



Information Pack on
**Proposed Firth of Clyde
Regulating Order**

February 2015



Sustainable Inshore Fisheries Trust

Introduction

This document summarises a proposal by the Sustainable Inshore Fisheries Trust (SIFT) for a Regulating Order (RO) for the Firth of Clyde. The document is for members of the Firth of Clyde fishery and other stakeholders. It details the background, proposed governance structure and management measures. It comes about in response to requests about the proposals from a variety of stakeholders.

In drafting its proposals, SIFT has consulted with a wide range of stakeholders and experts. However, the drafting of management measures under the proposed RO must be an inclusive process in which the fishing industry and other stakeholders play a central role. Accordingly:

Written comments on this document are invited to be sent to info@sift-uk.org

The full Draft RO proposal will be published in April 2015. Following publication, **a full round of consultations will be held with the fishing industry and other stakeholders.**

What the Regulating Order aims to achieve

The RO aims to implement a new management regime for the Firth of Clyde to support a more diverse, robust and sustainable fishery. More specifically, the aims are:

To increase productivity and resilience of the commercial shellfish fisheries; and

To promote recovery of the finfish stocks to commercially exploitable levels.

Economic analysis of the proposed measures predicts the following outcomes over a 20 year period:

A positive Net Present Value is projected for the existing commercial shellfishery.

The recovery of finfish stocks will provide a positive economic benefit by lowering shellfish dependency and boosting the resilience of the commercial fishery.

The recovery of the finfish stocks will have wider benefits such as bringing additional recreational sea angling jobs to the Clyde region.

Why the Clyde?

For most of the 20th century, the Firth of Clyde supported a profitable and resilient mixed fishery which produced substantial landings of finfish such as cod, whiting, haddock, herring and saithe. The finfish fishery declined rapidly in the decades following the mid-1970s (Heath & Spiers, 2011). After the period of peak finfish harvesting in the 1970s and 1980s, some of the commercial finfish species remained. But there were too few fish of a commercially marketable size to support a fishery. This situation remains: the Firth’s finfish stocks, which are now mainly whiting, are mostly too small to land (McIntyre *et al.*, 2012).

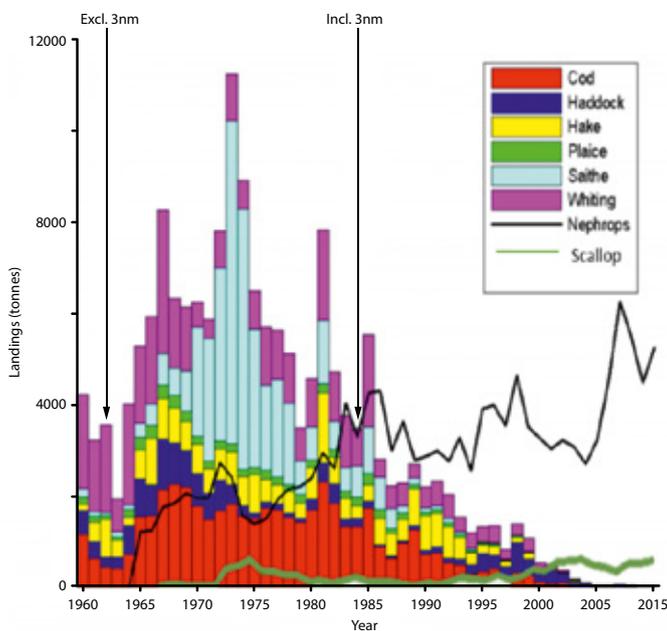


Figure 1 | Firth of Clyde landings 1960 - 2010. Adapted from Heath & Spiers (2011)

‘...there are no obvious signs of negative effects on the food web of pollution, nutrient enrichment of any other man-made source of contamination’

The Clyde Ecosystem Review
(McIntyre *et al.*, 2012)

The cause of the decline in the Clyde fishery

A wide range of reasons has been given for the decline of the Firth’s commercial finfish stocks, including seal predation, pollution and sea temperature rise. There is some evidence that a few of these reasons, such as seal predation, can play a small role in the decline of finfish stocks. However for the most part the evidence is strong that overfishing has altered the mix of species in the Clyde, leading to the decline in fish landings (McIntyre *et al.*, 2012). It is widely acknowledged that the excessive use of heavy fishing gear, particularly on complex areas of the seabed has exacerbated this decline (Bergmann *et al.*, 2002).

The remaining fishery in the Firth of Clyde

In place of finfish, the Clyde fishery now has to rely on shellfish. In 2013 over 99% of the Firth’s landings were shellfish, 89% of which were scallops and prawns (data sourced from Marine Scotland). The wellbeing of the stocks of these critically important species, are themselves now subject to question.

