LITTLENECK AND GEODUCK CLAM MARICULTURE SITE EVALUATION

CRUISE REPORT

R/V SUNDANCE

SEPTEMBER 8 THROUGH 15, 1999

by
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and
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INTRODUCTION

The State of Alaska, Department of Natural Resources, opened a Pacific littleneck clam (*Protothaca staminea*) and geoduck clam (*Panopea abrupta*) mariculture farm site application enrollment period during the spring of 1999. To facilitate the Department of Fish and Game's comments concerning consistency and presence of species of concern, a site inspection and evaluation survey was conducted by the Department of Fish and Game during September of 1999. The purpose of this mariculture farm site survey was to perform a qualitative assessment of species present within proposed geoduck clam and littleneck clam farm sites in Southeast Alaska. Where potential commercial beds were observed, a simple quantitative estimate of density was made of the common clam species. An abbreviated description was made of the proposed bed's habitat, including both vegetative and substrate types.

LITTLENECK CLAM MARICULTURE SITE EVALUATION

Schedule

The *R/V Sundance* departed Petersburg on Wednesday September 8, 1999. Site evaluations and sampling for littleneck clam mariculture sites occurred September 9 and 10.

Personnel

Robert Larson, William Bergmann, Scott Walker, Ken Imamura, and Carol Denton (Commercial Fisheries); Moira Ingle (Habitat).

General Sampling Protocol

Surveys were conducted at or near the time of low tide. The beach substrates and bottom types were generally described. Quantitative estimates of intertidal clam densities were obtained by digging within a 0.1 meter square quadrat frame and counting the number of clams seen. The number of quantitative counts for each plot ranged from 2 to 4. The quadrats were generally placed systematically at 1/3 and 2/3 the distance of the long axis of the plot (Harper's site 1 and 2, Holbrook and Van Sant sites) or both the long and short axes if the plot was square (Shakan sites 1 and 2). At the El Cap and Clam Cove sites the height of the tide restricted options for obtaining clam samples. In all cases, the quadrats were placed to exclude habitats that could not support littleneck clams. Areas of soft mud, rock, or locations too high in the intertidal (above about 6 feet depending on the site) were excluded.

The 0.1 m^2 samples were obtained by digging within a pvc frame with a small hand-held shovel then removing the fines and large gravels from the sample by washing and sifting the contents in a mesh basket. The numbers of all the clam species (including butterclams *Saxidomus gigantea* cockles *Clinocardium nuttallii* and macomas *Macoma sp*.) and shell lengths were recorded. A representative sample of individual clams was also weighed.

Site Descriptions

R. Painter's Mariculture Site: Clam Cove

This site was examined on September 9, 1999 between 0900 and 0940 hours. The littleneck clam habitat measured a length of 193 meters, along the curve around the island. The presence of eelgrass was noted along outer edge of clam bed, except for one rocky area that connected the larger island with the smaller. We were unable to take width measurements on the ground because of the tide. Numerous *Pycnopodia helianthoides* starfish were observed with 21 counted.

One sample was taken at 0905 hours on an incoming tide, sample from fairly high elevation.

J. Harper's Mariculture Site: Cap Island and West Tuxekan

Harper Site 1: Cap Island

This site was visited at approximately 0700 (low tide at 0615), September 10, 1999. It consists of a 10 meter wide band of sand/silt/shell substrate between bedrock outcroppings. The upland area is forested above an upper beach limestone bedrock area. The clam beach extends approximately 150 meters from south to north, behind (i.e. west of) a forested hummock (an island at high tide). To the north of the island, a small (10-meter wide) embayment extends between bedrock outcroppings covered with *Fucus sp*. This small embayment contains moderate amounts of eelgrass, as well as numerous (10+) *Pycnopodia helianthoides* starfish digging in the substrate. To the north of the second point of bedrock is another 25 meters of beach with a similar sand/silt/shell substrate.

One 0.10-m^2 sample was taken from each of two locations on the southern, 150-meter section of the beach.

Sample 1: +3' at 0720 hours; 50 meters from north end of the beach.
Substrate: gray dirt/sand/mud, some gravel, *Ulva sp* present.
Littlenecks present.

Sample 2: +7' at 0730 hours; 100 meters from north end of the beach.
Substrate: brown sand/gravel/shells, no vegetation.
Littlenecks present.

Harper Site 2: Tuxekan Island (head of bay east of Cap Island)

This site was visited at approximately 0645 hours (low tide at 0615 hours), September 9, 1999. It consists of a small beach area (approximately 10 meters wide by 25 meters long) along the northern edge of the mouth (delta) of a small (<1 meter wide), non-fish-bearing stream between bedrock outcroppings. The uplands are forested above a narrow limestone bedrock beach. A narrow band of 20-cm cobbles occurs at the base of the bedrock. The substrate along the stream is silt/sand and shell. The stream flows through a large bed of *Fucus sp*. An oyster hardening structure (flat metal cage) was located at the extreme downstream extent of the stream, at the point where the substrate becomes muddier and a large eelgrass bed begins. The eelgrass bed fills most of the small bight between the bedrock outcroppings. A caretaker cabin and other structures, including a small dock, are located on Tuxekan Island approximately 200 meters seaward of the clam beach area.

One 0.10-m^2 sample was taken at two sites within this section.

Sample 1: The upper (landward) of the two samples. This sample was located in the sand/silt area along the contour of the bedrock outcrop, approximately 10 meters landward of the edge of the eelgrass bed.

Sample 2: Approximately 5 meters landward of the edge of the eelgrass bed, at approximately 0700 hours.

D. Belk's Mariculture Site: Holbrook

This site was visited on a rising tide at 0915 hours, September 10, 1999 (low tide at 0615 hours). The beach is approximately 400 meters long, extending from the mouth of a catalogued anadromous stream south to the abandoned Holbrook townsite. The uplands are forested, with a 10-20 meter fringe of beach grass grading to large cobble toward the water. Below the cobble is a 2-meter band of sand, silt, small cobble, and shell where most of the clam sign was evident. Two small streams enter the bay in this section. Numerous dead pink salmon were present on the beach. Seaward of the sand/silt/shell band the substrate becomes mud with eelgrass.

One 0.10 m^2 sample was taken at each of two sites within this area.

Sample 1: 125 meters from southern end of beach area on the east-west portion of curving beach at Holbrook site.
Substrate: sand/silt/small cobble/shell.
Many clams present (primarily butter clams).

Sample 2: 125 meters north of Sample 1, midway through the portion of the beach, oriented north south, immediately north of second small stream.
Substrate: sand/silt/mud.
High on the beach due to rising tide.

C. Klinkert's Mariculture Site: Shakan Bay

Site 1: Small bight on the eastern side of bay.

This site was visited on September 9, 1999 during the low tide stage. Site does not appear to be ideal littleneck clam habitat. Lower area of littleneck habitat is eelgrass beds on soft, fine, muddy sediments. Discontinuous eelgrass extends above main beds at lower low water. Sides and head of cove are composed of cobbles and boulders, at what appears to be MHHW elevations. Most of suitable habitat between the eelgrass and MHHW is composed of sand, silt, and gravel. Shells on the beaches include littleneck and butters, intermixed with few cockleshells. One juvenile Dungeness male exuvia observed. Heavy, multiple-year barnacle sets on all hard intertidal substrates. Suitable habitat limited in area to about 40 meters by 40 meters. Small stream runs through approximate center of site. Above the high water mark is a solid rock bench with dense forest. Long axis of site (mouth to head), runs North, magnetic. Evidence of light otter predation on clams on site, one sea otter observed within sight of cove.

One 0.10-m^2 sample was obtained from each of four systematically placed locations within the area of suitable habitat:

Samples 1-4: Substrate: gray sand/mud, some gravel.
Littleneck clams present.

Site 2 Head of the bay.

This area is actually two immediately adjacent parcels, which should be combined into a single parcel. Discontinuous eelgrass beds extend to higher tidal elevations than applicant's site map indicates. Department sampling stations were located only in the westernmost parcel. Suitable habitat at site appears to occupy roughly 80 meter by 58 meter rectangular area. The width of the cove at water line at 0706 hours was about 87 meters, between the two cobble and rock headlands. A stream runs between the two parcels and there is some evidence of use by small numbers of pink salmon (freshly dead salmon on flats adjacent to stream channel).

One 0.10-m2 sample was obtained from each of four systematically placed locations within the area of suitable habitat:

Samples 1-4: Substrate: gray sand/gravel, some mud.
Littleneck clams present.

D. Belk's Mariculture Site: Van Sant Cove

This site was visited at 0830 hours September 10, 1999 (low tide at 0615 hours). Van Sant Cove is the site of the mouth of a very productive salmon stream, as evidenced by the thousands of pink salmon jumping in Tokeen Bay outside the cove at the time of the visit. The diagram submitted by the applicant does not correspond very well with what we observed at the site. The application indicates that the clam beach extends east and west along the north end of the island in the cove. The clam beach actually extends north and south in a narrow band (36 meters wide by 50 meters long) across the cove, extending from the island in the cove toward Kosciusko Island. This "clam ridge" consists of gravel, small cobble, shell, and sand, bordered by mud on both sides. Substantial eelgrass beds occur to the east and west of the bands of mud. The stream enters the center of the cove from the north; the delta then angles westward. A large area of small to large cobble and gravel extends south from the mouth of the stream, but only a 2-meter strip along the south and eastern edges of this area contain substantial clam sign. A narrow band of kelp occurs along the northern edge of the eelgrass bed to the west of the "clam ridge."

One 0.10 m2 sample was taken at two stations along the area of clam habitat.

Sample 1: At the top of the "clam ridge;" 17 meters from southern end and 12 meters in from western side of bed.
Substrate: gravel/ small cobble/shell/sand.

Sample 2: 34 meters from southern end and 24 meters from western side of bed; at a lower tide level than sample site 1.
Substrate: silty mud with small cobble.

R. Painter's Mariculture Site: El Capitan

We visited this area September 10, 1999 on the rising tide. Only the upper reaches of the clam beaches could be sampled. Uplands are low bluffs or benches of forested rock. The intertidal clam habitat substrate is light shell hash and shell over subangular gravel up to 2 inches in diameter. The area is unique because about 8 to 12 inches of gravel overlays tight mud layer. Littleneck clams in all sampling locations were located in layers, sometimes up to three clams deep, in the loose gravel. Within substrate water movement would appear to be very good at this site, at least above the mud layer. The intertidal substrate directly above the gravel beach was composed of rock and boulders, with *Fucus sp.* growth, heavy barnacle and mussel set. The beach, at all sampling locations and throughout area, was covered with littleneck clam shells. There was no evidence of sea otter predation at this site. Butter clam shells were also scattered

throughout the beach. Inferred width of productive beach around rocks and islets in the immediate vicinity was about a 10 meter wide band. Eelgrass beds observed below present water level immediately below clam habitat. Littleneck and butter clams at this site were observed at unusually high tidal elevations and densities.

Four 0.10 m^2 samples were taken in suitable habitat between the water's edge and the upper rocky shore.

Sampling station 1 was located at the tideline at 0840 hours, station 2 was located at the tideline at 0907 hours, station 3 was located at tideline at 0945 hours, and station 4 was located at tideline at 0935 hours.

R. Painter's Mariculture Site: Jinhi Cove

Site 1: Jinhi Cove

This site was visited on September 10, 1999 at a low tide stage. The beach extends between two heavily wooded limestone islands. Measurements were taken from the upper edge of one eelgrass bed to the upper edge of the eelgrass bed on the opposite side. At 0835 hours the tide level was at eelgrass level. This site is heavily paved with clam shells, and is notably sandier than the 3 other Jinhi sites. A small, 12 meter by 12 meter area of suitable clam habitat was observed to the NW of the requested area, separated by a small rocky barrier; this area was not requested by the applicant.

Sample 1 was taken at 0845 hours in the approximate midpoint of the long dimension, and sample 2 at 0850 hours at a higher elevation. The substrate consists of sand, gravel and clam shells.

Site 2: Jinhi Cove

Extremely muddy site at lower elevations. A very difficult site to measure. Overall length is 91 meters, but with a very irregular shape. The applicant-drawn map appears to include a substantial area of fucus/rock habitat with no clams. Southeast portion of clam area is very intermittent, broken up by rocky ridges into small parcels. Dense populations of blue mussels were observed on the most of the larger rocks throughout this area. Basic rock structure appears to be limestone outcrop. The presence of Dungeness crab noted. Eastern and southern bounds of our measurements were eelgrass. Many *Pycnopodia helianthoides* starfish were observed in the intertidal area; estimated density 1 per 5 m^2. Numerous other sea stars (species unknown) were observed with highest concentrations in the high-density clam areas.

Sample 1 was taken at 0715 hours from a high-density-appearing area
Sample 2 was taken at 0720 hours from, a higher elevation.

Site 3: Jinhi Cove

This site is a complex area and difficult to measure. The area is bounded by eelgrass on most sides. Substrate in most places was solid cobbles and shells.

Sample 1 was taken at 0820 hours just below the highest elevation on the site. Gravel and sand became solid rock substrate at 4" depth.
Sample 2 was taken at 0825 hours at a lower elevation. A very rocky area with an abundance of clam shells

Site 4: Jinhi Cove

This site runs along a low rocky ridge connected to shore. *Fucus sp* kelp was abundant on intertidal rocks with dense mussel colonies throughout the upper beach area. The site was bounded by eelgrass on the

western side of the study area. The presence of eelgrass seems to make the area of suitable littleneck habitat substantially smaller than on the applicant's map.

The upper beach was densely packed with clamshells of various species. Starfish were present but in fewer numbers than at Site 1. A few Dungeness crab were observed. A log float with shed was observed in the small cove behind the site. The shed appeared to be currently unoccupied.

Sample 1 was taken at 0745 hours approximately 1 meter above the upper edge of the eelgrass bed.

Sample 2 was taken at 0750 hours approximate at the midpoint of the isthmus connecting the rocky ridge to the main portion of Tuxekan Island.

RESULTS

Littleneck clams were observed and sampled at each site. A variety of habitat types were common within each site with rock and boulders in the shallows and mud with eelgrass common in those sections less than 0' MLLW. A total of 29 quadrats were sampled from the seven sites examined. Littleneck clams were the most numerous clam observed with an average of 37.8 individuals per 0.1 $m^{2.}$ (1,097 total littleneck clams). The average shell length of a littleneck clam was 33 mm with a minimum size of 9 mm and a maximum size of 58 mm. A summary of sampling results is found in Table 1 with length frequencies by site in Figure 1. Shell lengths and clam weights for macoma, littleneck and butter clams are presented in Figure 2.

Table 1. Littleneck clam mariculture site shell length by species sampling results.

Area	Site Number	Sample No.	Species	Number of Clams	Average Shell Length	Minimum Size	Maximum Size	Clams / meter^2
Clam Cove	1	1	Cockle	2	27	12	42	20
			Macoma	29	28	19	36	290
			Little-neck	28	32	16	44	280
			Butter	8	66	48	72	80
			Average of total number of clams per square meter					670
EL Cap	1	1	Cockle	0				
			Macoma	4	32	31	34	
			Little-neck	56	35	17	45	
			Butter	1	85	85	85	
EL Cap	1	2	Cockle	0				
			Macoma	1	22	22	22	
			Little-neck	88	33	17	49	
			Butter	1	77	77	77	
EL Cap	1	3	Cockle	0				
			Macoma	0				
			Little-neck	72	34	26	41	
			Butter	0				
EL Cap	1	4	Cockle	0				
			Macoma	15	25	14	31	
			Little-neck	78	29	9	49	
			Butter	4	61	42	78	
EL Cap	All	Total	Cockle	0				0
			Macoma	20	26	14	34	50
			Little-neck	294	33	9	49	735
			Butter	6	68	42	85	15
			Average of total number of clams per square meter					800
Shakan	1	1	Cockle	2	25	21	29	
			Macoma	5	30	17	49	
			Little-neck	11	32	15	51	
			Butter	1	65	65	65	
Shakan	1	2	Cockle	4	41	27	53	
			Macoma	7	31	16	38	
			Little-neck	8	30	14	44	
			Butter	0				
Shakan	1	3	Cockle	0				
			Macoma	2	41	38	44	
			Little-neck	7	29	18	47	
			Butter	1	na	0	0	
Shakan	1	4	Cockle	0				
			Macoma	5	25	15	34	
			Little-neck	14	34	26	42	
			Butter	6	78	62	89	
Shakan	2	1	Cockle	1	36	36	36	
			Macoma	0				
			Little-neck	48	27	13	40	
			Butter	9	52	38	63	
Shakan	2	2	Cockle	3	38	29	44	

-continued-

Table 1. (page 2 of 4)

Area	Site Number	Sample No.	Species	Number of Clams	Average Shell Length	Minimum Size	Maximum Size	Clams / meter^2
Shakan (cont.)	2	2	Macoma	6	24	18	35	
			Little-neck	54	30	14	42	
			Butter	4	48	41	59	
Shakan	2	3	Cockle	0				
			Macoma	11	22	14	33	
			Little-neck	58	36	20	46	
			Butter	5	69	41	88	
Shakan	2	4	Cockle	0				
			Macoma	0				
			Little-neck	30	37	30	44	
			Butter	0				
Shakan	All	Total	Cockle	10	37	21	53	13
			Macoma	36	27	14	49	45
			Little-neck	230	32	13	51	288
			Butter	26	63	38	89	33
			Average of total number of clams per square meter					378
Cap Island	1	1	Cockle	0				
			Macoma	8	28	14	41	
			Little-neck	35	28	13	46	
			Butter	5	28	22	36	
Cap Island	1	2	Cockle	0				
			Macoma	26	22	14	30	
			Little-neck	9	35	20	43	
			Butter	7	55	26	65	
Cap Island	2	1	Cockle	0				
			Macoma	13	39	25	50	
			Little-neck	4	53	50	58	
			Butter	1	78	78	78	
Cap Island	2	1	Cockle	0				
			Macoma	11	38	25	50	
			Little-neck	2	55	52	58	
			Butter	1	95	95	95	
Cap Island	All	Total	Cockle	0				0
			Macoma	58	30	14	50	150
			Little-neck	50	32	13	58	125
			Butter	14	50	22	95	35
			Average of total number of clams per square meter					310
Jinhi Bay	1	1	Cockle	0				
			Macoma	4	36	31	40	
			Little-neck	25	40	22	50	
			Butter	17	77	70	87	
Jinhi Bay	1	2	Cockle	0				
			Macoma	6	23	17	30	
			Little-neck	67	36	27	46	
			Butter	3	66	50	82	
Jinhi Bay	2	1	Cockle	0				
			Macoma	1	25	25	25	

-continued-

Table 1. (page 3 of 4)

Area	Site Number	Sample No.	Species	Number of Clams	Average Shell Length	Minimum Size	Maximum Size	Clams / meter^2
Jinhi Bay (cont.)	2	1	Little-neck	8	44	33	50	
			Butter	10	77	62	93	
Jinhi Bay	2	2	Cockle	0				
			Macoma	3	15	10	25	
			Little-neck	5	38	36	40	
			Butter	0				
Jinhi Bay	3	1	Cockle	0				
			Macoma	9	20	16	25	
			Little-neck	46	34	9	49	
			Butter	4	42	11	73	
Jinhi Bay	3	2	Cockle	0				
			Macoma	1	39	39	39	
			Little-neck	16	44	40	50	
			Butter	5	81	75	88	
Jinhi Bay	4	1	Cockle	1	82	82	82	
			Macoma	1	47	47	47	
			Little-neck	8	48	42	53	
			Butter	3	83	78	88	
Jinhi Bay	4	2	Cockle	0				
			Macoma	15	27	19	35	
			Little-neck	41	36	18	44	
			Butter	6	60	33	81	
Jinhi Bay	All	Total	Cockle	1	82	82	82	1
			Macoma	40	26	10	47	50
			Little-neck	216	37	9	53	271
			Butter	48	72	11	93	61
			Average of total number of clams per square meter					384
Van Sant	1	1	Cockle	0				
			Macoma	0				
			Little-neck	97	28	12	47	
			Butter	12	44	22	69	
		2	Cockle	0				
			Macoma	4	28	22	37	
			Little-neck	21	36	19	42	
			Butter	6	70	61	78	
Van Sant	All	Total	Cockle	0				0
			Macoma	4	28	22	37	20
			Little-neck	118	29	12	47	590
			Butter	18	52	22	78	90
			Average of total number of clams per square meter					700
Holbrook	1	1	Cockle	0				
			Macoma	29	25	16	37	
			Little-neck	155	32	12	44	
			Butter	29	52	28	67	
Holbrook	1	2	Cockle	2	28	27	29	
			Macoma	1	33	33	33	
			Little-neck	6	42	38	44	

-continued-

Table 1. (page 4 of 4)

Area	Site Number	Sample No.	Species	Number of Clams	Average Shell Length	Minimum Size	Maximum Size	Clams / meter^2
Holbrook (cont.)	1	2	Butter	2	56	52	60	
Holbrook	All	Total	Cockle	2	28	27	29	10
			Macoma	30	25	16	37	150
			Little-neck	161	32	12	44	805
			Butter	31	52	28	67	155
			Average of total number of clams per square meter					1120
Total	All	Total	Cockle	15	37	12	82	5
			Macoma	217	27	10	50	76
			Little-neck	1097	33	9	58	379
			Butter	151	61	11	95	52
			Average of total number of clams per square meter (29 samples)					512

-continued-

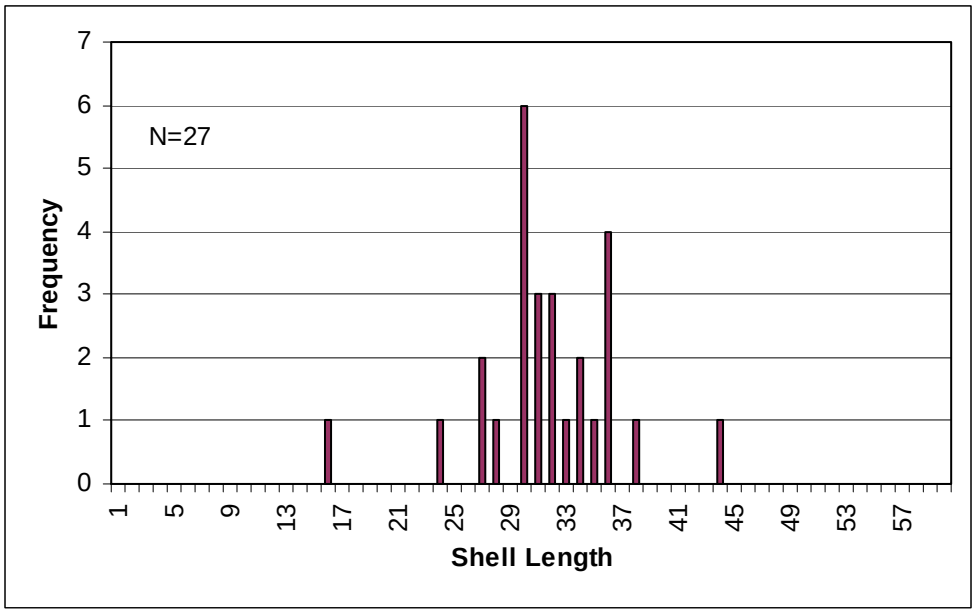

Figure 1. Clam Cove littleneck clam length frequency, September 9, 1999.

