BIRTH OF AN INDUSTRY

Fishing as an industry was developed in the Hanseatic cities of Northern Europe to exploit Baltic herring in the late Middle Ages. In some ways the Baltic herring fishery was a precursor for much of the industry that would develop later under capitalism, and not just fisheries.

For a start, there was specialisation, with separate guilds for fishers and transporters. There was an international division of labour, with several nationalities doing the fishing and Dutch traders dominating marketing and distribution. There were technology leaders too. At its peak, Scania, at the tip of the Scandinavian peninsula, was the centre of an industry supplied by over 7500 boats. One reason for Scania's success was naval architecture. The 20-25 ton Viking-type boats were replaced by Hansa vessels weighing up to 200 tons.

Hanseatic dominance began to decline in the 15th century and practically ceased in the 16th for a number of reasons, including high taxes on shipping and wars that saw the capture and destruction of fishing boats by the opposing factions. As well as that, the North Sea was emerging as a serious commercial rival. Resources were richer than in the Baltic, and the Dutch adapted their experience to the new conditions.

They also developed the theoretical arguments for treating the sea as a "commons", in a book that still influences fisheries policy today (and indeed any discussion on who "owns" marine resources). In 1609, Dutch philosopher Hugo Grotius, also known as Huig de Groot or Hugo de Groot, published Mare Liberum, translated into English as The Free Sea or The Freedom of the Sea. Grotius argued that everyone should have free access to the sea, whether for sailing or fishing.

Fishing at this time was still essentially coastal, even if the fleets were going farther out to sea. Boats would leave their harbour, fish for a night then go back. This was to change due to two causes, one natural, one economic. Yarmouth in England, a major North Sea herring port, silted up. Around the same time, contrary to everything Grotius argued for, the English authorities imposed penalties on Dutch boats.

The Dutch response was to create the first real high seas fishing. They took advantage of their bigger boats to stay at sea, salting the catches on board. They also invented a system of transhipping, small tenders ferried the catch to the ports, leaving the mothership to continue fishing and processing.

The idea of processing the fish on board seems evident now, but in some fisheries similar innovations wouldn't be introduced for another few centuries. Bernard Groisard describes how tuna preservation evolved little. "To begin with, on the sailboats, the tuna were simply gutted and hung head down in an enclosure on the deck. You could preserve them for a week to ten days at most. The last of the sailboats had cold rooms you stocked with ice at the start of the voyage, but none of them had refrigerators."

Technological advances championed by the Dutch would go hand in hand with organisational innovations. They introduced the drift net, a long "wall" of netting made up of 40 or 50 smaller pieces. The Dutch also innovated in sales management, imposing regulations on the catch, processing and shipment to build a reputation for quality. The type of salt used to preserve the fish and the design and manufacture of barrels were strictly controlled, and each barrel was identified individually.

The Hanseatic trade was no match for these modern methods, and by the early 1600s the Dutch were exporting over 150 000 tons of herring. But as so often, imagination, invention and hard work proved helpless in the face of superior firepower. As the 17th century progressed, the Dutch fishing fleet increasingly became the target of the British and French navies, not to mention privateers and pirates. Over a hundred Dutch fishing boats were captured in one day in 1652 off the northeast coast of Scotland.

Over the following two hundred years, Britain came to dominate the herring industry, but the actual technology changed slowly. Innovations tended to be modifications of Dutch designs. The first significant change was the replacement of the Dutch "busses"[1] by a faster, more seaworthy craft known as

[1] No se si es autobus en plural si no ni idea.

a lugger[i][2] in the 19th century (although the Dutch were to modify it considerably after it arrived in Holland in 1865).

The 19th century also saw the start of mechanisation of the fleet, with the first steam drifter being built in Scotland in 1882. Within 25 years, the Scottish fleet would have almost a thousand of the new craft.

The period before the First World War marked the high point of the North Sea herring industry. Of course trade would have suffered because of the hostilities anyway, and the Russian market, a major outlet, disappeared forever after the 1917 Revolution. But other factors were at work too.

THE NORTH ATLANTIC

Demand for salted herring declined when the use of ice on board ships, coupled with more efficient rail networks linking ports to markets, encouraged consumer demand for fresh fish. Driftnet fishing itself presented a number of disadvantages. The large gear needed a large number of men and machines to work it. The fish could only be caught at night when they rose towards surface waters and the season only lasted for half the year, from May or June to December.

The solution was to equip the luggers with trawls as well as drift nets and to send them further north to catch fish earlier in the season. Pulling a trawl required a much more powerful vessel than drift netting, but it meant the boats could go farther and fish for longer.

The more northern fisheries were home to the other major species harvested by the fishing industry, the cod. English boats had been heading as far north as Iceland since the 15th century, and the Dutch joined them a hundred years later.

Eventually, the Atlantic fishing grounds would fall prey to wars and conflicts too (Britain and Iceland had a "cod war" as late as the 1970s), but the cod trade stretched to the very south of Europe. The Portuguese word for cod "bacalhao"

[2] Lugre en español según Collins: Lugre en DRAE: Embarcación pequeña, con tres palos, velas al tercio y gavias volantes

is almost the same as the Old Dutch "bakeljauw", although we don't know which language borrowed it from the other.

