

Seek To Increase Crop Of Soft Shelled Clams

Several species of clam have been investigated from time to time from the St. Andrew's Station. In 1899 and 1900 the life history and the fishery of soft-shelled clams were studied. In 1914 supposed diseases of quahaugs were investigated, and in the following years the growth and other aspects of the biology of the soft-shelled clam were reported on. During this period also, some work was done on the life history of the mussel.

From 1920 until the present with the exception of three years in the mid-thirties, some work was carried out on clams each year. Early work on soft-shelled clams concentrated on natural enemies, growth, and productivity.

In the early forties attention was directed to small slow growing clams and the possibility of allowing these to be used at small sizes or of moving them to faster growing ground. Thorough consideration was given to the possibility of clam farming to relieve the growing scarcity of clams but by 1948 it was realized that ordinarily such operations could not be economically profitable.

MECHANIZATION

As early as 1944 attention was directed to conventional hand digging methods which are inefficient and wasteful. From 1951 on, thinking moved toward the idea of a mechanized clam digger. This proposal became a practical reality in 1955 and was perfected mechanically by 1957. Its biological effects on soft-shelled clams remain to be tested.

Work on bar clams and quahaugs has been less regular. The general life history of the quahaugs was fairly well worked out by 1939. Growth is generally slow and is related to position on the beach, being best just below low tide. Water flow is important for growth but other factors tested seem unimportant. The role of the large clam drill *Polynices* as an enemy was confirmed by 1940.

QUAHAUGS

In contrast to the quahaug, the bar clam was shown by 1943 to grow quickly. It should stand exploitation well. Careful surveys led to the conclusion in 1948 that there are not many populations dense enough to sustain profitable dredging operations for this rather deep species. However, the recently developed mechanized digger promises to open new stocks of both quahaugs and bar clams to exploitation.

Two other species of animal have been studied in relation with the clam work. The green crab is a serious predator of soft-shelled clams and made its appearance in southern Maritime Waters in 1951. It became very abundant by 1954 and is now declining. It no doubt contributed to the recent serious decline in clam populations.

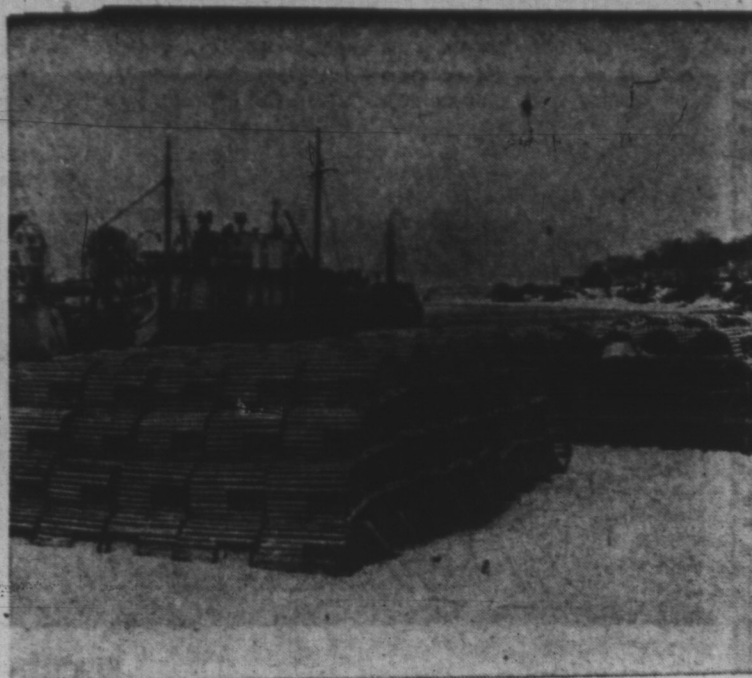
SOMETHING NEW UNDER THE CRUST

How surprised little Jack Horner would have been if he had stuck his thumb into this pie. Instead of pulling out a plum he would have been confronted with a succulent tid-bit of fish. Bread Crumb Fillet Pie is a dish that very likely will be added to your list of year-round family favorites. The mild, delicate flavor of the fish is given added zip with the addition of Worcestershire sauce, vinegar and seasonings. And the pie has the added bonus of being inexpensive and easy to prepare. Use the frozen fish fillets of your choice, such as haddock, cod, sole or perch and cook between "pastry" layers of subtly seasoned, enriched bread crumbs that bake to a butter-rich crispness. Serve each wedge a la mode with potato scoops seasoned with curry, and a colorful, tossed salad. In case anyone is wondering about the hot oven that is recommended it might be added that numerous experiments have proved the flavor, texture and shape of fish is best retained when it is quickly cooked under a high heat.

