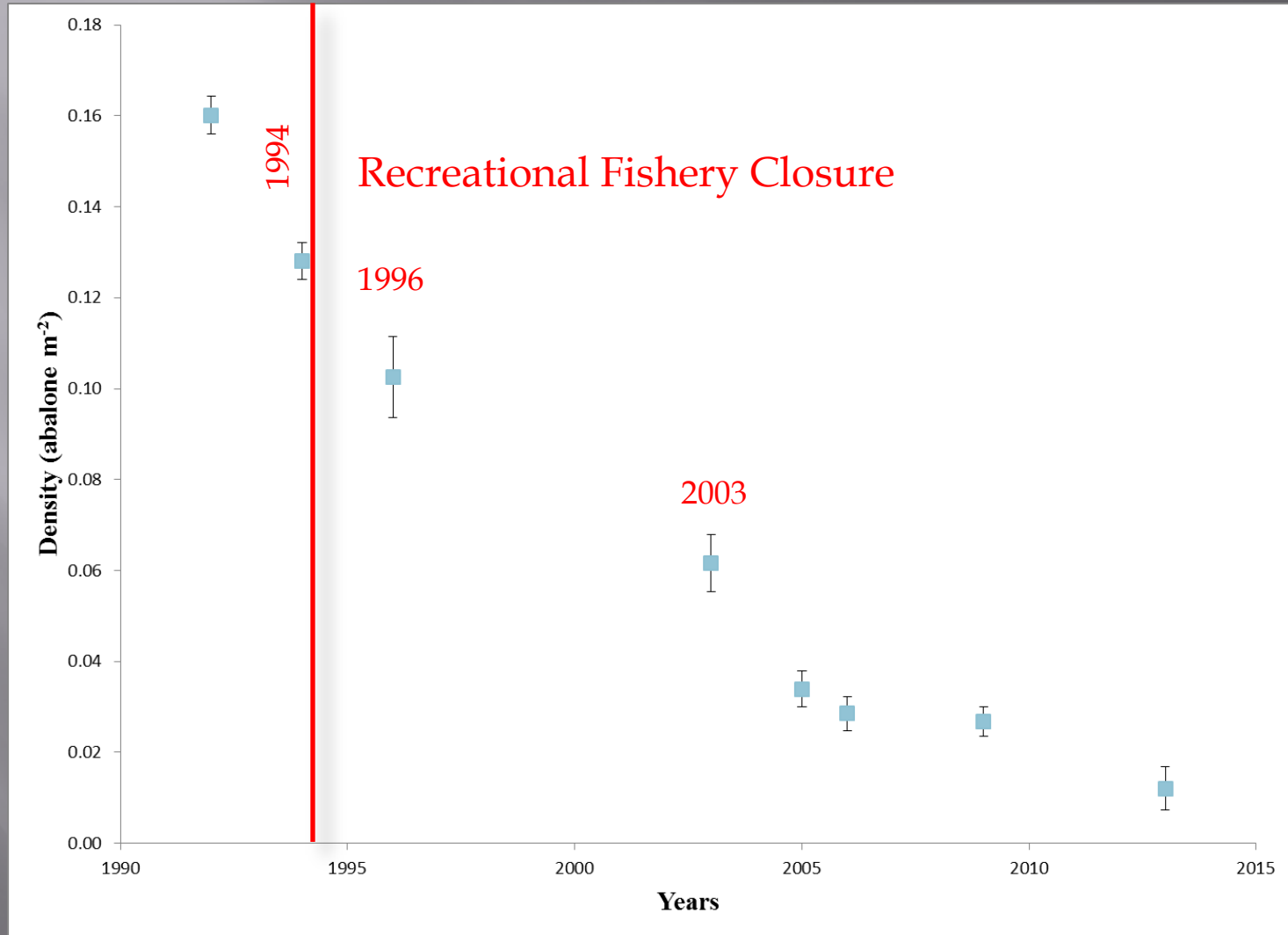
Changes in Abundance



