REPORT
Eelgrass Survey 2000

A Survey of Shoreline Property Owners of Island County in June 2000

By

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And

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Preface:

In June of 2000 the Island County Marine Resources Committee (MRC) secured a grant from the Northwest Straits Commission to carry out a two part project of (1) mapping eelgrass and (2) involving the public in the process as a way to help them better understand the role and importance of eelgrass habitat to nearshore fish populations. This second part was given to the WSU Beach Watchers by the MRC to develop and implement.

The intent of the work outlined for the WSU Beach Watchers was to engage the shoreline community in eelgrass mapping and through that effort to teach them about the importance of eelgrass habitat. This was accomplished through the development of a questionnaire that, in general, asked shoreline owners to go to their beaches during specific low tide days and determine if, in fact, eelgrass was present.

Methods:

Don Meehan, Chair of WSU-Island County, and Jan Holmes, marine biologist and Beach Watcher designed a mail out questionnaire. Given a limited budget to work with the design was constrained by a number of factors, a very high number of shoreline owner parcels (7500), the need to have the instrument catch the mail opener's attention,

the need for the respondent to be able to easily return a response, and the need to be sure the respondents had adequate training via the questionnaire to be able to identify and quantify any eelgrass on their beach. Another factor that came to light was the thought that not all shoreline owners surveyed would likely find eelgrass, particularly on the west side of Whidbey Island. This raised the concern that they would go to the beach and find nothing to report on, if only eelgrass information was sought. Hence, it was decided that, if there was a way, the design would try to make sure such respondents became involved in better understanding their beach. Given these constraints it was decided to do a full color questionnaire. It was based on the Don Dillman (recognized expert in the field of survey instrument development) proven questionnaire technique designed to make it easy for respondents to understand what is being sought and to reply appropriately. Full color eelgrass images were used to be sure respondents had a clear understanding of what to look for coupled with graphic examples of various beach eelgrass bed coverage percentages. An Optional Survey section was developed for shoreline owners likely to not find eelgrass on their beaches.

The questionnaire also was designed to be completed and mailed back without an envelope so that respondents had no opportunity to lose critical parts. This mail back portion of the survey was designed so that respondents did not have to use their own postage. A gamble was taken on the part of the designers to not use a first class stamp on each return survey since the break even costs of such a return strategy would require an approximate 40% return rate. It was suspected that the return rate on this survey would be considerably less due to the fact that respondents were being asked to physically go to the beach, unlike many opinion surveys that respondents can complete at their kitchen table.

Given the parameters developing around the needed introduction of the problem (why we wanted help from shoreline property owners on locating eelgrass), educating them on what it was and looked like, how we wanted them to respond, the mail out section and the mail back section, it became apparent that many pages would be needed for the survey. Extra space was available for other questions. This space was used by the developers to add additional questions (Optional Survey) that could be useful information in the future for the MRC and Beach Watchers in educating and involving the public in issues related to the protection and enhancement of the nearshore.

Review of the questionnaire instrument was accomplished locally by using a number of WSU Beach Watcher volunteers who had earned their Masters or PhD degrees and had spent a career involved in scientific investigation. Dr. Annabel Cook, Chair of the Department of Rural Sociology and Professor Raymond Jussaume both at Washington

State University, undertook a final review of the questionnaire instrument. Modifications to the instrument were made according to their recommendations. Final modifications were made to accommodate the interests expressed by the appointed Project Manager for the MRC. It was mailed in late June of 2000.

When the questionnaire design was complete it comprised a 12-page document. Refer to Appendix C for the actual survey instrument.

Sample Selection:

The selection of shoreline parcel owners to receive the questionnaire was based on the likelihood of getting a return response. It was felt that owners who did not live near their beach property were least likely to visit their property during the critical low tide days in the summer of 2000. All owners of parcels that lived out of state were excluded. Also, it was surmised that parcels of property that had some structural value associated with their shoreline parcel of a 1,000 dollars or more were most likely the ones that would have owners visiting them and be most likely to respond. Out of approximately 7500 Island County Assessor shoreline parcels, the list was narrowed to 4500 property owners. Shoreline parcels that related to fresh water lakes and not marine nearshore were included by error. The cost of sorting such parcels from the overall list did not justify removing them. It was estimated that approximately 200 to 300 of them existed in the sample.

