

PRELIMINARY REPORT OF COASTAL FISHERIES AROUND THE COASTS OF THE BRITISH ISLES 1950-1999

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ABSTRACT

The following report and the associated spreadsheets constitute a summary of the data that have been gathered for the *Sea Around Us* project between November and December 1999. Guidance from personnel and access to data at the Fisheries laboratories in both Aberdeen and Lowestoft are available. People from the sports fishing sector have been extremely enthusiastic. The Shark tagging association, British Conger Club and the National Federation of Sea Anglers have provided access to their archives of match fishing from the 1920s onwards. Angling organizations feel that, relative to commercial fishers they presently have a weak voice in the politics of marine resource management and conservation. The European Federation of Sea Anglers is presently submitting a proposal for a study to examine the economic importance of sports fishing. Information presented here include time series data on UK lobster (*Homarus gammarus*) and Scottish salmon catches, conger angling data, as well as findings from a coastal fisheries survey.

INTRODUCTION

The data presented here on the coastal fisheries around the British Isles represent a very small proportion of what is available. Most initial effort has been aimed at making contact with possible sources of information. Many fisheries scientists approached for assistance were initially fairly skeptical but when assured that we required little more than access to data and that we were painting with a fairly broad brush, most have been willing to help.

FISHERIES DATA

There are a wealth of good quality data available from both Aberdeen and Lowestoft Laboratories. The main problems with it are that it has never been transferred from paper and much of it is recorded in a form that may not be understandable without explanation. In addition, the finest resolution that may be available for much of the data are at the 'statistical square' level (30 km²). The main concerns of those people approached are that much of the information remains confidential and that the data do not provide a good reflection of abundance. For example, changes in market demand and fishing technology may affect catch as much as any population variations. The fisheries scientists at Aberdeen and Lowestoft do not wish to be associated with conclusions drawn from 'their data' that may, in their eyes, be unsupportable. Although there is some desire to see archived data put into a useable format they are worried about becoming involved in a project that might require them to commit resources. Highlighted problems with official data include the under-reporting of catches by around 30% (S. Greenstreet, pers. comm.) and the huge variation in discards between species and years.

ANGLING DATA

The advantages of angling data are that they will have been less affected by economics, and sports fishing methods have remained virtually unchanged for the last century or so. Angling data may give good indications of long term changes in local abundance. However, most angling archives will only contain records of fish of over a particular size. It is possible that there may be data available from some clubs of competition fishing catches where anglers recorded everything caught during a set time. Also, it is possible that there are some individuals that have recorded all of the fish that they have caught over the past 10 to 50 years.

DATA AND DATA SOURCES

UK Lobster catches

These data were taken from a workshop report (Bannister, 1998). There are a lot more data available on this species that will give some indication of effort (Nick Bailey, pers. comm.). Generally the lobster (*Homarus gammarus*) season in the UK runs from March to October. Full-time fishers will set 250-1,200 creels or pots

while a significant number of part-time fishers will lay 20-100 pots. The minimum landing size in the UK is 85 mm and average daily catch rates vary from 10-15 lobsters per 100 pots in poor fisheries to 40-80 pots in better fisheries.

UK catches have varied between 750 and 1,550 tonnes since 1945 (Figure 1). There was a fairly steady decline in landings from 1960 onwards. Year class strength of lobsters is thought to be strongly affected by sea surface temperature variations and the peak in landings in 1984 has recently been attributed to the 1982 El Niño Southern Oscillation (ENSO) event (Sheehy *et al.*, 2000). Effort directed towards lobsters is likely to be affected by both the recreational nature of lobster fishing for some part-timers and the need to stake a claim to an area by leaving pots in place even when catches don't merit the effort.

Conger Angling Data

These data were kindly provided by the British Conger Club (BCC) and consist of catches made by members of the association that are of a size large enough to merit recording. Members may catch many smaller conger eels (*Conger conger*) but those less than 25 lbs. (11.34 Kg) in weight are not recorded.

The mean weights of conger eels landed and recorded by the BCC over the past 10 years has declined from a peak of 28.6 Kg in 1991 to a minimum of 23.6 Kg in 1998 (Figure 2). In addition, the number of eels caught by members that are of a size to merit recording has declined from a maximum of 322 in 1994 to 113 in 1999 (Figure 2). These data are somewhat limited in their geographic extent - conger eel fishing is particularly popular around the south coast of England.

