Broad Character: Fishing
Character Type: Fishing
National Perspective

INTRODUCTION: DEFINING/DISTINGUISHING ATTRIBUTES

The Character Type Fishing includes the following Sub-types:

- Bait digging
- Bottom trawling
- Shellfish collection
- Fixed netting
- Hand netting
- Longlining
- Seine netting
- Drift netting
- Pelagic trawling
- Demersal trawling
- Fishing ground
- Potting
- Shellfish dredging
- Fish market
- Fish warehousing
- Fish trapping

The 'Fishing' Character Type refers to areas of the sea, estuaries and rivers whose character is dominated by activities concerned with the capture or gathering of wild fish and unfarmed shellfish stocks by various methods such as trawling, netting, trapping, potting, dredging and collection by hand. This includes directly associated landing, marketing, processing and distribution facilities.

Bait digging refers to areas whose character is dominated by regular digging to acquire bait for fishing by various methods. Generally found in estuaries, sandy and rocky foreshores.

Bottom trawling refers to commercial fishing involving trawling the lowest levels of the water column and/or the surface of the sea floor, the demersal and benthic zones respectively. These methods often result in disturbance to the sea floor itself. The most widely used methods are otter trawling and beam trawling.

Otter Trawling uses funnel-shaped trawl nets, with sides extended forward to form wings to guide fish into the funnel. The net is held open horizontally as it moves through the sea by wooden or steel 'otter boards' while floats raise open the upper edge of the net mouth. Weights distributed along the lower edge (ground rope) ensure good contact with the sea-floor and disturb the fish into position for catching in the net.

Beam-trawling uses a rigid beam of wood or metal across the net mouth. At each end of the beam are steel plates called beam-heads fitted with stirrup-shaped shoes that keep the beam slightly raised from the sea-floor and hold open the net mouth. The net funnels out behind the beam, with chains arranged in front of its lower edge to disturb the sea floor. When the trawl is in motion, the disturbed fish are caught in the net as it passes. This fishing method is widely used by fishermen for catching 'flat fish' species, however the method has also been accused of causing major ecological damage from sea-floor habitat disturbance and its indiscriminate by-catch.

Shellfish collection refers to an area of regular commercial collection by hand or hand-held tools, of naturally-occurring shellfish stocks for food, bait (if dug for bait, the 'Bait digging' Sub-character Type will be more appropriate) or other products. This does not

include the collection of farmed shellfish from artificial structures, for which 'Shellfish farming' under 'Aquaculture' is more appropriate.

Fixed netting refers to areas of commercial fishing by fixed net methods, sometimes also termed set netting, which cover several detailed netting methods using gill nets, tangle nets or trammel nets. It refers to netting held stationery rather than being towed by a vessel or allowed to drift in the current. The nets hang vertically in the water column, generally in the range 50-200m long and are used singly or as a series joined end to end. Floats are attached to a headline and they are usually anchored by lead weights along a footrope but in shallow water they may be fixed to posts or other suitable objects driven into the seabed. The footrope is designed to rest on or just above the seabed. Fish are caught either by gilling or entanglement. Fixed netting is largely confined to inshore areas.

Hand netting refers to areas of fishing using hand-held nets worked by an individual fisherman. Regional variations include haaf netting on the Solway and Lune estuaries, lave netting on the Severn, and dip netting on the Parrett. All consist of a rectangular frame from which a net is suspended. A haaf net has a middle leg which extends for carrying the frame (beam) and to tip it to trap fish; a lave net consists of a hand-staff which is held in one hand and a headboard with the other, whilst the fingers are entwined in the bottom of the mesh feeling for the fish. The haaf net is positioned in front of the fisherman, to face the run of the water. The most common method is to stand in shallow estuary waters during the ebb tide. The fisherman faces the outgoing tide holding the net to catch salmon. Haaf-netters sometimes fish in a line, in small numbers or alone depending on the ground. Includes local variants such as 'Flood Beam' or 'Marsh Haaf'. The lave net is used at low spring tides in flat and calm conditions. Dip nets, larger versions of the child's rock-pool net, are used around the Severn Estuary and on the River Parrett, to catch elvers (young eels).

