

worthy of a trial, though in such places it is not used for the capture of cuttle-fish. Here is employed an artificial decoy fish made of wood formed nearly like a flat-bottom boat with pieces of glass set in the bottom and sides. It is of the size of the body of an average cuttle-fish, and is trolled after the boat. According to the author previously mentioned, the ancient Greeks towed after the boat a female in order to attract the males, which were then scooped up with the net. Since at the present time it is often difficult to procure a female, the modern Greeks substitute for the natural decoy an artificial one.

The capture of fish by means of light is extensively employed in shallow-water and in fresh-water fishing, but it is confined to the taking of fish singly. In the sea fishery light is employed also in some places, as we have seen, for the capture of fish in schools. The reason why this "auxiliary weapon" has not come into general use is twofold: partly because of technical difficulties, and partly because its operations with the means which people hitherto have been able to command have been confined to a very small territory in comparison with that operated upon by other means of capture. The development of the electric light will probably lead to its more extended use in the fishery service than hitherto; but we assume that its especial use must be as a means of dazzling the fish, which will arrest them until they can be caught with other implements. Its use in the purse-net and trawl-net (*Synkenot*) fishing is therefore only a question of time.

192.—THE MODE OF LIFE OF EELS.*

By HERR HINKELMANN.

When you ask fishermen how it comes that the yield of the eel fisheries on our Baltic coast varies greatly in the different years, you will always get the answer that this is owing to the direction and the force of the wind. Observations on the mode of life of eels, made by me for a number of years, have fully corroborated these statements of the fishermen.

As far as our coast is concerned, the eel fisheries are most successful in autumn, during a southeast wind, while when the wind is from the northeast, east, and south-southeast, the results of the fisheries in most places leave much to be desired. During all other winds from the west the yield of the fisheries is reduced to a minimum, so that they become absolutely unprofitable. Of less influence than the direction of the wind is its force. It may, however, be laid down as a rule that the stronger

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the wind the richer the yield, provided that a sudden storm does not destroy the fishing apparatus before the eels have begun to move.

The migration of the eels in autumn is carried on during the night, beginning about one hour after sunset; is strongest from midnight till 2 o'clock in the morning, and ceases about one and one-half hours before sunrise. Views are greatly divided among fishermen as to whether, during day-time, the eels hide among the aquatic plants near the shore, or whether they stay in deep water at a greater distance from the coast. As far as my own observations go, I am led to suppose that during day-time the eels only avoid the shallow places where there is but little vegetation, but that as a general rule they keep at no great distance from the coast, in order to continue their migration in the evening.

This migration is going on the more cautiously the calmer the weather, and for this reason many eels cannot be caught in standing apparatus during calm weather and in clear water. I thus remember that during a beautiful but very dark September night 100 eels were caught with a small net at a single haul, near a large number of fish-baskets from which the following morning only from 15 to 20 eels were taken, although it is certain that many eels were constantly passing the baskets.

To watch the eels among the fish-baskets along the coast, select a very dark autumn night, when the sea is strongly phosphorescent and when there is absolutely no wind, or the evening twilight soon after sunset, and full opportunity will be afforded to observe the life and doings of the eels. It is only under very peculiar conditions of weather that the eels migrate in large schools. It is probable that when the sky is thickly clouded—but even then only during a storm—the largest schools move along our coast, although large masses have been observed in various places during calm weather. In the autumn of 1879 I observed soon after sunset a large school of eels in the Little Belt whose appearance astonished me very much. When later I mentioned it to the fishermen of the neighborhood, I was told that the eels often formed an immense ball, rolling along the coast towards the north. There cannot be any doubt that this migration towards the Cattegat is connected with the spawning of the eels.

It is a very rare occurrence to find a migratory eel on the coast in spring, while so-called summer eels are often caught with fish-baskets and spears. Among the summer eels I have never succeeded in finding a male, much and often as I have searched for it. Among the migratory eels caught last fall in the Gjenner Bay there was a male eel, measuring 51 centimeters [20 inches] in length, the largest which I have ever seen.

The number of male eels seems to increase with the saltness of the water, so that more male eels are invariably found among those caught on the coast of Zealand than among those caught on the coast of Schleswig-Holstein.