HISTORY OF SHELLFISHING IN PROVINCETOWN HARBOR



DIGGING CLAMS ON THE TIDAL FLATS, 1905
On the site of the present West End breakwater

Prepared in Spring of 1994 by:

James Vincent, Marine Superintendent Reggie Enos, Shellfish Constable Molly Benjamin, Chairman Shellfish Committee

HISTORY OF SHELLFISHING IN PROVINCETOWN HARBOR

TABLE OF CONTENTS

Introduction

Plan of Public Shellfishing Areas

Plan of Private Shellfishing Areas

A Short History of Shellfishing in Provincetown Harbor by Molly Benjamin

Provincetown Shellfish Reports 1977 - 1993

Appendix A - Shellfish Identification From "Guide to Shellfish in Massacusetts" published by the Massachusetts Bays Program

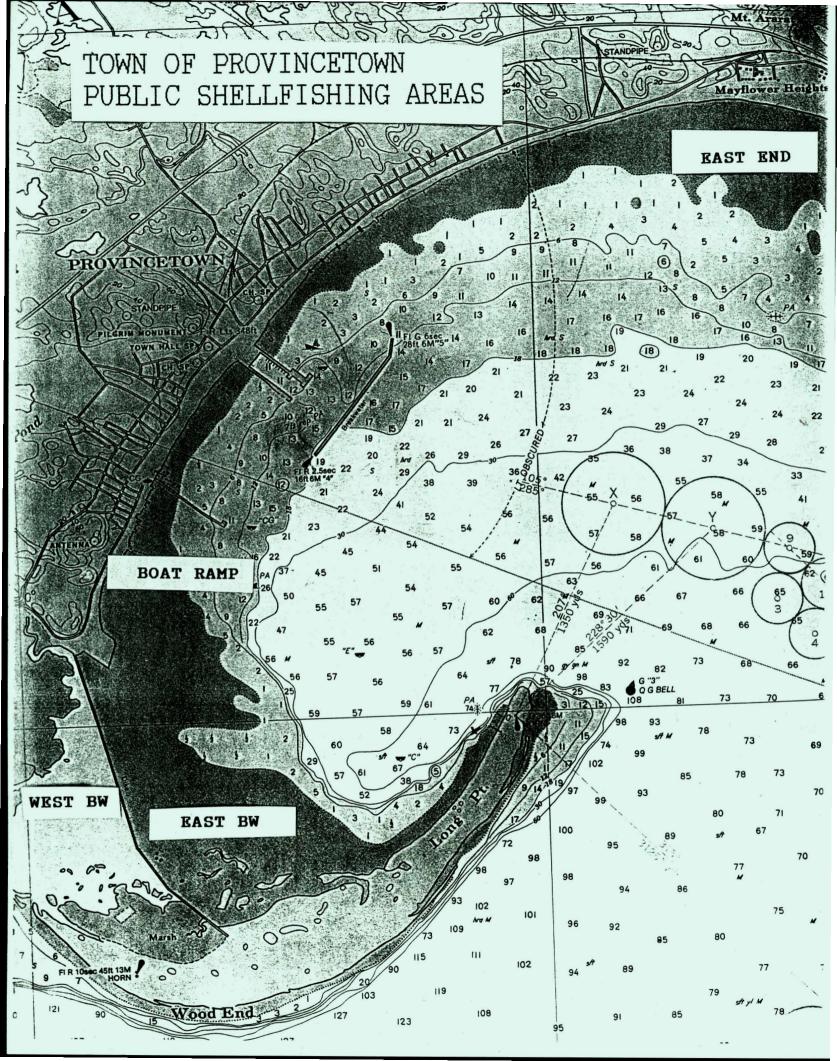
INTRODUCTION

The purpose of this study is to pull together existing information on shellfishing in Provincetown Harbor so as to produce a corporate memory. This study will be used to understand past practices of shellfish propogation in the harbor and to use this information in making future decisions regarding aquaculture.