Longlining refers to commercial fishing using long-line methods. Longlining involves setting out in the water column a fishing line, often several kilometres long, from which shorter lines called snoods are spaced at intervals and carry baited hooks. The lines may be set vertically or horizontally, with an anchor and marker buoy at each end, at various levels in the water column depending on whether the target species are demersal or pelagic. The size and types of fish caught are also determined by the hook size and the type of bait used. Longline fishing in the UK is typically engaged in by small inshore vessels, 10m or less, generally operating on grounds near their home port.

Seine netting refers to commercial fishing using seine nets. A seine net is a long net that hangs in the water column with floats along the upper edge and weights along the bottom. The ends of the net can be drawn together to encircle and herd a school of fish, and then hauled in, usually by a fishing vessel in modern commercial fisheries but, historically in shallow inshore waters, by hand too. Two main types of seine nets are in use: purse seines and Danish seines. Purse seines have a drawstring running through rings along the lower edge, which closes the floor of the net to prevent the fish from escaping as it is hauled in. Danish seines use a conical net anchored to the sea floor at one end; wires attached to wings at the other end are towed around a shoal by a vessel, herding the fish into the net for hauling in.

Drift netting refers to areas of commercial fishing using large nets that drift in the water, moved by currents and lacking any fixtures to keep them in place. These are generally used for pelagic or migratory species. Drift nets are rigged in a straight line to form a curtain in the water. Fish swim into the net and are trapped there by their gills.

Pelagic trawling refers to commercial fishing involving trawling midwinter levels of the water column, targeting the pelagic fish species, most commonly mackerel, herring or sprats in the UK. Large funnel shaped nets, held open at the mouth by floats and

weights, are towed by one or two (pair-trawling) vessels. Net size varies considerably, up to 240m wide, as does the size of vessel operating such fisheries, which may be inshore or offshore.

Demersal trawling is a generalised term referring to the act of catching flat fish species that mainly live on or near the seabed through fishing methods that involve trawling the bottom of the sea and often results in the disturbance of the sea floor itself.

Fishing ground refers to an area regularly exploited for commercial fish and/or shellfish extraction, but within which the locations of actual fishing activity at any given time may vary, seasonally and over other temporal cycles according to the behaviour of the target species concerned and regulations governing their exploitation. Consequently the definition of fishing grounds will depend on several factors: the distribution and behaviour of the commercial fish species, fishery regulation at regional, national and international levels, and custom and tradition within the fishery concerned.

Potting refers to areas characterised by commercial fishing using pots and creels. Pots and creels are small portable traps set on the sea floor in coastal waters to catch a variety of crustacea and molluscs such as lobsters, crabs, cuttlefish, crayfish and shrimps. When baited, they are set on the sea floor singly or in lines with marker buoys at each end. There are many designs reflecting both target species and local tradition. Traditionally made from basketry but now usually of cord mesh over a metal and wooden frame, they generally have one or more funnel-shaped entrances allowing the prey species to enter but not leave. Potting grounds are rarely more than a mile offshore and in most parts of the country occur in areas of rocky sea-floor.

Shellfish dredging refers to areas characterised by the regular commercial collection of naturally-occurring shellfish stocks for food, bait or other products using a dredge towed behind a fishing vessel. In UK waters the target is usually scallops. Scallop dredges consist of a ruggedly constructed triangular steel frame and tooth-bearing bar, behind which a mat of linked steel rings is secured. A heavy netting cover joins the sides and back of this mat to form the bag in which the catch is retained. Scallops, which usually lie in sand or fine gravel, are raked out by the teeth and swept into the bag.

A fish market is a market where fish is sold (http://thesaurus.english-heritage.org.uk). This includes closely and functionally associated open areas, built structures, wharves, quays and distribution facilities.

Fish warehousing refers to an area characterised by buildings used specifically for the storage of fish or fish products. Such storage may relate to several aspects of the fishing industry, for example the storage of fish after landing and before auction or sale, or the cold storage of fish after sale. It includes closely and functionally associated transport and distribution facilities.