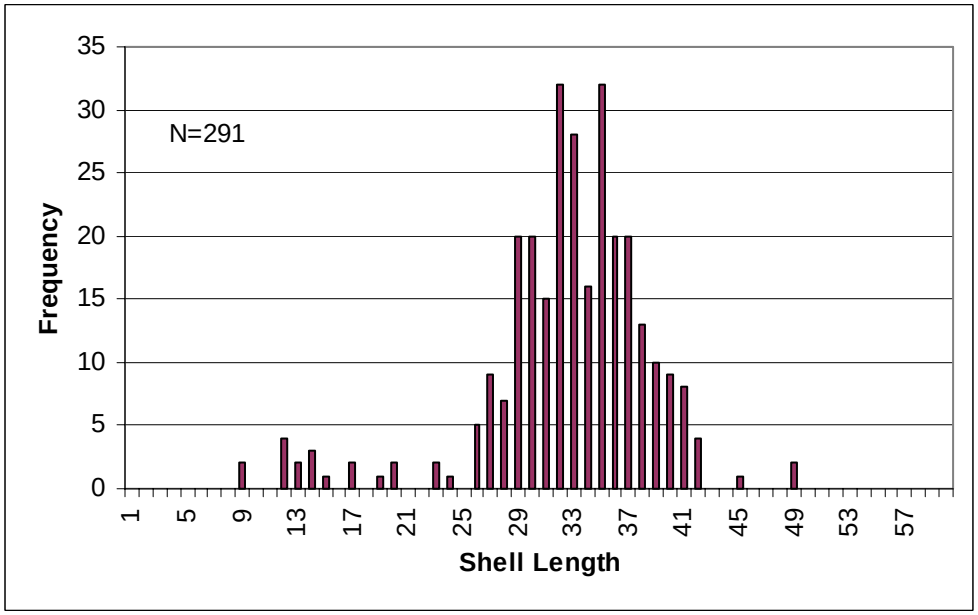

Figure 2. El Capitan Pass littleneck clam length frequency, September 9, 1999.

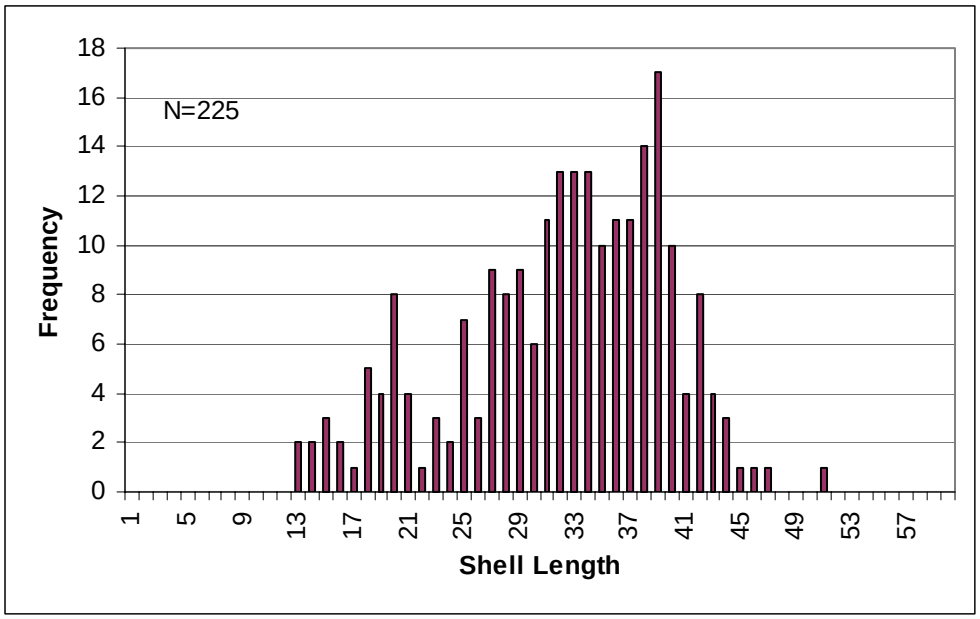

Figure 3. Shakan littleneck clam length frequency, September 9, 1999.

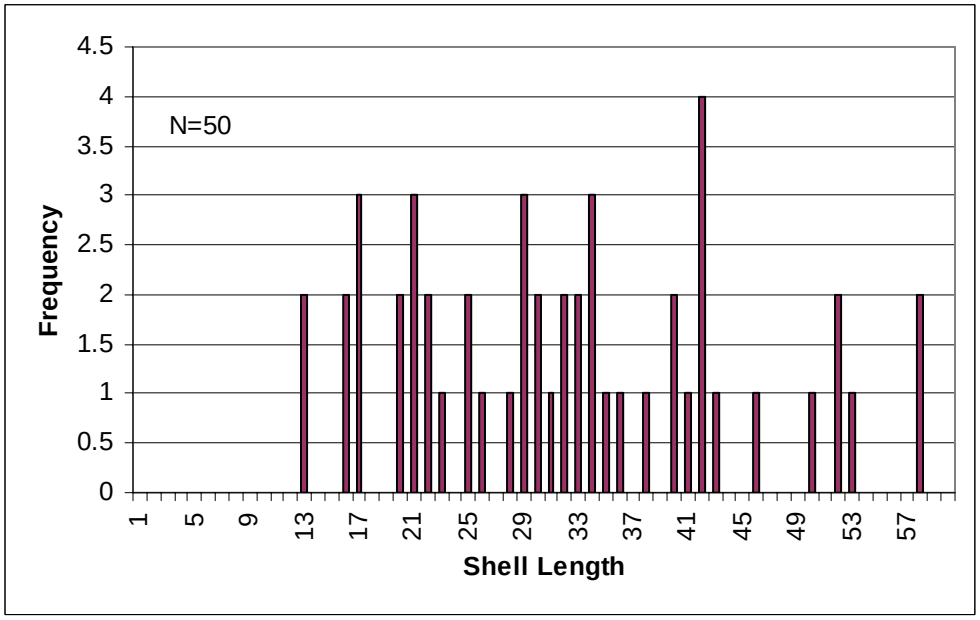

Figure 4. Harper littleneck clam length frequency, September 10, 1999.

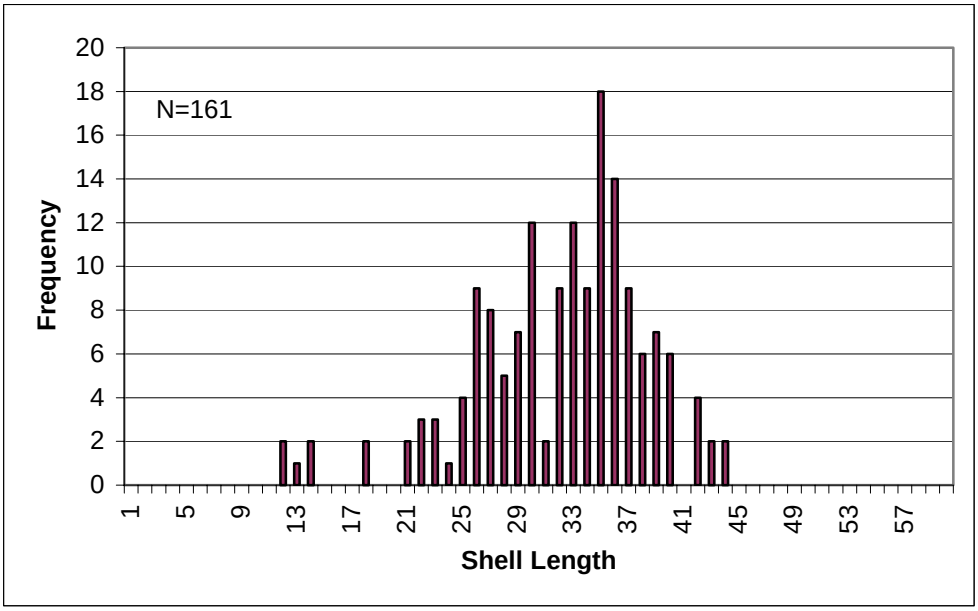

Figure 5. Holbrook littleneck clam length frequency, September 10, 1999.

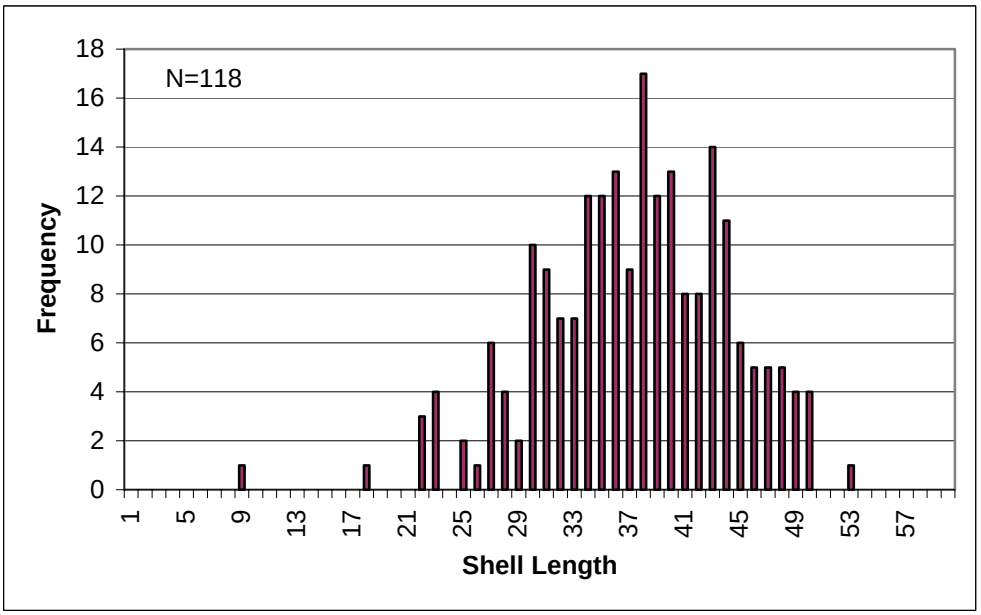

Figure 6. Jinhi Bay littleneck clam length frequency, September 10, 1999.

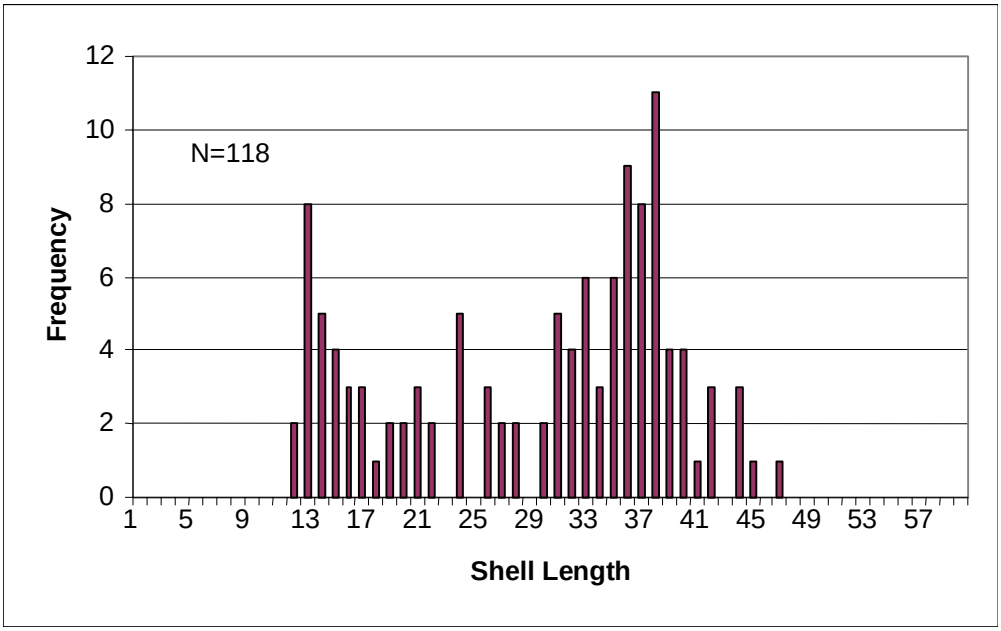

Figure 7. Van Sant Cove littleneck clam length frequency, September 10, 1999.

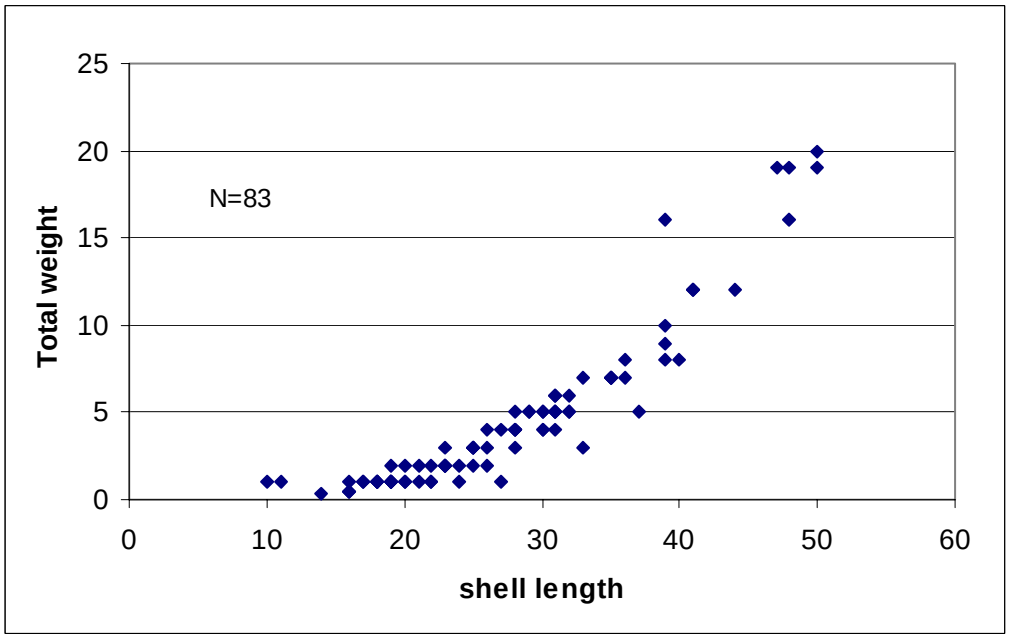

Figure 8. *Macoma* clam length versus weight samples, September 9 and 10, 1999.

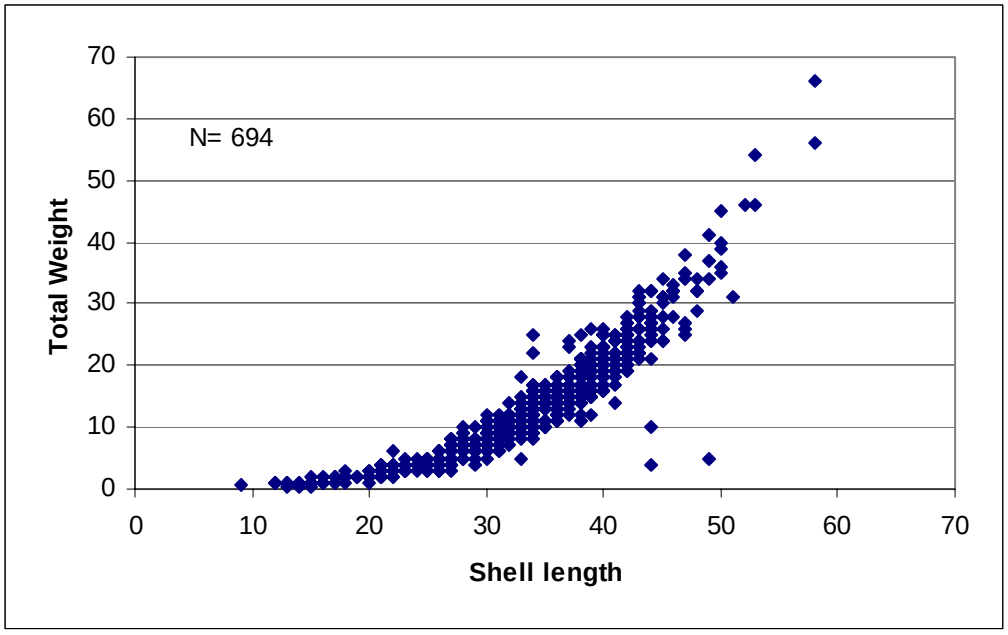

Figure 9. Littleneck clam length versus weight samples, September 9 and 10, 1999.

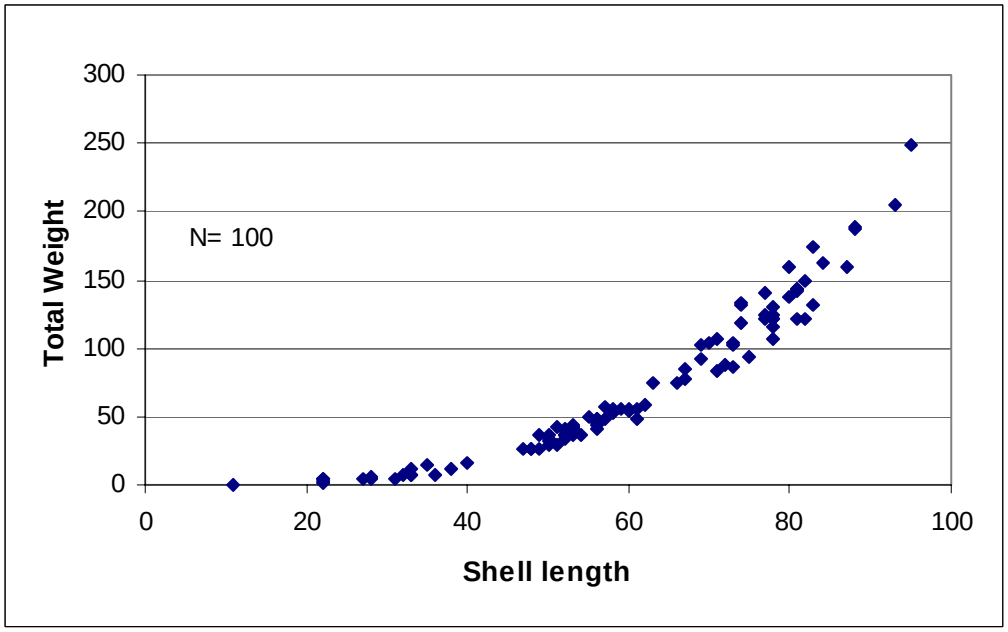

Figure 10. Butter clam length versus weight samples, September 9 and 10, 1999.

Figure 11. Photograph of Clam Cove site, NE Clam Island, September 9, 1999.

Figure 12. Photograph of Clam Cove site, SE Clam Island, September 9, 1999

Figure 13. Photograph of Harper's Site 1, sample Location 1, September 9. 1999.

Figure 14. Photograph of Harper's Site 1, sample Location 2, September 9. 1999.

Figure 15. Photograph of Harper's Site 1, lower intertidal, September 9. 1999.

Figure 16. Photograph of Harper's Site 2, September 9, 1999.

Figure 17. Photograph of Harper's Site 2, September 9. 1999.

Figure 18. Robert Larson at Holbrook Sample Site 1, September 10, 1999.

Figure 19. Photograph of Holbrook site, September 10, 1999.

Figure 20. Photograph of Holbrook site, September 10, 1999.

Figure 21. Photograph of Holbrook site, general view, September 10, 1999.

Figure 22. Photograph of Shakan Sample Site 2, September 10, 1999.

Figure 23. Photograph of Shakan Sample Site 2, September 10, 1999.

Figure 24. Photograph of Shakan Site 1, September 10, 1999.

Figure 25. Photograph of Shakan Site 1, September 10, 1999.

Figure 26. Photograph of Van Sant Sample Site 1, September 10, 1999.

GEODUCK MARICULTURE SITE EVALUATION

Schedule

The geoduck valuation survey occurred immediately following the littleneck farmsite evaluation. The first day of diving was September 11, 1999 at Port Santa Cruz and the last day of diving occurred September 14, 1999 at Betton Island. During that time we also examined two mariculture application sites in West Long Island, one on East Dall Island, three near East Behm Canal, one near Coho Cove and one near Figgins Point. Maps of the areas surveyed are included in this document.

