

Spawning
areas.

This power of distinguishing the different species in early stages has been of great advantage to oceanography. By securing the eggs and larvæ floating in the surface waters, we can decide what species spawn in a definite area. We capture in our silk nets a profusion of different eggs and larvæ, and can with certain limitations separate them as belonging to various species, just as we assort the catches of adult fishes from a haul with the trawl. The spawning area of a species can thus be determined by merely taking numerous tow-nettings, and ascertaining the presence or absence of the eggs belonging to the species in question.

To catch the adult spawners is very often difficult, and takes a long time. The floating eggs can, on the other hand, be taken with the greatest ease, and the simple appliance of the tow-net furnishes an excellent means of ascertaining where the fishes spawn, for most species remain some time underneath the recently spawned eggs. In April 1901 I followed up this reasoning on the coast banks off northern Norway, and succeeded in finding enormous shoals of cod on certain banks, where no fishing was carried on, and where, as a consequence of our discovery, millions of cod were afterwards taken.¹

Stimulated by this experience I advised the International Council for the Study of the Sea to effect a systematic survey of the spawning areas of the cod family. My proposals were adopted, and an enormous amount of material relating to the natural history of the cod family was accumulated, thanks to the exertions of those on board the Danish, Belgian, English, Scottish, Dutch, Norwegian, Swedish, and German investigation steamers.

The Danish steamer "Thor," under the leadership of Schmidt, investigated certain parts of the Atlantic and the waters round Iceland. The Norwegian steamer "Michael Sars" examined the Norwegian Sea and the northern portion of the North Sea, while the steamers of the other countries worked mainly in the North Sea. The results obtained through this organisation of the work proved that even closely related species presented certain peculiarities as regards the situation and extent of their spawning places,² as shown in the following table :—

¹ *Fiskeri og Hvalfangst i det nordlige Norge*, Bergen, 1902.

² "Rapport sur les travaux de la commission A dans la période 1902-1907," *Rapports et Procès verbaux du Conseil international*, vol. x. Copenhagen, 1909.