



This licence was prepared by: Juanita Rogers

Dated: 28 Jan 2009
Licence Serial No.: 251200

Terms and Conditions

A DFO- approved Observer, Sean Williams of 3453 FALCON DRIVE NANAIMO BC V9T 4G7, shall be on board when harvesting is taking place, to document the location of harvest by completion of dive data logsheets. Logsheets are to be completed on-board the harvest vessel prior to landing geoduck. A sample logsheet is attached as Appendix 1.

The Observer shall collect and document morphometric data including shell length, wet weight and quality assessment, and photograph all animals collected. This information is to be forwarded to R. Harbo, Fisheries and Oceans Canada, 3225 Stephenson Point Road, Nanaimo BC V9T 1K3 within 30 days of the collection. Data collection information is included in Appendices 2 and 3.

Genetic samples are required from at least 25 animals from the authorized harvest area. The samples from each harvest site should be grouped and labelled separately. Samples are to be sent to DFO by January 31, 2009. Sample protocol and contacts are provided in Appendix 4.

Geoducks collected under authority of this licence may be held at the Island Scallops Ltd. hatchery (5552 West Island Highway, Qualicum Beach BC).

Specimens caught and retained under authority of this licence may not be shipped or provided to any party not named on this licence.

A Section 56 Fishery (General) Regulations Permit is required for the transfer of hatchery-raised geoduck juveniles from the hatchery to marine waters.

See attached documents, including Collectors List Appendix 5.

Only those persons listed on the attached schedule of harvesters are permitted to harvest and hold catch collected under the authority of this licence.

The DFO Office responsible for the area in which fishing takes place shall be notified on each occasion prior to the collection of samples. Notification shall occur by telephone during normal business hours. If you are unable to notify the local office on evenings or weekends, advise the DFO Radio Room at 1-800-465-4336 prior to sampling.

Copies of this licence must accompany the collecting personnel, be on board any collecting vessel and be carried with the transport vehicle at all times during collection and transport of samples. The licence must be produced upon the request of a Fishery Officer or Guardian.

This licence authorizes collections to be made by the licensee and employees,



volunteers and students of the licensee provided that all persons, other than minors who are engaged in activities under the authority of this licence, are carrying suitable photo identification to be produced upon request of a Fishery Officer or Guardian.