Personnel

Aboard the *R/V Sundance* were Robert Larson, William Bergmann, Scott Walker, Cathy Botelho, Scott Kelley, and Phil Doherty. Helmer Olsen and Denny Heimdahl acted as crew aboard the Department of Fish and Game support vessel *R/V Sundance*.

General Sampling Protocol

A site map was constructed with ArcView software using the mariculture application for site boundaries. Depending on the size of the site, from two to six, 20 square meter transects were placed systematically within the site boundaries. Anchors were set at each sampling location and personnel using SCUBA counted all the visible geoducks within a 1 meter square pvc quadrat frame. Sample transects were started at the anchor and extended in a northerly direction. If the transect was expected to extend into waters either too deep or shallow the direction was modified to stay within suitable geoduck habitat. All notes and comments concerning depths are referenced to zero tide level. Substrate types, vegetative cover, and vegetative types at each dive site were noted.

Site Descriptions/Sampling Results

The following is a summary of observations by mariculture site. (see Table 2 for details).

A. Kittams' Mariculture Site: Port Santa Cruz – Aguada Cove

This is the second most productive site for geoducks with an average of 2.0 geoducks per meter square.

1. Depth: All 6 geoduck sampling sites were in depths of 37 to 44 feet of water.
2. Vegetation: Less than 10% of the bottom was covered and the dominant type was *Laminaria sp.*
3. Substrate: The bottom type was sand and the bottom was almost level with the depth changing not more than 5 feet over each of the 20 meter transects. No rock was observed within the site.
4. Suitability: The sites were rated excellent for placing geoduck growout tubes for mariculture.
5. Species: The only other presently viable commercial species observed in or near the transects were sea cucumbers. Only five sea cucumbers were observed during the dives, either inside or outside of the transect area. At these low densities, a commercial sea cucumber fishery would not be viable.

S. Thomas Mariculture Sites: Long and Dall Island

This combination of sites was the most productive for geoducks with an average of 2.3 geoducks per meter square.

1. Depth: All 14 sample sites were in 20 to 50 feet of water.
2. Vegetation: Vegetation cover varied between none and 70% and the dominant type was *Laminaria sp.*
3. Substrate: The bottom types varied from loose sand to cobble and gravel. Some of the sites were steep. Rock was often present especially in the shallower waters.
4. Suitability: About a third of the sites were rated excellent for placing pipes, about one third were rated good, and a third were rated poor because of gravel or cobble.
5. Species: The other presently viable commercial species observed in or near the transect sites were sea cucumbers and sea urchins. Two sites had commercially viable populations of sea cucumbers on the transects. Three individual red sea urchins were observed along the transects. However relatively large numbers of sea urchins were observed incidentally in shallower waters near several sample locations.

K. Morin Mariculture Site: Near Alava Bay

No geoducks were observed at this site.

1. Depth: The two sites were in 24 to 48 feet of water.
2. Vegetation: Vegetation was almost nonexistent.
3. Substrate: The bottom types varied from loose sand to cobble.
4. Suitability: About ¾ of the sites were rated excellent for placing pipes and ¼ were rated poor because of gravel or cobble.
5. Species: The other presently viable commercial species observed in or near the transect sites were sea cucumbers and sea urchins. One site had commercially harvestable populations of sea cucumbers and fair numbers of red sea urchins in the transect.

R. Morin Mariculture Site: Pt. Alava

No geoducks were observed at this site.

1. Depth: The two sites were in 33 to 39 feet of water.
2. Vegetation: Vegetation was almost nonexistent.
3. Substrate: The bottom type was sand.
4. Suitability: Both of the sites were rated excellent for placing pipes.
5. Species: No commercial species observed in or near the transect sites.

G. Zaugg Mariculture Site: South Point Sykes

No geoducks were observed at this site.

1. Depth: The two sites were in were in 20 to 23 feet of water at a +2’ tide correction.
2. Vegetation: Vegetation was almost nonexistent.
3. Substrate: The bottom type was sand.
4. Suitability: Both of the sites were rated excellent for placing pipes.
5. Species: No commercial species observed in or near the transect sites.

S. LaCroix Mariculture Site: Coho Cove

No geoducks were observed at this site.

1. Depth: The four sites were in 27 to 50 feet of water at a +15' tide correction.
2. Vegetation: Vegetation was almost nonexistent.
3. Substrate: The bottom types varied between cobble and sand.
4. Suitability: Two of the sites were rated excellent and 2 were rated poor for placing pipes.
5. Species: No commercial species observed in or near the transect sites.

L. Philman Mariculture Site: Figgins Point (Kasaan Penn.)

Geoducks were observed at this site in areas of good habitat. The total density was 0.4 geoducks per square meter.

1. Depth: The four sites were in 28 to 54 feet of water.
2. Vegetation: Vegetation was sparse, Laminaria sp.
3. Substrate: The bottom types varied between loose sand and cobble.
4. Suitability: Two of the sites were rated excellent, one was rated good, and one was rated poor for placing pipes.
5. Species: The other presently viable commercial species observed in or near the transect sites were sea cucumbers and sea urchins.

S. LaCroix Mariculture Site: Betton Island

Geoducks were observed at this site. The average density was 1.1 geoducks per square meter.

Depth: The four sites were in 23 to 50 feet of water.
Vegetation: Vegetation was sparse with *Agarum sp* being the dominant type.
Substrate: The bottom types varied between loose sand and cobble.
Suitability: Two of the sites were rated excellent and two were rated good for placing pipes.
Species: The other presently viable commercial species observed in or near the transect sites were sea cucumbers and sea urchins.

General Sampling Results and Comments

Geoduck clams were relatively abundant at the mariculture sites examined on the West side of Prince of Wales Island (proposed by A. Kittams and S. Thomas). Densities at these locations ranged from 0.4 to 3.7 geoducks per square meter. These densities would be common within the boundaries of a regular commercial fishing area. Within the sites located south of Ketchikan (proposed by G. Zaugg, R. Morin, K. Morin and S. LaCroix; no geoducks were observed within our transects. The sites contained a much less diverse kelp and invertebrate community than either the West Coast sites or the sites north of Ketchikan. The two sites north of Ketchikan (proposed by L. Philman and S. LaCroix) both contained geoducks with densities between .4 and 1.1 geoducks per square meter. Estimates of total numbers and total biomass at each site are presented as rough values only (Table 2). Precision of these estimates is low due to the low sample size at each site. All sites examined contained some areas with substrates that were not suitable for tube culture of geoducks and all contained some areas of soft sand where tubes could be inserted into the substrate easily. Geoducks were sampled from two locations on the western side of Prince of Wales Island. The geoducks from the Port Santa Cruz site were considerably smaller (138 mm, 866 grams) than the geoducks from the west side of Long Island (158 mm, 1589 grams) Table 3. Transect locations are included

in Table 4. A summary of substrates and vegetation observed at each site is included in Table 5. Maps showing farmsite application areas with sample transect locations are included in Figures 27 through 36. Geoduck densities from individual transects are included in Appendix B.

Table 2. Geoduck population assessment summary. mariculture sites 1999.

ADL	Name of Applicant	Site Name	Number of Samples	Total Area Sampled	Average area of Sample	Total geoducks counted	Geoducks/ meter^2	Area of Site (acres)	Area of Site (meters^2)	Estimated Total number of geoducks	Average weight*	Estimated Total biomass of geoducks (lbs.)
106568	Kittams	Port Santa Cruz	6	110	18.3	219	2.0	9.83471	39,814	79,266	2.4	187,341
106580	Thomas	W. Long I., Site 1 Plot 1	2	40	20.0	143	3.6	3.41	13,805	49,352	2.4	116,641
106580	Thomas	W. Long I., Site 1 Plot 2	2	40	20.0	61	1.5	6	24,290	37,042	2.4	87,547
106580	Thomas	W. Long I., Site 1 Plot 3	2	40	20.0	146	3.7	4	16,193	59,106	2.4	139,692
106579	Thomas	W. Long I., Site 2 Plot 1	2	40	20.0	39	1.0	1	4,048	3,947	2.4	9,329
106579	Thomas	W. Long I., Site 2 Plot 2	2	40	20.0	16	0.4	1.94	7,854	3,142	2.4	7,425
106579	Thomas	W. Long I., Site 2 Plot 3	2	40	20.0	91	2.3	2.6	10,526	23,946	2.4	56,594
106578	Thomas	Site 3 E. Dall I.	2	40	20.0	138	3.5	6	24,290	83,800	2.4	198,057
106572	Zaugg	Dolphin Cove	2	40	20.0	0	0.0	7.7	31,172	0	2.4	0
106577	R. Morin	Point Alava	2	40	20.0	0	0.0	6.45	26,112	0	2.4	0
106576	K. Morin	Ape Point	4	80	20.0	0	0.0	4.79	19,391	0	2.4	0
106571	LaCroix	Coho Cove	4	80	20.0	0	0.0	6.1	24,695	0	2.4	0
106569	Philman	Figgins Point	4	80	20.0	35	0.4	5.6	22,671	9,918	2.4	23,442
106570	LaCroix	Betton Island	4	80	20.0	90	1.1	6	24,290	27,326	2.4	64,584

* Average weight for geoduck clams from commercial landings for the 1992/93 through 1998/99 seasons.

Table 3. Geoduck length weight sampling.

Date	11-Sep-99
Sample Site Name	ADL 106568 Port Santa Cruz
Sample Location (degrees lat.)	55.272307
Sample location (degrees long.)	133.430543
Difficulty of sampling	Easy digging

Shell Number	Shell length (mm right valve)	Weight (g)
1	broken shell	690
2	135	1095
3	155	1219
4	128	925
5	132	970
6	130	700
7	161	766
8	149	1045
9	128	750
10	141	950
11	133	682
12	123	790
Average	**138**	**899**

Date	12-Sep-99
Sample Site Name	ADL 106579 West Long I. Site 2 Plot 3
Sample Location (degrees lat.)	54.820360
Sample location (degrees long.)	132.718063
Difficulty of sampling	Easy digging

Shell Number	Shell length (mm right valve)	Weight (g)
1	170	1,802
2	138	1,080
3	185	1,390
4	147	1,495
5	152	1,381
6	158	1,714
7	162	2,190
8	156	1,242
9	164	1,474
10	156	1,870
11	157	1,932
12	185	1,997
13	130	1,091
Average	**158**	**1,589**

Table 4. Geoduck mariculture transect locations.

Date	Fishery Name	Area	Transect no	Degrees Lat.	Degrees Long.
36414	ADL 106568 Port Santa Cruz	Site 1	1	55.272578	133.430332
36414	ADL 106568 Port Santa Cruz	Site 1	2	55.272065	133.430305
36414	ADL 106568 Port Santa Cruz	Site 1	3	55.272502	133.431311
36414	ADL 106568 Port Santa Cruz	Site 1	4	55.271975	133.431311
36414	ADL 106568 Port Santa Cruz	Site 1	5	55.272533	133.432765
36414	ADL 106568 Port Santa Cruz	Site 1	6	55.272020	133.432845
36415	ADL 106580 West Long Island	Site 1, Plot 1	1	54.76307	132.66788
36415	ADL 106580 West Long Island	Site 1, Plot 1	2	54.763613	132.668772
36415	ADL 106580 West Long Island	Site 1, Plot 2	1	54.770984	132.680124
36415	ADL 106580 West Long Island	Site 1, Plot 2	2	54.773529	132.681457
36415	ADL 106580 West Long Island	Site 1, Plot 3	1	54.778327	132.684031
36415	ADL 106580 West Long Island	Site 1, Plot 3	2	54.779361	132.683709
36415	ADL 106579 West Long Island	Site 2, Plot1	1	54.48712	132.42244
36415	ADL 106579 West Long Island	Site 2, Plot1	2	54.48702	132.42253
36415	ADL 106579 West Long Island	Site 2, Plot2	1	54.813750	132.705195
36415	ADL 106579 West Long Island	Site 2, Plot2	2	54.48812	132.42253
36415	ADL 106579 West Long Island	Site 2, Plot 3	1	54.819492	132.717659
36415	ADL 106579 West Long Island	Site 2, Plot 3	2	54.820360	132.718063
36415	ADL 106579 West Long Island	Site 3, Plot 1	1	54.79316	132.74201
36415	ADL 106579 West Long Island	Site 3, Plot 1	2	54.794063	132.745712
36416	ADL 106572 Dolphin Cove	Site 1	1	55.166005	131.088712
36416	ADL 106572 Dolphin Cove	Site 1	2	55.166923	131.085890
36416	ADL 106577 Point Alava	Site 1	1	55.199603	131.167596
36416	ADL 106577 Point Alava	Site 1	2	55.199920	131.168776
36416	ADL 106576 Ape Point	Site 1, Plot 1	1	55.240704	131.096706
36416	ADL 106576 Ape Point	Site 1, Plot 1	2	55.24071	131.09676
36416	ADL 106576 Ape Point	Site 1, Plot 2	1	55.24383	131.09851
36416	ADL 106576 Ape Point	Site 1, Plot 2	2	55.24458	13109905
36416	ADL 106571 Coho Cove	Site 1	1	55.268945	131.374171
36416	ADL 106571 Coho Cove	Site 1	2	55.27012	131.37355
36416	ADL 106571 Coho Cove	Site 1	3	55.271098	131.372237
36416	ADL 106571 Coho Cove	Site 1	4	55.27193	131.37074
36417	ADL 106569 Figgins Point	Site 1	1	55.55392	132.299612
36417	ADL 106569 Figgins Point	Site 1	2	55.554526	132.299825
36417	ADL 106569 Figgins Point	Site 1	3	5555532	132300076
36417	ADL 106569 Figgins Point	Site 1	4	55555896	132300164
36417	ADL 106570 Betton Island	Site 1	1	55.48651	131.829542
36417	ADL 106570 Betton Island	Site 1	2	55.48760	131.83006
36417	ADL 106570 Betton Island	Site 1	3	55.48852	131.83136
36417	ADL 106570 Betton Island	Site 1	4	55.48936	131.83250

Table 5. Sea cucumber, sea urchin, and horse clam, substrate and vegetation assessment, Aguada Cove.

106568 Kittams Mariculture Site **Aguada Cove**

	Sample Site	Cucumbers	Red Urchins	Horse Clams	Substrate	Suitability for Tubes	Vegetation	Comments
	SC 1	0		0	Sand	Excellent	None	
	SC 2	0		0	Sand	Excellent	10% Laminaria	Geoducks showing
	SC 3	some		0	Sand	Excellent	50% Laminaria	
	SC 4	0		0	Sand	Excellent	50% Laminaria	tube worms
	SC 5	0		0	Sand	Excellent	50% Red Algae	
	SC 6	0		0	Sand	Excellent	None	
	Total							

Thomas Mariculture Sites

	Sample Site	Cucumbers	Red Urchins	Horse Clams	Substrate	Suitability for Tubes	Vegetation	Comments
106580	Site 1 Plot 1 Sample 1	1		0	Loose sand	Excellent	None	Many RU/M2 inshore
106580	Site 1 Plot 1 Sample 2	0		0	Sand	Excellent	None	
106580	Site 1 Plot 2 Sample 1	0		2	Cobble/Sand	Poor	50% Laminaria	15 RU/M2 below 32'
106580	Site 1 Plot 2 sample 2	0		0	Compact sand	Good	50% Laminaria	Venus Clams
106580	Site 1 Plot 3 Sample 1	7		0	Loose sand	Excellent	40% Laminaria	1/2 duck showing
106580	Site 1 Plot 3 sample 2	0		0	Sand	Good	70% Laminaria	existing tubes
106579	Site 2 Plot 1 Sample 1	good/some		0	Sand/Cobble	Good	30% Laminaria	
106579	Site 2 Plot 1 Sample 2	4		0	Sand	Excellent	70% Laminaria	
106579	Site 2 Plot 2 Sample 1	20		0	Rock-Sand	Good	95% Laminaria	
106579	Site 2 Plot 2 Sample 2	8		0	Cobble/Sand	Poor	50% Laminaria	
106579	Site 2 Plot 3 sample 1	3		1	Cobble/gravel	Poor	30% Laminaria	
106579	Site 2 Plot 3 Sample 2	0		0	13 Sand/Gravel	Good	30% Laminaria	
106578	Site 3 Sample 1	6		0	Sand	Excellent	10% Laminaria	
106578	Site 3 Sample 2	some		0	Sand	Good	50% Laminaria	
	Total	49		3	13			

Table 6. Sea cucumber, sea urchin, and horse clam substrate and vegetation assessment, Dolphin Cove, Pt. Alav, Ape Pt., Coho Cove, Figgins Pt., and Betton Island..

106572 Zaugg Mariculture Site **Dolphin Cove**

Sample Site	Cucumbers	Red Urchins	Horse Clams	Substrate	Suitability for Tubes	Vegetation	Comments
Sample 1	0	0	0	Sand	Excellent	None	
Sample 2	0	0	0	Sand	Excellent	10% Laminaria	
Total	0	0	0				

106577 R Morin **Pt Alava**

Sample Site	Cucumbers	Red Urchins	Horse Clams	Substrate	Suitability for Tubes	Vegetation	Comments
Sample 3	0	0	0	Sand	Excellent	None	Bld to 38'
Sample 4	0	0	0	Sand	Excellent	None	
Total	0	0	0				

106576 K Morin Mariculture Site **Ape Pt**

Sample Site	Cucumbers	Red Urchins	Horse Clams	Substrate	Suitability for Tubes	Vegetation	Comments
Site 1 Sample 1	0	4	5	Cobble/sand	Poor	5% Laminaria	
Site 1 Sample 2	14	25		Sand/Rock	3/4 exc 1/4 poor	None	
Site 1 Plot 2 Sample 1	1	0		Fine Sand	Excellent	None	
Site 1 Plot 2 Sample 2	0	0		Loose Sand	Excellent	None	

106571 LaCroix Mariculture Site **Coho Cove**

Sample Site	Cucumbers	Red Urchins	Horse Clams	Substrate	Suitability for Tubes	Vegetation	Comments
Site 1 Plot 1 Sample 1	0	0		Cobble/Gravel	Poor	5% Laminaria	
Site 1 Plot 1 Sample 2	0	0		Loose Sand	Excellent	None	
Site 1 sample 3	0	0		Rock-Sand	Poor	None	One geoduck obsvd
Site 1 Sample 4	0	0		Loose Sand	Excellent	None	Sterile
Total	0	0					

106569 Philman Mariculture Site **Figgins Point**

Sample Site	Cucumbers	Red Urchins	Horse Clams	Substrate	Suitability for Tubes	Vegetation	Comments
Site 1 Sample 1	0	0	2	Compact Sand	Excellent	None	
Site 1 Sample 2	0	0	3	Loose Sand	Excellent	None	
Site 1 Sample 3	1	26	0	Cobble/Sand	Good	None	
Site 1 Sample 4	0	0	0	Cobble/GVL/ Sand	Poor	10% Laminaria	
Total	1	26	5				

106570 LaCroix Mariculture Site **Betton Island**

Sample Site	Cucumbers	Red Urchins	Horse Clams	Substrate	Suitability for Tubes	Vegetation	Comments
Site 1 Sample 1	4	0		Loose Sand	Excellent	5% Agarum	
Site 1 Sample 2	0	0	3	Loose Sand	Excellent	None	horseclams
Site 1 Sample 3	31	18		Sand-Cobble	Good	10% Laminaria	
Site 1 Sample 4	12	9		Cobble-sand	1/2 Poor, 1/2 Exc	None	very steep
Total	47	27	3				

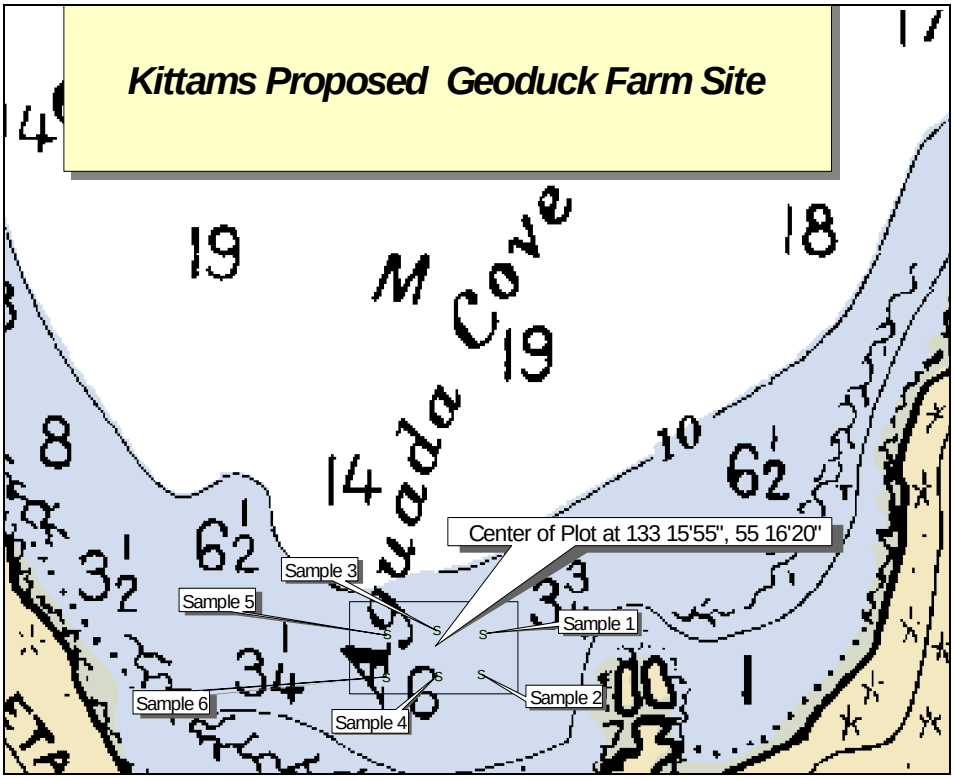

Figure 27. Transect sampling locations for geoduck density, Port Santa Cruz, September 11, 1999.