Results:

Data entry was accomplished by developing a special front-end database using Microsoft Access that simulated, in appearance, the actual instrument to avoid entry errors. WSU Beach Watcher Volunteers were trained to use the system and did much of the data entry.

N = 4500
Responses = 595
Usable Responses = 560
Rate of Return = 13%

 # Of parcel respondents who lived on Whidbey Island = 219
 # Of parcel respondents who lived on Camano Island = 69
 # Of parcel respondents who live in Island County = 288

Oak Harbor - 45

Coupeville - 44
Greenbank - 31
Freeland - 39
Langley - 24
Clinton - 36
Camano - 69

Number of respondents who live OFF island = 272

Seattle - 86
Everett - 136
Mount V. 8
Anacortes - 8

 # Who live on Medium or High Bank Property = 207
 # Who live on Low or No Bank Property = 314
 # Who provided Beach Substrate data = 540

 # Who found Eelgrass = 392

Upper Beach = 20
Middle Beach = 95
Lower Beach = 378

Feet of Beach surveyed = 78,623
Miles of Beach surveyed = Approx. 15

Substrate Data in Appendix A

Optional Section of the Survey Results

 # Who found Kelp on the Beach = 231
 # Who have found Kelp on the Beach in the past = 147
 # Who found various kinds of other Kelp;

Green Kelp:

Upper Beach - 102
Middle Beach - 214
Lower Beach - 243

Brown Kelp:

Upper Beach - 64
Middle Beach - 101
Lower Beach - 150

Red Kelp:

Upper Beach - 29
Middle Beach - 57
Lower Beach - 83

 # Who found ULVA = 271
 # Who had seen ULVA Blooms = 60

Number of parcel respondents who found various marine invertebrates on their beach during their survey;

Barnacles = 454
Limpets = 196
Snails = 262
Chitons = 110
Sea stars = 231
Sea Cucumbers = 57
Crab = 461
Clams = 418
Mussels = 375
Sand dollars = 123
Moon Snails = 120
Fish = 359
Sea Urchins = 134
Anemones = 139

How many people were involved in filling out the survey when it arrived at the respondent's home?

1 only 182
2 or more 269

3 or more 80
4 or more 56
5 or more 24
6 or more 14

A Total of 909 people were involved in the filling out of surveys!

Final Survey Questions;

Who wanted more information about marine and eelgrass habitats = 75
Who wanted more information on monitoring = 58
Who wanted to be trained to monitor beaches = 26
Who wanted to be notified of presentations about beaches = 72
Who wanted to be notified of meetings of the Marine Resources Committee = 36

Number who were willing to have the Marine Resources Committee and WSU Beach Watchers contact them in the future = 383
Number of people who provided additional comments = 240

Appendices List:

Appendix A - Substrate Data
Appendix B - Maps

Map of eelgrass located by respondents by using the parcel number of their waterfront lot Map of locations of all respondents to the survey

APPENDIX C - Survey Instrument

Available in a PageMaker 5.0 format.....quite large.

