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For Information

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*Management of single and mixed stock fisheries, with particular
focus on fisheries on stocks below their conservation limit*

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Management of single and mixed stock fisheries, with particular focus on fisheries on stocks below their conservation limit

Paper for presentation at the NASCO 2014 Theme-based Special Session

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Summary

Conservation Limits have been established for the principal salmon river stocks in England and Wales. Each stock also has a Management Objective - to exceed its Conservation Limit in four years out of five on average. Each stock is assessed and categorised annually according to whether it is meeting its Management Objective. This helps identify pressures on stocks and the need for management action to control exploitation (alongside maintenance and improvement of habitat).

Following the annual assessments a formal decision structure is applied. This guides decision-making in terms of managing exploitation (balanced with maintaining/improving habitat in order to address the key pressures on a stock). All fisheries are managed on the basis of protecting the weakest contributing stock.

When making management decisions, socioeconomic factors are taken into account with an aim of minimising undue hardship to fisherman and maximising the social and economic benefits of commercial and recreational fishing if stocks are healthy enough.

Fishing is permitted on some stocks below Conservation Limits, but only if the stock is achieving its Management Objective or exploitation will not prevent ongoing stock recovery, and there are good social or economic reasons to allow fishing to continue.

A case study of the North East coast salmon and sea trout net fishery in England demonstrates the approach we have taken to managing a mixed stock fishery where stocks are not consistently meeting Conservation Limits but where, taking socioeconomic considerations into account, the continuation of some fishing has been allowed.

Stock assessment and classification

49 river systems in England and 31 in Wales regularly support salmon. Conservation Limits (CLs)¹ and Management Targets (MTs)² have been set for 64 of these. It is expected that CLs and MTs will be set for other rivers (those recovering from historic degradation) when stock recoveries reach reliable levels.

Each principal salmon river stock is assessed annually to establish whether it is meeting its Management Objective (which is to exceed its CL in four years out of five on average), using data from the past ten years to summarise the stock's performance. Based on this assessment stocks are classified (annually) into one of four categories: 'Not at risk'; 'Probably not at risk'; 'Probably at risk'; or 'At risk'³.

This system allows for fluctuations and variability in stock levels to be taken into account when making management decisions, and provides an early warning that a river has fallen or may fall below its CL. For more information on how we classify salmon river stocks see the annual Cefas/Environment Agency stock assessment report (<http://www.cefas.defra.gov.uk/publications/salmon/salmonreport2012.pdf>; report for 2013 imminent).

The decision-making process for managing exploitation

A formal Decision Structure (DS) is applied to each stock following annual assessment/classification to indicate what management measures are required. Any fishery exploiting more than one stock is managed to protect the weakest contributing stock (i.e. options indicated for the weakest stock are applied to the whole fishery).

The DS allows us to take account of the social and economic benefits of fishing. This allows for the potential to increase those benefits where a stock is considered healthy enough. This is generally only where all stocks exploited in a fishery are 'not at risk'; options to increase benefits are considered for stocks classified as '*probably* not at risk', but only if commensurate with achieving 'not at risk' status within a given timeframe. The DS also allows for consideration of how social and economic benefits can be maintained, *if possible*, where a stock is considered 'at risk' or 'probably at risk' and further restrictions on exploitation are considered necessary.

The timeframe for recovery is considered when making management decisions for any fishery: when the DS is applied, management measures are selected to aim for the stock to

¹ Conservation Limits (CLs) have been developed that indicate the minimum spawning stock levels below which stocks should not be allowed to fall. Details of the process for setting CLs and assessing compliance with these biological reference points are given in Annex 7 of the latest salmon stock assessment for England and Wales (available at <http://www.cefas.defra.gov.uk/publications/salmon/salmonreport2012.pdf>).

² Management Targets (MTs) have been set for each of the 64 principal salmon rivers, representing a spawning stock level for managers to aim at in order to meet the management objective that a river's stock should be meeting or exceeding its CL in at least four years out of five (i.e. >80% of the time).

³ Note that 'Probably at risk' and 'At risk' are not the same as 'endangered', 'threatened' or similar terms – they mean that there is a less than 50% chance that the Management Objective will be achieved

move up an assessment category (e.g. from ‘probably not at risk’ to ‘not at risk’, or from ‘at risk’ to ‘probably not at risk’).

