Use of Pacific oyster *Crassostrea gigas* (Thunberg, 1793) shell to collect juvenile rockfish, *Sebastes* (Cuvier, 1829) in the Puget Sound.

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Content

- Motivation
- Collector design
- Experiment
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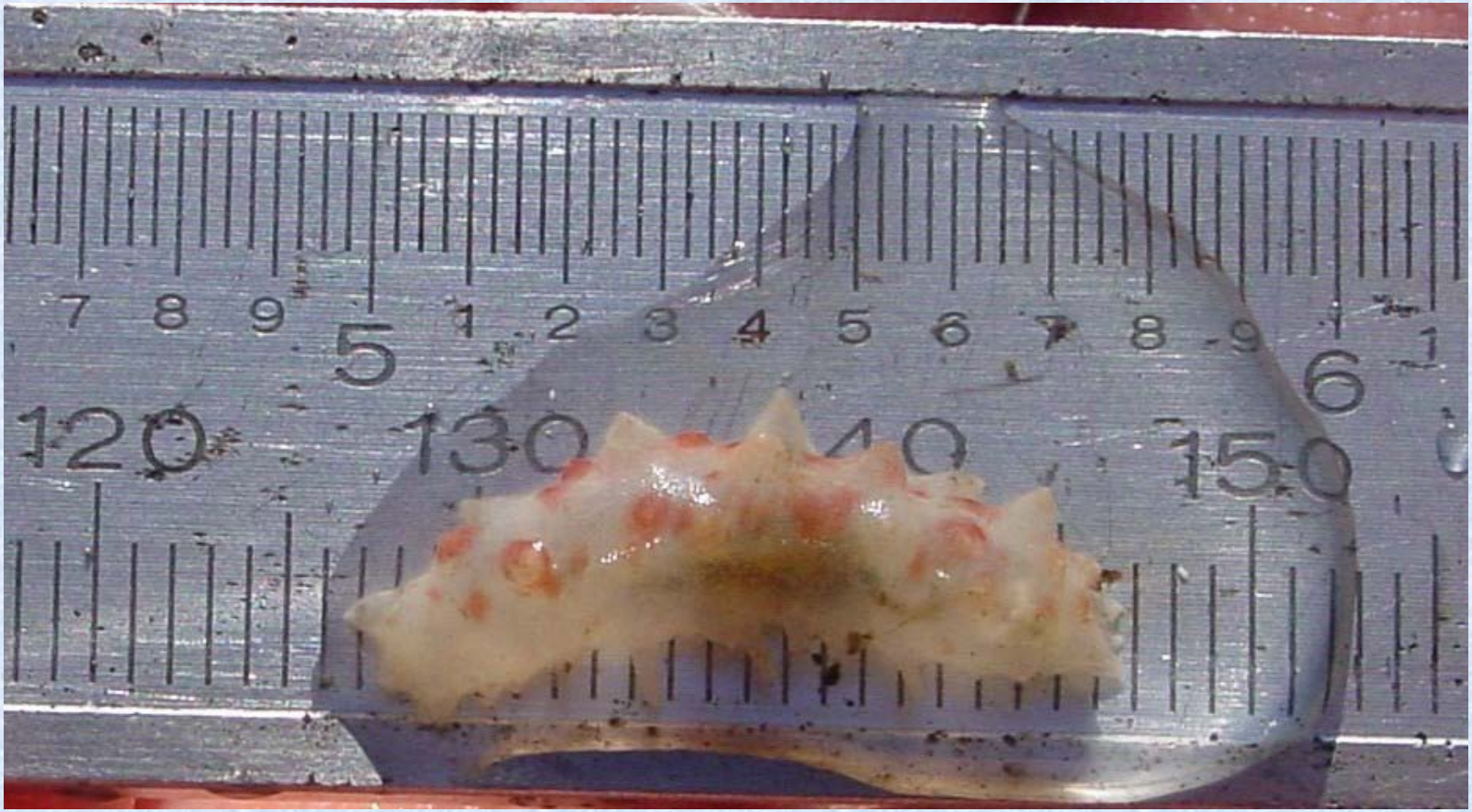
- Discussion

How important is the rockfish collector?

- Understanding juvenile rockfish habitat.
- Understanding the spatial distribution of juvenile rockfish.
- Developing recruitment indices of juvenile rockfish. [forecasting]