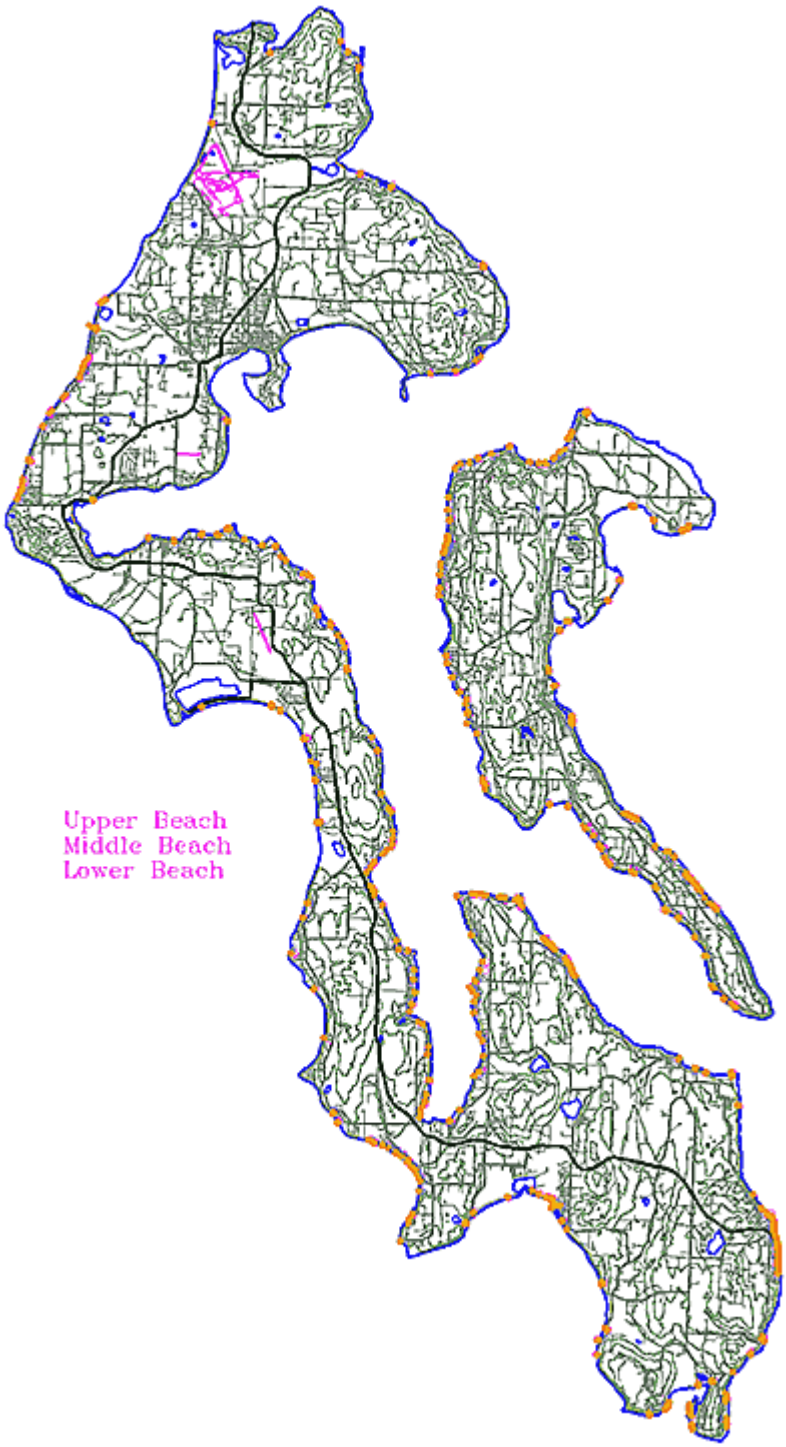
APPENDIX A

Substrate Data (Available on Request)