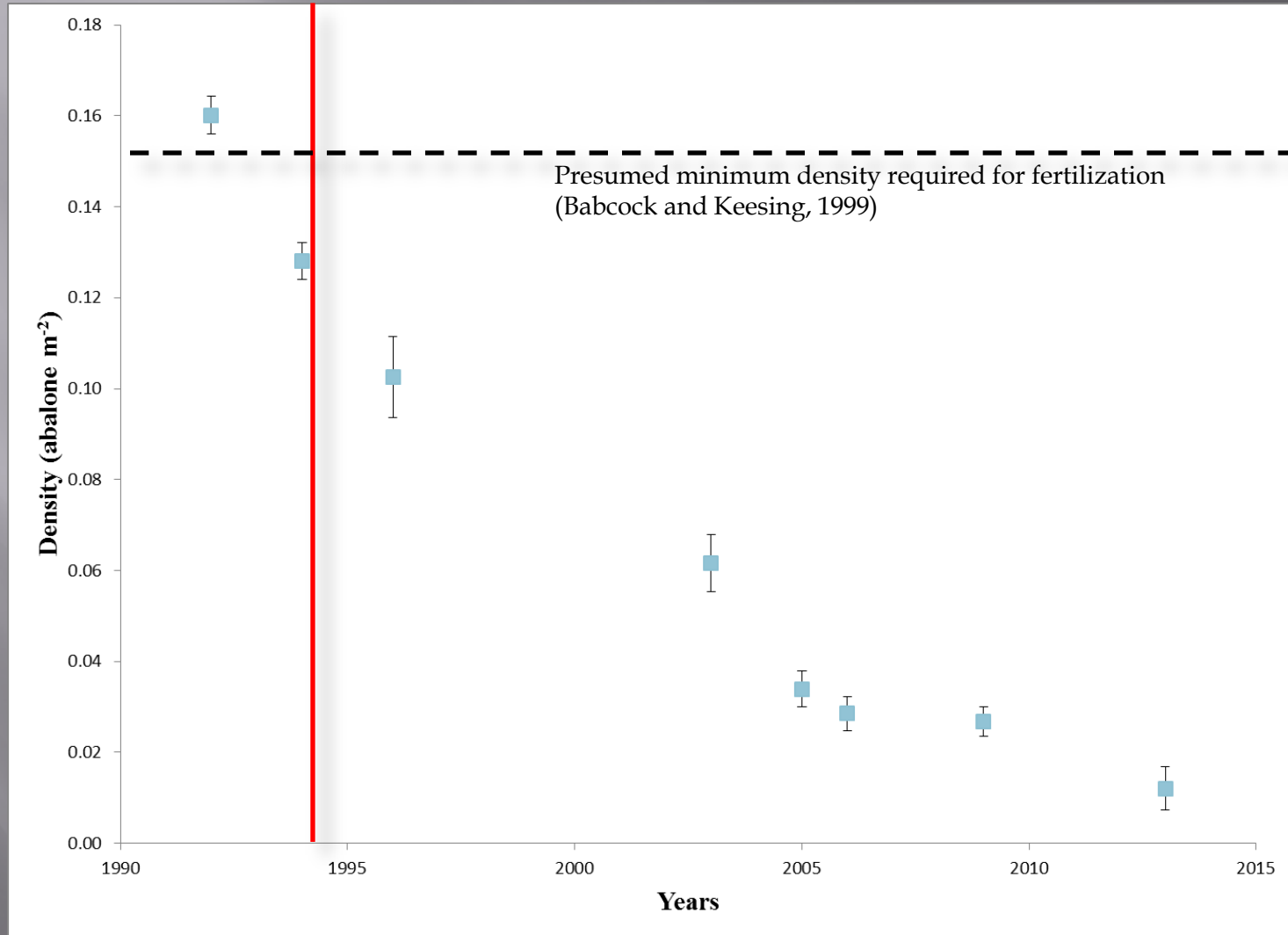
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