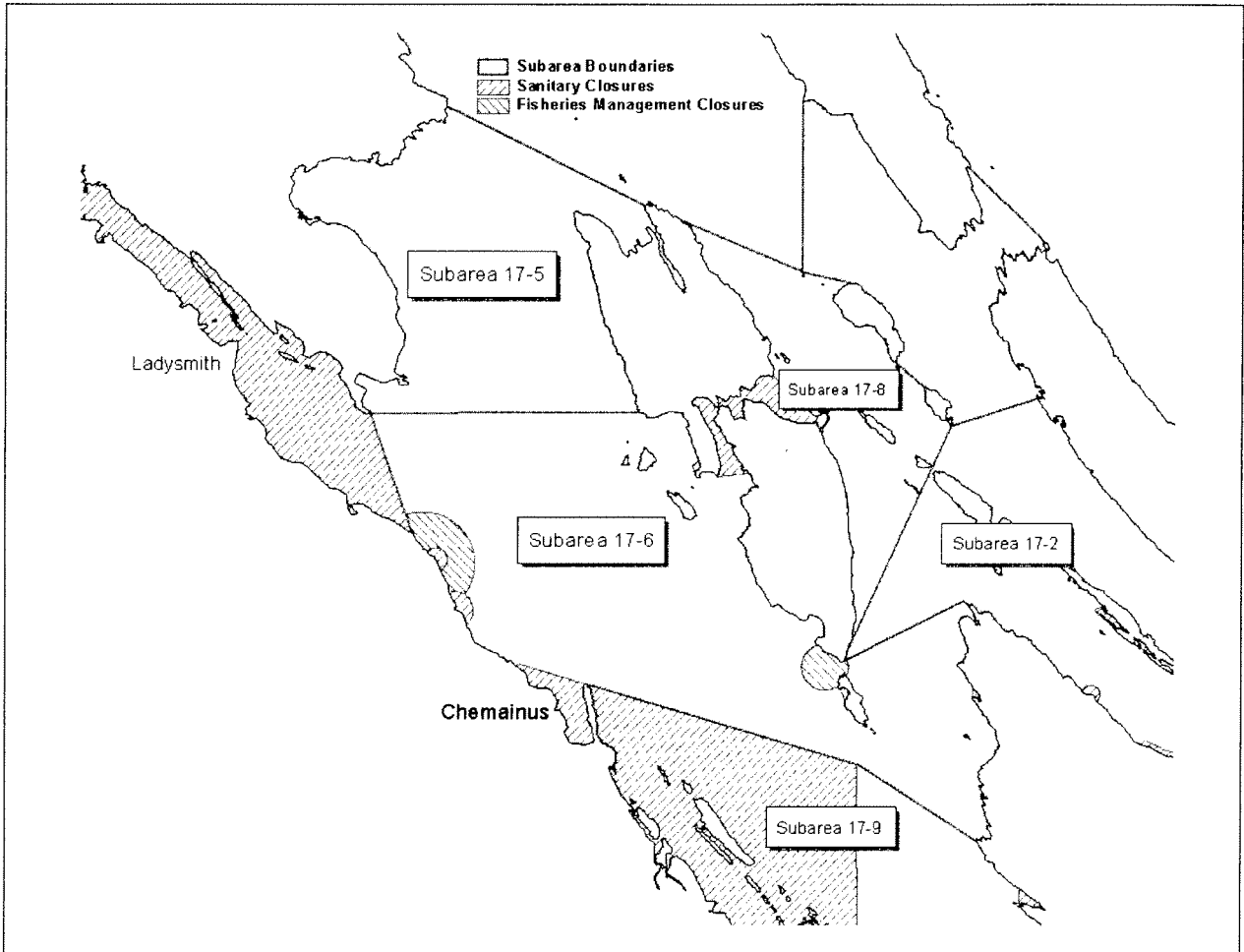
Specimens retained under the authority of this licence may not be utilized, sold or processed for food or bait.

A Section 56 Fishery (General) Regulations Permit is required for the transfer of live specimens between marine areas, or to holding tanks which discharge to marine waters. The licence holder is required to make application to the Federal/Provincial Introductions and Transfers Committee. Contact numbers and application forms are available from their website:

http://www-heb.pac.dfo-mpo.gc.ca/intro_trans/transfers_e.htm

This licence may be revoked or amended by the Department prior to the expiry date as may be considered necessary by the Department.

Map 1. Harvest area includes portions of Subareas 17-5 and 17-6 not covered by sanitary or management closures.



APPENDIX 1. GEODUCK AND HORSE CLAM HARVEST LOG

For brood stock collections reporting please complete the relevant portions of Sections A and C of the logsheet. Use a separate copy for each collection day.