In recent years the prawn stock has generally been classified as ‘exploited above Maximum Sustainable Yield’ by the International Council for the Exploration of the Seas (ICES), although 2013 advice stated that fishing pressure now meets ICES’ suggested targets. However, ICES advice for 2015 is that landings should be limited to 3 776 tonnes for the Firth of Clyde - which is 33% less than the level it advised for 2014 (ICES Advice, 2014). No formal stock assessments have been undertaken of the Clyde’s king or queen scallop stocks. However, analysis of the age structure of the king scallop catch indicates it is heavily exploited (Howarth *et al.*, 2015).

Regulating Orders

The risks of over-dependence

Relying heavily on only scallops and prawns means that the fishery lacks resilience. If these fisheries decline there is no substantial alternative stock left to fish for. This is a reasonable cause for concern: prawns in particular appear unusually prone to stock collapse from disease, contamination and climate change (Worm *et al*, 2006). Studies have shown that the Hematodinium infection, which can make prawns unsellable, peaks in spring with a background prevalence of 20-25% in trawl caught Clyde prawns and with incidences of up to 70% infection in some years (Beevers *et al*, 2012; Bell *et al*, 2013). Another study showed that 83% of Clyde prawns had plastics in their stomachs (Murray & Cowie, 2011) – the impacts of which are unknown.

Changes in demand for Clyde prawns and scallops also pose a risk to the fishing fleet - be it because of foreign competition or changes in consumer taste.

What the Clyde could be

With more effective management, the Clyde fishery could be more diverse and hence more economically resilient. **This does not require closing the existing fisheries.** It requires managing the existing fishery in a different way. In particular there are opportunities to:

- Make better use of science to strengthen the health and profitability of the shellfish fisheries, thus ensuring its long term sustainability;
- Protect sensitive and complex seabed habitats which are known to be nursery grounds for finfish and therefore vital to the recovery of an ecosystem that could once again support a commercial finfish fishery; and
- Reduce gear conflict and the associated economic losses.

With the right management measures, the Clyde should be able to achieve good ecological status by 2020, as required by the EU's Marine Strategy Framework Directive. The RO is being designed to be compatible with other actions being undertaken to achieve this status - such as the Scottish Government's Clyde 2020 project.

SIFT has identified a Regulating Order as the best legal mechanism for achieving these ends. A Regulating Order is a piece of legislation granted by Scottish Ministers under the Sea Fisheries (Shellfish) Act 1967. It aims to improve the management of shell-fisheries by granting rights to a 'Grantee' to regulate the fishery for one or more named shellfish species in a designated area. A RO does not cover finfish fisheries – at present no such legislation is available.

Why a RO is right for the Clyde

The Clyde fishery is currently a shellfish fishery, so the management needed to bring about change should fall under shellfish fishery legislation. Importantly, although a RO is for managing shellfish fisheries, if well designed it can also bring benefits to finfish fisheries.

A RO would also provide the following key benefits to static and mobile gear fisheries:

Local control. A Grantee which receives management powers under a RO can be a non-profit company made up of local stakeholders, so it can put local interests at the heart of its decisions. This should encourage the best stewardship of the fishery, and a wide representation of local stakeholders on the board should ensure that management decisions are made in the interests of local communities.

Flexibility. A RO allows the Grantee to open and close parts of the fishery and to set how much stock may be removed. It can act quickly in response to scientific and other advice; for example when a storm impacts on shellfish stocks or when mild spring weather causes species to spat earlier than anticipated. This gives greater flexibility than if management decisions are made by central government.

Sustainability. A RO ensures all fishing for the specified shellfish is carried out under a management plan. This can reduce the impact of the fishery on other parts of the ecosystem - whilst keeping the management of the designated shellfish species the priority.

The Clyde Regulating Order

The proposed RO would have the following features:

Area: The Regulating Order would cover the full extent of the Firth of Clyde, as per the hatched area in Fig (2).

Species Included: The Clyde RO would only cover prawns (*Nephrops norvegicus*), king scallop (*Pecten maximus*) and queen scallop (*Aequipecten opercularis*).

Duration: The RO is initially sought for 10 years, with an expectation of renewal for a further 10 year period.

Enforcement: Enforcement can be carried out either by the Grantee or Marine Scotland (Compliance).

Funding: It is anticipated that three sources of funding would contribute to the RO's operation: governmental - especially EU - sources, from the fishing industry itself in the form of licences and levies, and philanthropic grants. Crucially, **costs to the fishing industry would be set at a low level** until its health has recovered. It is anticipated that licence costs per vessel would be similar to that under the Shetland RO – some £250 per annum.

