

are thrown on the coast of Scotland by the Gulf Stream. This current, although it reaches New Zealand, does not however appear to pass down the east coast, as there is a steady drift from New Zealand to the eastward, by which sawn logs, telegraph poles, and on one occasion, on the authority of Mr. H. Travers, a number of totara sleepers that broke adrift from Pigeon Bay during the earthquake wave in 1868, were cast up on the Chatham Islands, which lie 450 miles east of Banks Peninsula. These islands appear, as it were, to lie in an eddy to the leeward of New Zealand, as a much larger proportion of pumice-stone and driftwood, floating to the eastward, finds a resting place there than the relative size of the two groups of islands would lead us to expect.

It is, most probably, this tropical current sweeping from the East Cape to the Chatham Islands that gives rise to what the whalers call the "Banks," which is a favourite feeding-ground for the sperm whale. The depth of water in this area has not yet been explored, and it is considered doubtful if there is really a shallow bank, or anything more than a tract of ocean which is unusually rich in marine life.

It is important to note that, according to the most recent discoveries, it appears that the eggs of many species of marine fish rise to the surface of the sea and float about while hatching in the warmer surface-water, so that the set of ocean currents towards or away from an island like New Zealand might seriously interfere with the acclimatization of some kinds of food-fish.

If we compare the assemblage of fishes which we find in the New Zealand seas with those in the European region, we find that, on the whole, they resemble those which are found on the coast between Madeira and the Bay of Biscay more than those which are caught about the north of Scotland. If we contrast the thirty-three sea fishes that are fit to be used as food in New Zealand, we have among the constant residents on all parts of our coast the hapuka, tarakihi, trevalli, moki, aua, rock-cod, wrasse, and patiki; and while the snapper, mullet, and gurnet are only met with in the North, the trumpeter, butterfish, and red-cod are chiefly abundant in the South. But, with the exception of the patiki or flounder and the red-cod, none of these are representatives of fishes that are common even in the south of Britain, while from the more northern seas similar fishes are altogether absent.

In addition to those which remain throughout the year, a very large number of the fishes on the New Zealand coast, owing to its geographical position, are pelagic in their habits, and roam over a wide range of ocean, visiting our shores only irregularly in pursuit of food. Of the edible fishes of this class, by far the largest number are visitors from warmer latitudes, such as the frostfish, barracuda, horse-mackerel, kingfish, dory, warehou, mackerel, and garfish, while only the ling, hake, haddock, and a few other rare fishes, which are worthless as food, are among those of more southern types which reach the New Zealand coast in their migrations.

There is, however, no reason to complain of any want of useful variety in the New Zealand fishes as compared with Britain, for we find that, out of 208 species of fishes enumerated as occurring in the Britain seas, including many which are extremely rare or only occasional visitors, only forty are considered to have a marketable value. In New Zealand, notwithstanding our very imperfect knowledge, especially with regard to the gregarious tribes, which there is reason to believe inhabit shoals at some distance from land, out of 130 sea fishes, of which thirty are only known to us by report, we have nearly as many varieties used for food as are brought to market in the British Islands.

The following notes refer to the fishes mentioned in the regulations under "The Conservation of Fisheries Act, 1884:"—

*Hapuku*.—The first on the list of marketable fishes is the hapuku or whapuku of the Maoris (*Hectoria gigas* of Count Castelnau), or habuka, as the name is generally pronounced by Europeans, who in the south apply the name proper to the same fish. It is also occasionally called the codfish, which is altogether erroneous, as it is more properly the representative of the sea-perch (*Seranus*) of European seas.

This fish has a peculiar interest, from its close affinity to the famous "Murray cod" (*Oligorus Maquariensis*) which inhabits the rivers in the interior of the Australian Continent. The hapuku, however, never enters fresh water, but is a deep-sea fish, though not generally captured far from the coast. Round exposed rocky capes and islands that rise in twenty to fifty fathoms water, with patches of sandy bottom, appear to be the favourite feeding-grounds of this fish during the season, and on nearly every part of the New Zealand coast where such conditions prevail the hapuku may be obtained from November to May at the proper time of the tide. During the winter season they are seldom caught, as they probably leave the coast for deeper water. In the month of July I have, however, caught many of them far up the Sounds on the west coast of Otago, in 50 to 60 fathoms of water, heavy with roe, for the purpose of spawning; for at this season they appear to crowd up to the freshwater falls by which the rivers often discharge into the deep sea in this wonderful region. Hapuku fishing is excellent sport, the average weight of the fish being about 45lb., but occasionally large specimens, reaching to 130lb. weight, are caught. The head and shoulder-cut of this fish is most dainty food, but the flesh of the remainder is rather coarse and stringy; it is, however, well adapted for pickling, and may yet become a valuable article of commerce. The hapuku in the northern parts of the colony is of two kinds, but whether there are different species has not been determined.

*Kahawai*.—This fish (*Arripis salar*) is frequently termed the native salmon, from its elegant form and lively habits, in which it resembles the true salmon. During the summer months these fish—which reach the weight of 7lb., but are more usual from 2lb. to 3lb.—visit the coast in great shoals, especially frequenting the mouths of streams. They afford good sport to the angler, as they rise to an artificial fly, and are readily taken at sea with spoon-bait. When of large size the flesh is rather dry and tasteless, but the young fish, when under 1lb. in weight, and quite fresh, are very delicate and well flavoured, especially when boiled in water acidulated with vinegar. In the early stage of their growth they are spotted on the sides like trout, but with fainter colours. Kahawai is