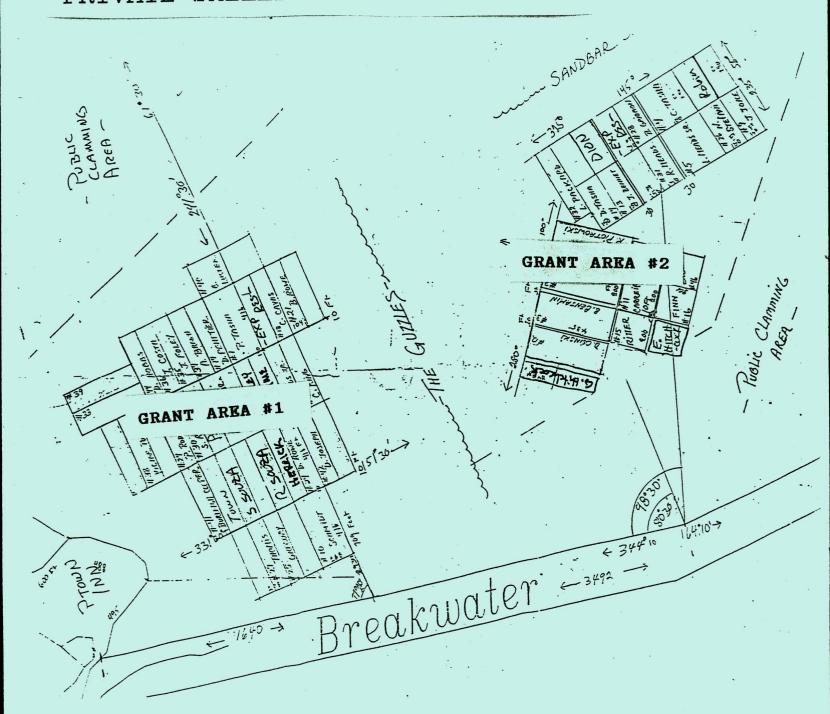
This scope of this study covers the years 1977 to 1993 and has been compiled using shellfishing records, old notes and the memory of our Shellfish Constable, Reggie Enos.

The annual reports compiled here include information on public shellfishing areas and private grant areas (from 1990 on). The information compiled in this study includes the annual totals of plantings and harvests. The information includes: where we purchased the shellfish, the price, the type, amount and type planted, the date planted and the planting location.

We also noted any locations in the harbor where shellfish produced natural sets. Natural sets are the areas where shellfish grew readily and rapidly without planting. This information can guide us in selecting future sites for shellfish propagation projects.



TOWN OF PROVINCETOWN PRIVATE SHELLFISHING GRANT AREAS



A SHORT HISTORY OF SHELLFISHING IN PROVINCETOWN HARBOR By Molly Benjamin

The easy availability of the quahog and steamer, or piss clam, is reputed to have saved the lives of the Pilgrims and other early Cape Tip residents. The Pilgrims are said to have been so dependant on the piss clam, and ate so many of them, that one Pilgrim lady wrote that she only had to hear a piss clam squirt and she's be ready to lose her cookies.

Prior to the arrival of the white folks, mainland Indians by the thousands seasonally visited the area to dig clams and make money - literally, for early money was fashioned from the purple portion of a quahog shell. Commonly known as wampum, pieces have been found in Colorado, and it's very probable that some was minted in Provincetown.

Quahog derives from the Wampanoag word "poquahock." Enormous piles of shells, called middens, were built by the Wampanoags, and later burned by early settlers to create lime. The enormous size of these middens suggests a very ample local clam supply.

Provincetown's indigenous clam supply is said to have been harvested to near-extinction during the Great Depression, when desperate people scratched the bejesus out of the flats to generate clambucks. Coincidentally, a severe eelgrass blight developed at about the same time, which devastated sizable portions of eel grass here as elsewhere. Eelgrass is believed to help retain diatoms and other clam-food plankton, and provides steamer clam larvae with natural setting-out areas.