Fish trapping refers to areas characterised by the use of fish traps for the capture of naturally occurring fish stocks. Fish traps are permanent or semi-permanent structures, built or placed in rivers (freshwater or estuarine) or tidal areas and designed to catch fish as they move along in river currents or down the shore on the ebbing tide. Fish traps include stone, timber, basketry or framed-net structures, sometimes covering extensive areas with their funnel-shaped plans, concentrating trapped fish towards a collection point; in other cases, smaller structures are sited in strategic position along rivers or tidal channels, again designed to ensnare fish travelling along them. This Sub-type does not include temporary portable pots and creels which are repeatedly lifted and re-set at sea: the 'Potting' Sub-character Type covers areas dominated by that method.

The character of fishing in the open sea is similar to that of hunting and gathering in that it exploits its prey resources over extensive territories across which the areas of

actual fishing activity will move, seasonally and over other temporal cycles according to the behaviour of the prey species concerned. Those territories: the fishing grounds, and the fishing methods which dominate within them, are defined and can be mapped according to several factors: the distribution and behaviour of commercial prey species, fishery regulation at regional, national and international levels, and by custom and tradition.

Fishing methods also vary considerably in their impact on marine and estuarine biodiversity and on the physical environment of the areas in which they operate producing, for example, clear differences between the ecological and physical imprints of pelagic trawling and those of bottom trawling.

Following implementation of the Marine and Coastal Access Act 2009, the Marine Management Organisation (MMO) controls sea fishing in seas around England. Its responsibilities include enforcement of sea fisheries legislation, licensing of UK commercial fishing vessels, sampling of fish catches, management of UK fisheries quotas, an advisory role and general liaison with the fishing industry.

HISTORICAL PROCESSES; COMPONENTS, FEATURES AND VARIABILITY

Fishing is an ancient practice and has been an integral part of human activity since at least the Palaeolithic (c. 40,000 years ago). Historic features such as shell middens, discarded fish bones and cave paintings show that sea foods were important for survival and consumed in significant quantities. During this period, people lived a hunter-gatherer lifestyle and were, of necessity, nomadic (i.e. constantly on the move), though this would not preclude a regular cycle of repeated visits to favourable locations across an extensive territory. The coastal zone is an especially rich resource for the hunter-gatherer lifestyle and, due to post-glacial sea level rise, several early sites are now submerged (see Fischer 2004).

Since the end of the last glacial period *c*13,000 BP, many cultures around the world made the transition from nomadic hunter-gatherers to more sedentary farmers. With the new technologies of farming and pottery came basic forms of all the main fishing methods that are still used today (http://en.wikipedia.org/wiki/History_of_fishing).

One of the world's longest trading histories is the trade of dry cod, which commenced at least during the Viking period and probably earlier, and has therefore been practised for well over than 1000 years.

Fishing became a major industry in the medieval period in areas such as East Anglia, where the herring fishery was key and already established by the time of Domesday. This industry continued into the 20th century, despite several periods of decline The industry was based on small, localised fleets often launching off the beach. The medieval period also saw the further development by the English of the Icelandic cod industry following the Anglo-Danish Treaty of 1490 which eased restrictions on fishing in Icelandic waters.

Many of the English fisheries were in decline by the early 17th century as a result of competition from foreign vessels, especially the Dutch herring fleets. Foreigners were prohibited from fishing in all the fisheries off the coasts of England, unless they bought licences: the seas were no longer 'free' (Starkey *et al* 2003).

In the mid 18th century, trawling in English waters was mainly confined to stretches off the south west and south east coasts. Devon sailing trawlers worked out of Brixham and Plymouth, while Barking was the centre for craft trawling in the Thames approaches (Starkey *et al* 2003). The widespread introduction of bottom and beam trawling had a revolutionary impact on the fishing industry in England as a whole and Brixham's refined and improved trawlers became famous, influencing timber-built trawler design for

fishing fleets across the world at that time. By the last quarter of the 19th century the most dynamic sector of the English fisheries was trawling in the North Sea.

At the beginning of the 1900s, gas powered boats were beginning to make an appearance, and by the 1930s, the row-sail boat had virtually disappeared. In the 1930s, the drum was created, allowing nets to be drawn in faster. Along with the faster gas powered boats, fishermen were able to fish in areas they had previously been unable to go into, thereby revolutionising the fishing industry.

During World War Two, navigation and communication devices, as well as many other forms of maritime equipment (e.g. depth-sounding and radar) were improved and made more compact. These devices became more accessible to the average fisherman, thus increasing their range.