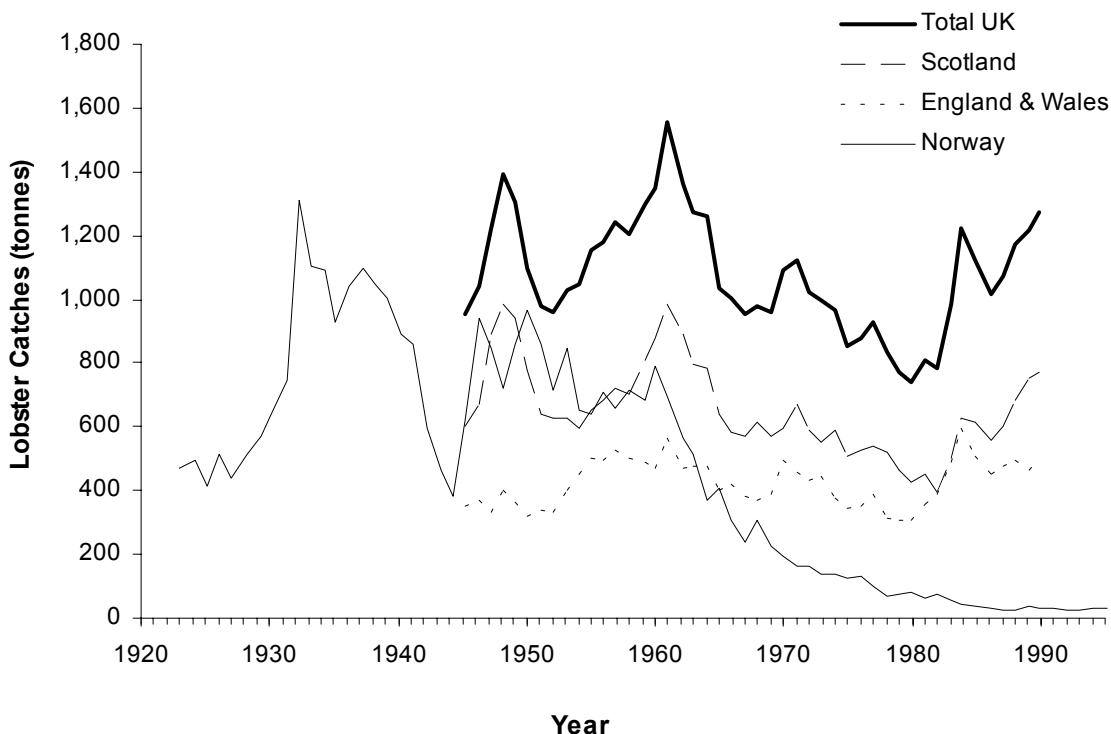


Figure 1. Summary diagram of lobster landings around the coast of the UK and Norway from 1923 onwards.