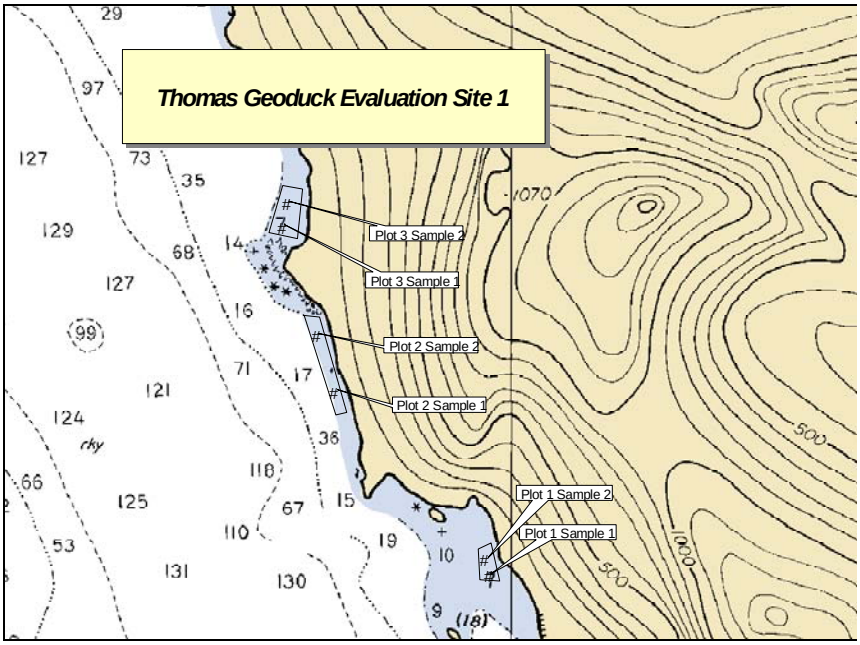

Figure 28. Transect sampling locations for geoduck density, West Long Island-Evaluation Site 1, September 12, 1999.

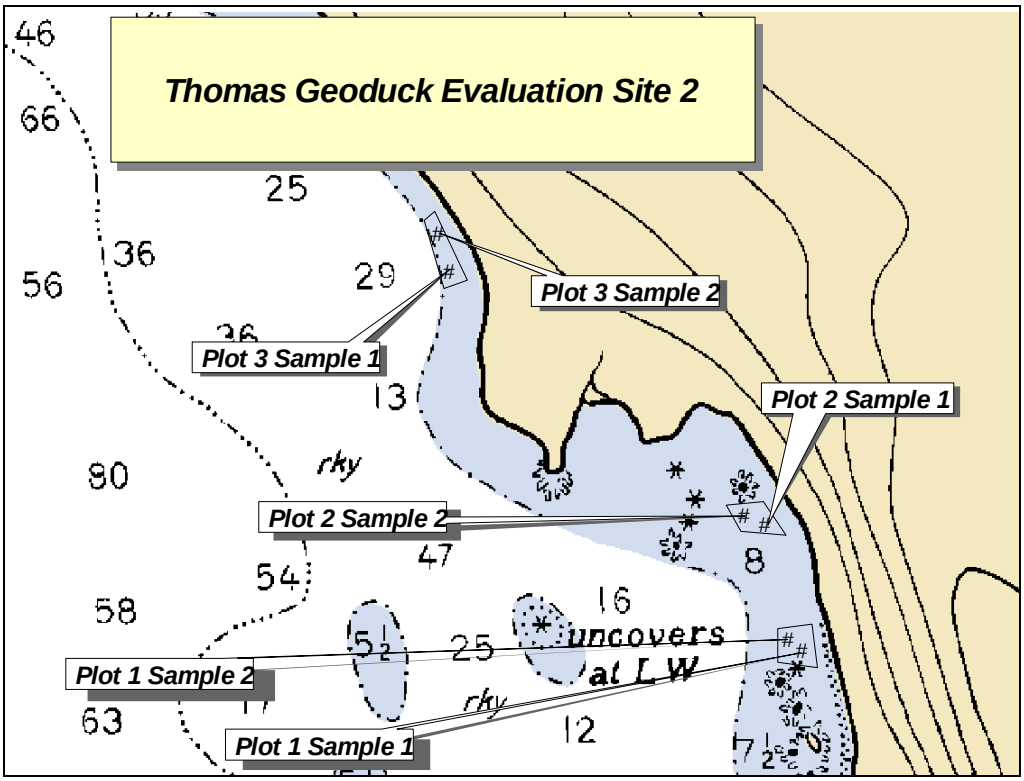

Figure 29. Transect sampling locations for geoduck density, West Long Island, evaluation Site 2, September 12, 1999.

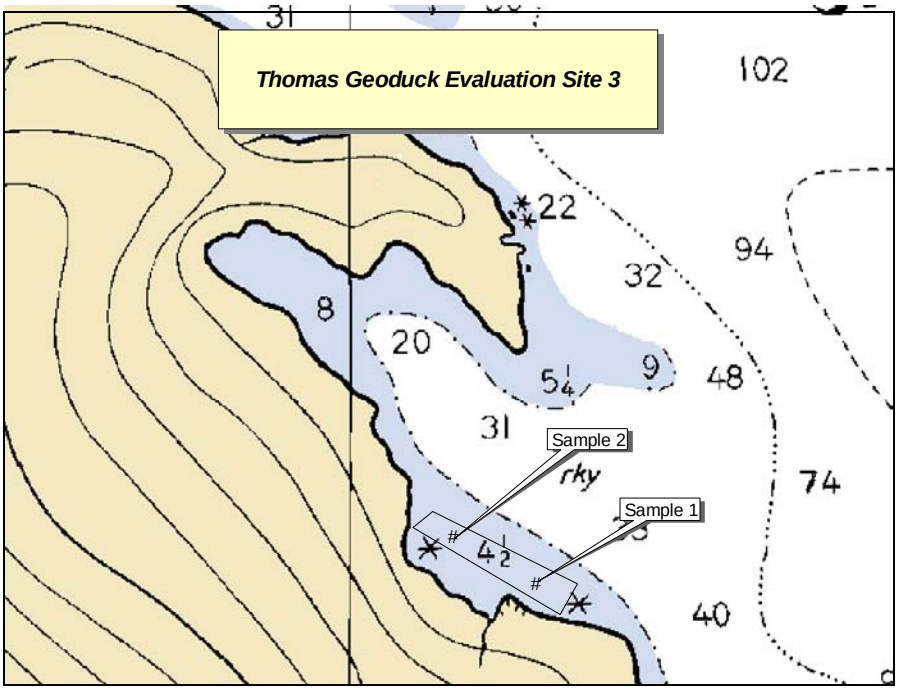

Figure 30. Transect sampling locations for geoduck density, East Dall Island, evaluation Site 3, September 12, 1999.

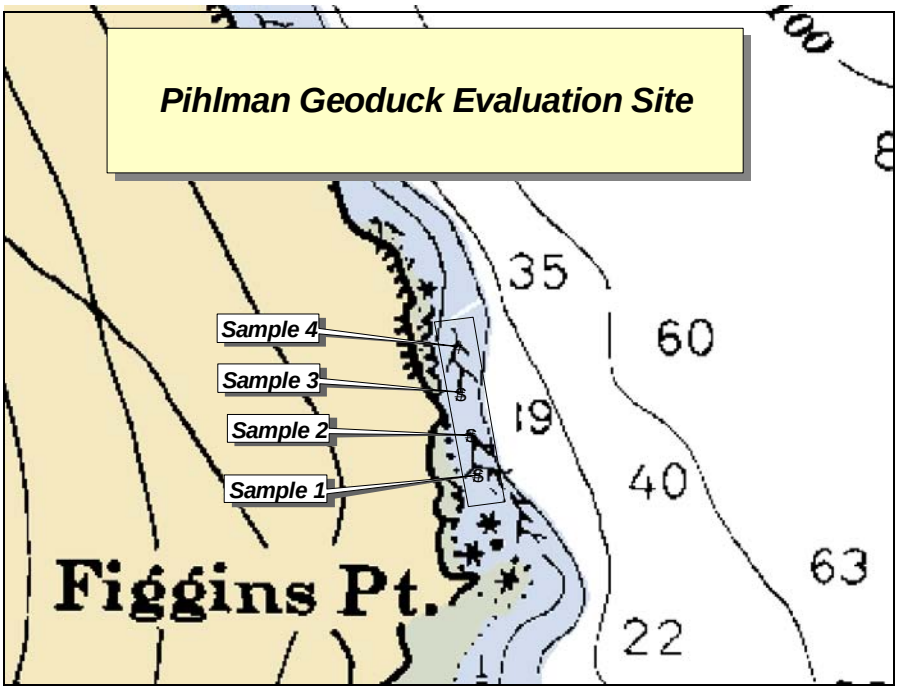

Figure 31. Transcription locations for geoduck density, Figgins Point evaluation site, September 14, 1999.

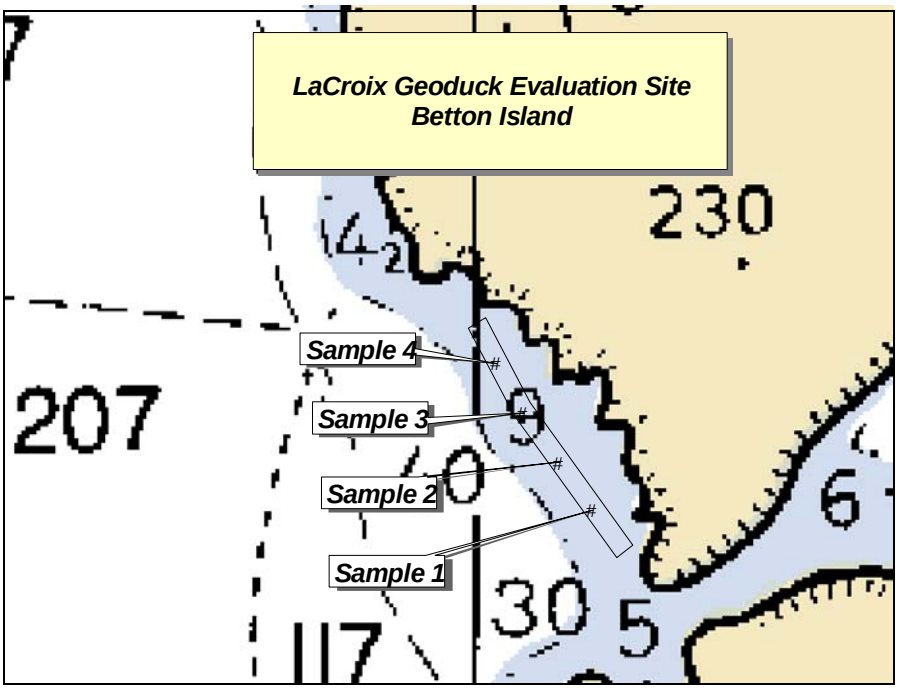

Figure 32. Transcription locations for geoduck density, Betton Island evaluation site, September 14, 1999.

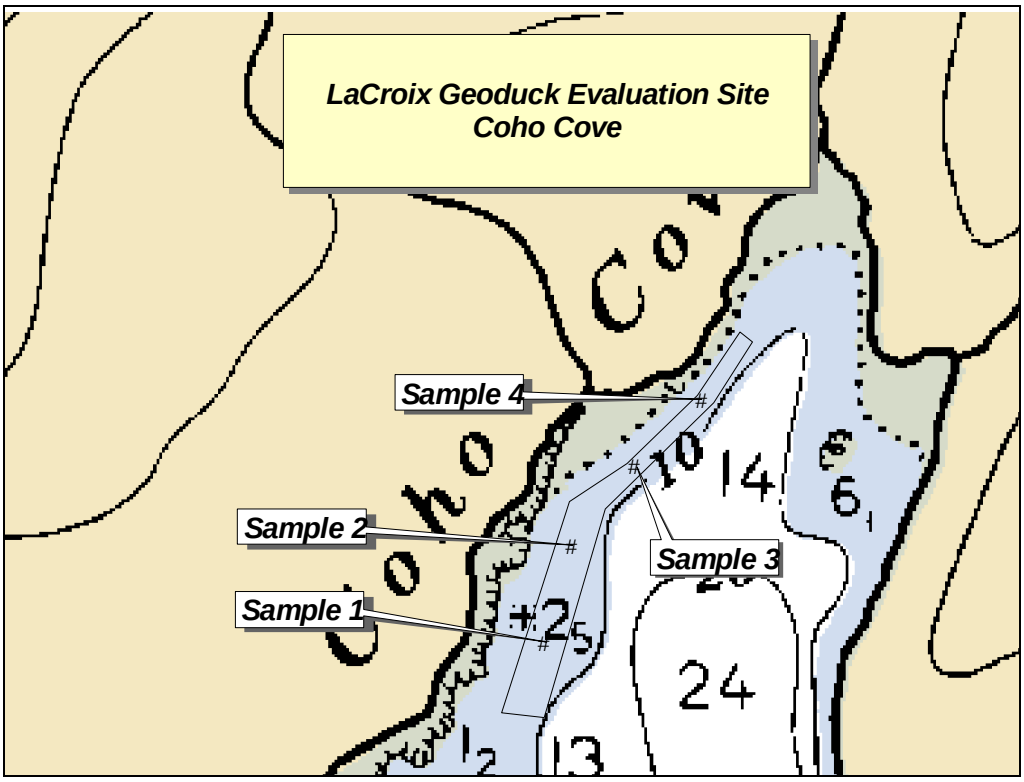

Figure 33. Transcription sampling locations for geoduck density, Coho Cove evaluation site, September 13, 1999.

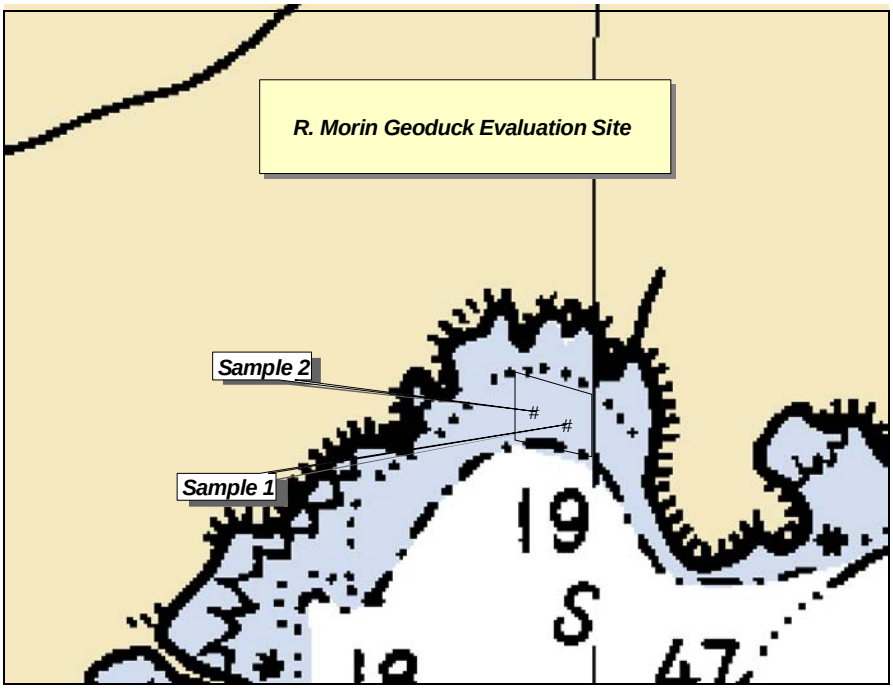

Figure 34. Transcription sampling locations for geoduck density, Point Alava evaluation site, September 13, 1999.

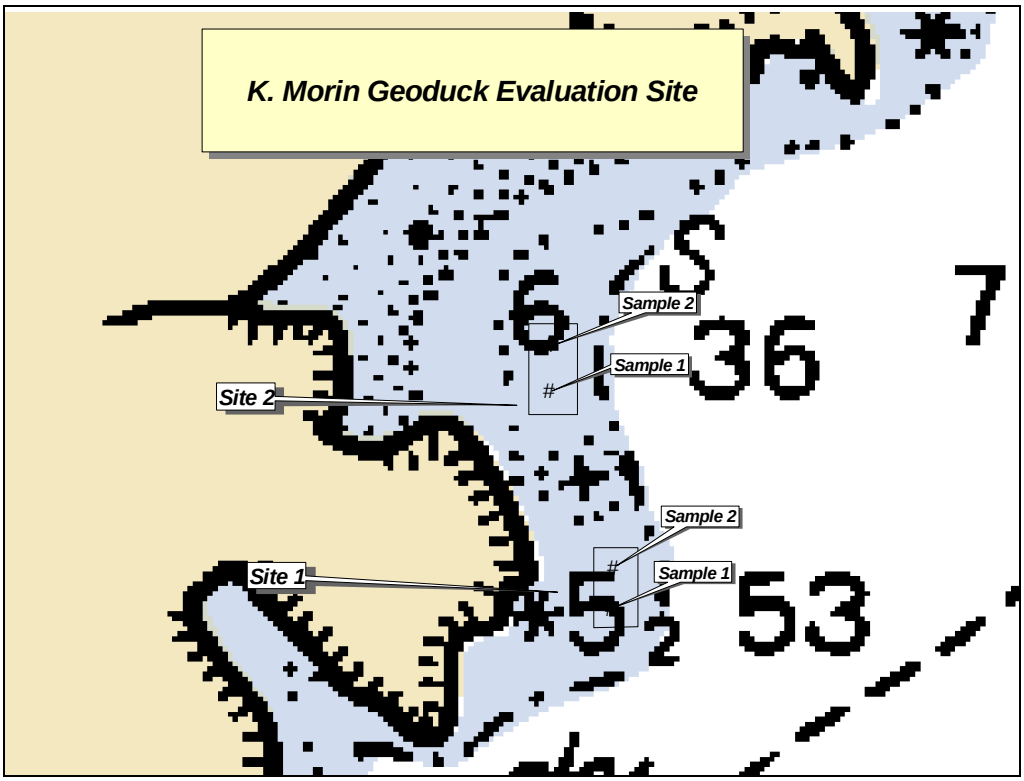

Figure 35. Transcription sampling locations for geoduck density, Ape Point evaluation site, September 13, 1999.

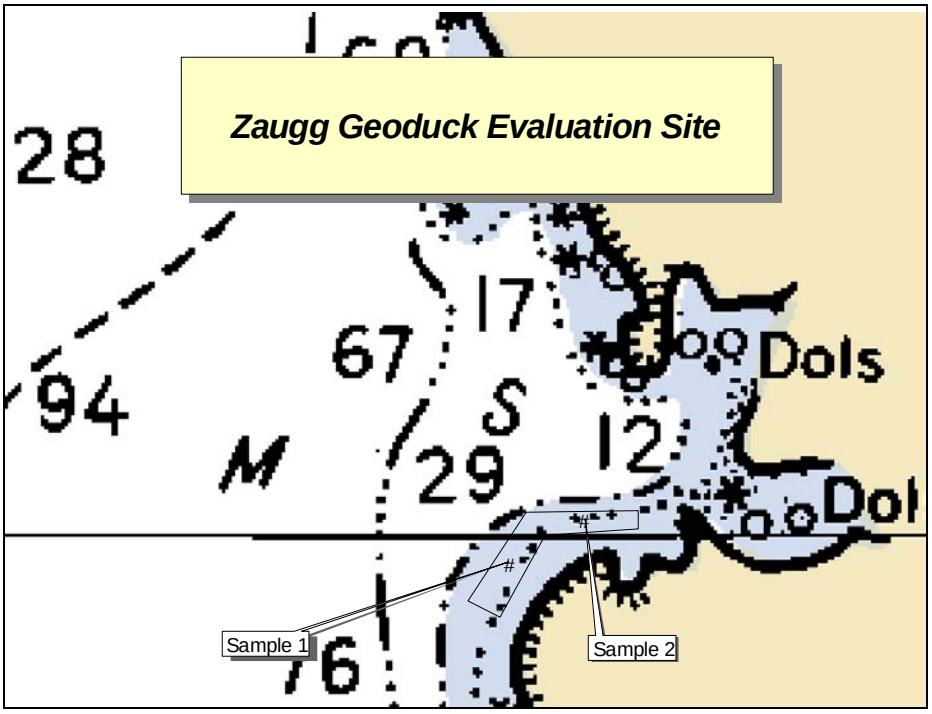

Figure 36. Transcription sampling locations for geoduck density, Dolphin Cove evaluation site, September 13, 1999.

APPENDIX

Appendix A. Littleneck clam mariculture application evaluation survey raw data.

Survey dates September 9 and 10, 1999.

Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Cap I.	1	1	Macoma	17	1
Cap I.	1	1	Protothaca	16	1
Cap I.	1	1	Protothaca	13	1
Cap I.	1	1	Protothaca	17	2
Cap I.	1	1	Protothaca	26	3
Cap I.	1	1	Protothaca	23	3
Cap I.	1	1	Protothaca	21	3
Cap I.	1	1	Protothaca	20	3
Cap I.	1	1	Protothaca	29	4
Cap I.	1	1	Protothaca	22	4
Cap I.	1	1	Saxidomus	22	4
Cap I.	1	1	Saxidomus	22	4
Cap I.	1	1	Saxidomus	27	5
Cap I.	1	1	Saxidomus	31	5
Cap I.	1	1	Protothaca	30	6
Cap I.	1	1	Protothaca	29	6
Cap I.	1	1	Macoma	35	7
Cap I.	1	1	Protothaca	28	8
Cap I.	1	1	Saxidomus	36	8
Cap I.	1	1	Macoma	39	9
Cap I.	1	1	Protothaca	32	9
Cap I.	1	1	Protothaca	34	10
Cap I.	1	1	Protothaca	36	11
Cap I.	1	1	Macoma	41	12
Cap I.	1	1	Protothaca	42	20
Cap I.	1	1	Protothaca	42	23
Cap I.	1	1	Protothaca	40	25
Cap I.	1	1	Protothaca	46	31
Cap I.	1	1	Macoma	18	
Cap I.	1	1	Macoma	22	
Cap I.	1	1	Macoma	14	
Cap I.	1	1	Macoma	38	
Cap I.	1	1	Protothaca	31	
Cap I.	1	1	Protothaca	30	
Cap I.	1	1	Protothaca	34	
Cap I.	1	1	Protothaca	38	
Cap I.	1	1	Protothaca	33	
Cap I.	1	1	Protothaca	32	
Cap I.	1	1	Protothaca	21	
Cap I.	1	1	Protothaca	29	
Cap I.	1	1	Protothaca	34	
Cap I.	1	1	Protothaca	35	
Cap I.	1	1	Protothaca	21	
Cap I.	1	1	Protothaca	13	
Cap I.	1	1	Protothaca	16	
Cap I.	1	1	Protothaca	17	
Cap I.	1	1	Protothaca	22	
Cap I.	1	1	Protothaca	17	
Cap I.	1	2	Macoma	14	0.3
Cap I.	1	2	Macoma	16	0.5
Cap I.	1	2	Macoma	22	1
Cap I.	1	2	Macoma	19	1
Cap I.	2	1	Macoma	43	
Cap I.	1	2	Macoma	18	1
Cap I.	1	2	Macoma	22	1
Cap I.	1	2	Protothaca	20	1
Cap I.	1	2	Protothaca	25	3
Cap I.	1	2	Protothaca	25	4
Cap I.	1	2	Protothaca	33	9
Cap I.	1	2	Protothaca	40	16
Cap I.	1	2	Protothaca	41	17
Cap I.	1	2	Protothaca	42	19
Cap I.	1	2	Protothaca	42	21
Cap I.	1	2	Protothaca	43	22
Cap I.	1	2	Saxidomus	52	41
Cap I.	1	2	Saxidomus	61	49
Cap I.	1	2	Macoma	29	
Cap I.	1	2	Macoma	20	
Cap I.	1	2	Macoma	22	
Cap I.	1	2	Macoma	21	
Cap I.	1	2	Macoma	20	
Cap I.	1	2	Macoma	19	
Cap I.	1	2	Macoma	22	
Cap I.	1	2	Macoma	30	
Cap I.	1	2	Macoma	29	
Cap I.	1	2	Macoma	20	
Cap I.	1	2	Macoma	20	
Cap I.	1	2	Macoma	24	
Cap I.	1	2	Macoma	27	
Cap I.	1	2	Macoma	24	
Cap I.	1	2	Macoma	21	
Cap I.	1	2	Macoma	15	
Cap I.	1	2	Macoma	24	
Cap I.	1	2	Macoma	22	
Cap I.	1	2	Macoma	26	
Cap I.	1	2	Macoma	27	
Cap I.	1	2	Saxidomus	60	
Cap I.	1	2	Saxidomus	59	
Cap I.	1	2	Saxidomus	65	
Cap I.	1	2	Saxidomus	65	
Cap I.	1	2	Saxidomus	26	
Cap I.	2	1	Macoma	27	1
Cap I.	2	1	Macoma	31	5
Cap I.	2	1	Macoma	39	8
Cap I.	2	1	Macoma	48	16
Cap I.	2	1	Macoma	50	19
Cap I.	2	1	Protothaca	50	45
Cap I.	2	1	Protothaca	52	46
Cap I.	2	1	Protothaca	53	46
Cap I.	2	1	Protothaca	58	66
Cap I.	2	1	Saxidomus	78	130
Cap I.	2	1	Macoma	46	
Cap I.	2	1	Macoma	25	
Cap I.	2	1	Macoma	37	
Cap I.	2	1	Macoma	46	
Clam Cove		1	Macoma	31	

-continued-

Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Cap I.	2	1	Macoma		
Cap I.	2	1	Macoma		
Cap I.	2	1	Macoma	41	
Cap I.	2	1	Macoma	40	
Cap I.	2	1	Macoma	31	
Cap I.	2	2	Macoma	25	3
Cap I.	2	2	Macoma	36	7
Cap I.	2	2	Macoma	44	12
Cap I.	2	2	Macoma	41	12
Cap I.	2	2	Macoma	48	19
Cap I.	2	2	Macoma	50	20
Cap I.	2	2	Protothaca	58	56
Cap I.	2	2	Saxidomus	95	249
Cap I.	2	2	Macoma	30	
Cap I.	2	2	Macoma	30	
Cap I.	2	2	Macoma	43	
Cap I.	2	2	Macoma	37	
Cap I.	2	2	Macoma	32	
Cap I.	2	2	Protothaca	52	
Clam Cove		1	Macoma	19	1
Clam Cove		1	Protothaca	16	1
Clam Cove		1	Macoma	23	2
Clam Cove		1	Macoma	21	2
Clam Cove		1	Macoma	23	2
Clam Cove		1	Macoma	28	3
Clam Cove		1	Macoma	25	3
Clam Cove		1	Macoma	28	4
Clam Cove		1	Macoma	30	4
Clam Cove		1	Protothaca	24	4
Clam Cove		1	Protothaca	27	4
Clam Cove		1	Macoma	31	5
Clam Cove		1	Macoma	28	5
Clam Cove		1	Macoma	29	5
Clam Cove		1	Protothaca	27	5
Clam Cove		1	Macoma	31	6
Clam Cove		1	Macoma	32	6
Clam Cove		1	Macoma	33	7
Clam Cove		1	Macoma	36	8
Clam Cove		1	Protothaca	31	8
Clam Cove		1	Protothaca	30	8
Clam Cove		1	Protothaca	31	9
Clam Cove		1	Protothaca	32	9
Clam Cove		1	Protothaca	33	9
Clam Cove		1	Protothaca	34	11
Clam Cove		1	Protothaca	36	13
Clam Cove		1	Protothaca	32	14
Clam Cove		1	Protothaca	36	14
Clam Cove		1	Protothaca	35	14
Clam Cove		1	Protothaca	38	15
Clam Cove		1	Protothaca	36	18
Clam Cove		1	Protothaca	44	28
Clam Cove		1	Clinocardium	42	
Clam Cove		1	Clinocardium	12	
Clam Cove		1	Macoma	30	
Clam Cove		1	Macoma	25	
Clam Cove		1	Macoma	25	
Clam Cove		1	Macoma	27	
Clam Cove		1	Macoma	31	
Clam Cove		1	Macoma	34	
Clam Cove		1	Macoma	25	
Clam Cove		1	Macoma	30	
Clam Cove		1	Macoma	20	
Clam Cove		1	Macoma	31	
Clam Cove		1	Protothaca	30	
Clam Cove		1	Protothaca	30	
Clam Cove		1	Protothaca	30	
Clam Cove		1	Protothaca	34	
Clam Cove		1	Protothaca	28	
Clam Cove		1	Protothaca	x	
Clam Cove		1	Protothaca	31	
Clam Cove		1	Protothaca	30	
Clam Cove		1	Protothaca	32	
Clam Cove		1	Protothaca	36	
Clam Cove		1	Protothaca	30	
Clam Cove		1	Saxidomus	72	
Clam Cove		1	Saxidomus	72	
Clam Cove		1	Saxidomus	69	
Clam Cove		1	Saxidomus	69	
Clam Cove		1	Saxidomus	68	
Clam Cove		1	Saxidomus	69	
Clam Cove		1	Saxidomus	63	
Clam Cove		1	Saxidomus	48	
El Cap		1	Protothaca	17	1
El Cap		1	Protothaca	29	7
El Cap		1	Protothaca	31	10
El Cap		1	Protothaca	30	11
El Cap		1	Protothaca	36	15
El Cap		1	Protothaca	35	15
El Cap		1	Protothaca	35	15
El Cap		1	Protothaca	38	17
El Cap		1	Protothaca	39	17
El Cap		1	Protothaca	37	18
El Cap		1	Protothaca	36	18
El Cap		1	Protothaca	39	19
El Cap		1	Protothaca	41	19
El Cap		1	Protothaca	40	20
El Cap		1	Protothaca	41	20
El Cap		1	Protothaca	39	23
El Cap		1	Protothaca	42	23
El Cap		1	Protothaca	45	24
El Cap		1	Protothaca	41	24
El Cap		1	Macoma	34	
El Cap		1	Macoma	33	
El Cap		1	Macoma	31	
El Cap		1	Macoma	31	
El Cap		1	Protothaca	34	
El Cap		1	Protothaca	34	
El Cap		1	Protothaca	33	

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Clam Cove		1	Macoma	36	
Clam Cove		1	Macoma	29	
Clam Cove		1	Macoma	30	
El Cap		1	Protothaca	32	
El Cap		1	Protothaca	36	
El Cap		1	Protothaca	37	
El Cap		1	Protothaca	19	
El Cap		1	Protothaca	39	
El Cap		1	Protothaca	38	
El Cap		1	Protothaca	40	
El Cap		1	Protothaca	35	
El Cap		1	Protothaca	42	
El Cap		1	Protothaca	35	
El Cap		1	Protothaca	38	
El Cap		1	Protothaca	34	
El Cap		1	Protothaca	35	
El Cap		1	Protothaca	37	
El Cap		1	Protothaca	34	
El Cap		1	Protothaca	41	
El Cap		1	Protothaca	32	
El Cap		1	Protothaca	26	
El Cap		1	Protothaca	29	
El Cap		1	Protothaca	37	
El Cap		1	Protothaca	42	
El Cap		1	Protothaca	39	
El Cap		1	Protothaca	x	
El Cap		1	Protothaca	29	
El Cap		1	Protothaca	37	
El Cap		1	Protothaca	40	
El Cap		1	Protothaca	32	
El Cap		1	Protothaca	33	
El Cap		1	Protothaca	33	
El Cap		1	Protothaca	35	
El Cap		1	Protothaca	37	
El Cap		1	Saxidomus	85	
El Cap		2	Protothaca	17	1
El Cap		2	Protothaca	27	5
El Cap		2	Protothaca	26	6
El Cap		2	Protothaca	27	7
El Cap		2	Protothaca	28	8
El Cap		2	Protothaca	29	8
El Cap		2	Protothaca	28	8
El Cap		2	Protothaca	27	8
El Cap		2	Protothaca	27	8
El Cap		2	Protothaca	31	8
El Cap		2	Protothaca	31	9
El Cap		2	Protothaca	30	9
El Cap		2	Protothaca	32	10
El Cap		2	Protothaca	30	10
El Cap		2	Protothaca	32	10
El Cap		2	Protothaca	33	11
El Cap		2	Protothaca	31	11
El Cap		2	Protothaca	30	11
El Cap		1	Protothaca	37	
El Cap		1	Protothaca	36	
El Cap		1	Protothaca	32	
El Cap		2	Protothaca	35	13
El Cap		2	Protothaca	37	14
El Cap		2	Protothaca	33	14
El Cap		2	Protothaca	35	14
El Cap		2	Protothaca	35	14
El Cap		2	Protothaca	36	14
El Cap		2	Protothaca	36	15
El Cap		2	Protothaca	39	15
El Cap		2	Protothaca	36	15
El Cap		2	Protothaca	34	16
El Cap		2	Protothaca	37	16
El Cap		2	Protothaca	37	16
El Cap		2	Protothaca	34	17
El Cap		2	Protothaca	41	19
El Cap		2	Protothaca	42	21
El Cap		2	Protothaca	38	21
El Cap		2	Protothaca	41	22
El Cap		2	Protothaca	40	23
El Cap		2	Protothaca	49	34
El Cap		2	Macoma	22	
El Cap		2	Protothaca	41	
El Cap		2	Protothaca	37	
El Cap		2	Protothaca	37	
El Cap		2	Protothaca	31	
El Cap		2	Protothaca	32	
El Cap		2	Protothaca	33	
El Cap		2	Protothaca	32	
El Cap		2	Protothaca	30	
El Cap		2	Protothaca	35	
El Cap		2	Protothaca	32	
El Cap		2	Protothaca	33	
El Cap		2	Protothaca	30	
El Cap		2	Protothaca	36	
El Cap		2	Protothaca	28	
El Cap		2	Protothaca	33	
El Cap		2	Protothaca	30	
El Cap		2	Protothaca	36	
El Cap		2	Protothaca	30	
El Cap		2	Protothaca	36	
El Cap		2	Protothaca	36	
El Cap		2	Protothaca	32	
El Cap		2	Protothaca	33	
El Cap		2	Protothaca	29	
El Cap		2	Protothaca	32	
El Cap		2	Protothaca	30	
El Cap		2	Protothaca	30	
El Cap		2	Protothaca	33	
El Cap		2	Protothaca	29	
El Cap		2	Protothaca	29	
El Cap		2	Protothaca	32	

-continued-

Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
El Cap		2	Protothaca	30	11
El Cap		2	Protothaca	33	11
El Cap		2	Protothaca	32	11
El Cap		2	Protothaca	32	11
El Cap		2	Protothaca	31	12
El Cap		2	Protothaca	32	12
El Cap		2	Protothaca	33	12
El Cap		2	Protothaca	34	13
El Cap		2	Protothaca	29	
El Cap		2	Protothaca	32	
El Cap		2	Protothaca	31	
El Cap		2	Protothaca	30	
El Cap		2	Protothaca	35	
El Cap		2	Saxidomus	77	
El Cap		3	Protothaca	26	5
El Cap		3	Protothaca	28	8
El Cap		3	Protothaca	30	9
El Cap		3	Protothaca	30	9
El Cap		3	Protothaca	28	10
El Cap		3	Protothaca	30	10
El Cap		3	Protothaca	32	10
El Cap		3	Protothaca	32	10
El Cap		3	Protothaca	32	11
El Cap		3	Protothaca	32	11
El Cap		3	Protothaca	34	12
El Cap		3	Protothaca	32	12
El Cap		3	Protothaca	34	12
El Cap		3	Protothaca	36	15
El Cap		3	Protothaca	38	16
El Cap		3	Protothaca	38	16
El Cap		3	Protothaca	40	18
El Cap		3	Protothaca	38	18
El Cap		3	Protothaca	40	18
El Cap		3	Protothaca	34	
El Cap		3	Protothaca	36	
El Cap		3	Protothaca	30	
El Cap		3	Protothaca	36	
El Cap		3	Protothaca	40	
El Cap		3	Protothaca	38	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	41	
El Cap		3	Protothaca	37	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	34	
El Cap		3	Protothaca	36	
El Cap		3	Protothaca	32	
El Cap		3	Protothaca	29	
El Cap		3	Protothaca	39	
El Cap		3	Protothaca	34	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	37	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	33	
El Cap		2	Protothaca	32	
El Cap		2	Protothaca	35	
El Cap		2	Protothaca	29	
El Cap		2	Protothaca	31	
El Cap		2	Protothaca	30	
El Cap		2	Protothaca	29	
El Cap		2	Protothaca	36	
El Cap		2	Protothaca	29	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	32	
El Cap		3	Protothaca	32	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	30	
El Cap		3	Protothaca	31	
El Cap		3	Protothaca	32	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	31	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	32	
El Cap		3	Protothaca	36	
El Cap		3	Protothaca	29	
El Cap		3	Protothaca	27	
El Cap		3	Protothaca	29	
El Cap		4	Protothaca	12	1
El Cap		4	Protothaca	20	2
El Cap		4	Protothaca	23	3
El Cap		4	Protothaca	20	3
El Cap		4	Protothaca	27	4
El Cap		4	Protothaca	24	4
El Cap		4	Protothaca	26	5
El Cap		4	Protothaca	30	5
El Cap		4	Protothaca	29	6
El Cap		4	Protothaca	29	6
El Cap		4	Protothaca	28	6
El Cap		4	Protothaca	29	6
El Cap		4	Protothaca	29	7
El Cap		4	Protothaca	33	9
El Cap		4	Protothaca	30	9
El Cap		4	Protothaca	32	10
El Cap		4	Protothaca	35	10
El Cap		4	Protothaca	32	10
El Cap		4	Protothaca	34	11
El Cap		4	Protothaca	31	11
El Cap		4	Protothaca	35	11
El Cap		4	Protothaca	33	11
El Cap		4	Protothaca	33	12
El Cap		4	Protothaca	39	15
El Cap		4	Protothaca	36	15

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
El Cap		3	Protothaca	38	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	27	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	33	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	37	
El Cap		3	Protothaca	37	
El Cap		3	Protothaca	34	
El Cap		3	Protothaca	35	
El Cap		3	Protothaca	31	
El Cap		4	Macoma	29	
El Cap		4	Macoma	30	
El Cap		4	Macoma	23	
El Cap		4	Macoma	18	
El Cap		4	Macoma	26	
El Cap		4	Macoma	15	
El Cap		4	Macoma	28	
El Cap		4	Macoma	31	
El Cap		4	Macoma	22	
El Cap		4	Macoma	14	
El Cap		4	Macoma	29	
El Cap		4	Macoma	26	
El Cap		4	Macoma	22	
El Cap		4	Macoma	31	
El Cap		4	Protothaca	x	
El Cap		4	Protothaca	37	
El Cap		4	Protothaca	38	
El Cap		4	Protothaca	36	
El Cap		4	Protothaca	35	
El Cap		4	Protothaca	34	
El Cap		4	Protothaca	27	
El Cap		4	Protothaca	34	
El Cap		4	Protothaca	35	
El Cap		4	Protothaca	33	
El Cap		4	Protothaca	35	
El Cap		4	Protothaca	31	
El Cap		4	Protothaca	35	
El Cap		4	Protothaca	33	
El Cap		4	Protothaca	35	
El Cap		4	Protothaca	32	
El Cap		4	Protothaca	x	
El Cap		4	Protothaca	32	
El Cap		4	Protothaca	31	
El Cap		4	Protothaca	49	
El Cap		4	Protothaca	36	
El Cap		4	Protothaca	32	
El Cap		4	Protothaca	29	
El Cap		4	Protothaca	31	
El Cap		4	Protothaca	28	
El Cap		4	Protothaca	35	
El Cap		4	Protothaca	37	15
El Cap		4	Protothaca	35	15
El Cap		4	Protothaca	37	15
El Cap		4	Protothaca	35	15
El Cap		4	Protothaca	40	16
El Cap		4	Protothaca	38	17
El Cap		4	Protothaca	38	17
El Cap		4	Protothaca	38	18
El Cap		4	Protothaca	37	18
El Cap		4	Protothaca	40	20
El Cap		4	Protothaca	39	20
El Cap		4	Protothaca	39	20
El Cap		4	Macoma	26	
El Cap		4	Saxidomus	62	
Holbrook		1	Macoma	16	1
Holbrook		1	Macoma	18	1
Holbrook		1	Protothaca	12	1
Holbrook		1	Protothaca	14	1
Holbrook		1	Protothaca	13	1
Holbrook		1	Protothaca	14	1
Holbrook		1	Protothaca	18	1
Holbrook		1	Protothaca	12	1
Holbrook		1	Macoma	20	2
Holbrook		1	Macoma	23	2
Holbrook		1	Protothaca	22	2
Holbrook		1	Protothaca	21	2
Holbrook		1	Protothaca	18	2
Holbrook		1	Macoma	26	3
Holbrook		1	Macoma	23	3
Holbrook		1	Protothaca	27	3
Holbrook		1	Protothaca	23	3
Holbrook		1	Protothaca	21	3
Holbrook		1	Protothaca	22	3
Holbrook		1	Macoma	31	4
Holbrook		1	Macoma	28	4
Holbrook		1	Macoma	26	4
Holbrook		1	Protothaca	23	4
Holbrook		1	Protothaca	22	4
Holbrook		1	Protothaca	25	4
Holbrook		1	Protothaca	26	4
Holbrook		1	Protothaca	27	4
Holbrook		1	Protothaca	25	4
Holbrook		1	Protothaca	26	4
Holbrook		1	Macoma	29	5
Holbrook		1	Protothaca	26	5
Holbrook		1	Protothaca	33	5
Holbrook		1	Protothaca	25	5
Holbrook		1	Protothaca	26	5
Holbrook		1	Protothaca	26	5
Holbrook		1	Protothaca	23	5
Holbrook		1	Protothaca	25	5
Holbrook		1	Protothaca	27	5
Holbrook		1	Protothaca	26	5