Through the 1940's and 50's, Provincetown's west end flats began to regenerate significant amounts of both hard and soft-shelled clams. Perhaps because of the depression-spurred removal of quahogs, the flats produced massive numbers of steamer clams until the late 1970's. For mysterious reasons, the steamer's abundance began to decline at that time and as of the early 1990's has yet to regain its former abundance.

Two reasons for the decline of the steamer have been offered by "experts." They are that predators, particularly the introduced green crab, have increased, and that clam-raking has decreased. Steamers are known to prefer "new" sand, and a well-raked region stays more larvae-friendly.

In addition to these two primary mollusks, Provincetown Harbor has infrequently seen occasional years when bay scallops are abundant. The last such year was 1978. Bay scallops have a 2-year lifecycle.

On most years when seed scallops do appear in Provincetown, they seem to die off before reaching maturity.

Sea clams are also found in Provincetown waters. Small beds are found in the town's east end from the town-line to Allerton Street. These are found in roughly 12 feet of water at low-tide and can be accessed by snorkels and diving. Another bed lies inside of Long Point, in a mixed rocky bottom too deep for any access other than a dredge. A large bed of sea clams exists from Wood End to Race Point, on the shelf running off Herring Cove Beach.

Provincetown also enjoys shellfish rights in Hatches Harbor, which is now inside the National Seashore and is a small estuary located inside of Race Point. Steamers are sometimes wildly abundant in this region. It is also believed that this area has a high potential for oyster culture, which will not be achieved until significant amounts of cultch are supplied to the marsh.

Other species found in Provincetown waters include the periwinkle and the razor clam. A large bed of mussels is typically found growing among the rocks of the west end breakwater.

In the 1940's Provincetown closed all commercial shellfishing areas and restricted the harvesting to family permits, one bucket a week per license. In past years shellfishing was allowed 6 days a week but in recent years digging has only been allowed two days a week.

In the early 1980's Ray Lucky started a mussel farm in the southwest corner of the harbor. He had great success growing mussels but had many problems with predators. His main problem was with eiders getting caught in the nets. He eventually abandonned the project.

Beginning in 1989, a system of shellfish grants has been permitted in two areas of the west end flats, both of which have been devoid of clams for years. Several million little necks have since been planted by private growers, who will harvest them as they reach maturity. The town's public grounds should benefit greatly from an exponential increase in clam larvae generated by the private beds.

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price: Howard Mallowes

Area	Type/Size	Amount	When Planted
WEST BW	Quahogs	?	Aug - Sept

HARVEST:

Type/Size	*	Amount (buckets)
Soft Shell Clams		330
Quahogs		288
Mussels		1104
Sea Clams		406
	Soft Shell Clams Quahogs Mussels	Soft Shell Clams Quahogs Mussels

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price: Howard Mallowes

Area	Type/Size	Amount	When Planted
EAST END BOAT RAMP	Quahogs Juvenilles 10-12 mm	235 bushels 130,000	June

HARVEST:

Area	Type/Size	Amount (buckets)
EAST END	Soft Shell Clams	203
	Sea Clams	303
	Bay Scallops	132
BOAT RAMP	Quahogs	560
**	Mussels	341

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)
1118 bushels of commercial sea clams

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price: Howard Mallowes

Area	Type/Size	Amount	When Planted
EAST END	Large Quahogs 10-12 mm juvenilles	198 bushels 60,000	September

HARVEST:

Area	Type/Size	Amount (buckets)
EAST END	Soft Shell Clams Quahogs Mussels Sea Clams Bay Scallops	404 510 289 393 27

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)
1922 bushels of commercial sea clams