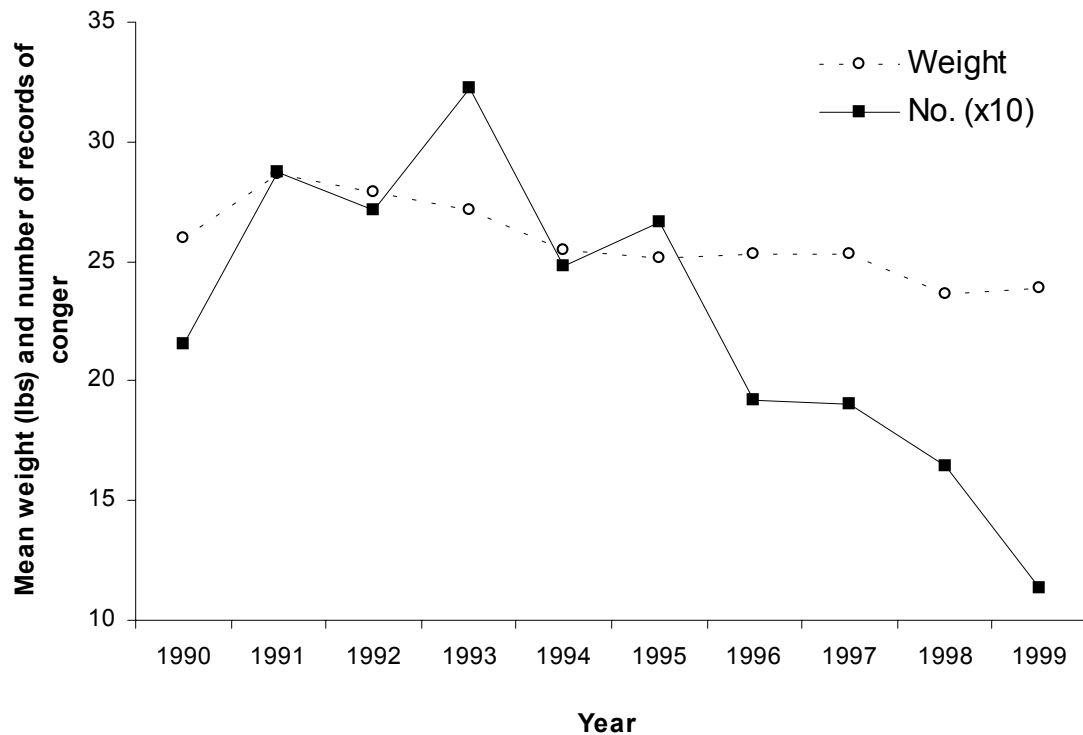


Figure 2. Number of records and mean weights of conger eels (*Conger conger*) of over 25 lbs. (11.34 Kg) landed by members of the BCC between 1990 and 1998. (Note that vertical scale does not start at origin.)

Coastal survey 1981

The data presented here are extracted from one of a series of three reports on the coastal fisheries of England and Wales (Pawson and Benford, 1983; Pawson and Rogers, 1989; Gray, 1995). The 1983 report contains details of catch and effort of coastal fisheries on a port by port basis, although a few pages are missing from the copy obtained.

The 1995 report contains details of effort only. There are some problems presented by the qualitative nature of some of the reports of numbers of boats involved in particular fisheries, e.g., "in this port there are many part-time boats with pots for lobster or nets for cod, which operate only when weather permits". There are at least 36 different methods of fishing recorded in the 1981 report and both Pawson and Rogers (1989) and Gray (1995) suggest that the versatility of inshore fishers is a response to seasonal fluctuations of individual resources, longer term variations in abundance and marketing and management controls. In addition, it is likely that many part-time coastal fishers, for whom fishing is not their primary source of income (e.g., retired full-time fishers, unemployed heavy industry workers, crofters), are less driven by the need to make a profit.

Hopefully, these reports will provide a good

reference point. Preliminary analyses of the 1981 data suggest that there are no obvious relationships between effort (defined as number of boats x length x 0.5 for part time or 1.0 for full time) and reported catch. This may be a function of the inaccuracy of the data for either catch or effort, or of the wide variety of methods and species taken by inshore fishers.

Together the three reports should give a good indication of how fishing techniques amongst coastal fishers have changed over the last 10 years. From the 1981 report it is clear that trawling (39%) dominated effort at this time (Figure 3). This is probably a reflection of the fact that only larger boats are capable of trawling efficiently and larger boats are much more likely to work full-time. Although the estimated efforts for potting and angling are lower than for trawling, the numbers of boats fishing for crabs and lobsters (1,767) or taking out angling parties (2,239) was higher than trawling (1,514). Many of the boats involved in these non-trawl fisheries work part-time or seasonally and are incapable of working in inclement conditions.

Pelagic species were the largest group landed by coastal fishers in 1981 (Figure 4). This could be expected given the dominance of trawling effort in comparison to other species. Although Pawson and Benford (1983) made no clear indication one

way or the other, it is doubtful that catches by sports anglers are included to any significant degree in the landing figures. When it is considered that just under 6 tonnes of conger alone are recorded as landed at competition weight (> 11 Kg) from a restricted area of the

coast each year, and that angling effort is second only to trawling, it would appear that a significant portion of fishing effort is effectively ignored. Since fishers preferentially fish for benthic and demersal species it is likely that the estimations of landings for these groups are under reported.