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
El Cap		4	Protothaca	26	
El Cap		4	Protothaca	29	
El Cap		4	Protothaca	23	
El Cap		4	Protothaca	27	
El Cap		4	Protothaca	14	
El Cap		4	Protothaca	9	
El Cap		4	Protothaca	14	
El Cap		4	Protothaca	12	
El Cap		4	Protothaca	9	
El Cap		4	Protothaca	13	
El Cap		4	Protothaca	12	
El Cap		4	Protothaca	15	
El Cap		4	Protothaca	12	
El Cap		4	Protothaca	14	
El Cap		4	Protothaca	13	
El Cap		4	Saxidomus	78	
El Cap		4	Saxidomus	63	
El Cap		4	Saxidomus	42	
Holbrook		1	Protothaca	27	7
Holbrook		1	Protothaca	30	7
Holbrook		1	Saxidomus	32	7
Holbrook		1	Saxidomus	33	7
Holbrook		1	Protothaca	34	8
Holbrook		1	Protothaca	29	8
Holbrook		1	Protothaca	30	8
Holbrook		1	Protothaca	32	8
Holbrook		1	Protothaca	30	8
Holbrook		1	Protothaca	29	8
Holbrook		1	Protothaca	30	8
Holbrook		1	Protothaca	30	8
Holbrook		1	Protothaca	30	9
Holbrook		1	Protothaca	32	9
Holbrook		1	Protothaca	33	9
Holbrook		1	Protothaca	30	9
Holbrook		1	Protothaca	31	9
Holbrook		1	Protothaca	30	9
Holbrook		1	Protothaca	30	9
Holbrook		1	Protothaca	30	9
Holbrook		1	Protothaca	32	10
Holbrook		1	Protothaca	44	10
Holbrook		1	Protothaca	33	10
Holbrook		1	Protothaca	33	10
Holbrook		1	Protothaca	33	10
Holbrook		1	Protothaca	29	10
Holbrook		1	Protothaca	35	10
Holbrook		1	Protothaca	31	10
Holbrook		1	Protothaca	33	10
Holbrook		1	Protothaca	34	10
Holbrook		1	Protothaca	35	11
Holbrook		1	Protothaca	32	11
Holbrook		1	Protothaca	32	11
Holbrook		1	Protothaca	32	11
Holbrook		1	Protothaca	34	11
Holbrook		1	Macoma	31	6
Holbrook		1	Protothaca	29	6
Holbrook		1	Protothaca	28	6
Holbrook		1	Protothaca	28	6
Holbrook		1	Protothaca	27	6
Holbrook		1	Protothaca	26	6
Holbrook		1	Protothaca	26	6
Holbrook		1	Protothaca	27	6
Holbrook		1	Protothaca	28	6
Holbrook		1	Protothaca	29	6
Holbrook		1	Protothaca	26	6
Holbrook		1	Saxidomus	28	6
Holbrook		1	Protothaca	28	7
Holbrook		1	Protothaca	30	7
Holbrook		1	Protothaca	28	7
Holbrook		1	Protothaca	29	7
Holbrook		1	Protothaca	30	7
Holbrook		1	Protothaca	29	7
Holbrook		1	Protothaca	36	14
Holbrook		1	Protothaca	37	14
Holbrook		1	Protothaca	37	14
Holbrook		1	Protothaca	35	14
Holbrook		1	Protothaca	35	15
Holbrook		1	Protothaca	36	15
Holbrook		1	Protothaca	36	15
Holbrook		1	Protothaca	36	15
Holbrook		1	Protothaca	36	15
Holbrook		1	Protothaca	35	15
Holbrook		1	Protothaca	37	15
Holbrook		1	Protothaca	38	15
Holbrook		1	Protothaca	36	15
Holbrook		1	Protothaca	35	16
Holbrook		1	Protothaca	35	16
Holbrook		1	Protothaca	34	16
Holbrook		1	Protothaca	36	16
Holbrook		1	Protothaca	37	16
Holbrook		1	Protothaca	34	16
Holbrook		1	Protothaca	35	16
Holbrook		1	Saxidomus	40	16
Holbrook		1	Protothaca	39	17
Holbrook		1	Protothaca	39	17
Holbrook		1	Protothaca	38	17
Holbrook		1	Protothaca	37	17
Holbrook		1	Protothaca	37	17
Holbrook		1	Protothaca	34	17
Holbrook		1	Protothaca	38	17
Holbrook		1	Protothaca	35	17
Holbrook		1	Protothaca	38	17
Holbrook		1	Protothaca	40	18
Holbrook		1	Protothaca	38	18
Holbrook		1	Protothaca	37	18
Holbrook		1	Protothaca	36	18
Holbrook		1	Protothaca	40	18

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Holbrook		1	Protothaca	32	11
Holbrook		1	Protothaca	39	12
Holbrook		1	Protothaca	36	12
Holbrook		1	Protothaca	33	12
Holbrook		1	Protothaca	36	12
Holbrook		1	Protothaca	33	12
Holbrook		1	Protothaca	33	12
Holbrook		1	Protothaca	36	12
Holbrook		1	Protothaca	32	12
Holbrook		1	Protothaca	35	13
Holbrook		1	Protothaca	33	13
Holbrook		1	Protothaca	34	13
Holbrook		1	Protothaca	33	13
Holbrook		1	Protothaca	33	13
Holbrook		1	Protothaca	36	13
Holbrook		1	Protothaca	35	13
Holbrook		1	Protothaca	36	14
Holbrook		1	Protothaca	37	14
Holbrook		1	Protothaca	34	14
Holbrook		1	Protothaca	35	14
Holbrook		1	Protothaca	34	14
Holbrook		1	Protothaca	35	14
Holbrook		1	Protothaca	35	14
Holbrook		1	Saxidomus	56	46
Holbrook		1	Saxidomus	56	47
Holbrook		1	Saxidomus	56	49
Holbrook		1	Saxidomus	56	49
Holbrook		1	Saxidomus	57	49
Holbrook		1	Saxidomus	55	50
Holbrook		1	Saxidomus	58	53
Holbrook		1	Saxidomus	60	55
Holbrook		1	Saxidomus	59	56
Holbrook		1	Saxidomus	58	56
Holbrook		1	Saxidomus	67	85
Holbrook		1	Macoma	19	
Holbrook		1	Macoma	22	
Holbrook		1	Macoma	16	
Holbrook		1	Macoma	37	
Holbrook		1	Macoma	28	
Holbrook		1	Macoma	30	
Holbrook		1	Macoma	29	
Holbrook		1	Macoma	27	
Holbrook		1	Macoma	26	
Holbrook		1	Macoma	30	
Holbrook		1	Macoma	29	
Holbrook		1	Macoma	20	
Holbrook		1	Macoma	32	
Holbrook		1	Macoma	23	
Holbrook		1	Macoma	29	
Holbrook		1	Macoma	20	
Holbrook		1	Macoma	17	
Holbrook		1	Macoma	16	
Holbrook		1	Protothaca	35	
Holbrook		1	Protothaca	40	
Holbrook		1	Protothaca	39	19
Holbrook		1	Protothaca	39	19
Holbrook		1	Protothaca	42	19
Holbrook		1	Protothaca	37	19
Holbrook		1	Protothaca	40	20
Holbrook		1	Protothaca	42	20
Holbrook		1	Protothaca	40	21
Holbrook		1	Protothaca	42	22
Holbrook		1	Protothaca	39	22
Holbrook		1	Protothaca	40	25
Holbrook		1	Saxidomus	47	26
Holbrook		1	Saxidomus	51	29
Holbrook		1	Saxidomus	50	34
Holbrook		1	Saxidomus	52	36
Holbrook		1	Saxidomus	52	36
Holbrook		1	Saxidomus	49	37
Holbrook		1	Saxidomus	52	37
Holbrook		1	Saxidomus	50	37
Holbrook		1	Saxidomus	52	39
Holbrook		1	Saxidomus	53	41
Holbrook		1	Saxidomus	53	42
Holbrook		1	Saxidomus	53	44
Holbrook		1	Saxidomus	56	44
Jinhi	1	1	Protothaca	39	18
Jinhi	1	1	Protothaca	38	18
Jinhi	1	1	Protothaca	37	18
Jinhi	1	1	Protothaca	40	21
Jinhi	1	1	Protothaca	38	21
Jinhi	1	1	Protothaca	40	23
Jinhi	1	1	Protothaca	40	23
Jinhi	1	1	Protothaca	37	24
Jinhi	1	1	Protothaca	41	25
Jinhi	1	1	Protothaca	41	25
Jinhi	1	1	Protothaca	44	26
Jinhi	1	1	Protothaca	39	26
Jinhi	1	1	Protothaca	43	29
Jinhi	1	1	Protothaca	43	30
Jinhi	1	1	Protothaca	43	31
Jinhi	1	1	Protothaca	43	31
Jinhi	1	1	Protothaca	46	32
Jinhi	1	1	Protothaca	46	33
Jinhi	1	1	Protothaca	45	34
Jinhi	1	1	Protothaca	47	38
Jinhi	1	1	Protothaca	50	39
Jinhi	1	1	Saxidomus	72	88
Jinhi	1	1	Saxidomus	70	104
Jinhi	1	1	Saxidomus	74	118
Jinhi	1	1	Saxidomus	77	122
Jinhi	1	1	Saxidomus	78	124
Jinhi	1	1	Saxidomus	77	124
Jinhi	1	1	Saxidomus	74	131
Jinhi	1	1	Saxidomus	74	133
Jinhi	1	1	Saxidomus	77	140
Jinhi	1	1	Saxidomus	81	142

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Holbrook		1	Protothaca	36	
Holbrook		1	Protothaca	35	
Holbrook		1	Protothaca	27	
Holbrook		1	Protothaca	27	
Holbrook		1	Protothaca	24	
Holbrook		1	Protothaca	35	
Holbrook		1	Protothaca	35	
Holbrook		1	Protothaca	32	
Holbrook		1	Saxidomus	55	
Holbrook		2	Protothaca	39	17
Holbrook		2	Protothaca	43	24
Holbrook		2	Saxidomus	52	34
Holbrook		2	Saxidomus	60	54
Holbrook		2	Clinocardium	27	
Holbrook		2	Clinocardium	29	
Holbrook		2	Macoma	33	
Holbrook		2	Protothaca	42	
Holbrook		2	Protothaca	44	
Holbrook		2	Protothaca	43	
Holbrook		2	Protothaca	38	
Jinhi	1	1	Protothaca	22	2
Jinhi	1	1	Macoma	33	3
Jinhi	1	1	Macoma	31	5
Jinhi	1	1	Protothaca	27	5
Jinhi	1	1	Macoma	40	8
Jinhi	1	1	Macoma	39	10
Jinhi	1	1	Protothaca	35	17
Jinhi	1	2	Protothaca	32	10
Jinhi	1	2	Protothaca	31	10
Jinhi	1	2	Protothaca	31	10
Jinhi	1	2	Protothaca	30	10
Jinhi	1	2	Protothaca	35	11
Jinhi	1	2	Protothaca	36	11
Jinhi	1	2	Protothaca	32	12
Jinhi	1	2	Protothaca	32	12
Jinhi	1	2	Protothaca	30	12
Jinhi	1	2	Protothaca	36	13
Jinhi	1	2	Protothaca	34	13
Jinhi	1	2	Protothaca	34	13
Jinhi	1	2	Protothaca	34	13
Jinhi	1	2	Protothaca	35	14
Jinhi	1	2	Protothaca	34	14
Jinhi	1	2	Protothaca	33	14
Jinhi	1	2	Protothaca	37	15
Jinhi	1	2	Protothaca	34	15
Jinhi	1	2	Protothaca	35	15
Jinhi	1	2	Protothaca	33	15
Jinhi	1	2	Protothaca	34	15
Jinhi	1	2	Protothaca	35	15
Jinhi	1	2	Protothaca	39	16
Jinhi	1	2	Protothaca	38	16
Jinhi	1	2	Protothaca	36	16
Jinhi	1	2	Protothaca	39	17
Jinhi	1	1	Saxidomus	81	143
Jinhi	1	1	Saxidomus	80	159
Jinhi	1	1	Saxidomus	87	159
Jinhi	1	1	Saxidomus	83	174
Jinhi	1	1	Protothaca	40	
Jinhi	1	1	Saxidomus	81	
Jinhi	1	1	Saxidomus	73	
Jinhi	1	1	Saxidomus	78	
Jinhi	1	2	Macoma	17	1
Jinhi	1	2	Macoma	19	1
Jinhi	1	2	Macoma	21	1
Jinhi	1	2	Macoma	26	2
Jinhi	1	2	Macoma	30	4
Jinhi	1	2	Protothaca	27	5
Jinhi	1	2	Protothaca	29	6
Jinhi	1	2	Protothaca	27	6
Jinhi	1	2	Protothaca	28	7
Jinhi	1	2	Protothaca	28	7
Jinhi	1	2	Protothaca	30	8
Jinhi	1	2	Protothaca	34	9
Jinhi	1	2	Protothaca	31	9
Jinhi	1	2	Protothaca	31	9
Jinhi	1	2	Protothaca	32	9
Jinhi	1	2	Protothaca	28	9
Jinhi	1	2	Protothaca	30	10
Jinhi	1	2	Protothaca	32	10
Jinhi	1	2	Protothaca	34	10
Jinhi	2	1	Macoma	25	3
Jinhi	2	1	Protothaca	34	9
Jinhi	2	1	Protothaca	33	12
Jinhi	2	1	Protothaca	47	27
Jinhi	2	1	Protothaca	48	29
Jinhi	2	1	Protothaca	46	32
Jinhi	2	1	Protothaca	48	32
Jinhi	2	1	Protothaca	50	35
Jinhi	2	1	Saxidomus	62	58
Jinhi	2	1	Saxidomus	71	84
Jinhi	2	1	Saxidomus	73	87
Jinhi	2	1	Saxidomus	73	104
Jinhi	2	1	Saxidomus	78	107
Jinhi	2	1	Saxidomus	78	116
Jinhi	2	1	Saxidomus	82	122
Jinhi	2	1	Saxidomus	83	131
Jinhi	2	1	Saxidomus	93	205
Jinhi	2	1	Protothaca	49	
Jinhi	2	1	Saxidomus	80	
Jinhi	2	2	Macoma	10	1
Jinhi	2	2	Macoma	11	1
Jinhi	2	2	Macoma	25	3
Jinhi	2	2	Protothaca	36	15
Jinhi	2	2	Protothaca	37	16
Jinhi	2	2	Protothaca	38	16
Jinhi	2	2	Protothaca	38	18

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Jinhi	1	2	Protothaca	36	17
Jinhi	1	2	Protothaca	38	17
Jinhi	1	2	Protothaca	39	17
Jinhi	1	2	Protothaca	39	17
Jinhi	1	2	Protothaca	36	17
Jinhi	1	2	Protothaca	38	17
Jinhi	1	2	Protothaca	39	18
Jinhi	1	2	Protothaca	37	18
Jinhi	1	2	Protothaca	36	18
Jinhi	1	2	Protothaca	38	19
Jinhi	1	2	Protothaca	38	20
Jinhi	1	2	Protothaca	40	20
Jinhi	1	2	Protothaca	41	21
Jinhi	1	2	Protothaca	39	21
Jinhi	1	2	Protothaca	44	24
Jinhi	1	2	Protothaca	42	25
Jinhi	1	2	Protothaca	42	25
Jinhi	1	2	Protothaca	38	25
Jinhi	1	2	Protothaca	43	26
Jinhi	1	2	Protothaca	46	28
Jinhi	1	2	Protothaca	45	28
Jinhi	1	2	Protothaca	44	29
Jinhi	1	2	Saxidomus	50	30
Jinhi	1	2	Protothaca	45	31
Jinhi	1	2	Protothaca	45	31
Jinhi	1	2	Protothaca	44	32
Jinhi	1	2	Saxidomus	66	75
Jinhi	1	2	Saxidomus	82	150
Jinhi	1	2	Macoma	22	
Jinhi	1	2	Protothaca		
Jinhi	1	2	Protothaca	36	
Jinhi	1	2	Protothaca	31	
Jinhi	3	1	Protothaca	33	13
Jinhi	3	1	Protothaca	34	13
Jinhi	3	1	Protothaca	37	14
Jinhi	3	1	Protothaca	41	14
Jinhi	3	1	Protothaca	35	14
Jinhi	3	1	Saxidomus	35	15
Jinhi	3	1	Protothaca	35	16
Jinhi	3	1	Protothaca	37	16
Jinhi	3	1	Protothaca	38	17
Jinhi	3	1	Protothaca	41	18
Jinhi	3	1	Protothaca	38	18
Jinhi	3	1	Protothaca	33	18
Jinhi	3	1	Protothaca	39	19
Jinhi	3	1	Protothaca	38	20
Jinhi	3	1	Protothaca	39	20
Jinhi	3	1	Protothaca	41	21
Jinhi	3	1	Protothaca	38	21
Jinhi	3	1	Protothaca	42	22
Jinhi	3	1	Protothaca	34	22
Jinhi	3	1	Protothaca	40	25
Jinhi	3	1	Protothaca	44	25
Jinhi	3	1	Saxidomus	48	26
Jinhi	2	2	Protothaca	40	25
Jinhi	3	1	Macoma	16	0.5
Jinhi	3	1	Protothaca	9	0.5
Jinhi	3	1	Saxidomus	11	0.5
Jinhi	3	1	Macoma	24	1
Jinhi	3	1	Macoma	19	1
Jinhi	3	1	Macoma	20	1
Jinhi	3	1	Macoma	19	1
Jinhi	3	1	Macoma	20	1
Jinhi	3	1	Macoma	18	1
Jinhi	3	1	Macoma	18	1
Jinhi	3	1	Macoma	25	2
Jinhi	3	1	Protothaca	23	3
Jinhi	3	1	Protothaca	23	3
Jinhi	3	1	Protothaca	25	4
Jinhi	3	1	Protothaca	49	5
Jinhi	3	1	Protothaca	29	5
Jinhi	3	1	Protothaca	26	5
Jinhi	3	1	Protothaca	27	5
Jinhi	3	1	Protothaca	30	6
Jinhi	3	1	Protothaca	30	6
Jinhi	3	1	Protothaca	31	6
Jinhi	3	1	Protothaca	31	6
Jinhi	3	1	Protothaca	22	6
Jinhi	3	1	Protothaca	31	7
Jinhi	3	1	Protothaca	30	7
Jinhi	3	1	Protothaca	33	8
Jinhi	3	1	Protothaca	31	8
Jinhi	3	1	Protothaca	32	9
Jinhi	3	1	Protothaca	33	9
Jinhi	3	1	Protothaca	34	11
Jinhi	3	1	Protothaca	36	13
Jinhi	4	1	Protothaca	49	41
Jinhi	4	1	Protothaca	53	54
Jinhi	4	1	Saxidomus	78	121
Jinhi	4	1	Clinocardium	82	142
Jinhi	4	1	Saxidomus	84	163
Jinhi	4	1	Saxidomus	88	189
Jinhi	4	2	Macoma	24	2
Jinhi	4	2	Macoma	19	2
Jinhi	4	2	Protothaca	25	3
Jinhi	4	2	Protothaca	22	3
Jinhi	4	2	Protothaca	18	3
Jinhi	4	2	Macoma	28	4
Jinhi	4	2	Macoma	27	4
Jinhi	4	2	Protothaca	44	4
Jinhi	4	2	Protothaca	23	4
Jinhi	4	2	Macoma	30	5
Jinhi	4	2	Macoma	32	5
Jinhi	4	2	Macoma	32	5
Jinhi	4	2	Macoma	30	5
Jinhi	4	2	Protothaca	27	5
Jinhi	4	2	Protothaca	30	6
Jinhi	4	2	Macoma	35	7

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Jinhi	3	1	Protothaca	43	28
Jinhi	3	1	Protothaca	42	28
Jinhi	3	1	Protothaca	43	32
Jinhi	3	1	Protothaca	47	35
Jinhi	3	1	Protothaca	30	
Jinhi	3	1	Saxidomus	73	
Jinhi	3	2	Macoma	39	16
Jinhi	3	2	Protothaca	43	21
Jinhi	3	2	Protothaca	40	21
Jinhi	3	2	Protothaca	42	22
Jinhi	3	2	Protothaca	40	23
Jinhi	3	2	Protothaca	40	23
Jinhi	3	2	Protothaca	43	24
Jinhi	3	2	Protothaca	41	24
Jinhi	3	2	Protothaca	45	24
Jinhi	3	2	Protothaca	42	25
Jinhi	3	2	Protothaca	43	26
Jinhi	3	2	Protothaca	45	30
Jinhi	3	2	Protothaca	48	32
Jinhi	3	2	Protothaca	46	32
Jinhi	3	2	Protothaca	47	34
Jinhi	3	2	Protothaca	50	36
Jinhi	3	2	Saxidomus	75	93
Jinhi	3	2	Saxidomus	81	122
Jinhi	3	2	Saxidomus	80	138
Jinhi	3	2	Saxidomus	88	187
Jinhi	3	2	Protothaca	48	
Jinhi	3	2	Saxidomus	80	
Jinhi	3	2	Saxidomus		
Jinhi	4	1	Macoma	47	19
Jinhi	4	1	Protothaca	47	26
Jinhi	4	1	Protothaca	42	26
Jinhi	4	1	Protothaca	44	27
Jinhi	4	1	Protothaca	48	34
Jinhi	4	1	Protothaca	49	37
Jinhi	4	1	Protothaca	50	40
Jinhi	4	2	Saxidomus	78	121
Jinhi	4	2	Saxidomus	81	143
Jinhi	4	2	Macoma	20	
Jinhi	4	2	Macoma	31	
Jinhi	4	2	Macoma	33	
Jinhi	4	2	Macoma	27	
Jinhi	4	2	Macoma	23	
Jinhi	4	2	Macoma	20	
Jinhi	4	2	Protothaca	23	
Jinhi	4	2	Saxidomus	55	
Shakan	1	1	Protothaca	15	1
Shakan	1	1	Protothaca	19	2
Shakan	1	1	Protothaca	26	3
Shakan	1	1	Protothaca	32	11
Shakan	1	1	Protothaca	34	11
Shakan	1	1	Protothaca	32	11
Shakan	1	1	Protothaca	34	12
Jinhi	4	2	Protothaca	30	7
Jinhi	4	2	Protothaca	27	7
Jinhi	4	2	Protothaca	28	7
Jinhi	4	2	Protothaca	32	10
Jinhi	4	2	Protothaca	35	11
Jinhi	4	2	Protothaca	36	12
Jinhi	4	2	Saxidomus	33	12
Jinhi	4	2	Protothaca	37	13
Jinhi	4	2	Protothaca	36	13
Jinhi	4	2	Protothaca	36	13
Jinhi	4	2	Protothaca	35	13
Jinhi	4	2	Protothaca	36	14
Jinhi	4	2	Protothaca	35	14
Jinhi	4	2	Protothaca	39	15
Jinhi	4	2	Protothaca	39	16
Jinhi	4	2	Protothaca	35	16
Jinhi	4	2	Protothaca	38	17
Jinhi	4	2	Protothaca	37	17
Jinhi	4	2	Protothaca	35	17
Jinhi	4	2	Protothaca	40	19
Jinhi	4	2	Protothaca	38	19
Jinhi	4	2	Protothaca	42	21
Jinhi	4	2	Protothaca	41	21
Jinhi	4	2	Protothaca	44	21
Jinhi	4	2	Protothaca	40	21
Jinhi	4	2	Protothaca	38	21
Jinhi	4	2	Protothaca	40	22
Jinhi	4	2	Protothaca	43	23
Jinhi	4	2	Protothaca	43	26
Jinhi	4	2	Protothaca	44	26
Jinhi	4	2	Protothaca	43	26
Jinhi	4	2	Protothaca	44	26
Jinhi	4	2	Protothaca	43	30
Jinhi	4	2	Protothaca	44	32
Jinhi	4	2	Saxidomus	54	37
Jinhi	4	2	Saxidomus	56	41
Shakan	1	4	Macoma	34	
Shakan	1	4	Macoma	30	
Shakan	1	4	Macoma	24	
Shakan	1	4	Macoma	20	
Shakan	1	4	Macoma	15	
Shakan	1	4	Protothaca	29	
Shakan	1	4	Protothaca	38	
Shakan	1	4	Protothaca	26	
Shakan	1	4	Protothaca	42	
Shakan	1	4	Protothaca	29	
Shakan	1	4	Protothaca	38	
Shakan	1	4	Protothaca	29	
Shakan	1	4	Protothaca	29	
Shakan	1	4	Protothaca	37	
Shakan	1	4	Protothaca	38	
Shakan	1	4	Protothaca	40	
Shakan	1	4	Protothaca	36	