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price: Howard Mallowes

Area	Type/Size	Amount	When Planted
EAST END	Large Quahogs	250 bushels	September

HARVEST:

ea	Type/Size	Amount	(buckets)
BW	Soft Shell Clams	417	!
	Quahogs (lg & sm)	5	501
	Mussels	6	363
END	Sea Clams	3	395
	Oysters		23
	ea BW END	BW Soft Shell Clams Quahogs (lg & sm) Mussels END Sea Clams	BW Soft Shell Clams 417 Quahogs (lg & sm) 5 Mussels 6 END Sea Clams 3

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price: Howard Mallowes

Area	Type/Size	Amount	When Planted
EAST END & BOAT RAMP	Large Quahogs	250 bushels	? September

HARVEST:

Area	Type/Size	Amount (buckets)
HATCHES	Soft Shell Clams	481
EAST END	Bay Scallops	460
EAST END &	Quahogs (lg & sm)	742
BOAT RAMP	Sea Clams	321

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)
947 bushels of commercial sea clams.

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price: Howard Mallowes

Area	Type/Size	Amount	When Planted
WEST BW	Large Quahogs	259 bushels	September

HARVEST:

Area	Type/Size	Amount (buckets	3)
EAST BW	Soft Shell Clams Quahogs Mussels Sea Clams Oysters Bay Scallops	322 691 701 505 145	-

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)
2874 bushels of commercial sea clams

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price: 105 bushels of large quahogs from Howard Mallowes, 128 bushels of large quahogs from Irving Puffer.

Area	Type/Size	Amount	When Planted
EAST END & BOAT RAMP	Large Quahogs	261	June & Sept

HARVEST:

Area	Type/Size	Amount	(buckets)
EAST END	Soft Shell	445	
	Sea Clams	718	
	Oysters	214	
WEST BW	Mussels	965	
EAST END & BOAT RAMP	Quahogs	477	

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)
1131 bushels of commercial sea clams. State reimbursement: \$3899.19.

NATURAL SETS: (Where were natural sets noticed this year?)
Sets of soft shell clams off of Dewey Ave. Sets of little necks of Dewey Ave, Breakwater Motel and Holiday Inn.

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price: 89 bushels purchased from Irving Puffer for \$1056 and 68 bushels from Tink Taylor for \$816.

Area	Type/Size	•	Amount	When Planted
EAST END	Large Quahogs		157 bushels	September

HARVEST:

Area	Type/Size	Amount (buckets)
WEST BW	Soft Shell Clams	263
	Quahogs	539
	Mussels	996
EAST END	Sea Clams	886
	Oysters	222

COMMENTS: (Bottom Preparation, Plenting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)

Predator problems with green crabs and moon snails. Lots of them. Commercial sea clams: 2870 bushels. State Reimbursement: \$3778.21.

NATURAL SETS: (Where were natural sets noticed this year?)
Sets of little necks along breakwater and gravel bar, soft shells also on gravel bar.

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price:

Area	Type/Size	Amount	When Planted
WEST BW	Large Quahogs	142 bushels	September

HARVEST:

Area	Type/Size	Amount (buckets)
WEST BW	Soft Shell Clams	138
ç	Little Necks	397
	Large Quahogs	139
	Mussels	893
	Sea Clams	719
*	Oysters	104

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)
Commercial sea clams: 3000+ bushels. State reimbursement: \$3889.19.

NATURAL SETS: (Where were natural sets noticed this year?)
Alongside of breakwater and in middle of flats, little necks. In middle of flats and near beach of Long Point, soft shell clams.

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/Price: Irving Puffer, 201 bushels, \$15

per bushel

Area	Type/Size	Amount	When Planted
EAST BW	Large Quahogs	201 bushels	September

HARVEST:

Area	Type/Size	Amount (buckets)
tiram Du	W1-	518
WEST BW	Mussels	210
EAST BW	Soft Shell Clams	156
	Little Necks	302
	Cherrystones/Chowders	243
	Sea Clams	612
	Oysters	121

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)

Predator problems with mostly moon snails. Commercial Sea Clams: 1100+ bushels. State reimbursement: \$4087.51.