Eelgrass Survey 2000

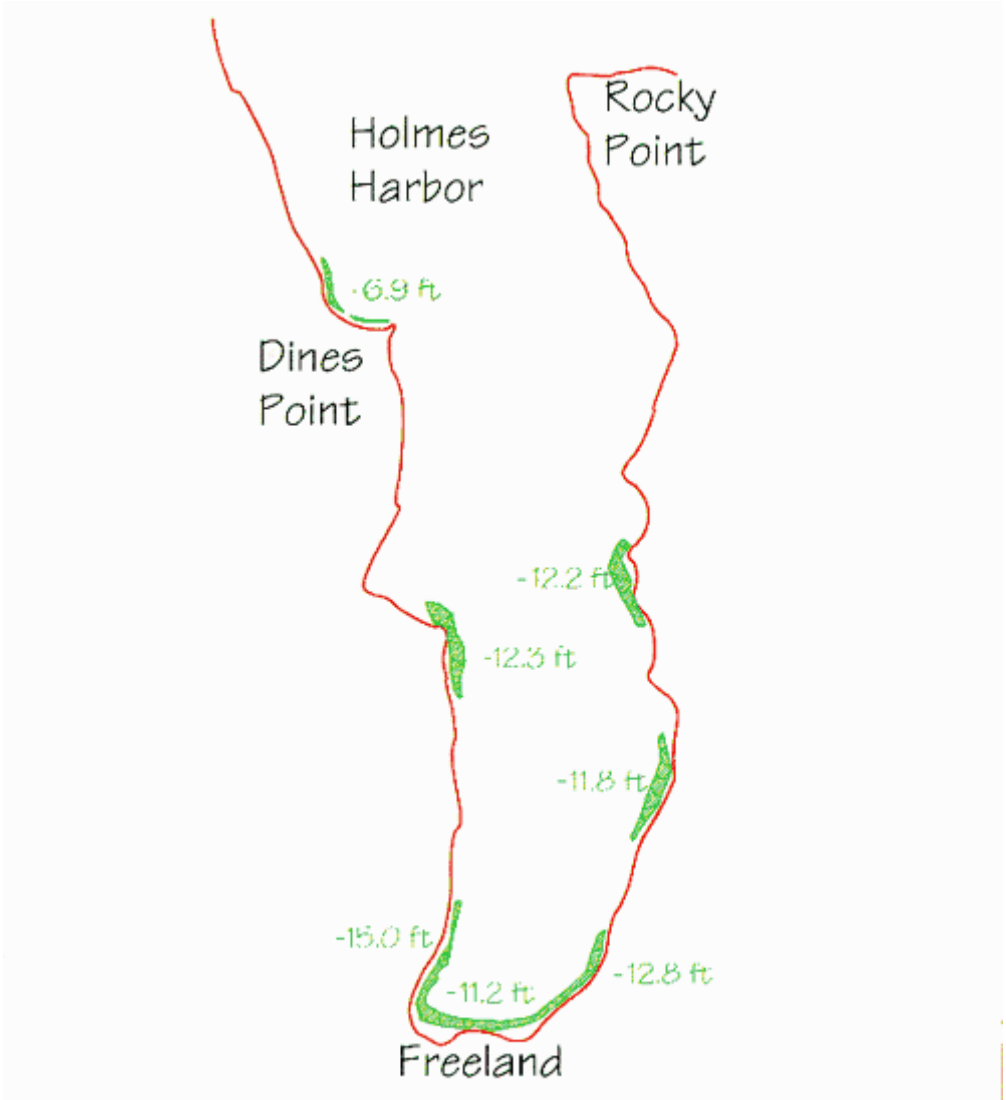
Eelgrass Discoveries Map

Conducted by Island County Shoreline Property Owners
Summer of 2000
Funded by a Grant from the
Northwest Straits Commission - June of 2000