Reducing exploitation is only one of the actions taken to manage a stock. Our salmon managers, angling clubs, conservation organisations etc. also work to conserve and improve habitats, contributing to the stocks increasing productivity over the longer term⁴. The European Water Framework Directive and Habitats Directive are strong drivers for this.

Options for restricting exploitation, taking socioeconomic factors into account

A number of different options are available to restrict fishing. ‘Net Limitation Orders’ are a key ‘tool’ – they are used to limit the number of net licences available and can be used to prevent new entrants into a fishery either until the fishery reaches a certain reduced size or until it is phased out entirely. The advantage of this is that we can reduce exploitation without causing immediate hardship to already licenced netsmen by bringing in an immediate ban on fishing.

Regulations also restrict fishing seasons, times, methods and areas.

National, local or regional fishery byelaws are also used. These place various requirements on fisheries, according to need, for example to:

- Restrict season times to protect stocks or particular components of stocks;
- Restrict methods that can be used at particular times of year to protect particular stock components (e.g. early running multi-sea-winter salmon);
- Ban netting or angling where fish may be more vulnerable, e.g. near obstructions;
- Require all rod-caught fish or fish above a certain size to be returned, or limit number of fish that can be kept;
- Implement ‘carcass-tagging’ for commercial fisheries to prevent poaching/illegal fishing and trading;
- Ban sale of rod-caught fish, removing incentive for anglers to catch fish to sell;
- Close fisheries entirely where there is a justified conservation concern.

Emergency byelaws can be used if urgent action is required due to unforeseen circumstances. Catch limits are being increasingly used to manage commercial fisheries. Voluntary measures are also in place in many areas e.g. agreements to restrict methods/baits used or to release all rod-caught fish (70% of rod-caught fish are now released, largely through voluntary agreement).

⁴ Whilst improving productivity can take a number of years, because the required action is complex or because a stock may need to go through a number of generations for the improvement to take effect, reducing exploitation has a more or less immediate effect on the number of spawning fish. Thus it is not a choice of reducing exploitation or improving habitat but the appropriate combination of both. When a stock falls below its Conservation Limit reducing exploitation is nearly always required in the short term.

Is fishing allowed on stocks below their Conservation Limits?

Achieving the Management Objective is not contingent on a stock meeting or exceeding its CL every year. Management decisions are based on the performance of stocks over the previous ten years and predicted future performance – to aim to achieve or move towards the Management Objective within a defined timeframe. Fishing may therefore be allowed where a stock is not consistently exceeding its CL.

This allows for an even-handed, long-term approach to managing salmon fisheries, taking long-term trends in stock performance into account. It also allows for social and economic factors to be accounted for when making management decisions, including aiming to maintain stability and continuity in fisheries as far as possible.

How are socioeconomic factors taken into consideration?

This is set out in our NASCO Implementation Plan. The primary objective is the conservation or restoration of stocks, but when considering new management measures we take socioeconomic factors be taken into account, depending on who will be affected and how, and the intended rate of stock recovery. We consider:

- Whether proposed measures will have an unreasonable effect on someone's livelihood (e.g. net fishing) or the value of their property (e.g. fishing rights) - we might plan recovery of a stock over longer period to reduce these impacts.
- Effects on different groups – we seek equal impact on commercial and recreational fisherman.
- The effect on the viability of fisheries – e.g. mandatory 'catch and release' has less effect on anglers than on commercial netsmen.
- Heritage value: where fishing methods are unique to a very small number of locations, we consider retaining a residual fishery and/or permitting a low level of catch.

Case study: management of salmon netting in the North East of England

Overview

The North East Coast fishery is the largest remaining coastal salmon and sea trout net fishery in England and Wales. Fishing is from small boats using driftnets operated up to six miles offshore and 'T' and 'J' nets anchored close to the shoreline.

There has been a long tradition of coastal fishing in this area. Communities depend at least partly on salmon fishing: not just fisherman but also those employed in processing fish, boatbuilding, making nets, etc.

It is a mixed stock fishery, taking fish from five principal salmon rivers in northeast England (Coquet, Tyne, Wear, Tees, Yorkshire Esk) and rivers in Scotland as far north as the Aberdeenshire Dee.