Motivation

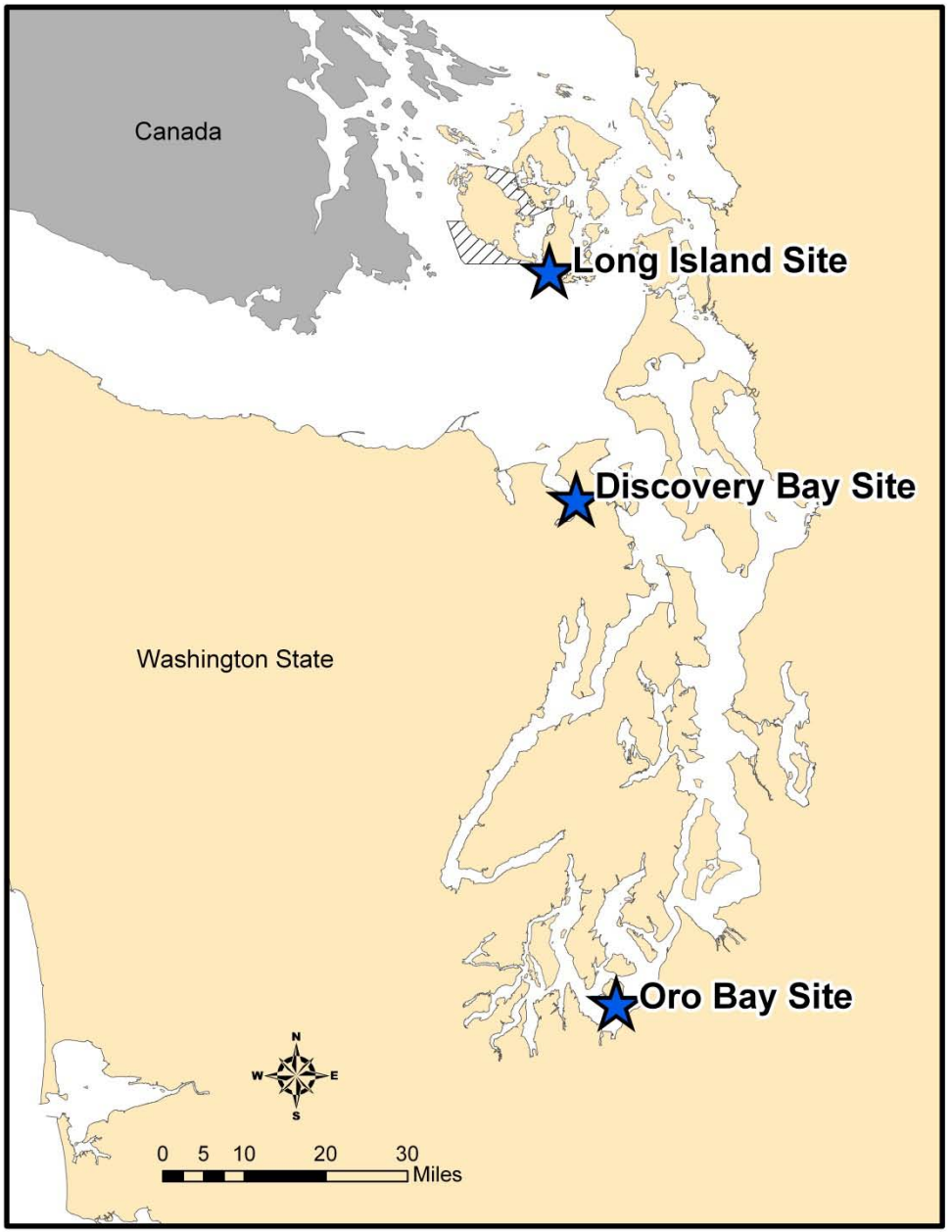


Pacific oyster shell collector

Experimental Design

Collection Site	Deployment Date	Dominant Substrate	Plants on Site	Sampling Dates	Depth
Long Island	March 2005	Solid Rock	*Laminaria* sp., small red algae, large red algae, *Pterygophora californica*	June 2005 January 2006	3m, 5m, 7m
Discovery Bay	April 2005	Sand	*Ulva* sp., small red algae, large red algae	September 2005 December 2005	3m, 5m, 7m
Oro Bay	May 2005	Cobble with mud, sand and shellhash	*Laminaria* sp., *Ulva* sp., large red algae	July 2005 January 2006	3m, 5m, 7m