Holmes Harbor - Freeland

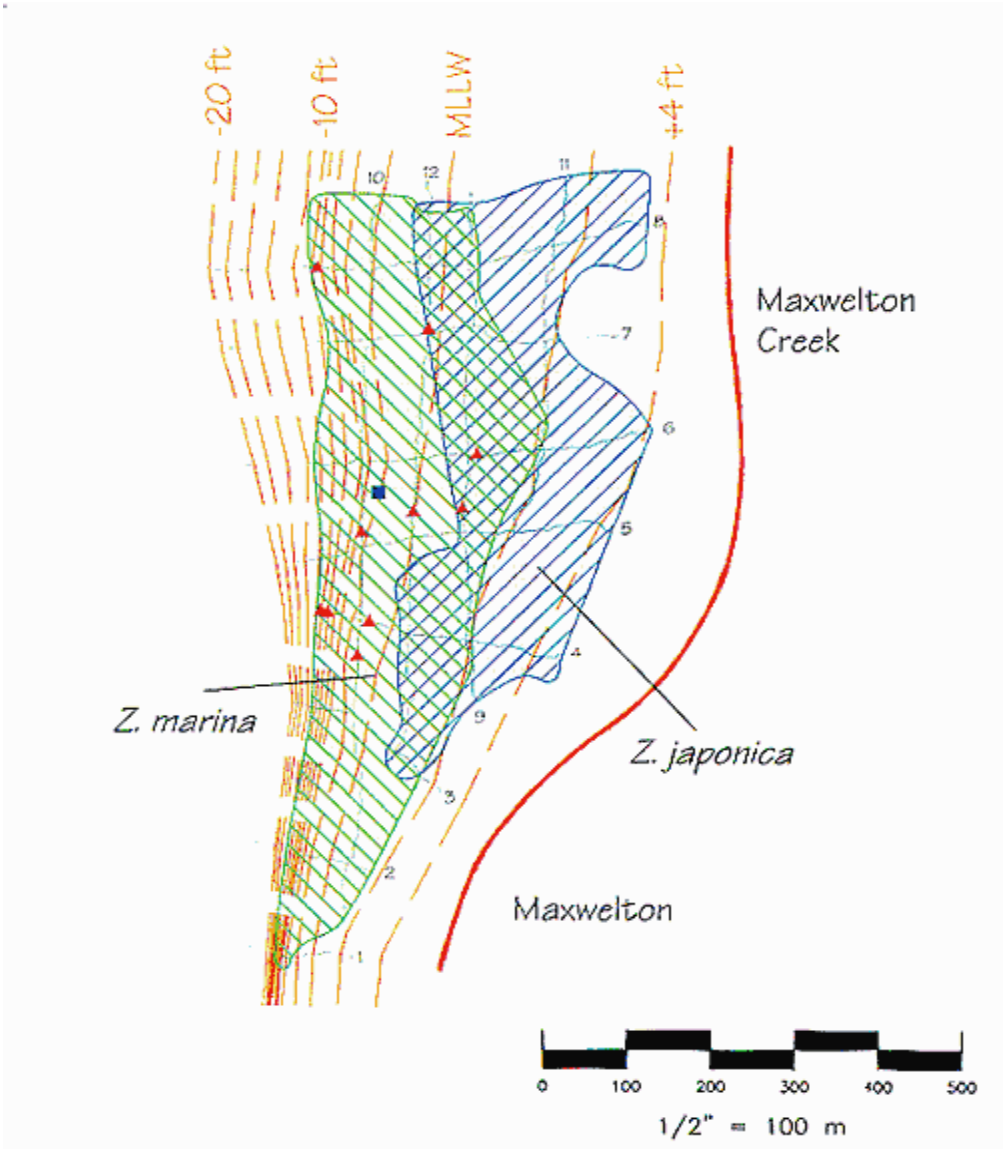
Underwater Survey of Eelgrass Beds - Mapped



Plotting Offsets	Marine Resources Consultants	Survey: Island County
Easting: 371687		Site: Holmes Harbor
Northing: 114424	PO Box 816 Port Townsend, WA 98368 (360) 385-4486 jnorris@olympus.net	Survey Dates: 12/14/00