Regulation of the fishery is by a range of controls on fishing effort, including gear specifications and season, time and area restrictions. A key regulatory instrument used is the 'Net Limitation Order' (NLO). This restricts the number of licences issued and therefore the number of nets operating. The first NLOs for this fishery were introduced in 1964 to counter the increasing number of entrants into the fishery attracted by the introduction of highly efficient monofilament nets.

NLOs typically last ten years. When we review an NLO before it expires there is an opportunity to review the whole management approach for the fishery. We consider the 'conservation case' setting out what further restriction is required, and develop a number of management options, informally consulting stakeholders as we do this. A preferred option is decided upon and advertised and stakeholders can submit formal objections or statements of support (this is both a legal requirement in England and Wales and in line with NASCO's guidance that processes should be in place for consulting stakeholders).

The latest NLO for the North East coast fishery was introduced in 2012:

- continues to progressively implement the phase-out of the drift nets;
- allows netsmen who hold a licence to continue to fish;
- prevents new netsmen from entering the fishery;
- fishery shrinks each time a netsmen leaves;
- commences a phase-out of the T & J net fishery (previously limited to a certain number of licences per year).

Commitments were given that:

- the remaining drift net fishery will be closed at the end of 2022;
- evaluation will be undertaken of the potential for maintaining some T & J and/or estuary nets;
- possibility of using quota and/or effort to cap catches to be investigated.

What is the rationale for managing this fishery in this way?

What steps were taken to ensure that exploitation was limited to a level that will permit stock rebuilding within a stated timeframe?

What were the specific socioeconomic factors used to permit such fishing?

In 1992, it was determined that the drift net fishery should be phased out because it made the management of individual recovering stocks more difficult. However, these stocks were not in immediate danger so the phase out was implemented in a way that avoided undue hardship on licensees dependent on fishing for their livelihood.

When the Net Limitation Orders were reviewed in 2012, of the English river stocks contributing to the fishery the River Tees (classified as “at risk”) and the Yorkshire Esk (“probably at risk”) were considered the weakest. The Decision Structure indicated that management should urgently reduce exploitation of the ‘at risk’ Tees stock to zero. However this has to be balanced with a number of other considerations:

- Industrialisation and pollution of the rivers of Northeast England: this virtually wiped out their salmon populations, but with massive improvements in water quality from the 1970s to the 1990s salmon have returned to all the major river systems; all English stocks exploited by the fishery were assessed in 2012 as meeting management objectives or showing improving trends; work is ongoing to improve habitats, address obstructions, reduce pollution etc. We can’t concentrate solely on restricting fishing as a means of ensuring stock recovery.
- Impact on Scottish stocks, particularly on designated features of ‘Special Areas of Conservation’ under the European Habitats Directive – having considered this we concluded the proposed controls would mean that the fishery would not significantly impact upon the integrity of those protected areas.
- The social and economic importance of the net fishery to the local area. A study was commissioned to assess this.
- Social and economic importance of the rod fisheries that exploit the same stocks. These also provide a range of opportunities for rural communities.

Therefore the overall rationale for managing the fishery remained the same as in 1992: affording adequate protection to the contributing stocks was paramount, but the socioeconomic importance of both rod and net fisheries was also taken into account as far as possible.

Thus the aim is to continue to phase out the drift net fishery and begin reducing the beach nets, but to minimise the socioeconomic impact of reducing exploitation on netsmen and their communities. The progressive phase-out does not immediately render them without an income and provides time to diversify or find other occupations (or for the many older fishermen, to fish until retirement). It is also expected to achieve a progressive decline in the level of exploitation in the fishery.

It was recognised that there may be a need for further management measures to avoid repeats of the high catches experienced in recent years, and that a potential catch limit or quota for the fishery should be investigated. This is underway and expected to report towards the end of 2014.

However, given the social and importance of salmon fishing in the area it was also agreed that it would be worthwhile to investigate the potential for some form and some level of fishing to continue that is in line with national policy and international commitments etc. (e.g. NASCO guidance, and the European Habitats Directive). The midway review of the Net Limitation Order in 2017 will provide an opportunity to think about this in more detail.

Decision structure for salmon fishery management in England and Wales