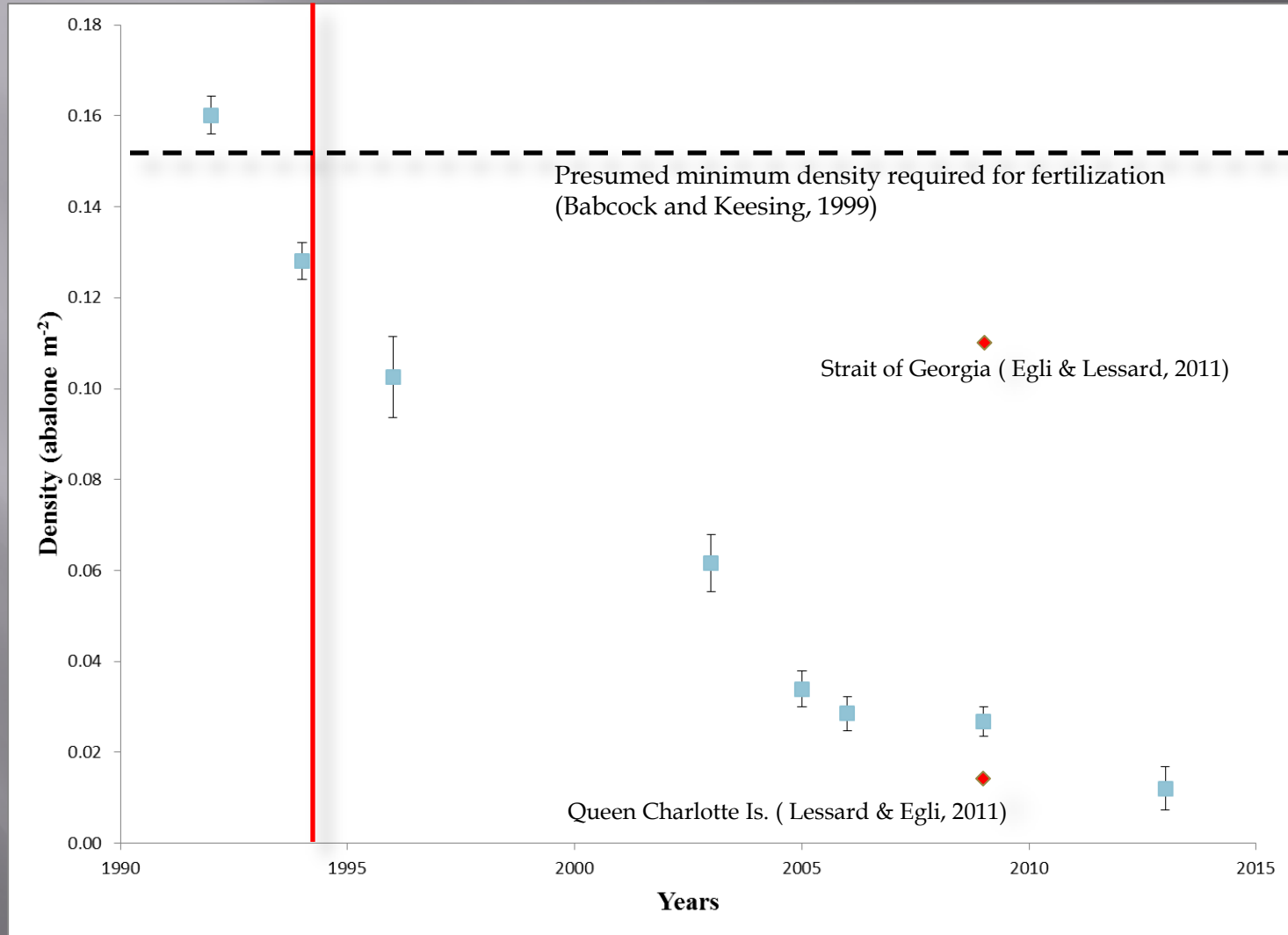
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