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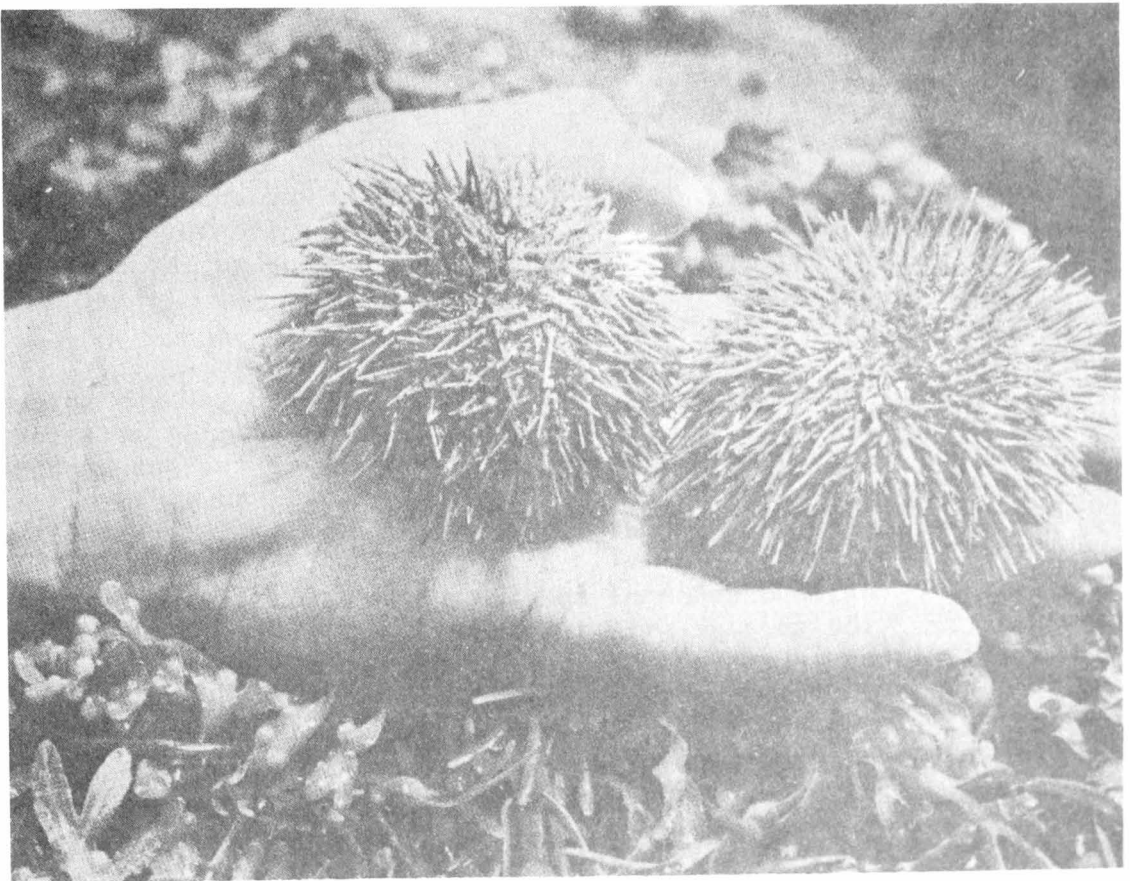
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**THE SEA URCHIN FISHERY**

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Two green sea urchins, *Strongylocentrotus drobachiensis*

## THE SEA URCHIN FISHERY

The commercially important sea urchin of the North Atlantic coast of North America and Europe is Strongylocentrotus drobachiensis. This green urchin or "sea egg" is also abundant on the Pacific coast of North America. In the United States this species is most common on the Atlantic coast north of Cape Cod and on the Pacific coast in Puget Sound and Alaska. Sea urchins are eaten throughout their range, but to a lesser extent by Americans and Canadians than by Europeans. The only organized North American fishery is in the New England States. On the Pacific coast from California to Alaska the green urchin, the larger red urchin (S. franciscanus), and the purple urchin (S. purpuratus) are eaten; however, there is no organized fishery, and the catch is home-consumed.