Maxwelton Creek Shoreline

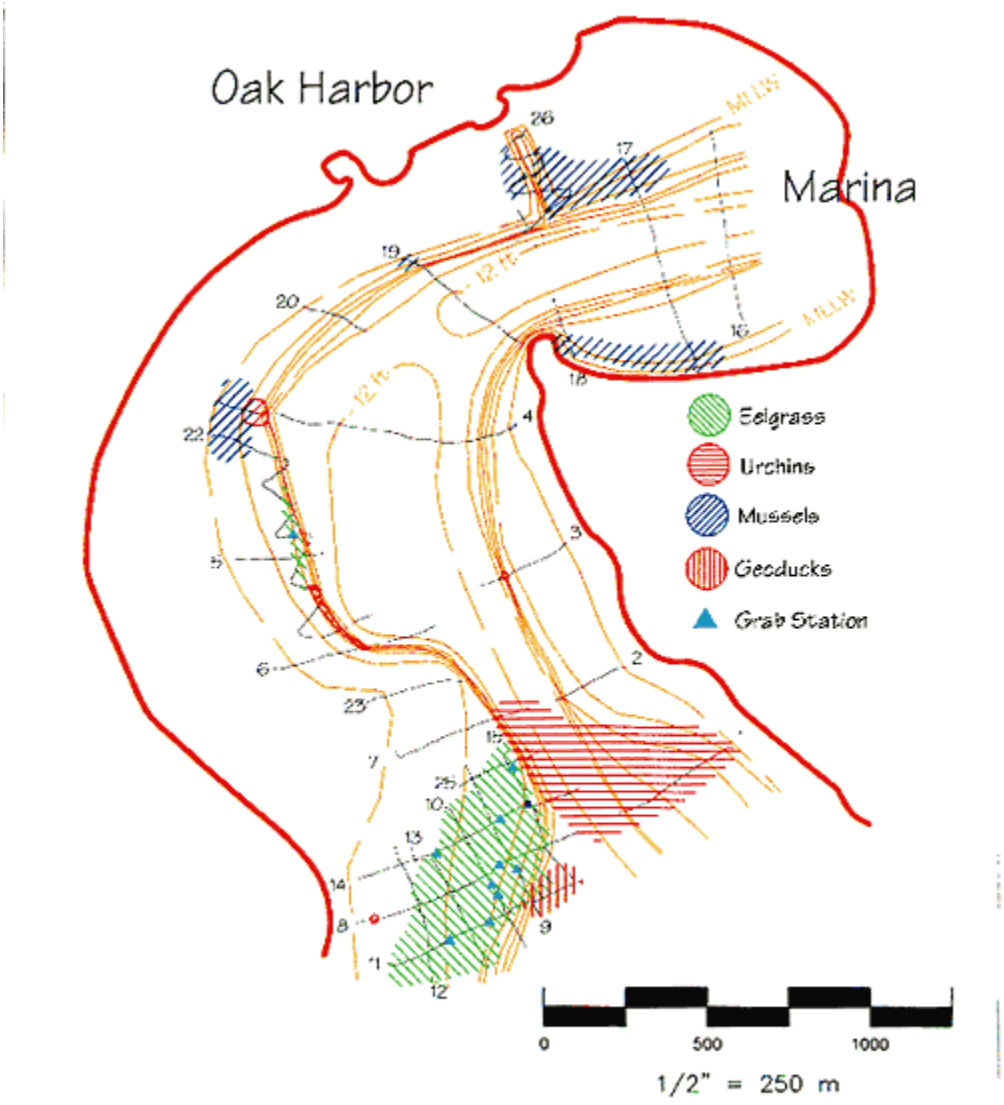
Underwater Survey of Eelgrass Beds - Mapped



Plotting Offsets	Marine Resources Consultants	Survey: Island County
Easting: 379295		Site: Maxwelton
Northing: 105624	PO Box 816 Port Townsend, WA 98368 (360) 385-4486 jnorris@olympus.net	Survey Dates: 10/7/00

Oak Harbor Bay

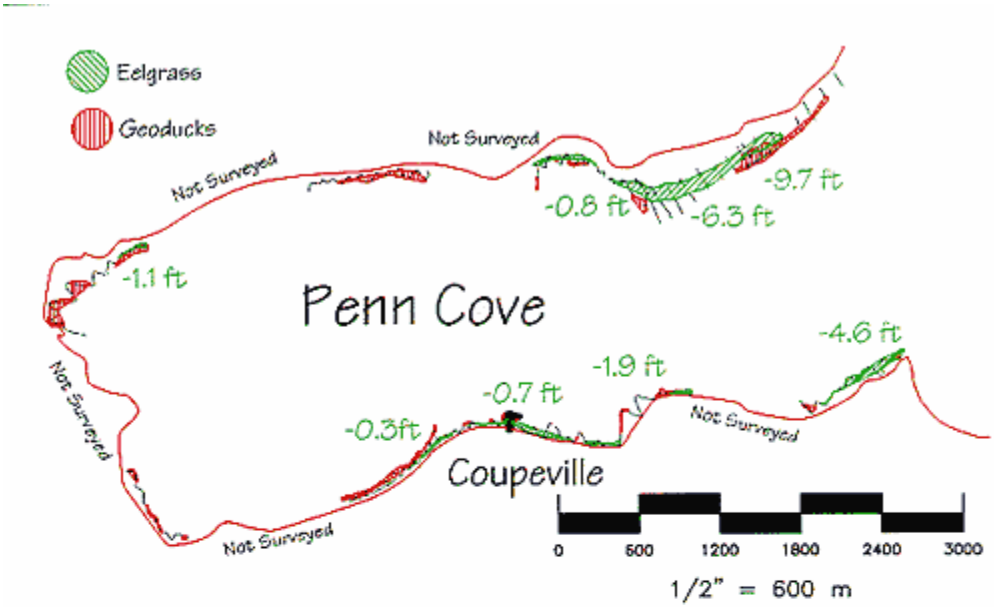
Underwater Survey of Eelgrass Beds - Mapped

