

merges finally into the Canary stream and the enormous whirlpool of the Sargasso Sea. A North European branch, after reaching the British Isles, continues to the Norwegian Sea and the North Sea. We may consequently distinguish various surface regions in the North Atlantic: (1) the genuine Gulf Stream; (2) the eastern Azores current; (3) the Canary current; (4) the Sargasso Sea; (5) the North European Gulf Stream.

The last mentioned, which we crossed on our northern track, receives a certain admixture of cold water from the Labrador current, besides many animals from northern waters. It appears from these considerations that the limit to the genuine warm-water forms of the Atlantic follows a line parallel to the axis of the true Gulf Stream water, the faunas to the north and south of this line differing to some extent.

*Pelagic Communities on the Coast Banks of the Atlantic.*—The chief aim of our cruise was to examine the pelagic life of the open ocean, and our catches on the coast banks were therefore casual. On the coast of Africa, at Cape Bojador, quite close to the shore we caught the young of the anchovy (*Engraulis encrasicolus*), *Clupea alosa*, the sardine (*Clupea pilchardus*), the horse mackerel (*Caranx trachurus*), and *Scombresox saurus*. Together with the mackerel, the bonito, the tunny, and the gar-pike, these fish are the most important pelagic species on the coast banks. To these may be added the great sharks: the blue shark (*Carcharias glaucus*), probably the species most commonly captured by sea-faring people; the hammer-head (*Zygæna malleus*), which the trawlers get among the hake on the coast of Morocco; and several others.

Fishes of the African coast.

As far as we know, these fishes belong mainly to the coast waters; at all events the herring, mackerel, tunny, and gar-pike spawn in the coast waters or their vicinity. On the other hand, we found on our cruise the eggs and young of *Scombresox* so far from land that they may safely be said to spawn in the open ocean, as is probably the case with *Caranx*. Many of these fishes are probably widespread in the ocean, even if they do appear in the coast waters.

When journeying some years ago on the west coast of France I was informed that a peculiar bonito and tunny fishery had recently originated in the Atlantic, carried out with deck cutters which went as far as 150 miles off the coast of France, the voyages lasting eight to twelve days. The fishing commences in July and continues all the autumn, and is a kind

Fishery in the open ocean.