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Shakan	1	1	Protothaca	39	16
Shakan	1	1	Protothaca	40	17
Shakan	1	1	Protothaca	51	31
Shakan	1	1	Clinocardium	21	
Shakan	1	1	Clinocardium	29	
Shakan	1	1	Macoma	49	
Shakan	1	1	Macoma	23	
Shakan	1	1	Macoma	40	
Shakan	1	1	Macoma	22	
Shakan	1	1	Macoma	17	
Shakan	1	1	Protothaca	33	
Shakan	1	1	Saxidomus	65	
Shakan	1	2	Clinocardium	52	
Shakan	1	2	Clinocardium	53	
Shakan	1	2	Clinocardium	32	
Shakan	1	2	Clinocardium	27	
Shakan	1	2	Macoma	38	
Shakan	1	2	Macoma	35	
Shakan	1	2	Macoma	38	
Shakan	1	2	Macoma	37	
Shakan	1	2	Macoma	28	
Shakan	1	2	Macoma	26	
Shakan	1	2	Macoma	16	
Shakan	1	2	Protothaca	41	
Shakan	1	2	Protothaca	25	
Shakan	1	2	Protothaca	44	
Shakan	1	2	Protothaca	40	
Shakan	1	2	Protothaca	34	
Shakan	1	2	Protothaca	22	
Shakan	1	2	Protothaca	20	
Shakan	1	2	Protothaca	14	
Shakan	1	3	Protothaca	20	2
Shakan	1	3	Protothaca	18	2
Shakan	1	3	Protothaca	18	2
Shakan	1	3	Protothaca	18	2
Shakan	1	3	Protothaca	39	19
Shakan	1	3	Protothaca	43	22
Shakan	1	3	Macoma	38	
Shakan	1	3	Macoma	44	
Shakan	1	3	Protothaca	47	
Shakan	1	3	Saxidomus	x	
Shakan	2	1	Protothaca	35	10
Shakan	2	1	Protothaca	35	10
Shakan	2	1	Protothaca	32	10
Shakan	2	1	Protothaca	33	10
Shakan	2	1	Protothaca	32	11
Shakan	2	1	Protothaca	33	11
Shakan	2	1	Protothaca	34	12
Shakan	2	1	Saxidomus	38	12
Shakan	2	1	Protothaca	38	14
Shakan	2	1	Protothaca	36	15
Shakan	2	1	Protothaca	39	17
Shakan	2	1	Protothaca	38	18
Shakan	2	1	Protothaca	39	19
Shakan	1	4	Protothaca	39	
Shakan	1	4	Protothaca	27	
Shakan	1	4	Saxidomus	89	
Shakan	1	4	Saxidomus	79	
Shakan	1	4	Saxidomus	82	
Shakan	1	4	Saxidomus	75	
Shakan	1	4	Saxidomus	79	
Shakan	1	4	Saxidomus	62	
Shakan	2	1	Protothaca	13	1
Shakan	2	1	Protothaca	15	1
Shakan	2	1	Protothaca	13	1
Shakan	2	1	Protothaca	17	1
Shakan	2	1	Protothaca	15	1
Shakan	2	1	Protothaca	20	2
Shakan	2	1	Protothaca	18	2
Shakan	2	1	Protothaca	18	2
Shakan	2	1	Protothaca	21	2
Shakan	2	1	Protothaca	19	2
Shakan	2	1	Protothaca	23	3
Shakan	2	1	Protothaca	25	4
Shakan	2	1	Protothaca	21	4
Shakan	2	1	Protothaca	21	4
Shakan	2	1	Protothaca	25	4
Shakan	2	1	Protothaca	28	5
Shakan	2	1	Protothaca	28	5
Shakan	2	1	Protothaca	27	5
Shakan	2	1	Protothaca	24	5
Shakan	2	1	Protothaca	25	5
Shakan	2	1	Protothaca	29	6
Shakan	2	1	Protothaca	27	6
Shakan	2	1	Protothaca	29	6
Shakan	2	1	Protothaca	32	7
Shakan	2	1	Protothaca	27	7
Shakan	2	1	Protothaca	31	8
Shakan	2	1	Protothaca	31	8
Shakan	2	1	Protothaca	30	8
Shakan	2	1	Protothaca	27	8
Shakan	2	1	Protothaca	31	9
Shakan	2	1	Protothaca	32	9
Shakan	2	1	Protothaca	28	9
Shakan	2	1	Protothaca	30	9
Shakan	2	2	Protothaca	34	
Shakan	2	2	Protothaca	30	
Shakan	2	2	Protothaca	16	
Shakan	2	2	Protothaca	20	
Shakan	2	2	Protothaca	25	
Shakan	2	2	Protothaca	31	
Shakan	2	2	Protothaca	31	
Shakan	2	2	Protothaca	35	
Shakan	2	2	Protothaca	28	
Shakan	2	2	Protothaca	36	
Shakan	2	2	Protothaca	33	
Shakan	2	2	Protothaca	33	
Shakan	2	2	Protothaca	38	

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Shakan	2	1	Protothaca	40	23
Shakan	2	1	Saxidomus	48	27
Shakan	2	1	Saxidomus	50	32
Shakan	2	1	Saxidomus	57	57
Shakan	2	1	Saxidomus	63	74
Shakan	2	1	Clinocardium	36	
Shakan	2	1	Protothaca	x	
Shakan	2	1	Protothaca	27	
Shakan	2	1	Saxidomus	47	
Shakan	2	1	Saxidomus	55	
Shakan	2	1	Saxidomus	x	
Shakan	2	1	Saxidomus	60	
Shakan	2	2	Protothaca	20	2
Shakan	2	2	Protothaca	21	3
Shakan	2	2	Protothaca	23	4
Shakan	2	2	Protothaca	25	5
Shakan	2	2	Protothaca	29	6
Shakan	2	2	Macoma	35	7
Shakan	2	2	Protothaca	28	7
Shakan	2	2	Protothaca	30	9
Shakan	2	2	Protothaca	31	10
Shakan	2	2	Protothaca	33	10
Shakan	2	2	Protothaca	32	11
Shakan	2	2	Protothaca	37	14
Shakan	2	2	Protothaca	36	15
Shakan	2	2	Protothaca	39	18
Shakan	2	2	Protothaca	40	21
Shakan	2	2	Protothaca	40	21
Shakan	2	2	Protothaca	42	24
Shakan	2	2	Clinocardium	29	
Shakan	2	2	Clinocardium	42	
Shakan	2	2	Clinocardium	44	
Shakan	2	2	Macoma	18	
Shakan	2	2	Macoma	19	
Shakan	2	2	Macoma	32	
Shakan	2	2	Macoma	18	
Shakan	2	2	Macoma	24	
Shakan	2	2	Protothaca	31	
Shakan	2	2	Protothaca	29	
Shakan	2	2	Protothaca	27	
Shakan	2	2	Protothaca	34	
Shakan	2	2	Protothaca	28	
Shakan	2	2	Protothaca	38	
Shakan	2	2	Protothaca	36	
Shakan	2	2	Protothaca	31	
Shakan	2	3	Macoma	14	
Shakan	2	3	Macoma	22	
Shakan	2	3	Macoma	26	
Shakan	2	3	Macoma	16	
Shakan	2	3	Macoma	18	
Shakan	2	3	Macoma	22	
Shakan	2	3	Protothaca	38	
Shakan	2	3	Protothaca	40	
Shakan	2	2	Protothaca	38	
Shakan	2	2	Protothaca	37	
Shakan	2	2	Protothaca	33	
Shakan	2	2	Protothaca	33	
Shakan	2	2	Protothaca	24	
Shakan	2	2	Protothaca	32	
Shakan	2	2	Protothaca	33	
Shakan	2	2	Protothaca	20	
Shakan	2	2	Protothaca	29	
Shakan	2	2	Protothaca	28	
Shakan	2	2	Protothaca	20	
Shakan	2	2	Protothaca	27	
Shakan	2	2	Protothaca	25	
Shakan	2	2	Protothaca	19	
Shakan	2	2	Protothaca	14	
Shakan	2	2	Protothaca	16	
Shakan	2	2	Protothaca	19	
Shakan	2	2	Saxidomus	x	
Shakan	2	2	Saxidomus	59	
Shakan	2	2	Saxidomus	44	
Shakan	2	2	Saxidomus	41	
Shakan	2	3	Protothaca	23	3
Shakan	2	3	Protothaca	27	5
Shakan	2	3	Protothaca	26	5
Shakan	2	3	Protothaca	28	7
Shakan	2	3	Protothaca	32	10
Shakan	2	3	Protothaca	38	11
Shakan	2	3	Protothaca	35	11
Shakan	2	3	Protothaca	31	11
Shakan	2	3	Protothaca	34	13
Shakan	2	3	Protothaca	38	17
Shakan	2	3	Protothaca	37	18
Shakan	2	3	Protothaca	36	18
Shakan	2	3	Protothaca	42	20
Shakan	2	3	Protothaca	43	22
Shakan	2	3	Protothaca	34	25
Shakan	2	3	Protothaca	42	26
Shakan	2	3	Protothaca	40	26
Shakan	2	3	Protothaca	44	26
Shakan	2	3	Protothaca	42	27
Shakan	2	3	Macoma	33	
Shakan	2	3	Macoma	19	
Shakan	2	3	Macoma	19	
Shakan	2	3	Macoma	21	
Shakan	2	3	Macoma	27	
Shakan	2	4	Protothaca	37	15
Shakan	2	4	Protothaca	36	16
Shakan	2	4	Protothaca	36	16
Shakan	2	4	Protothaca	39	19
Shakan	2	4	Protothaca	39	19
Shakan	2	4	Protothaca	39	19
Shakan	2	4	Protothaca	39	20
Shakan	2	4	Protothaca	39	20

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Shakan	2	3	Protothaca	x	
Shakan	2	3	Protothaca	34	
Shakan	2	3	Protothaca	36	
Shakan	2	3	Protothaca	31	
Shakan	2	3	Protothaca	45	
Shakan	2	3	Protothaca	46	
Shakan	2	3	Protothaca	34	
Shakan	2	3	Protothaca	42	
Shakan	2	3	Protothaca	41	
Shakan	2	3	Protothaca	39	
Shakan	2	3	Protothaca	37	
Shakan	2	3	Protothaca	40	
Shakan	2	3	Protothaca	37	
Shakan	2	3	Protothaca	34	
Shakan	2	3	Protothaca	37	
Shakan	2	3	Protothaca	39	
Shakan	2	3	Protothaca	37	
Shakan	2	3	Protothaca	33	
Shakan	2	3	Protothaca	38	
Shakan	2	3	Protothaca	39	
Shakan	2	3	Protothaca	35	
Shakan	2	3	Protothaca	38	
Shakan	2	3	Protothaca	33	
Shakan	2	3	Protothaca	34	
Shakan	2	3	Protothaca	20	
Shakan	2	3	Protothaca	40	
Shakan	2	3	Protothaca	35	
Shakan	2	3	Protothaca	32	
Shakan	2	3	Protothaca	36	
Shakan	2	3	Protothaca	37	
Shakan	2	3	Protothaca	33	
Shakan	2	3	Protothaca	43	
Shakan	2	3	Protothaca	39	
Shakan	2	3	Protothaca	32	
Shakan	2	3	Protothaca	39	
Shakan	2	3	Protothaca	42	
Shakan	2	3	Protothaca	x	
Shakan	2	3	Saxidomus	88	
Shakan	2	3	Saxidomus	82	
Shakan	2	3	Saxidomus	86	
Shakan	2	3	Saxidomus	48	
Shakan	2	3	Saxidomus	41	
Shakan	2	4	Protothaca	30	8
Shakan	2	4	Protothaca	31	9
Shakan	2	4	Protothaca	30	11
Shakan	2	4	Protothaca	33	12
Shakan	2	4	Protothaca	32	12
Shakan	2	4	Protothaca	32	12
Shakan	2	4	Protothaca	35	14
Shakan	2	4	Protothaca	34	15
Van Sant		1	Protothaca	39	18
Van Sant		1	Protothaca	44	24
Van Sant		1	Protothaca	47	25
Shakan	2	4	Protothaca	39	20
Shakan	2	4	Protothaca	38	21
Shakan	2	4	Protothaca	41	22
Shakan	2	4	Protothaca	37	23
Shakan	2	4	Protothaca	41	24
Shakan	2	4	Protothaca	44	27
Shakan	2	4	Protothaca	43	28
Shakan	2	4	Protothaca	42	
Shakan	2	4	Protothaca	36	
Shakan	2	4	Protothaca	x	
Shakan	2	4	Protothaca	35	
Shakan	2	4	Protothaca	35	
Shakan	2	4	Protothaca	35	
Shakan	2	4	Protothaca	x	
Van Sant		1	Protothaca	15	0.3
Van Sant		1	Protothaca	14	0.3
Van Sant		1	Protothaca	13	0.3
Van Sant		1	Saxidomus	22	1
Van Sant		1	Protothaca	21	2
Van Sant		1	Protothaca	21	2
Van Sant		1	Protothaca	17	2
Van Sant		1	Protothaca	17	2
Van Sant		1	Protothaca	15	2
Van Sant		1	Protothaca	16	2
Van Sant		1	Protothaca	24	3
Van Sant		1	Protothaca	26	3
Van Sant		1	Saxidomus	22	3
Van Sant		1	Protothaca	22	4
Van Sant		1	Saxidomus	28	5
Van Sant		1	Protothaca	28	6
Van Sant		1	Saxidomus	33	7
Van Sant		1	Protothaca	30	8
Van Sant		1	Protothaca	32	9
Van Sant		1	Protothaca	31	10
Van Sant		1	Protothaca	37	12
Van Sant		1	Protothaca	38	12
Van Sant		1	Protothaca	33	12
Van Sant		1	Protothaca	36	13
Van Sant		1	Protothaca	36	13
Van Sant		1	Protothaca	35	14
Van Sant		1	Protothaca	36	14
Van Sant		1	Protothaca	38	15
Van Sant		1	Protothaca	36	15
Van Sant		1	Protothaca	37	15
Van Sant		1	Protothaca	37	16
Van Sant		1	Protothaca	40	16
Van Sant		1	Protothaca	38	16
Van Sant		1	Protothaca	40	17
Van Sant		1	Protothaca	39	17
Van Sant		1	Protothaca	40	18
Van Sant		1	Protothaca	17	
Van Sant		1	Protothaca	13	
Van Sant		1	Protothaca	20	

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Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Van Sant		1	Protothaca	45	26
Van Sant		1	Saxidomus	49	27
Van Sant		1	Protothaca	44	28
Van Sant		1	Saxidomus	52	36
Van Sant		1	Saxidomus	53	36
Van Sant		1	Saxidomus	51	42
Van Sant		1	Saxidomus	53	43
Van Sant		1	Saxidomus	69	92
Van Sant		1	Saxidomus	69	102
Van Sant		1	Protothaca	37	
Van Sant		1	Protothaca	44	
Van Sant		1	Protothaca	37	
Van Sant		1	Protothaca	38	
Van Sant		1	Protothaca	35	
Van Sant		1	Protothaca	24	
Van Sant		1	Protothaca	19	
Van Sant		1	Protothaca	12	
Van Sant		1	Protothaca	14	
Van Sant		1	Protothaca	35	
Van Sant		1	Protothaca	35	
Van Sant		1	Protothaca	33	
Van Sant		1	Protothaca	36	
Van Sant		1	Protothaca	31	
Van Sant		1	Protothaca	37	
Van Sant		1	Protothaca	34	
Van Sant		1	Protothaca	35	
Van Sant		1	Protothaca	20	
Van Sant		1	Protothaca	38	
Van Sant		1	Protothaca	39	
Van Sant		1	Protothaca	16	
Van Sant		1	Protothaca	26	
Van Sant		1	Protothaca	31	
Van Sant		1	Protothaca	32	
Van Sant		1	Protothaca	28	
Van Sant		1	Protothaca	32	
Van Sant		1	Protothaca	37	
Van Sant		1	Protothaca	31	
Van Sant		1	Protothaca	26	
Van Sant		1	Protothaca	34	
Van Sant		1	Protothaca	31	
Van Sant		1	Protothaca	36	
Van Sant		1	Protothaca	33	
Van Sant		1	Protothaca	33	
Van Sant		1	Protothaca	13	
Van Sant		1	Protothaca	13	
Van Sant		1	Protothaca	14	
Van Sant		1	Protothaca	13	
Van Sant		1	Protothaca	13	
Van Sant		1	Protothaca	12	
Van Sant		1	Protothaca	13	
Van Sant		1	Protothaca	13	
Van Sant		1	Protothaca	15	
Van Sant		1	Protothaca	14	
Van Sant		1	Protothaca	14	
Van Sant		1	Saxidomus	23	
Van Sant		2	Macoma	22	2
Van Sant		2	Protothaca	19	2
Van Sant		2	Protothaca	21	2
Van Sant		2	Macoma	37	5
Van Sant		2	Protothaca	38	14
Van Sant		2	Protothaca	36	15
Van Sant		2	Protothaca	38	18
Van Sant		2	Protothaca	40	18
Van Sant		2	Protothaca	38	20
Van Sant		2	Protothaca	38	21
Van Sant		2	Protothaca	38	21
Van Sant		2	Protothaca	42	22
Van Sant		2	Protothaca	42	24
Van Sant		2	Saxidomus	61	56
Van Sant		2	Saxidomus	67	77
Van Sant		2	Saxidomus	73	103
Van Sant		2	Saxidomus	71	107
Van Sant		2	Macoma	26	
Van Sant		2	Macoma	28	
Van Sant		2	Protothaca	38	
Van Sant		2	Protothaca	37	
Van Sant		2	Protothaca	42	
Van Sant		2	Protothaca	35	
Van Sant		2	Protothaca	41	
Van Sant		2	Protothaca	33	
Van Sant		2	Protothaca	36	
Van Sant		2	Protothaca	30	
Van Sant		2	Protothaca	39	
Van Sant		2	Protothaca	33	
Van Sant		2	Saxidomus	78	
Van Sant		2	Saxidomus	68	

-continued-

Area	Site No.	Sample No.	Species	Shell Length	Whole Weight
Van Sant		1	Protothaca	24	
Van Sant		1	Protothaca	36	
Van Sant		1	Protothaca	27	
Van Sant		1	Protothaca	34	
Van Sant		1	Protothaca	24	
Van Sant		1	Protothaca	16	
Van Sant		1	Protothaca	32	
Van Sant		1	Protothaca	18	
Van Sant		1	Protothaca	24	
Van Sant		1	Protothaca	15	
Van Sant		1	Protothaca	27	
Van Sant		1	Protothaca	22	

Appendix B. Geoduck mariculture site evaluation, geoduck density raw data.

Density is numbers of geoducks observed within a 1.0 square meter sampling frame.