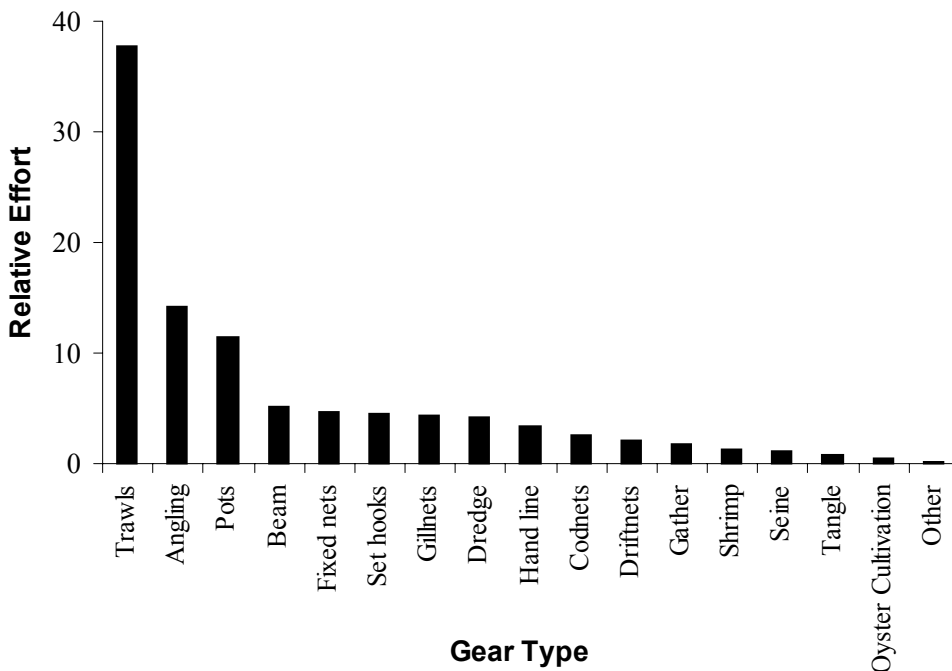


Figure 3. Estimated fishing effort with different types of gear by English and Welsh coastal fishers in 1981. Figures are proportions of the total effort.

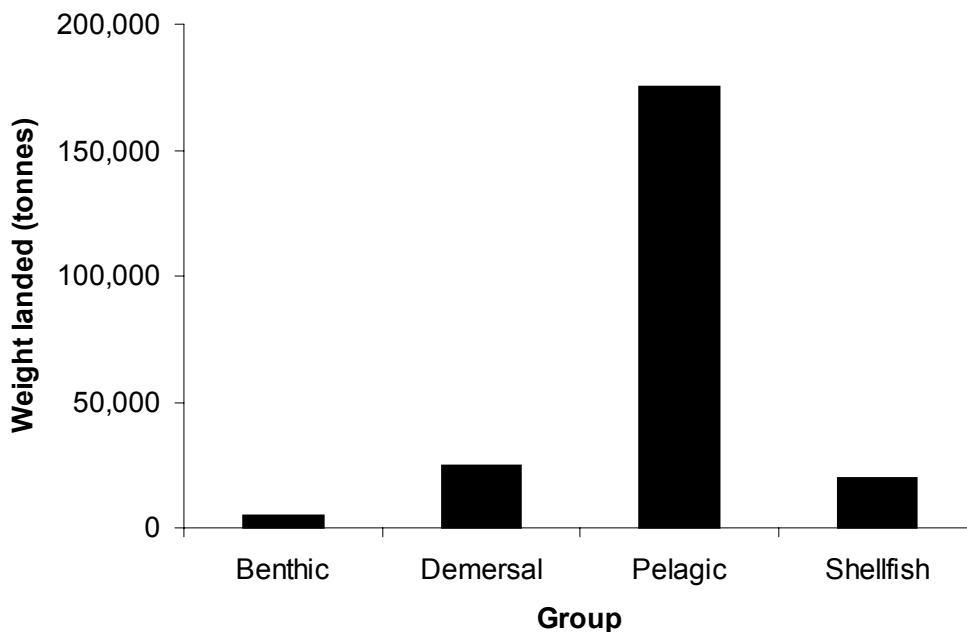


Figure 4. Weights of fish and shellfish (in tonnes) landed around the coasts of England and Wales by coastal fishers in 1981. Benthic (Flatfish and skate). Demersal (Cod etc). Pelagic (Herring etc).