The fisheries extended well beyond Iceland. The Vikings had gone as far as Newfoundland[3] and the cod-rich waters off Canada may have been fished for centuries before records of Basque fisherman working the area in the 14th century appeared.

Secrecy has long been a feature of fishing, nobody wants to tell rivals where the best catches might be found. Even today, one of the difficulties in organising protection against pirates in some waters is that the captains don't want to travel in convoys under military escort in case other boats learn their secrets.

It was impossible to keep the secret forever though, and a flourishing fishing sector developed. The waters off the aptly-named Cape Cod became the centre of a three-way battle between rival colonial powers (Britain and France) and fishermen who had settled along the coast. Britain won, but many settlers went on to back the rebels in the American War of Independence.

NEW TECHNOLOGIES

To begin with, cod fishers stood in a barrel on the side of the boat and fished using hand lines. At the end of the 18th century, these were replaced by long lines with multiple hooks.

Fifty years later, a highly productive, but highly dangerous, innovation appeared, particularly in the Grand Banks cod fisheries off Canada: dories[4]. These were small boats stacked on deck and lowered among the shoals with a crew of one or two who fished until the dory threatened to capsize under the load. Given the treacherous weather in this part of the Atlantic, where sudden storms and fog are common, it was not unusual for the dories to sink or get lost. On some campaigns a third of the crew might not come back.

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[3] Terranova, esta asi traducido en mi diccionario Collins

[4] Plural de dory: En Collins traducción 1(boat→arenera, pero no esta como tal en diccionario RAE) 2(Gallo , pez de SanPedro). Según Traductor google dory como boat" a small flat-bottomed rowboat with a high bow and stern, of a kind originally used for fishing in New England", o sea un bote pequeño de remos…

The next big innovation was the arrival of steam trawlers in the 1920s. Nobody knows precisely when steam engines were first used aboard trawlers in any waters. Experiments were carried out at Arcachon in France in 1836, but no regular use was reported for another 40 years. We mentioned above that steamers started operating from Scottish ports in 1882, and a similar movement occurred in England around the same time. The technology was adopted quickly. In Grimsby, the biggest English fishing port, there were 623 sail-powered fishing boats in 1882 and 2 steamers. By 1909, there were only 29 sailing ships and 608 steamers.

Steam trawlers resulted in a dramatic leap in productivity. They could fish at depths of 400m compared with 100m for sail, and could catch 6 to 8 times the amount of fish over a similar period of time. Efficiency was boosted by changes to the nets. The Granton[5] trawl, named after the Scottish port where it was developed in 1892, attached boards (so-called "trawl doors") to the nets to open them, inspired by a salmon fishing technique. These trawls were a third more efficient than previous ones and easier to operate. In the 1920s, the French inventor Vigneron-Dahl added long cables to frighten the fish towards the net, increasing efficiency by almost a third again.

These technical improvements provoked a sequence of events that was to become familiar in fisheries. Initially, catches in the North Sea improved, but eventually started to decline and fishers turned to less valuable species such as plaice or haddock to make up for the more valuable sole, turbot and other flatfish. Stocks only recovered thanks to the closure of the fishing grounds during the First World War, but by the late 1920s, total yields of all species combined were in decline.

Steam trawling was slow to develop in more northerly waters, basically because the engines were not powerful enough to cope with the rougher conditions. This began to change in the 1930s and by the time the Second World War started, North Atlantic boats were much bigger than those fishing the North Sea.

[5] Es un puerto de Edimburgo

Although some steam vessels were still around until the 1960s, oil-powered engines came to be the norm after the 1945. These had a number of advantages. Catches were 40% higher than for a steamer working under comparable conditions. Moreover, the engines were much smaller, freeing space on board for processing.

Many fishing vessels had been equipped with boilers for extracting fish oil since the 1900s, but the new, smaller engines opened the way for today's factory trawlers. In the 1930s, French craft working off Newfoundland had deep freezes, cold stores and machinery for producing fish meal as well as the traditional oil boilers.

The next major innovation came in 1954 when the English trawler Fairtry was built with a ramp at the stern[6] (similar to those used by whalers to haul the carcass aboard). This allowed a bigger trawl and meant that the sides of the boat didn't have to be low to accommodate trawling gear. The possibility of having high sides enabled vessels to be much bigger than before. Around this time too, Japan and the USSR started to develop large fleets of factory trawlers, accompanied by factory ships and motherships that didn't do any fishing but provided the services needed to keep the fleet at sea. Other nations soon followed their lead.[7]

These fleets, and even the individual boats that composed them, were costly to build and operate. They ushered in the modern age of fishing, where it is possible to fish all the world's oceans, at every depth from the surface down to below 1000 m and to hunt an ever-widening range of species, with consequences we'll describe elsewhere in this book. Bernard Groisard sees two ways his fishery could evolve. "We can either try to go for quality and get a higher price per fish, or aim at the mass market."

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[6] Se entiende perfectamente: “popa”, son muy conocidos los stern trawlers o arrastreros de popa.Lo cables para remolcar salen de la popa, eso es lo que yo siempre he entenido.

[7] Yo, lo entiendo, como Otras naciones siguieron pronto su ejemplo/iniciativa