

made an excellent fishing-station, but it was sold while Marlborough was still a portion of the Nelson Province. The proprietor of the ground, Mr. M. Aldridge, alive to the importance of having fish-curing established in his part of the district, offers to allow any company or individual desirous of embarking in the industry a site on a mere nominal rent.

Picton, 20th April, 1885.

JAS. RUTLAND,
Ranger of Crown Lands.

No. 4.

LIST OF FISHES.

THE following are the names of edible fishes mentioned in the Schedule attached to the Order in Council prescribing the minimum sizes under "The Fisheries Conservation Act, 1884:"—

Hapuka	Horse-mackerel	Mullet
Kahawai	Trevalli	Butterfish
Snapper	Kingfish	Red-cod
Tarakihi	Warehou	Flounder
Trumpeter	Mackerel	Soles
Moki	Rock-cod	Garfish
Barracouta	Gurnard	Herring

No. 5.

Dr. HECTOR to the Hon. Sir JULIUS VOGEL.

On the Food Fishes of New Zealand.

Wellington, 30th May, 1885.

THE following information, condensed from my previous reports and brought up to date, will enable exact reference to be made to the species of fish referred to in the foregoing papers:—

It is necessary to state that our knowledge of the fishes around the New Zealand coast is very imperfect, as our opportunities for observation have hitherto been confined to the shallow waters of harbours, or to the vicinity of rocky promontories.

Of the deep-sea fish, and those which frequent banks and shoals at a distance from the coast, little has been ascertained, except from specimens which have been cast on the shore during heavy storms.

The distribution of sea fish is effected chiefly by causes regulating the distribution of their favourite kinds of food. Thus, swarms of Medusæ, Mollusca, and larval Crustacea crowd the seas round our coast during the summer months, attracting shoals of small fishes, which again are pursued by those of predacious habits, so that many kinds visit our shores at that season, which are absent during the colder months of the year. Many valuable fishes which, from their occurrence in large migratory shoals are of greatest commercial importance, appear to feed chiefly on those lower forms of marine life which have only an ephemeral existence, dependent on the character of the coastal currents. In the Northern Hemisphere it has been ascertained that the herring is restricted to those parts of the sea in which the temperature is never less than 54° nor higher than 58° Fahr., a range so limited that it probably relates to the existence of some delicate marine animal that forms the food of the fish. The study of the ocean currents that sweep our coasts is therefore invested with great practical interest, as it will enable us to infer, from the experience gained in other parts of the world, the character of the marine life which stocks our seas, and thus enable fishing communities to be located in the most advantageous positions. The establishment of marine observatories, for studying the habits, development, and life-history of fishes useful for food supply, and of the lower forms of life upon which they in turn subsist, has been effected in many parts of the coasts of Europe and America, and also near Sydney, with most beneficial results; and any vigorous effort to regulate the existing fisheries of our coasts, or to introduce new species into the fauna, should be preceded by the establishment of similar observatories on the New Zealand coast. From the data respecting the direction and average temperature of the sea round the coast of New Zealand, obtained from a series of observations, it appears that the coldest part of the sea is on the south-east coast of Otago, where the temperature of the surface-water ranges from 48° in winter to 57° in summer, corresponding averages for the atmosphere being 43° to 53°. The cold current thus indicated, which probably exercises a good effect on the quality of the fish, besides limiting the range of a few species, appears to extend its influence up the East Coast as far as Cook Strait; but on the west side of the Islands the average winter temperature of the sea was found to be decidedly higher, and equal to that experienced 6° of latitude farther to the north on the East Coast. In the extreme south the summer temperature does not, however, rise to a corresponding extent, but on the whole there is evidence that the warm equatorial current which is known to skirt the east coast of Australia, and has been, by Commodore Wilkes, likened to a southern counterpart of the Gulf Stream of the Atlantic, must be directed against the west coast of New Zealand, tending to equalize the temperature in that region. These ocean currents are now considered to result from long continuance of winds in one direction; and, in support of this view, we find that there have been several instances of fishes that belong to the Australian coast, and turtles, accompanying areas of drift seaweed, stranding in Cook Strait, and even on Stewart Island.

On the north-east coast of New Zealand, as far south as the Bay of Plenty, there are further evidences of a current from the north to be found in the abundance of the flying-fish, the occasional visits of the true nautilus, and also of the argonaut or paper-nautilus. Gigantic pods of a leguminous plant that grows on the Fijis are also frequently cast up in the same way that West Indian seeds