Scottish salmon and sea trout landings

Salmon and sea trout landings since 1952 are summarized every year in Fisheries Research Services statistical bulletins. These break catches down by area, gear type and into the categories of sea trout, grilse, spring and winter salmon. The three salmon categories show differing susceptibilities to different fishing methods. For example, mature, late running salmon tend to have a reduced appetite and are therefore less likely to be taken by rod and line fisheries (Shelton and Heath, 1999). In addition, there is much in the way of useful qualitative and quantitative data contained in Williamson (1991). The weight data presented (Figure 5) were extrapolated from the detailed data for 1989 catches that have been obtained so far.

Williamson (1991) points out that landings in Scotland can be split into four parts: 1952-61 when the catch averages just over 300,000 fish; 1962-75 when it reached around 400,000; 1976-86 just over 250,000 and the years since 1987 when catch numbers have always been less than 200,000 fish. The fact that the catch has been lower in the past 14 years than it was in the first ten may be attributed in large part to the

influence of interception fisheries. The catch figures from these fisheries (English NE coast, W Greenland and N and W Ireland drift-net fisheries, Faeroes long-line fishery) were as great from 1976 to 1986 as they were in the 1950s. There has been a significant reduction in the numbers of net-caught salmon taken in Scotland; this has been the result of reduced effort by net fishers using fixed engines when catches are too low to merit upkeep of their nets. At the same time, various organizations and individuals have purchased fishing rights in many estuaries and rivers with a view to enhancing game (rod and line) fishing.

Although sea trout will be affected by many of the same factors that influence salmon fisheries, and a general reduction in total landings can be seen, substantial changes in landings do not occur simultaneously for both species. Sea trout landings peaked at 356 tonnes in 1967 and then declined until 1982 when landings reached 237 tonnes (Figure 6). This second peak that interrupts the general decline is attributable to the reductions in net fishing effort that took place in the 1980s (Anon., 1994). For both species rod and line landings appear to show less variation than net methods.