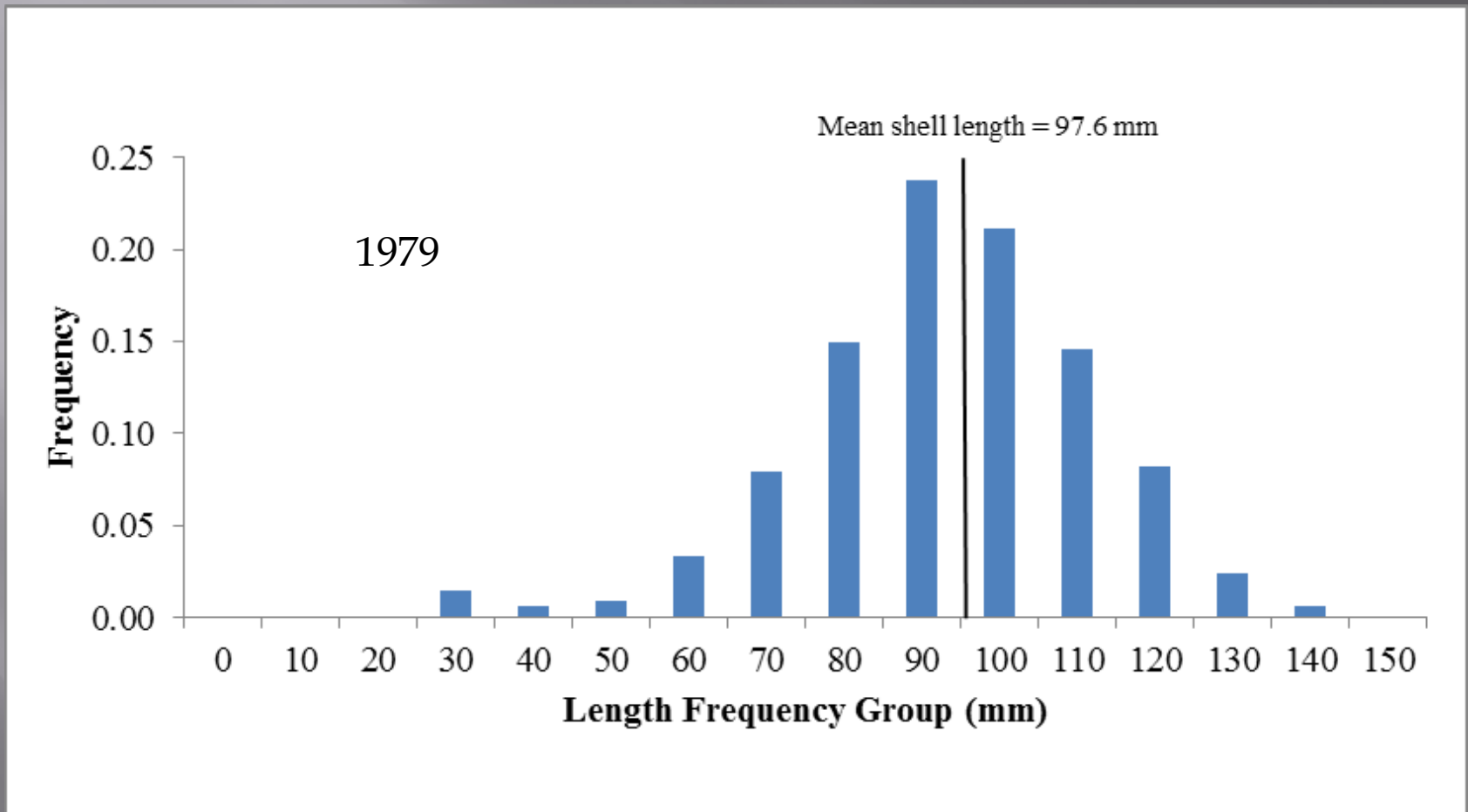
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