NATURAL SETS: (Where were natural sets noticed this year?)
A nice set of little necks in front of Breakwater Motel and Holiday
Inn. A nice set of soft shells off of Dewey Ave.

PUBLIC SHELLFISHING ARRAS

PLANTINGS:

Plantings Purchased From/Price: Bob Doon, Irving Puffer \$20 a bushel

Area	Type/Size	Amount	When Planted
EAST BW	Large Quahogs	139 bushels	September

HARVEST:

Area	Type/Size	Amount (buckets)
EAST BW	Soft Shell Clams Small Quahogs Large Quahogs Mussels Sea Clams Oysters	136 416 239 881 693 64

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)

Predator problems: green crabs, moon snails and star fish. Plantings done by boat. State of Massachusetts reimbursement \$3795.38.

NATURAL SETS: (Where were natural sets noticed this year?) In the middle of the recreational shellfish area

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/ Price: Bob Doon; \$20 a bushel

Area	Type/Size	Amount	When Planted
WEST BW	Large Quahogs	150 bushels	September

HARVEST:

Area	Type/Size	Amount (buckets)
WEST BW	Soft Shell Clams Mixed Quahogs Mussels	78 794 607
	Sea Clams Oysters	616 14

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)
Predator problems with green crabs and moon snails. Plantings done by boat.

NATURAL SETS: (Where were natural sets noticed this year?)
Natural sets of quahogs along breakwater and also on gravel bar.
Natural sets of soft shells on edges of salt march grass and gravel bar.

Comments: State of Mass. reimbursement \$3,675.07. Ray Luckey netted Eider Ducks by mistake on his mussel farm.

PROVINCETOWN SHELLFISH REPORT FOR

Shellfish Constable: Reggie Enos

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/ Price: Bob Doon; \$20 a bushel

Area	Type/Size	Amount	When Planted
EAST END	Large Quahogs	150 bushels	September

HARVEST:

Area	Type/Size	Amount	(buckets)
EAST END	Soft Shell Clams	27	
EAST END	Small Quahogs	244	
EAST END	Large Quahogs	276	
EAST END	Mussels	569	
EAST END	Sea Clams	499	
EAST END	Oysters	90	

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)
Predator problems with green crabs and moon snails. Plantings done by boat.

NATURAL SETS: (Where were natural sets noticed this year?)
A small set of soft-shall clams along waterfront from Allerton Street to Holiday Inn. A large set of little necks in front of Breakwater Motel and Holiday Inn.

PRIVATE GRANT AREAS

Number of Grants:

Acres of Grants Planted:

Type Planted Method Amount Planted Amount Harvested

Comments: Commercial Sea Clams: 374 bushels

PROVINCETOWN SHELLFISH REPORT FOR

Shellfish Constable: Reggie Enos

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/ Price: Bob Doon; \$20 a bushel

Area	Type/Size	Amount	When Planted
WEST BW	Large Quahogs	150 bushels	September

HARVEST:

Area	Type/Size	Amount (buckets)
WEST BW-	Soft shell Clams Small Quahogs	84 649
	Large Quahogs	227
EAST END	Mussels Sea Clams	706 726

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.) Predator problems with green crabs, moon smails and starfish. Planting done by boat.

NATURAL SETS: (Where were natural sets noticed this year?)

PRIVATE GRANT AREAS

Number of Grants: 4

Acres of Grants Planted: 8

Type Planted	Method	Amount Planted	Amount	Harvested
1 mm Quahogs	net-covered		60	bushels
	raceways			

Comments: Commercial Sea Clams 10,644

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/ Price: Bob Doon; \$20 a bushel

Area	Type/Size	Amount	When Planted
East End	Large Quahogs	150 bushels	September

HARVEST:

Area	Type/Size	Amount (buckets)
EAST BW	Soft Shell Clams	261
	Small Quahogs	262
	Large Quahogs	251
	Mussels	553
EAST END	Sea Clams	582

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.)