LANDING DATE IN PORT:		GEODUCK <input type="checkbox"/> HORSE CLAM <input type="checkbox"/> VALIDATION & HARVEST LOGBOOK			VALIDATION ID No.					
Please Print, Use Pen										
A	G-TAB	VESSEL NAME	CFV #	VESSEL OPERATOR		LANDING PORT				
						OBSERVER NAME				
DATE ONTO PACKER		TIME (24 hr clock)	# CAGES	# LINERS	PACKER GROSS WT.	PACKER NAME				
B	OFFLOAD TIME	VAL. METH.	MGMT AREA	SUB - AREA	QUOTA AREA	DAYS FISHED				
						BUYER				
TOTAL CAGES	GROSS DOCK WEIGHT	TOTAL CAGE WT + LINER WT	PRODUCT TYPE	CONV. FACTOR	PREVIOUS R.Q.					
TOTAL LINERS		CAGE WT LINER WT			= NET OFFLOAD WEIGHT					
		SUM			NEW REMAINING QUOTA					
CAGE TAGS ?	<input type="checkbox"/> Y <input type="checkbox"/> N	TRANSFER TO / FROM G-TAB #	<input type="checkbox"/>	SPLIT LOAD? YES <input type="checkbox"/> NO <input type="checkbox"/>	HOW MANY PARTS? <input type="checkbox"/>	TOTAL NET WT. FOR ALL PARTS				
HOLD CHECK?	<input type="checkbox"/> Y <input type="checkbox"/> N									
Observer's Comments:										
C	DIVE HARVEST INFO - USE A NEW PAGE FOR EACH NEW QUOTA AREA FISHED. - ENTER THE DIVE INFO FOR EACH DIVE. ALSO RECORD GPS LAT. & LONG. IF POSSIBLE. - USE NEXT DIVE LINE TO RECORD GPS COORDINATES WHEN NECESSARY, AS SHOWN BELOW.									
	DIVE No.	DIVE SITE	HARVEST DATE (m/d)	SUB-AREA	HARVEST LOCATION (bay, pass, island; N,S,E,W; LAT & LONG)	DIVER NAME (last name, first name)	DIVER MINUTES	DEPTH (ft)		# CAGES
	1	B	10 / 25	9	Otter Pass E., Trap Islands	Clarke, Jim (example)	87	min. 24	max. 34	15
	2	B	10 / 25	9	" 52° 08.311', 129° 42.693'	Brodie, Al (example)	130	30	35	17
	1									
	2									
	3									
	4									
	5									
	6									
	7									
8										
9										
10										
TRUE PIECE COUNTS ?			YES	NO			TOTALS			
IS YOUR HARVEST CHART MARKED?			YES	NO	PIECES	MINUTES			CAGES	

prepared by ARCHIPELAGO MARINE RESEARCH LTD.

Please Print, Use Pen

WHITE COPY --- Observer

YELLOW COPY --- Truck and Plant

PINK COPY --- Vessel

APPENDIX 2. METHOD TO MEASURE GEODUCK SHELL LENGTH.