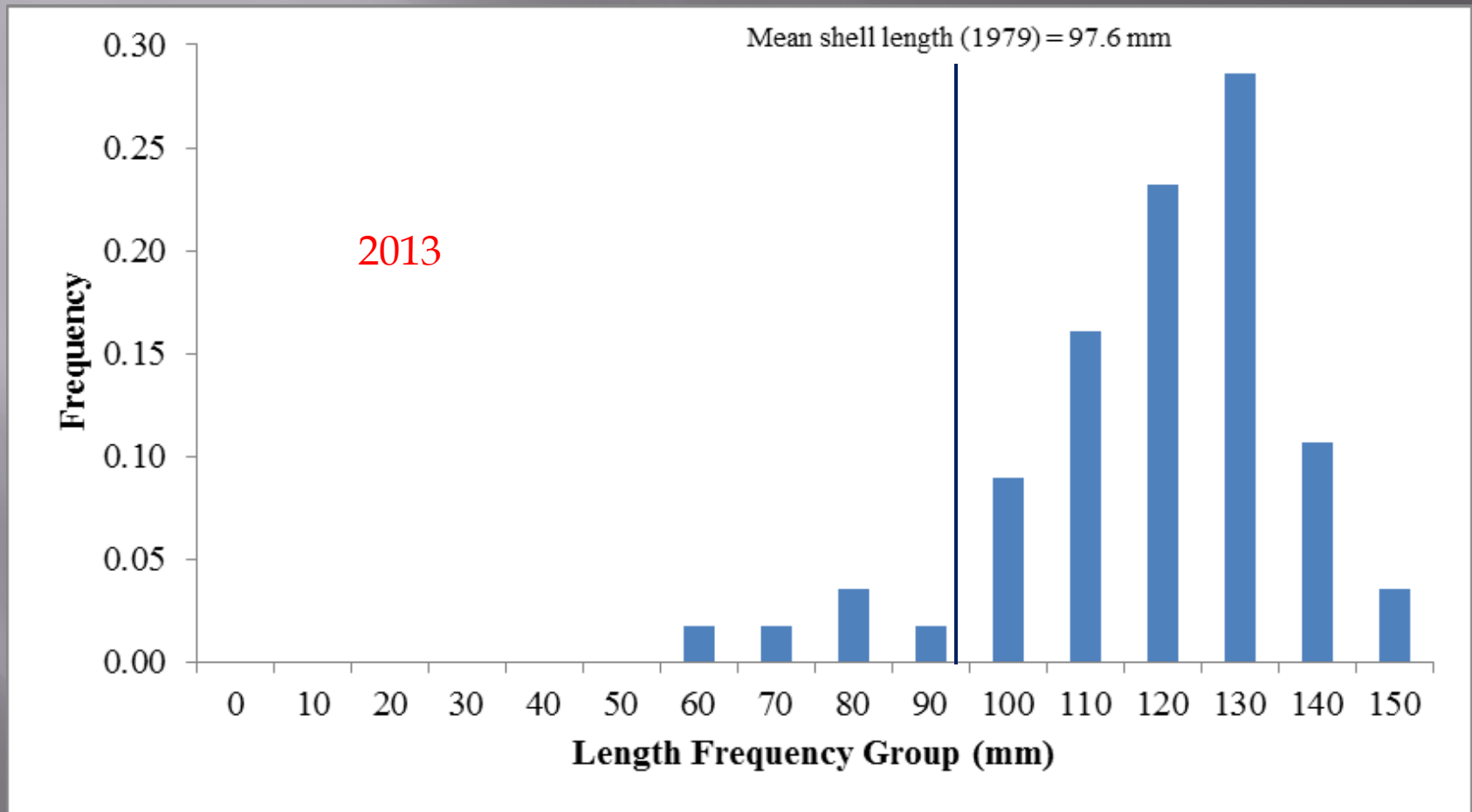
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