Collection Sites



Visual Inspection

Juvenile Rockfish

Juvenile Rockfish

Juvenile Rockfish Measurements

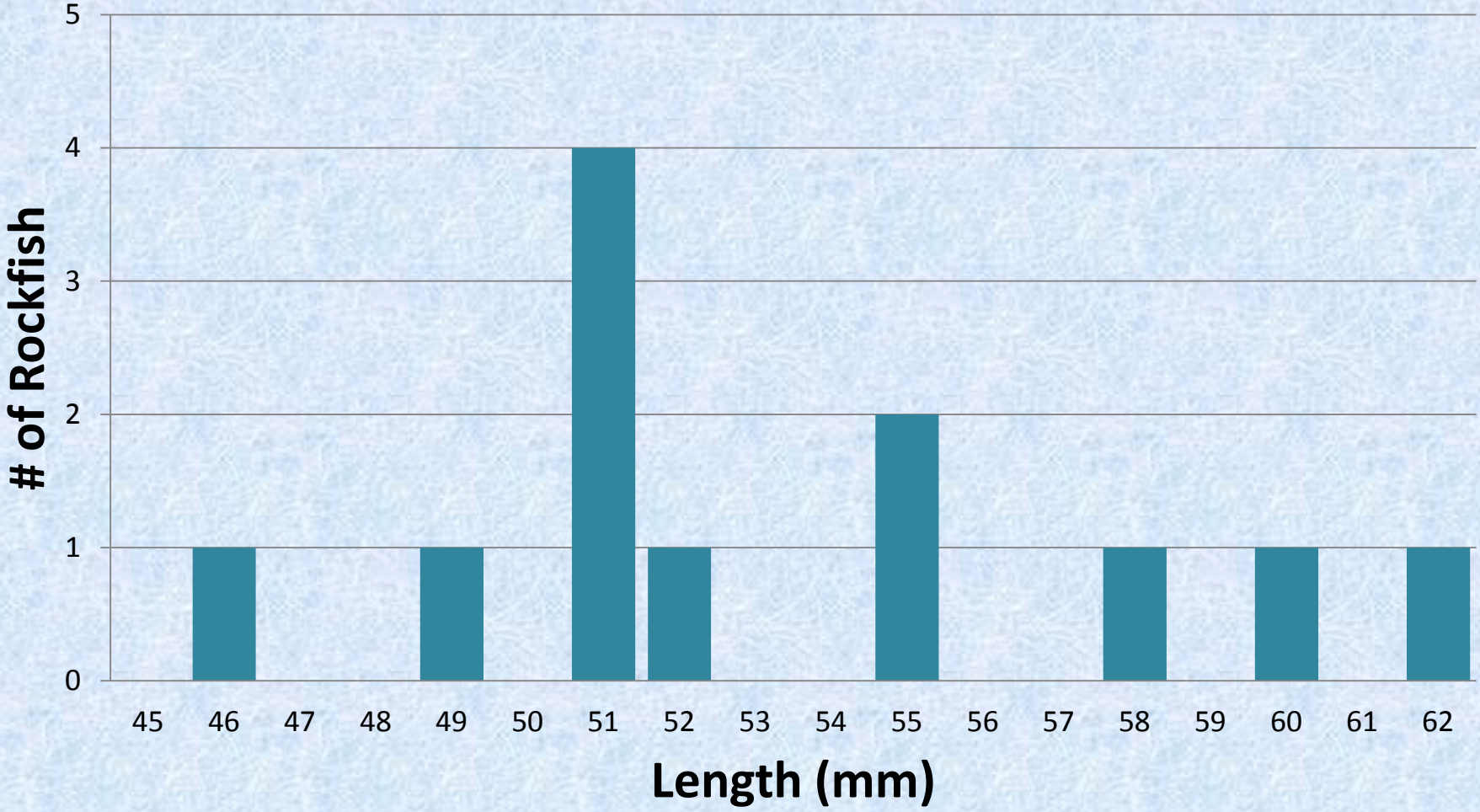
Fish #	(mm)*
1	46
2	49
3	51
4	51
5	51
6	51
7	52
8	55
9	55
10	58
11	60
12	62

*Length data was taken during post processing from photo documentation.

Juvenile Rockfish Length*Frequency Distribution

Discovery Bay Collectors

December 8, 2005



*Length data taken during post processing from photo documentation.

Results

Collection Site	Deployment Date	Dominant Substrate	Plants on Site	Sampling Dates	Catch
Long Island	March 2005	Solid Rock	*Laminaria* sp., small red algae, large red algae, *Pterygophora californica*	June 2005 January 2006	
Discovery Bay	April 2005	Sand	*Ulva* sp., small red algae, large red algae	September 2005 December 2005	12 fish- 3m (7,1), 5m(2,1), 7m(1,0).
Oro Bay	May 2005	Cobble with mud, sand and shellhash	*Laminaria* sp., *Ulva* sp., large red algae	July 2005 January 2006	

Discussion

- Point 1: How do we test the effectiveness of different type of collectors? [location, size, cost, temporal factors, soaking time]
- Point 2: Statistical experimental design-[Carry-over effect, corner effect]-Latin square. What type of Latin square should be used?
- Point 3: Verification – model the developed indices with response variable(s).
- Point 4: Identification of juvenile rockfish.

Point 1

- How can we find the right location to test collectors? [pilot study] [results may mislead scientists to draw the right conclusion.]
- What factors affect the effectiveness of collector design? [cost, soaking time, spatial and temporal factors]

Point 2

- What are the advantages of Latin square design?
- What are the advantages of balanced Latin square?

1	2	3	4		1	3	2	4
2	3	4	1		2	1	4	3
3	4	1	2		3	4	1	2
4	1	2	3		4	2	3	1

Point 3

- Test how useful the collected indices in forecasting the abundance tread and catch.
- Use simple stock recruitment models
- How to define your response variable(s) in your model with developed recruitment indices.
- Input control – total catch, Output control – first 10% CPUE.

Identification of juvenile rockfish

- Genetic examination – reliable but expensive.
- Morphological examination – large uncertainty but low cost.
- A mixture of both methods.

Reference

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