Predator problems with green crabs, moon snails and starfish.

NATURAL SETS: (Where were natural sets noticed this year?)
Sets of soft shell clams and little nexks in the middle of the public shellfishing area

PRIVATE GRANT AREAS

Number of Grants: 6

Acres of Grants Planted: 10

Type Planted	Method	Amount Planted	Amount Harvested
1 mm Quahogs	Raceways		202 bushels

Comments: Commercial sea clams: 374 bushels

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/ Price: Bob Doon \$3000

Area	Type/Size	Amount	When Planted
		,	
East BW	Large Quahogs	150 bushels	September

HARVEST:

Area	Type/Size	Amount (buckets)
East BW	Soft-shell clams Small Quahogs, Little-necks Large Quahogs Mussels Sea Clams	261 262 251 553 532

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.) Mount Pinatubo caused cold water thus vey little plankton.

NATURAL SETS: (Where were natural sets noticed this year?) Soft-shell clams and quahogs on SW corner of breakwater, 150 yards east of BW.

PRIVATE GRANT AREAS

Number of Grants: 6

Acres of Grants Planted: 10

Type Planted	Method	Amount Planted	Amount Harvested
Quahogs (4-6 and	Net-covered		202 bushels
10-12 mm)	raceways		

Comments: 507 bushels of sea clams harvested commercially

PUBLIC SHELLFISHING AREAS

PLANTINGS:

Plantings Purchased From/ Price: Biosphere, \$800; Bob Doon \$3000

Area	Type/Size	Amount
West BW	Large Quahogs	150 Bushels
East BW	Juvenile Quahogs	30,000

HARVEST:

Area	Type/Size	Amount (buckets)
West BW	Large Quahogs	193
	Small Quahogs	378
	Soft Shell	44
East End	Large Quahogs	104
	Sea Clams	1104
	Soft Shell	14
	Small Quahogs	124
Hatches	Soft Shell	142
Boat Ramp	Large Quahogs	84
,	Soft Shell	10

COMMENTS: (Bottom Preparation, Planting Methods, Harbor Conditions/Activities Weather Conditions, Predator Problems etc.) A very large number of green crabs were present

NATURAL SETS: (Where were natural sets noticed this year?) A small natural set of soft-shell clams and quahogs on the west-side of the breakwater on gravel bar near Wood End.

PRIVATE GRANT AREAS

Number of Grants: 18

Acres of Grants Planted: 24

Type Planted	Method	Amount Planted	Amount Harvested
Quahogs	field	1,530,000	381 buckets

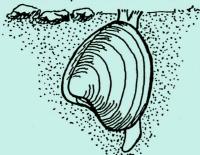
APPENDIX A

SHELLFISH IDENTIFICATION

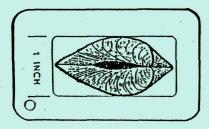
Taken from "Guide to Shellfish in Massachusetts" published by the Massachusetts Bays Program

QUAHOG:

Mercenaria mercenaria hard clam, round clam



Quahogs are found just below the sand or mud surface between high and low tide and beyond in sheltered waters. Harvest quahogs by hand or rake.



A quahog that fits through a 1 inch gauge for shell thickness or hinge width is seed and below legal harvest size and should not be taken. A one inch thick to 2 1/2 inch long quahog is known as a littleneck, 2 1/2 to 3 inch quahog is a cherrystone and a 3 inch or larger quahog is a chowder. The chowders are often used to make chowder, clam pie or fritters.

OCEAN QUAHOG: Artica islandica Black clam



They are similar to a quahog but usually found in deeper water.