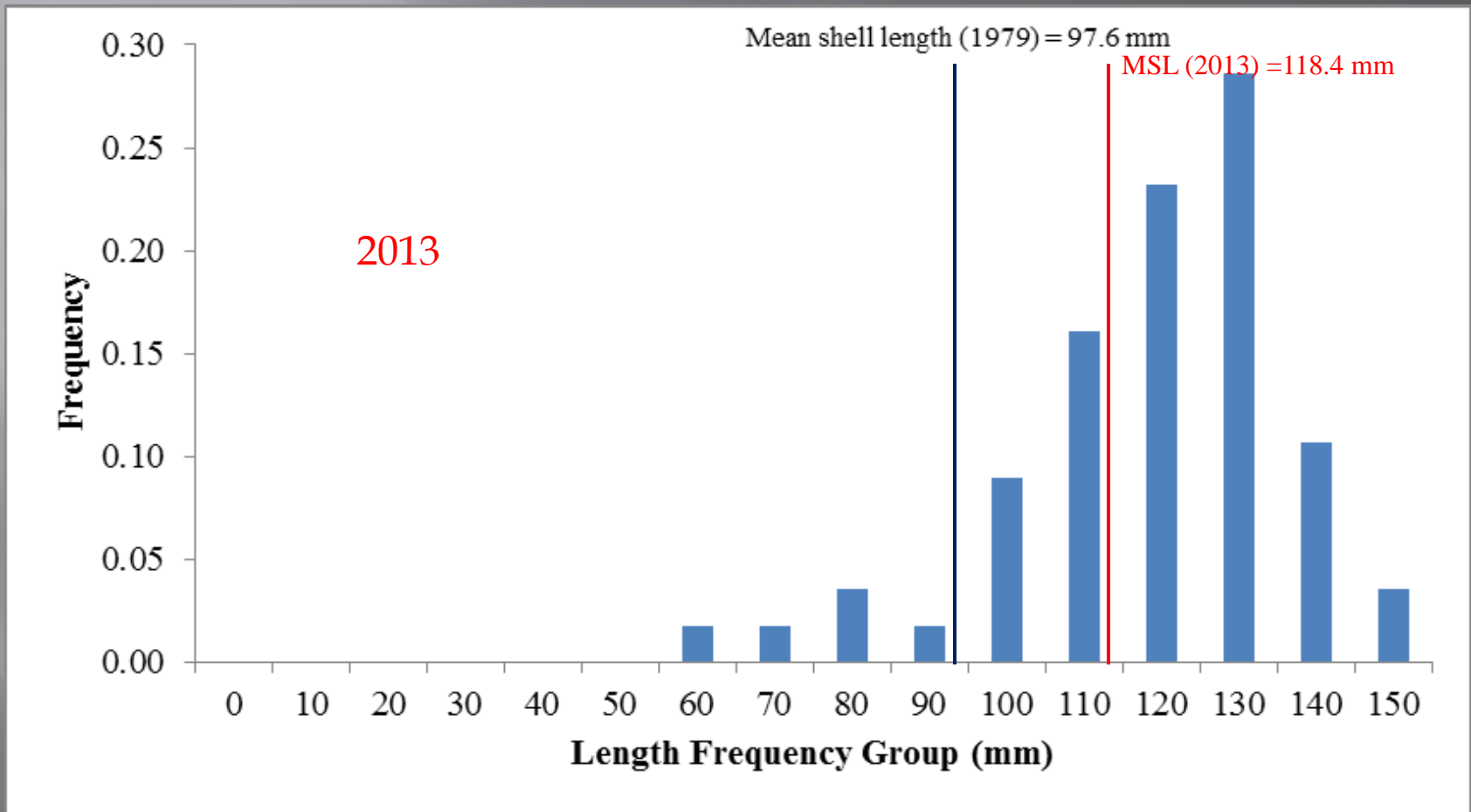
Changes in Size Structure