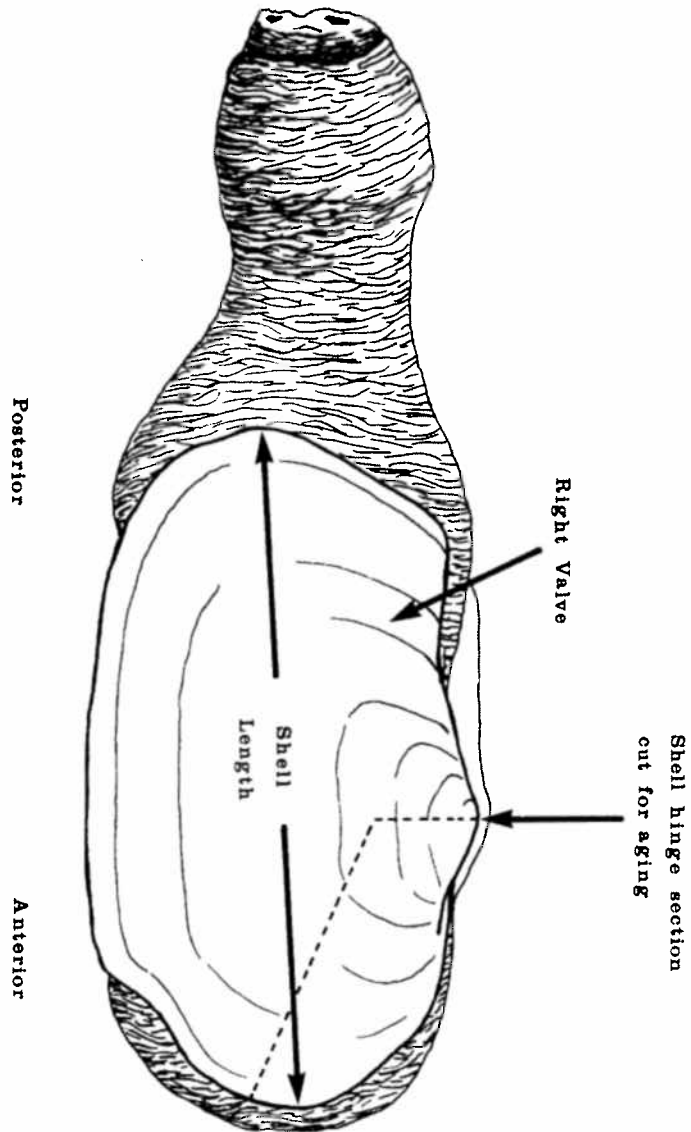


Fig. 2. Geoduck clam (*Panope generosa*).

Drew Hubbs et al. 1983.

Appendix 4. GEODUCK SAMPLING PROTOCOLS FOR DNA ANALYSIS

Sample 100 adult individuals per site for DNA analysis. The sampling process is a very small flesh clip, is non-destructive and product can continue to market, or into brood stock use. The potential effects of the sampling procedure on the live holding of brood stock has however not been tested at this time and may require further investigation by industry.

For DNA analyses to be conducted in the Molecular Genetics Lab (MGL) at the Pacific Biological Station, the sampling vials, boxes and ethanol mentioned below can be obtained from the MGL. Contact Liane Stenhouse (250 756-7316; liane.stenhouse@dfo-mpo.gc.ca) or Janine Supernault (250 756-7213; janine.supernault@dfo-mpo.gc.ca) for sampling supplies and to arrange sample delivery.

Each box containing sample vials should be clearly labeled with:

- the harvest location information (DFO subarea, location name and aquaculture tenure Canadian Land File number if applicable).
- harvest date
- harvest vessel
- sampler name and contact information

Collect tissue samples from a random selection of live or freshly dead animals. If necessary, frozen animals may also be used – care should be taken to thaw the tissue as little as possible during sampling. It is best to place the frozen tissue directly into the ethanol.

Very small (~20 mg) pieces of tissue are required. Rinse sampling gear (scissors, clippers or tissue punchers) well between samples in water or ethanol.

Remove a sample of tissue from the membrane between the siphons at the top of the neck. This sample can be obtained using either a small hole punch or small scissors.

Place the tissue sample from each individual (or the entire individual if sampling larvae) into a separate 2 ml vial with a screw cap lid. The vials should contain 95% undenatured alcohol and can be filled prior to or immediately after the tissue sample is added. The vial should be no more than 25% full of tissue sample with the remainder filled with ethanol.

Ensure that the vials are labeled with individual identifiers if required and placed in boxes designed to hold 100 vials. Labeling can be done with a Sharpie permanent marker. Label the box with information on the species, date of sampling, location or origin of samples, sample collectors, etc.

Once the samples are in 95% ethanol they can be stored at room temperature until transported to the lab for analysis.

The most important things are to rinse the sampling tool between individuals, ensure the ethanol does not get diluted with water during the process of sampling, and to ensure the caps are tight on the vials once sampling is completed.

Plan to deliver the sample boxes directly to the Pacific Biological Station. Please be sure to make prior arrangements during regular business hours to ensure staff are on hand to receive the samples. Contact Liane Stenhouse (250 756-7316; liane.stenhouse@dfo-mpo.gc.ca) or Janine Supernault (250 756-7213; janine.supernault@dfo-mpo.gc.ca) for sampling supplies and to arrange sample delivery.

APPENDIX 5. COLLECTORS' LIST

Only those persons listed on the attached schedule of harvesters are permitted to harvest and hold catch collected under the authority of this licence.

Date: November 14, 2008

Last Name	First Name(s)	Affiliation
McDermid	Dan Mark	BC Pacific Oysters Ltd.
Williams	Sean Wayne	BC Pacific Oysters Ltd.