The sea urchin is an echinoderm related to the sea cucumbers, starfishes, sand dollars, brittlestars, and sea lilies. It has a greenish color and is somewhat hemispherical in shape, with a fairly rigid external skeleton provided with movable spines. The usual position of the animal is with the flat side to the bottom. It lives only in the sea and prefers a rocky habitat. Rarely is it found on mud bottom. On the North Atlantic coast it is most common in depths of 1 to 20 fathoms.

The sexes are separate, and the eggs and sperm are released into the water where fertilization occurs. The egg develops into a complicated larval stage (echinopluteus) which drifts about for several weeks before settling to the bottom as a small, typical sea urchin. On the Maine coast this species spawns from late March to early April.

The sea urchin eats both plant and animal food. It consumes mainly the brown seaweeds, but will also occasionally eat small mussels and carrion. The enemies of the sea urchins are many, including sea birds, foxes, sea otters, and various species of fish such as cod, haddock, and sharks.

While occasional specimens may have diameters exceeding 3 inches, the average size taken commercially is much less. A sample taken February 1946 from a shipment of sea urchins from Maine showed that the average size was 2 inches with a size range of 1 to 2.5 inches. The average weight was 3 ounces. The weight of the orange-yellow reproductive organs, which are the edible parts of the animals and which are usually eaten raw (often with a

little lemon), was 17 percent of the total weight. The purple body fluid, which is sometimes drunk, was 13 percent of the total weight.

The statistical records for the United States fisheries do not show any landings of sea urchins before 1929 when several thousand pounds were taken in Connecticut. But undoubtedly these animals have been eaten for many years by Indians and American fishermen of European origin. This same condition prevails today; records of the sea urchin catch are based on the amounts shipped to market only and consequently can be regarded as minimum figures. The present commercial fishery is located in Maine and dates from 1933 when 5,800 pounds were landed.

The fishery is of minor importance. Statistical records of the U. S. Fish and Wildlife Service, the U. S. Bureau of Fisheries, and the Maine Department of Sea and Shore Fisheries, reveal that the average yearly catch prior to World War II was 54,000 pounds worth \$300. During the war years the catch averaged 84,000 pounds with a value of \$2,400; and in the post-war period, 74,000 pounds worth \$3,100. The average value has increased from less than 1/2 cent a pound in 1938 to 5 1/2 cents in 1959.

The fishing season for this species is from October to early May. The bulk of the catch is made between December and April. It is during these winter months that the yield from other fisheries is at a minimum, and a few fishermen begin harvesting sea urchins to supplement their incomes. In this season the cost of transportation to market is decreased, for no ice is needed, and only simple containers are necessary for shipping. Also the reproductive organs of these animals are well developed during the winter months and are considered to be in prime condition.

In the last several decades the Atlantic coast catch of sea urchins has been produced almost exclusively in Lincoln County, Maine. The Sheepscot Bay area is the most important region, with small catches sometimes being reported from other nearby bays. While many other sections of the coast have an abundance of sea urchins, the limited demand and generally low price have discouraged any geographical expansion of the fishery.

In Maine dip nets with handles of 10 feet or more are used to scrape the submerged ledges or rocks and dislodge the sea urchins. Fishing is generally carried on during the low tide. The operation of the gear is wholly manual from row boats or out-board motor-powered skiffs. Scallop dredges have been used in the past, but boats which are large enough to operate scallop dredges efficiently are engaged in more profitable fisheries.

Out of water these animals will remain alive for as long as a week, if kept cool, and moist. Between shipments to market the fishermen keep them immersed in sea water, either in crates or floating cars.

Second-hand bushel baskets or orange crates are used for shipping containers, for it is necessary to protect the sea urchins, whose shells are fragile and easily smashed. The animals must be protected from freezing, but this is a relatively simple matter for shipments are made in closed trucks or express cars. The principal market is New York City, with a small quantity going to Boston, Massachusetts.

The future of this fishery is uncertain. Under the present conditions increased production will easily glut the market and reduce the price to a level at which the fishermen could not operate with profit. Perhaps new markets will be developed to absorb an increased catch. It is, however, unlikely that use of this seafood would develop into an important industry because sea urchins are known and appreciated by only a limited number of people.

For the gourmet or for the hostess who like novelties, the orange segments of the gonads can be served like tangerines, arranged as a seafood cocktail with lemon juice or bland sauce. Their taste might rival that of cherrystone clams or Olympia oysters. In one tester's opinion the roe of sea urchins outclasses caviar.

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Maine sea urchin fisherman.