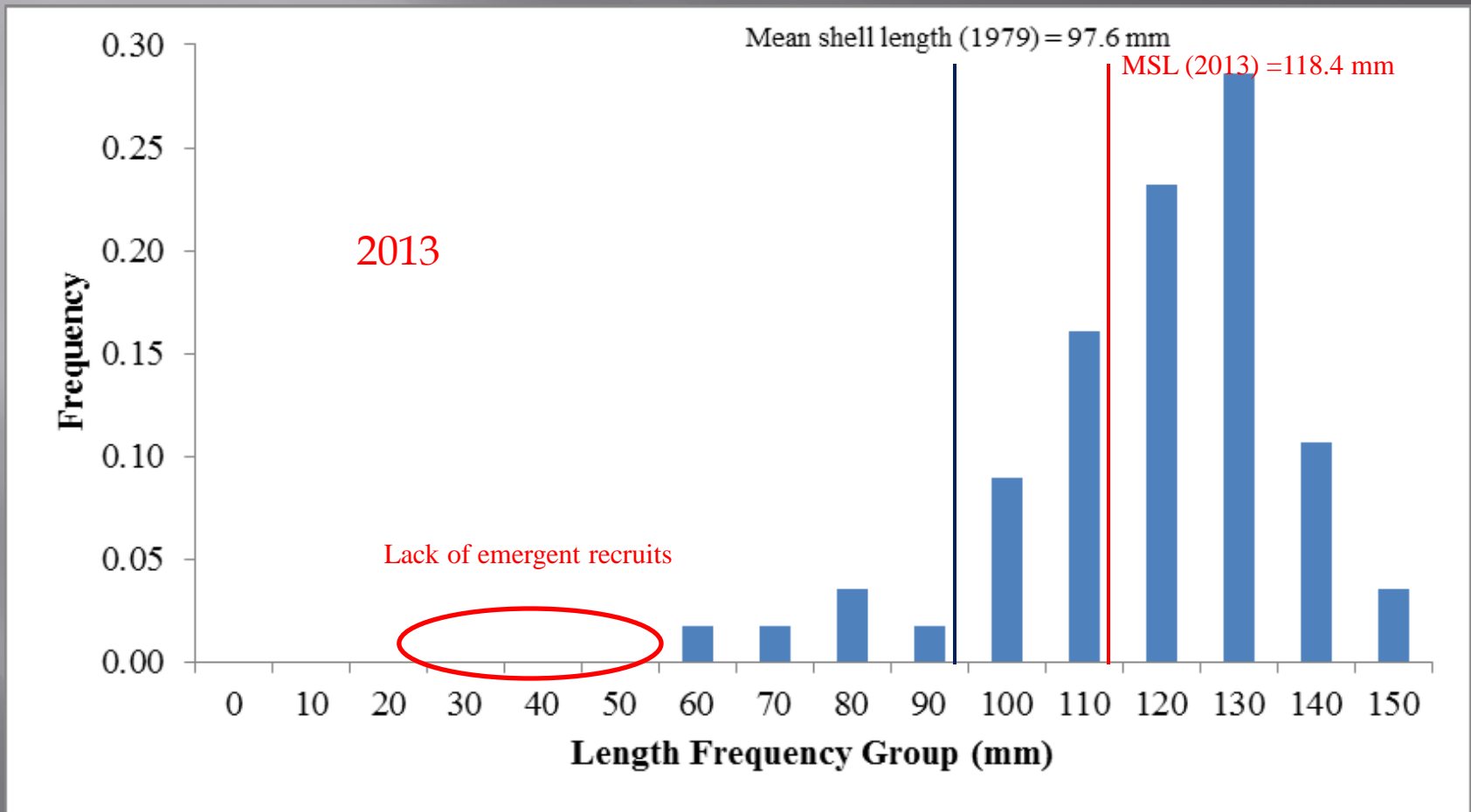
Changes in Size Structure



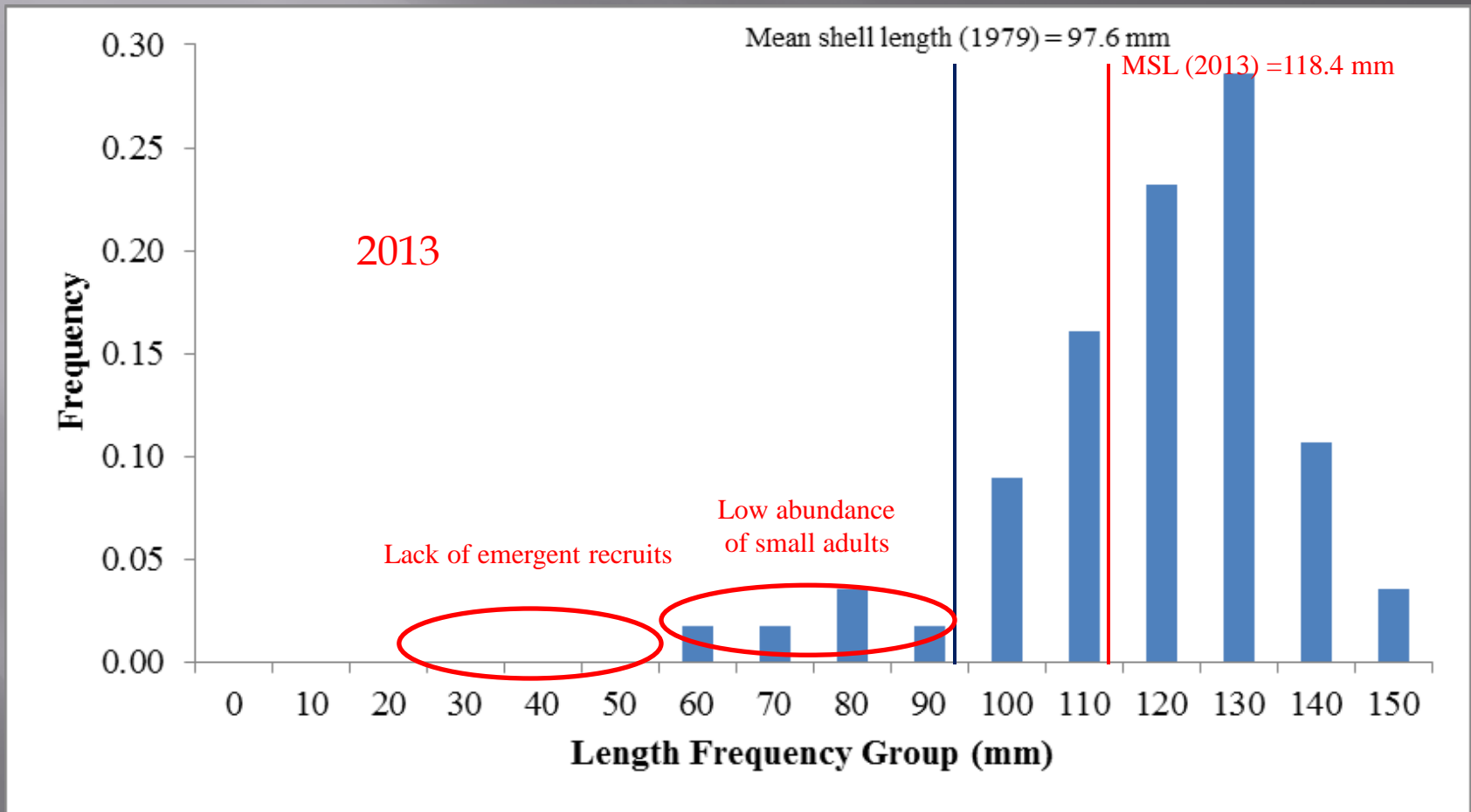
Changes in Size Structure



Changes in Size Structure



Changes in Size Structure



Conclusions

- 1) Management actions to reduce harvest effort, and closure of the fishery in 1994, did not halt population decline. Five of the 10 index sites established in the San Juan Islands are now extirpated.
- 2) The average density of stocks has been below a presumed critical density threshold to allow successful natural reproduction for at least 20 years.
- 3) Recruitment size classes are, for the most part, missing.
- 4) The majority of abalone fall within larger size classes and are approaching maximum sizes for this species, which will likely accelerate natural mortality rates.

Taken together, this information indicates that Pinto abalone in WA is an aging population and that this population has been at insufficient density to allow successful natural reproduction. Further, the long-term recruitment failure provides evidence that the population will not recover naturally.

Recommendations

Restoration efforts (supplementation with captively-reared animals) have been building for the last 10 years. If recruitment failure is the main cause of abalone decline, then restoration efforts need to scale up to establish reproductive “pockets” of abalone that are above the critical density threshold.

Stock assessment – Index stations alone may not represent current stock status. Managers should consider surveying stocks throughout their vertical depth range, target surveys where natural aggregations are encountered, survey in areas where recruits are found.

Renew outreach to divers who may still be taking abalone, including recreational dive shops and commercial sea urchin and sea cucumber harvesters.

Plan for future restoration efforts by cryo-preserving gametes that represent the genetic profile of the population.

Investigate additional causal agents for decline including physical and chemical oceanographic conditions.

Acknowledgements

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