Site Name	Date	Tran No.	Density
Port Santa Cruz	9/11/1999	1	8
Port Santa Cruz	9/11/1999	1	4
Port Santa Cruz	9/11/1999	1	4
Port Santa Cruz	9/11/1999	1	2
Port Santa Cruz	9/11/1999	1	3
Port Santa Cruz	9/11/1999	1	2
Port Santa Cruz	9/11/1999	1	2
Port Santa Cruz	9/11/1999	1	2
Port Santa Cruz	9/11/1999	1	0
Port Santa Cruz	9/11/1999	1	1
Port Santa Cruz	9/11/1999	1	4
Port Santa Cruz	9/11/1999	1	4
Port Santa Cruz	9/11/1999	1	4
Port Santa Cruz	9/11/1999	1	6
Port Santa Cruz	9/11/1999	1	11
Port Santa Cruz	9/11/1999	1	4
Port Santa Cruz	9/11/1999	1	10
Port Santa Cruz	9/11/1999	1	3
Port Santa Cruz	9/11/1999	1	7
Port Santa Cruz	9/11/1999	1	2
Port Santa Cruz	9/11/1999	2	0
Port Santa Cruz	9/11/1999	2	0
Port Santa Cruz	9/11/1999	2	1
Port Santa Cruz	9/11/1999	2	2
Port Santa Cruz	9/11/1999	2	0
Port Santa Cruz	9/11/1999	2	0
Port Santa Cruz	9/11/1999	2	2
Port Santa Cruz	9/11/1999	2	4
Port Santa Cruz	9/11/1999	2	2
Port Santa Cruz	9/11/1999	2	3
Port Santa Cruz	9/11/1999	2	2
Port Santa Cruz	9/11/1999	2	3
Port Santa Cruz	9/11/1999	2	3
Port Santa Cruz	9/11/1999	2	4
Port Santa Cruz	9/11/1999	2	1
Port Santa Cruz	9/11/1999	2	2
Port Santa Cruz	9/11/1999	2	3
Port Santa Cruz	9/11/1999	2	1
Port Santa Cruz	9/11/1999	2	1
Port Santa Cruz	9/11/1999	2	4
Port Santa Cruz	9/11/1999	3	3
Port Santa Cruz	9/11/1999	3	2
Port Santa Cruz	9/11/1999	3	1
Port Santa Cruz	9/11/1999	3	1
Port Santa Cruz	9/11/1999	3	0
Port Santa Cruz	9/11/1999	3	1
Port Santa Cruz	9/11/1999	3	1
Port Santa Cruz	9/11/1999	3	0
Port Santa Cruz	9/11/1999	6	4
Port Santa Cruz	9/11/1999	3	2
Port Santa Cruz	9/11/1999	3	0
Port Santa Cruz	9/11/1999	3	1
Port Santa Cruz	9/11/1999	3	0
Port Santa Cruz	9/11/1999	3	0
Port Santa Cruz	9/11/1999	3	1
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	4	1
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	4	1
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	4	1
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	4	0
Port Santa Cruz	9/11/1999	5	2
Port Santa Cruz	9/11/1999	5	2
Port Santa Cruz	9/11/1999	5	2
Port Santa Cruz	9/11/1999	5	3
Port Santa Cruz	9/11/1999	5	1
Port Santa Cruz	9/11/1999	5	1
Port Santa Cruz	9/11/1999	5	1
Port Santa Cruz	9/11/1999	5	1
Port Santa Cruz	9/11/1999	5	2
Port Santa Cruz	9/11/1999	5	1
Port Santa Cruz	9/11/1999	5	4
Port Santa Cruz	9/11/1999	5	1
Port Santa Cruz	9/11/1999	5	1
Port Santa Cruz	9/11/1999	5	0
Port Santa Cruz	9/11/1999	5	0
Port Santa Cruz	9/11/1999	6	2
Port Santa Cruz	9/11/1999	6	1
Port Santa Cruz	9/11/1999	6	3
Port Santa Cruz	9/11/1999	6	2
Port Santa Cruz	9/11/1999	6	6
Port Santa Cruz	9/11/1999	6	1
W. Long I., Site 1, Plot 2	9/12/1999	1	1

-continued-

Site Name	Date	Tran No.	Density
Port Santa Cruz	9/11/1999	6	3
Port Santa Cruz	9/11/1999	6	4
Port Santa Cruz	9/11/1999	6	3
Port Santa Cruz	9/11/1999	6	1
Port Santa Cruz	9/11/1999	6	1
Port Santa Cruz	9/11/1999	6	2
Port Santa Cruz	9/11/1999	6	4
Port Santa Cruz	9/11/1999	6	3
Port Santa Cruz	9/11/1999	6	4
Port Santa Cruz	9/11/1999	6	3
Port Santa Cruz	9/11/1999	6	3
Port Santa Cruz	9/11/1999	6	4
Port Santa Cruz	9/11/1999	6	3
W. Long I., Site 1, Plot 1	9/12/1999	1	0
W. Long I., Site 1, Plot 1	9/12/1999	1	1
W. Long I., Site 1, Plot 1	9/12/1999	1	0
W. Long I., Site 1, Plot 1	9/12/1999	1	0
W. Long I., Site 1, Plot 1	9/12/1999	1	0
W. Long I., Site 1, Plot 1	9/12/1999	1	0
W. Long I., Site 1, Plot 1	9/12/1999	1	0
W. Long I., Site 1, Plot 1	9/12/1999	1	1
W. Long I., Site 1, Plot 1	9/12/1999	1	2
W. Long I., Site 1, Plot 1	9/12/1999	1	2
W. Long I., Site 1, Plot 1	9/12/1999	1	3
W. Long I., Site 1, Plot 1	9/12/1999	1	9
W. Long I., Site 1, Plot 1	9/12/1999	1	6
W. Long I., Site 1, Plot 1	9/12/1999	1	6
W. Long I., Site 1, Plot 1	9/12/1999	1	6
W. Long I., Site 1, Plot 1	9/12/1999	1	2
W. Long I., Site 1, Plot 1	9/12/1999	1	6
W. Long I., Site 1, Plot 1	9/12/1999	1	7
W. Long I., Site 1, Plot 1	9/12/1999	1	3
W. Long I., Site 1, Plot 1	9/12/1999	1	8
W. Long I., Site 1, Plot 1	9/12/1999	2	1
W. Long I., Site 1, Plot 1	9/12/1999	2	1
W. Long I., Site 1, Plot 1	9/12/1999	2	2
W. Long I., Site 1, Plot 1	9/12/1999	2	4
W. Long I., Site 1, Plot 1	9/12/1999	2	4
W. Long I., Site 1, Plot 1	9/12/1999	2	4
W. Long I., Site 1, Plot 1	9/12/1999	2	1
W. Long I., Site 1, Plot 1	9/12/1999	2	5
W. Long I., Site 1, Plot 1	9/12/1999	2	3
W. Long I., Site 1, Plot 1	9/12/1999	2	2
W. Long I., Site 1, Plot 1	9/12/1999	2	2
W. Long I., Site 1, Plot 1	9/12/1999	2	4
W. Long I., Site 1, Plot 1	9/12/1999	2	5
W. Long I., Site 1, Plot 1	9/12/1999	2	5
W. Long I., Site 1, Plot 1	9/12/1999	2	9
W. Long I., Site 1, Plot 1	9/12/1999	2	4
W. Long I., Site 1, Plot 2	9/12/1999	1	2
W. Long I., Site 1, Plot 2	9/12/1999	1	0
W. Long I., Site 1, Plot 2	9/12/1999	1	3
W. Long I., Site 1, Plot 2	9/12/1999	1	6
W. Long I., Site 1, Plot 2	9/12/1999	1	3
W. Long I., Site 1, Plot 2	9/12/1999	1	2
W. Long I., Site 1, Plot 2	9/12/1999	1	2
W. Long I., Site 1, Plot 2	9/12/1999	1	4
W. Long I., Site 1, Plot 2	9/12/1999	1	3
W. Long I., Site 1, Plot 2	9/12/1999	1	0
W. Long I., Site 1, Plot 2	9/12/1999	1	0
W. Long I., Site 1, Plot 2	9/12/1999	1	1
W. Long I., Site 1, Plot 2	9/12/1999	1	1
W. Long I., Site 1, Plot 2	9/12/1999	1	0
W. Long I., Site 1, Plot 2	9/12/1999	1	3
W. Long I., Site 1, Plot 2	9/12/1999	1	0
W. Long I., Site 1, Plot 2	9/12/1999	1	0
W. Long I., Site 1, Plot 2	9/12/1999	1	0
W. Long I., Site 1, Plot 2	9/12/1999	2	2
W. Long I., Site 1, Plot 2	9/12/1999	2	1
W. Long I., Site 1, Plot 2	9/12/1999	2	2
W. Long I., Site 1, Plot 2	9/12/1999	2	4
W. Long I., Site 1, Plot 2	9/12/1999	2	2
W. Long I., Site 1, Plot 2	9/12/1999	2	2
W. Long I., Site 1, Plot 2	9/12/1999	2	2
W. Long I., Site 1, Plot 2	9/12/1999	2	0
W. Long I., Site 1, Plot 2	9/12/1999	2	1
W. Long I., Site 1, Plot 2	9/12/1999	2	2
W. Long I., Site 1, Plot 2	9/12/1999	2	1
W. Long I., Site 1, Plot 2	9/12/1999	2	1
W. Long I., Site 1, Plot 2	9/12/1999	2	0
W. Long I., Site 1, Plot 2	9/12/1999	2	3
W. Long I., Site 1, Plot 2	9/12/1999	2	0
W. Long I., Site 1, Plot 2	9/12/1999	2	2
W. Long I., Site 1, Plot 3	9/12/1999	1	4
W. Long I., Site 1, Plot 3	9/12/1999	1	4
W. Long I., Site 1, Plot 3	9/12/1999	1	5
W. Long I., Site 1, Plot 3	9/12/1999	1	5
W. Long I., Site 1, Plot 3	9/12/1999	1	8
W. Long I., Site 1, Plot 3	9/12/1999	1	4
W. Long I., Site 1, Plot 3	9/12/1999	1	5
W. Long I., Site 1, Plot 3	9/12/1999	1	6
W. Long I., Site 1, Plot 3	9/12/1999	1	5
W. Long I., Site 1, Plot 3	9/12/1999	1	6
W. Long I., Site 1, Plot 3	9/12/1999	1	5

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Site Name	Date	Tran No.	Density
W. Long I., Site 1, Plot 1	9/12/1999	2	2
W. Long I., Site 1, Plot 1	9/12/1999	2	6
W. Long I., Site 1, Plot 1	9/12/1999	2	7
W. Long I., Site 1, Plot 1	9/12/1999	2	10
W. Long I., Site 1, Plot 2	9/12/1999	1	3
W. Long I., Site 1, Plot 3	9/12/1999	1	3
W. Long I., Site 1, Plot 3	9/12/1999	1	1
W. Long I., Site 1, Plot 3	9/12/1999	1	1
W. Long I., Site 1, Plot 3	9/12/1999	1	2
W. Long I., Site 1, Plot 3	9/12/1999	2	3
W. Long I., Site 1, Plot 3	9/12/1999	2	4
W. Long I., Site 1, Plot 3	9/12/1999	2	2
W. Long I., Site 1, Plot 3	9/12/1999	2	3
W. Long I., Site 1, Plot 3	9/12/1999	2	6
W. Long I., Site 1, Plot 3	9/12/1999	2	2
W. Long I., Site 1, Plot 3	9/12/1999	2	4
W. Long I., Site 1, Plot 3	9/12/1999	2	6
W. Long I., Site 1, Plot 3	9/12/1999	2	4
W. Long I., Site 1, Plot 3	9/12/1999	2	6
W. Long I., Site 1, Plot 3	9/12/1999	2	5
W. Long I., Site 1, Plot 3	9/12/1999	2	3
W. Long I., Site 1, Plot 3	9/12/1999	2	3
W. Long I., Site 1, Plot 3	9/12/1999	2	1
W. Long I., Site 1, Plot 3	9/12/1999	2	4
W. Long I., Site 1, Plot 3	9/12/1999	2	3
W. Long I., Site 1, Plot 3	9/12/1999	2	3
W. Long I., Site 1, Plot 3	9/12/1999	2	2
W. Long I., Site 1, Plot 3	9/12/1999	2	4
W. Long I., Site 1, Plot 3	9/12/1999	2	2
W. Long I., Site 2, Plot 1	9/12/1999	1	0
W. Long I., Site 2, Plot 1	9/12/1999	1	0
W. Long I., Site 2, Plot 1	9/12/1999	1	1
W. Long I., Site 2, Plot 1	9/12/1999	1	0
W. Long I., Site 2, Plot 1	9/12/1999	1	0
W. Long I., Site 2, Plot 1	9/12/1999	1	3
W. Long I., Site 2, Plot 1	9/12/1999	1	1
W. Long I., Site 2, Plot 1	9/12/1999	1	0
W. Long I., Site 2, Plot 1	9/12/1999	1	0
W. Long I., Site 2, Plot 1	9/12/1999	1	1
W. Long I., Site 2, Plot 1	9/12/1999	1	2
W. Long I., Site 2, Plot 1	9/12/1999	1	1
W. Long I., Site 2, Plot 1	9/12/1999	1	0
W. Long I., Site 2, Plot 1	9/12/1999	1	1
W. Long I., Site 2, Plot 1	9/12/1999	1	0
W. Long I., Site 2, Plot 1	9/12/1999	1	0
W. Long I., Site 2, Plot 1	9/12/1999	1	2
W. Long I., Site 2, Plot 1	9/12/1999	1	1
W. Long I., Site 2, Plot 1	9/12/1999	1	2
W. Long I., Site 2, Plot 1	9/12/1999	1	1
W. Long I., Site 2, Plot 1	9/12/1999	2	3
W. Long I., Site 1, Plot 3	9/12/1999	1	2
W. Long I., Site 1, Plot 3	9/12/1999	1	4
W. Long I., Site 1, Plot 3	9/12/1999	1	1
W. Long I., Site 1, Plot 3	9/12/1999	1	3
W. Long I., Site 1, Plot 3	9/12/1999	1	2
W. Long I., Site 2, Plot 1	9/12/1999	2	2
W. Long I., Site 2, Plot 1	9/12/1999	2	0
W. Long I., Site 2, Plot 1	9/12/1999	2	1
W. Long I., Site 2, Plot 1	9/12/1999	2	1
W. Long I., Site 2, Plot 1	9/12/1999	2	2
W. Long I., Site 2, Plot 1	9/12/1999	2	2
W. Long I., Site 2, Plot 1	9/12/1999	2	0
W. Long I., Site 2, Plot 1	9/12/1999	2	0
W. Long I., Site 2, Plot 1	9/12/1999	2	1
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	1
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	1
W. Long I., Site 2, Plot 2	9/12/1999	1	1
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	2
W. Long I., Site 2, Plot 2	9/12/1999	1	1
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	3
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	0
W. Long I., Site 2, Plot 2	9/12/1999	1	1
W. Long I., Site 2, Plot 2	9/12/1999	1	1
W. Long I., Site 2, Plot 2	9/12/1999	2	1
W. Long I., Site 2, Plot 2	9/12/1999	2	1
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	1
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	1
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0

-continued-

Appendix B. (page 4 of 9)

Site Name	Date	Tran No.	Density
W. Long I., Site 2, Plot 1	9/12/1999	2	4
W. Long I., Site 2, Plot 1	9/12/1999	2	2
W. Long I., Site 2, Plot 1	9/12/1999	2	1
W. Long I., Site 2, Plot 1	9/12/1999	2	0
W. Long I., Site 2, Plot 1	9/12/1999	2	1
W. Long I., Site 2, Plot 1	9/12/1999	2	1
W. Long I., Site 2, Plot 1	9/12/1999	2	0
W. Long I., Site 2, Plot 1	9/12/1999	2	0
W. Long I., Site 2, Plot 1	9/12/1999	2	1
W. Long I., Site 2, Plot 1	9/12/1999	2	1
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	2	7
W. Long I., Site 2, Plot 3	9/12/1999	2	6
W. Long I., Site 2, Plot 3	9/12/1999	2	6
W. Long I., Site 2, Plot 3	9/12/1999	2	7
W. Long I., Site 2, Plot 3	9/12/1999	2	6
W. Long I., Site 2, Plot 3	9/12/1999	2	12
W. Long I., Site 2, Plot 3	9/12/1999	2	14
W. Long I., Site 2, Plot 3	9/12/1999	2	6
W. Long I., Site 2, Plot 3	9/12/1999	2	6
W. Long I., Site 2, Plot 3	9/12/1999	2	6
W. Long I., Site 2, Plot 3	9/12/1999	2	3
W. Long I., Site 2, Plot 3	9/12/1999	2	5
W. Long I., Site 2, Plot 3	9/12/1999	2	1
W. Long I., Site 2, Plot 3	9/12/1999	2	0
W. Long I., Site 2, Plot 3	9/12/1999	2	0
W. Long I., Site 2, Plot 3	9/12/1999	2	0
W. Long I., Site 2, Plot 3	9/12/1999	2	2
W. Long I., Site 2, Plot 3	9/12/1999	2	1
W. Long I., Site 2, Plot 3	9/12/1999	2	3
W. Long I., Site 2, Plot 3	9/12/1999	2	0
East Dall Island Site 3	9/12/1999	1	11
East Dall Island Site 3	9/12/1999	1	8
East Dall Island Site 3	9/12/1999	1	7
East Dall Island Site 3	9/12/1999	1	8
East Dall Island Site 3	9/12/1999	1	4
East Dall Island Site 3	9/12/1999	1	4

Site Name	Date	Tran No.	Density
W. Long I., Site 2, Plot 2	9/12/1999	2	1
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 2	9/12/1999	2	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
W. Long I., Site 2, Plot 3	9/12/1999	1	0
East Dall Island Site 3	9/12/1999	2	2
East Dall Island Site 3	9/12/1999	2	2
East Dall Island Site 3	9/12/1999	2	0
East Dall Island Site 3	9/12/1999	2	2
East Dall Island Site 3	9/12/1999	2	1
East Dall Island Site 3	9/12/1999	2	1
East Dall Island Site 3	9/12/1999	2	0
East Dall Island Site 3	9/12/1999	2	0
East Dall Island Site 3	9/12/1999	2	0
East Dall Island Site 3	9/12/1999	2	0
East Dall Island Site 3	9/12/1999	2	0
East Dall Island Site 3	9/12/1999	2	2
East Dall Island Site 3	9/12/1999	2	2
East Dall Island Site 3	9/12/1999	2	2
East Dall Island Site 3	9/12/1999	2	0
East Dall Island Site 3	9/12/1999	2	0
East Dall Island Site 3	9/12/1999	2	1
East Dall Island Site 3	9/12/1999	2	1
East Dall Island Site 3	9/12/1999	2	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	1	0
Dolphin Cove	9/13/1999	2	0

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Site Name	Date	Tran No.	Density
East Dall Island Site 3	9/12/1999	1	3
East Dall Island Site 3	9/12/1999	1	7
East Dall Island Site 3	9/12/1999	1	4
East Dall Island Site 3	9/12/1999	1	8
East Dall Island Site 3	9/12/1999	1	6
East Dall Island Site 3	9/12/1999	1	6
East Dall Island Site 3	9/12/1999	1	7
East Dall Island Site 3	9/12/1999	1	10
East Dall Island Site 3	9/12/1999	1	9
East Dall Island Site 3	9/12/1999	1	8
East Dall Island Site 3	9/12/1999	1	6
East Dall Island Site 3	9/12/1999	1	1
East Dall Island Site 3	9/12/1999	1	2
East Dall Island Site 3	9/12/1999	1	1
East Dall Island Site 3	9/12/1999	2	2
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	1	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0

Site Name	Date	Tran No.	Density
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Dolphin Cove	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0

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Site Name	Date	Tran No.	Density
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Point Alava	9/13/1999	2	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 1	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0
Coho Cove	9/13/1999	1	0

Site Name	Date	Tran No.	Density
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	1	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Ape Point Plot 2	9/13/1999	2	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	3	0
Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	4	0

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Site Name	Date	Tran No.	Density	Site Name	Date	Tran No.	Density
Coho Cove	9/13/1999	1	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	1	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	1	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	1	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	2	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	2	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	2	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	2	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	2	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	2	0	Coho Cove	9/13/1999	4	0
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	0
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	1
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	2
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	0
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	0
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	0
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	0
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	1
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	1
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	1
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	1
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	0
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	1
Coho Cove	9/13/1999	2	0	Figgins Point	9/14/1999	1	0
Figgins Point	9/14/1999	1	0	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	1	3	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	1	0	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	1	0	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	1	0	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	1	1	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	2	3	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	2	4	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	2	1	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	2	4	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	2	1	Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	2	1	Betton Island	9/14/1999	1	0
Figgins Point	9/14/1999	2	1	Betton Island	9/14/1999	1	0
Figgins Point	9/14/1999	2	0	Betton Island	9/14/1999	1	1
Figgins Point	9/14/1999	2	1	Betton Island	9/14/1999	1	3
Figgins Point	9/14/1999	2	1	Betton Island	9/14/1999	1	4
Figgins Point	9/14/1999	2	1	Betton Island	9/14/1999	1	3
Figgins Point	9/14/1999	2	0	Betton Island	9/14/1999	1	3
Figgins Point	9/14/1999	2	1	Betton Island	9/14/1999	1	5
Figgins Point	9/14/1999	2	1	Betton Island	9/14/1999	1	2
Figgins Point	9/14/1999	2	1	Betton Island	9/14/1999	1	2
Figgins Point	9/14/1999	2	1	Betton Island	9/14/1999	1	4
Figgins Point	9/14/1999	2	0	Betton Island	9/14/1999	1	3
Figgins Point	9/14/1999	2	0	Betton Island	9/14/1999	1	5
Figgins Point	9/14/1999	2	0	Betton Island	9/14/1999	1	3

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Site Name	Date	Tran No.	Density
Figgins Point	9/14/1999	2	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	3	0
Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	4	1
Figgins Point	9/14/1999	4	0
Figgins Point	9/14/1999	4	0
Betton Island	9/14/1999	3	4
Betton Island	9/14/1999	3	4
Betton Island	9/14/1999	3	2
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	1
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	3	0
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	0

Site Name	Date	Tran No.	Density
Betton Island	9/14/1999	1	2
Betton Island	9/14/1999	1	0
Betton Island	9/14/1999	1	0
Betton Island	9/14/1999	1	3
Betton Island	9/14/1999	1	3
Betton Island	9/14/1999	1	2
Betton Island	9/14/1999	2	1
Betton Island	9/14/1999	2	1
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	1
Betton Island	9/14/1999	2	1
Betton Island	9/14/1999	2	1
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	2	0
Betton Island	9/14/1999	3	5
Betton Island	9/14/1999	3	1
Betton Island	9/14/1999	3	1
Betton Island	9/14/1999	3	6

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Site Name	Date	Tran No.	Density
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	2
Betton Island	9/14/1999	4	3
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	2
Betton Island	9/14/1999	4	1
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	0
Betton Island	9/14/1999	4	1
Betton Island	9/14/1999	4	2
Betton Island	9/14/1999	4	1
Betton Island	9/14/1999	4	1