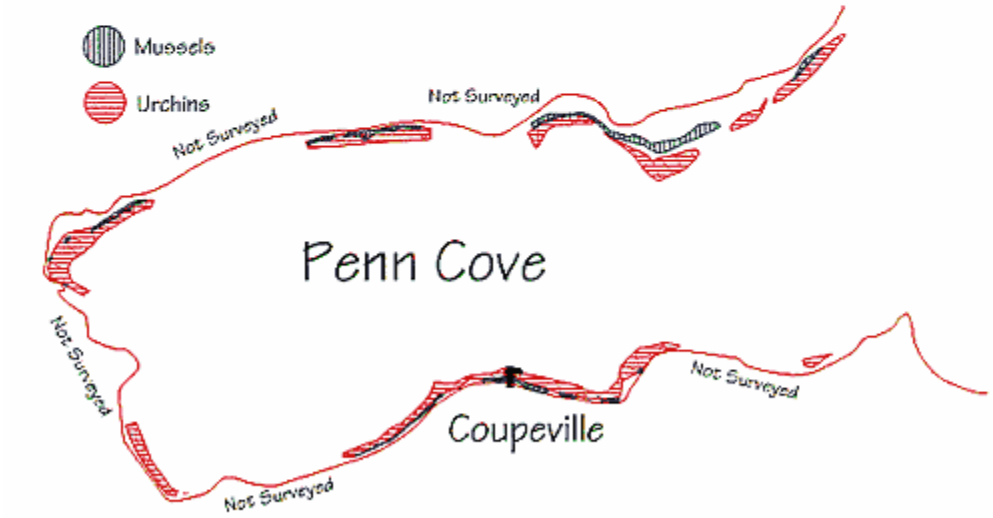


Plotting Offsets	Marine Resources Consultants	Survey: Island County
Easting: 364554		Site: Oak Harbor
Northing: 142038	PO Box 816 Port Townsend, WA 98368 (360) 385-4486 jnorris@olympus.net	Survey Dates: 12/4-8/00

Penn Cove - Coupeville

Underwater Survey of Eelgrass Beds - Mapped





Plotting Offsets	Marine Resources Consultants	Survey: Island County
Easting: 358776		Site: Penn Cove
Northing: 136688	PO Box 816 (360) 385-4486 Port Townsend, WA 98368 jnorris@olympus.net	Survey Dates: 12/7–8/00

Skagit Bay South (North Camano Island Area)