BREAD CRUMBS FILLET PIE

1 package fresh or frozen fish fillets (haddock, cod, sole, perch, etc.)
 1/2 cup butter or margarine
 1 teaspoon Worcestershire sauce
 3 tablespoons vinegar
 1/2 teaspoon salt
 1-4 teaspoon pepper
 3 cups soft enriched bread crumbs

Thaw frozen fillets on refrigerator shelf only until they can be separated easily. Melt butter in saucepan; add Worcestershire sauce, vinegar, salt and pepper. Place bread crumbs in bowl, add enough melted butter mixture to just moisten. Pat half bread crumbs out in bottom of flat baking dish. Lay thawed fillets over this. Cover with remaining bread crumbs. Pour remaining butter sauce over this. Bake at 450 deg. F. (hot oven) 10 minutes or until fish flakes easily with a fork. Cut into serving size portions with sharp knife, and serve with flat server. Makes 4 to 6 servings.



MURRAY HARBOUR IN WINTER

Research Board

CONTINUED FROM PAGE 6

inch lobsters have been marked. Their growth varied quite a bit depending on size.

The 6 to 7 inch lobsters that were below legal size when marked grew about 14 percent, in length, the 7 to 9 inch cannery lobsters grew about 12 percent, and the market lobsters over 9 inches grew only 7 percent.

Failure to moult was largely responsible for the slower growth of the larger lobsters. All of the short lobsters and 95 percent of the cannery lobsters moulted but nearly 40 percent of the market lobsters failed to do so. None of the lobsters moulted twice.

Less frequent moulting among the larger sizes is no doubt related to maturity. Mature females, of course, do not moult when they are carrying eggs. Considerably faster growth occurs in the Egmont Bay area. Here nearly 7,000 small lobsters were marked and released in October 1954. When marked they averaged 6 1/2 inches in length and weighed just over 6 ounces.

Those recovered during the 1955 fall season had grown nearly 1 1/2 inches in length (20 percent) and over 5 ounces in weight (94 percent). Of those recaptured during the last half of the 1955 season most had moulted twice. These averaged over a pound in weight.

SIZE LIMITS

With the information now available there is a strong case for size limits. We now know that practically all the short lobsters that are released will moult and grow at least 50 percent in weight. Some will moult twice in a season and more than double their weight.

The extremely high tag re-

FISHING SEASONS

No doubt some of this increase is related to natural causes over which we have no control but it seems probable that the size limit has helped considerably. It would, of course, be foolish to expect the catches to continue to increase indefinitely.

There are now two lobster seasons in P.E.I. The spring season (May 1 to June 30) extends from North Point along the north shore, around the eastern end, and along the south shore of the Island to Victoria Harbour.

The fall season (August 10 to October 5) which applies to the remainder of the Island is a much smaller district.

There are certain advantages and disadvantages in having lobster seasons but regulating these particular seasons has proved to be extremely difficult.

Fishermen who have fished during May and June are often tempted to fish throughout the summer moulting period. A combination of excellent weather, fewer fishermen, and a good supply of newly moulted lobsters that trap readily in the warm water all make for easy fishing. Other spring season fishermen

TAGS TELL STORY

Under present conditions it is clear that profitable spring fishing is impossible in the fall season area. Tag recaptures show that most of the legal lobsters are caught each fall and too few are left to support a profitable spring fishery.

No more will be available until young lobsters have grown to legal-size during the summer moult. The thousands of tag returns give no indication of mass movements either into or out of this area.

It is further clear from our spring dragging and early summer towing that some legal-sized and many lobsters just below legal size are on these grounds in the spring and early summer.

If this area were not fished in the fall there is every reason to believe that it would provide as good spring fishing as other P.E.I. areas.

ANCIENT GAME

Modern alley bowling is a descendant of a game played in Egypt perhaps as early as 5,000 B.C.

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