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'FGG!! MOST PIFNTIFUL I FIRVAF H/ The Life of the Atlantic Cod The cod inhabits the waters both sides of the North Atlantic. He is a creature of the continental shelves, the rich feeding grounds that have become the important fishing areas. While their migrations are still imperfectly known, tagging and long-lining experiments reveal that they tend to be drawn by seasonal changes in water temperature. There are north and south migrations along the coast and movements in? shore and out, following movements of such important food concentrations as schools of capelin. But cod do not necessarily return to the feeding and spawning areas of the parent. Many cod never inhabit the same waters in which their parents matured • because the cod does not bury his eggs. The eggs and sperm are released in mid- water, stirred together by the swimmer's action of the parents' tail. They spend a- bout 24 hours at the same density as water and thus spread out in all directions, suspended. The unfertilized eggs fall to the bottom and die. The fertilized eggs absorb a single drop of water, become buoyant, and begin a slow rise to the surface of the sea. They become part of what are known as the planktonic hordes, a thin layer of tiny plants and animals that ride at the air/water interface. Here they drift with every current and are subjected to extremes of heat and cold and the ferocity of storms • all of which reduce their incredible numbers. They are further reduced by predatory creatures from minute bacteria and fungi to great schools of herring • so that despite an average cod may spawn a million eggs (compared to the few hundred of a trout or the 30-thousand of the sea herring) only a few of every million will reach maturity. The eggs at the surface measure 1/17th inch and contain a fully developed larval cod, ready for hatching. Jensen: "The eggs spawned in cold wa? ters tend to be larger than those spawned in warm waters because of the increased yolk that must nourish the embryo cod during the longer period of development that is the rule in cold water. It takes about 10 days for eggs to hatch in water of 47 degrees, but it takes 40 days or more in water of 32 de? grees." The newly hatch? ed larvae are 1/6 inch long mouthless creatures floating belly-up under the yolk sac that feeds them. By the time it is 1/5 inch • 1 to 2 weeks • the yolk is used up, the larva has righted itself, developed a mouth and it capable of capturing live food. Brawn reported; "...on the 4th day after hatching...eye and jaw movements were seen for the first time....The cod by vibrating the pectorals and tail swim forward and snapped (and)...were seen to capture discrete particles...especially particle which were moving. IWhen the particles were inedible, the larvae withdrew with head shak? ing." By the 5th day the larvae was already defending a zone around itself. "Any larva coming within one body length of another, paused, extended and vibrated the pectoral fins, and then swam rapidly toiiard the other larva and either snapped or bumped into it. The attacked larva responded by swimming away." Still at or near the surface, the larval cod eats other planktonic creatures; the larvae of lobsters, crabs, shrimps, barnacles and little worms. Those that survive to two months begin to look more like their parents, though they still lack fins and carry big heads dominated by large eyes. They are



about 1 1/4 inches long, and they now begin a swim to the ocean floor, while they may go as deep as 1500 feet, most cod are found between 120 and 900 feet down. Jensen: "Michael Graham, the British fishery expert, suggests that the descent to the bottom is the most critical part of the cod's life.... The relatively warm surface waters change to the increasing cold of the mid-depths. Food is scarcer at the mid-depths too, and when the small cod finally reach the ocean floor they must learn to prey on an entirely different world of Cape Breton's Magazine/13