Underwater Survey of Eelgrass Beds - Mapped

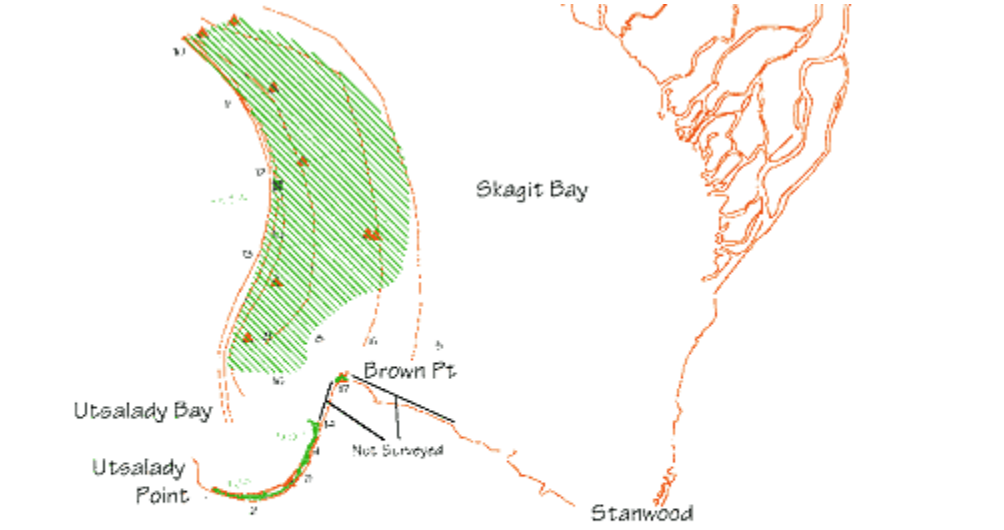
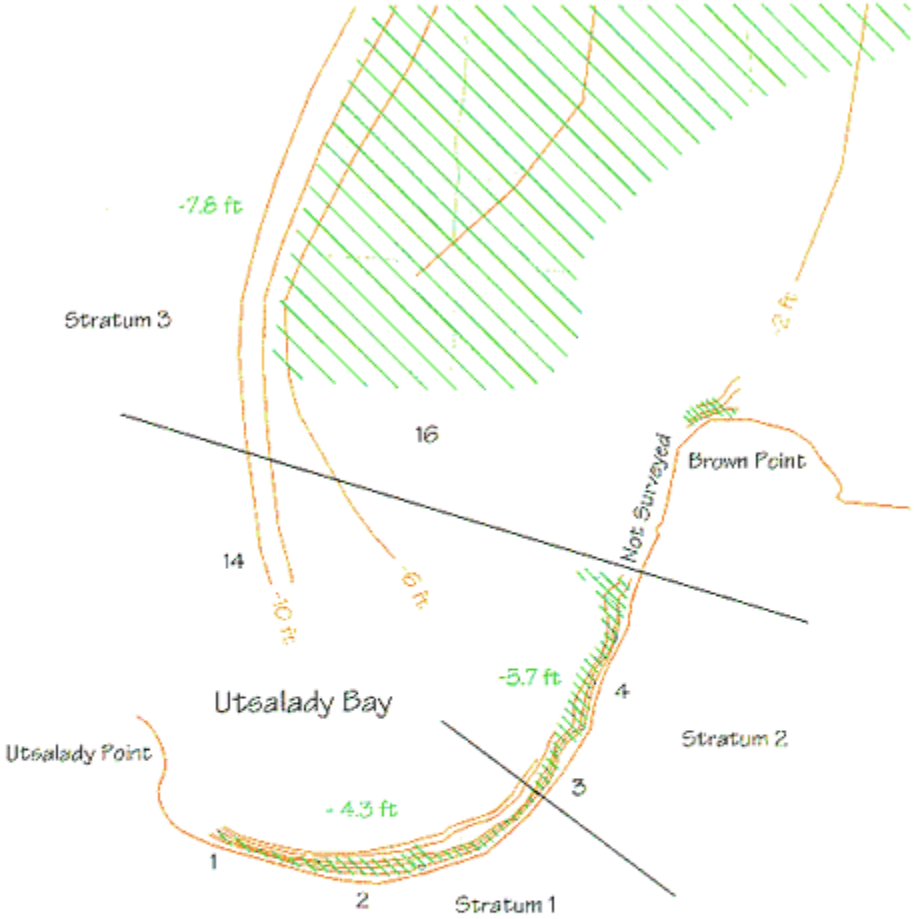


Figure 8. Site map for Skagit Bay South. UV transects are numbered. Eelgrass beds are in green. Grab stations are violet triangles. Estimated mean maximum eelgrass depths for three strata are labeled in green. Isobaths are in 2 ft intervals.

Utsalady (North Camano Island Area)

Underwater Survey of Eelgrass Beds - Mapped



Plotting Offsets	Marine Resources Consultants	Survey: Island County
Easting: 376139	PO Box 816 (360) 385-4486 Port Townsend, WA 98368 jmorris@olympus.net	Site: Utsalady Bay
Northing: 140388		Survey Dates: 12/5–6/00