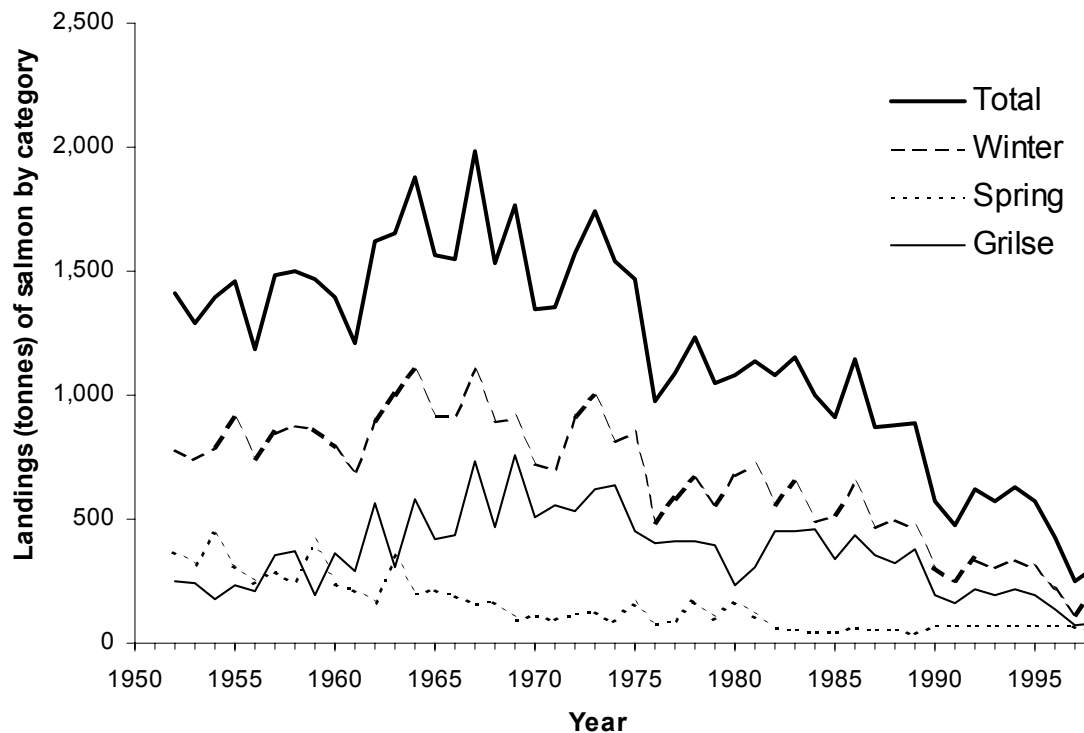


Figure 5. Total landings (tonnes) of salmon around the coast of Scotland since 1952 by category. Spring Salmon:- January to April; Winter Salmon- May to December .

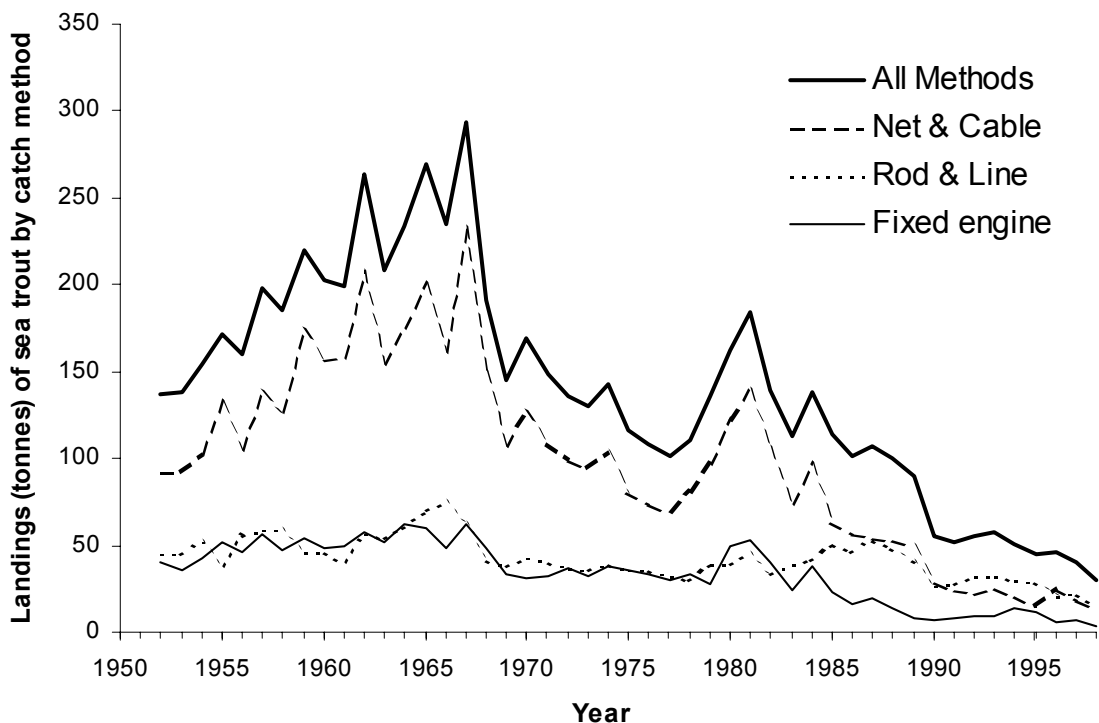


Figure 6. Total landings (tonnes) of sea trout around the coast of Scotland by catch method.

DATA AVAILABLE

In summary, we found the following data sets to be available:

- Pre-1990 Conger data. Archived on paper;
- NFSA match data on a range of fish species. The data are available as paper archives;
- Inshore fin-fish, Lobster, scallop and crab data (Lowestoft and Aberdeen);
- Coastal survey 1981: Landings data from this report are available on a month by month basis, the report also contains some details of fishing legislation and seasons;
- Coastal surveys 1985 and 1989 available from Lowestoft;
- Salmon and sea trout catch data at higher geographic resolution, effort data;
- English and Welsh fisheries data for salmon and trout, also for eels/elvers.

However, considerable resources may have to be devoted for consistent catch time series to be extracted from these data.

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