During the 1960s, the introduction of fine synthetic fibres (e.g. nylon) in the construction of fishing gear marked an expansion in the commercial use of gillnets. The new materials were cheaper and easier to handle, lasted longer and required less maintenance than natural fibres. Nylon is highly resistant to abrasion; hence the netting has the potential to last for many years. This 'ghost fishing' is of environmental concern, however it is difficult to generalise about the longevity of ghost-fishing gillnets due to the varying environments in which they are used.

Historically, a huge diversity of fish species has populated the northern seas but fishing activity has tended to focus only on a limited part of that range, with two species in particular, cod and herring, being heavily exploited in North West Europe. Today, the North Sea is one of the world's most important fishing grounds. Major UK and international fishing fleets operate in the southern, central and northern North Sea, holding over 150 species of fish, 15-20 of which are of commercial value.. One of the most characteristic fisheries in the North Sea is the mixed demersal fishery that targets cod, haddock and whiting in the central and northern parts of the region (see CEFAS 2001).

VALUES AND PERCEPTIONS

Modern fisheries are increasingly coming to the attention of the wider general public with a growing concerns over falling fish stocks and unsustainable fishing practices. Modern perceptions of fishing are often related to the destruction of fish stocks and damage to the seabed and marine biodiversity in general. However, fishing still has a deeply engrained and traditional economic role for many coastal communities in England, even if its actual practice in now much diminished. It is greatly valued for the distinctiveness it affords such areas by both local communities and visitors alike, and for some it remains an important element in the local economy.

RESEARCH, AMENITY AND EDUCATION

There is considerable potential for further research into the history of fishing, in particular its early development and the various catching, storing and processing techniques employed. Such research has much potential to inform strategies for sustainable fisheries and the marketing of their products, utilising the historic character and the distinctiveness of place attaching to such fisheries to complement the identification of patterns, trends and materials used. Much potential for socio-economic research on the fishing industry past and present also exists: for the present and future, the ability to conduct such research effectively will rest on the collection and availability of more detailed data than hitherto on methods used, days at sea, crew numbers, catch and by-catch species and quantities.

Archaeological finds associated with wrecks, inshore fishing and coastal potting areas will further inform a fuller understanding of the character and history of this industry.

CONDITION AND FORCES FOR CHANGE

One of the main forces for change regarding this Character Type relates to sustainability issues. In general, there is more knowledge about the fishing practice rather than the location of specific areas of activity. Some fishing practices will impact on the historic character of an area more than others. For example, trawling methods have a more intrusive impact on the seascape than pelagic netting and long-lining methods. The material evidence left by trawling activities includes trawl scars on the seabed itself.

The condition and drivers for change affecting historical aspects of the character of an area include, for example, pressures from the tourist industry on historic fishing settlements including developments such as hotels, marinas, caravan parks, and their associated roads and services. Economic and environmental pressures on the present fishing industry addressing issues of sustainability also need to be taken into account.

To date the impact of fishing activity on historic features has received relatively little study and has not been fully quantified. However, fishing has had large-scale character impacts on coastal settlement patterns and forms across the country, strongly influencing their embedded historic character in ways that their local communities and visitors value highly.

RARITY AND VULNERABILITY

Traditional fishing practices such as long-lining have been declining since the advent of more intensive trawling. Generally, fisheries are in a period of retrenchment and quotas. Restrictions on fishing grounds are impacting on the scale, range and economic sustainability of the present industry.

Continued control over exploitation of fish stocks is necessary to enable their sustainable management, with European Union (EU) and UK reforms and measures progressing towards that end. This has considerable implications for the people whose livelihoods depend on marine food resources and on the character of places that accommodate those livelihoods. Regulation aimed at the sustainable harvesting and greater conservation of wild fish stocks maty well alter the future balance between fishing and aquaculture in providing fish and shellfish protein, and the methods and species used in aquaculture.

Understanding historic fishing practices and their effects on the fishing resource may contribute to the long-term sustainability of sea fisheries. Consumer pressure might also encourage more sustainable fishing practices and give greater market value to fish caught using what are perceived as locally distinctive and 'traditional' methods, especially if their sustainability can be added to the marketing equation.

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