SOFT-SHELL CLAM:

Mya arenaria steamer, longneck, long clam



Found between the tide lines or just below the low water mark, the softshelled clam is 4 - 12 inches below the surface. Dig soft shell clams cautiously to avoid spearing their fragile shells. Clams under two inches i n length must be carefully replanted neck upright and covered with thin layer of sand to protect them from exposure. Too much sand will smother the clam.

Clams can be served steamed, fried or in a stew.



LEGAL HARVEST SIZE IS 2 INCHES

OYSTERS:

Crassostrea virginica



Oysters are found on hard, sandy bottom or on rocks and piers. Harvest with quahog or box rake, dip net or by hand. Legal harvest size is 3 inches. Serve on the half-shell or in stew.

BLUE MUSSEL:

Mytilus edulis



The dark blue shelled mussel grows in clumps on rocks, pilings and flats with each mussel anchored by tiny threads. Mussels are gathered by hand or rake. Scrub thoroughly to remove threads and external mud. Mussels are easily opened by steaming. Serve steamed or stuffed.

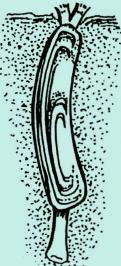
RIBBED MUSSEL: Geukensia demissa



Although perhaps less desirable, the ribbed mussel is edible and found locally. Another local mussel is the horse mussel, Modiolus modiolus.

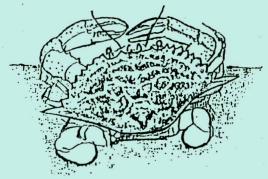
RAZOR CLAM:

Ensis directus razorfish, razorback, jacknife clam



The razor clam has a versatile digging foot and a streamlined, straight razor shape that make it the most elusive of the shellfish t o dig. Look for the razor clam near the low water mark in sand or mud. Dig in the same manner as for soft shelled clams, but deeper a n d faster. Razors are served in chowder.

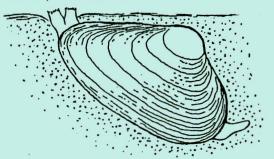
BLUE CRAB: Callinectes sapidus blue claw crab



You will find the blue crab on the muddy shore of tidal streams and estuaries. By State regulation blue crabs must be 4 1/8 inches point to point across the body before they are mature enough to harvest. A dip net is used to harvest blue crabs. Crabs may be boiled and used in salads and crab cakes.

SEA CLAM:

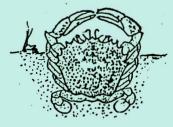
Spisula solidissima surf clam, bar clam, her clam, skimmer



The sea clam is the largest clam, reaching 5 - 9 inches in size. Look for sea clams on exposed flats at low tide, just beneath the surface. Check town regulations for harvest limits. Sea clams are gathered with a quahog rake or by hand. Serve in clam pie or chowder.

SAND CRAB:

Ovalipes ocellatus Lady Crab, Calico crab



A dip net is used to harvest Sand crabs. There is a daily catch limit of 50 edible crabs.

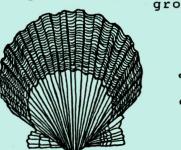


1 bushel =
4 pecks or
32 quarts

Today, most baskets and buckets are 10 quarts.

BAY SCALLOP:

Argopecten irradiens Cape Scallop



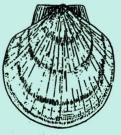


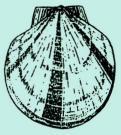
Scallops live only about two years and can reproduce only in their second year. To allow for propagation of the next generation, only second year scallops with well-defined raised growth line may be legally harvested.

Scallops are found on the bottom in protected bays and shallow flats often in eelgrass beds. Boots, waders or a small boat are needed for scalloping as well as a dip net. Serve raw, fried, broiled, escalloped or in a stew.

SEA SCALLOP:

Placopecten magellanicus





Although a bit larger in size, another well liked scallop is the sea scallop. They are usually found in deeper water and not usually harvested by the recreational fisherman. They can be used interchangeably in all dishes.