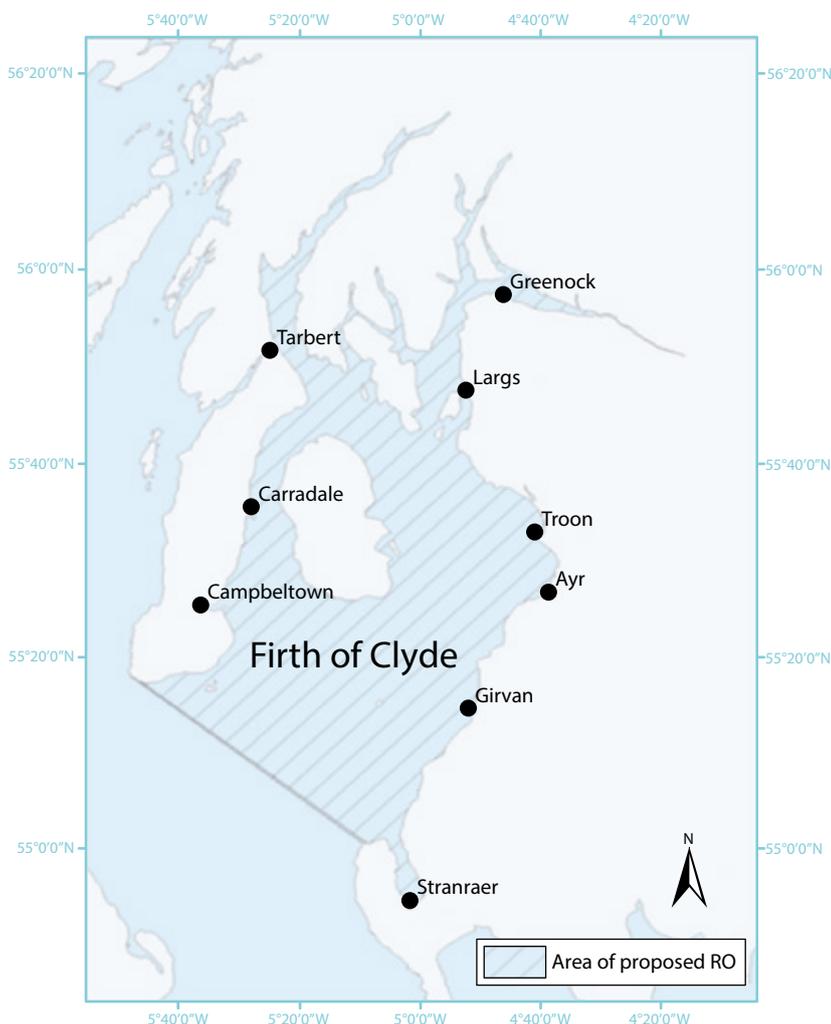


Figure 2: Area covered by proposed Regulating Order

Box 1: Case Study- Shetland Islands Regulating Order

A Regulating Order covering oysters, mussels, cockles, clams, lobsters, scallop, queens, crabs, whelks and razorshells has been in place in the water around the Shetland Islands since 1999. It is managed by the Shetland Shellfish Management Organisation (SSMO) and is widely held to be a success. Management measures for the scallop fishery include;

- A limited entry fishery (vessels must have a licence issued by the SSMO)

- Curfew with no scallop or queen scallop fishing before 0600 hours or after 2100 hours

- A king scallop minimum landing size of 110mm (queen scallop 40mm)

- Limit of two tow-bars with a combined maximum overall length, or a single tow bar with a maximum overall length of 8.80 meters and a maximum limit of 10 scallop dredges

- Areas closed to scallop dredging

- Ban on use of French dredge

These and other management arrangements under the RO, including a log book scheme, have enabled the SSMO to gain Marine Stewardship Council (MSC) certification for the king scallop fishery.

Management Bodies

A key feature of the RO is that it will adopt a co-management approach to decision making. **The fishing industry will be strongly represented.** They will be supported by scientific and policy experts from academia and government, and representatives of other local community interests.

Clyde Shellfish Management Organisation

A newly formed not-for-profit company called The Clyde Shellfish Management Organisation (CSMO) would be the Grantee. **SIFT would not be the Grantee.** The CSMO would comprise of a board made up of local stakeholders with a mix of fishing and non-fishing interests, and an executive team. **50% of the CSMO board would be from the fishing industry.** The remainder of the board would be representatives from other stakeholder groups with local interests in the Clyde fishery – to reflect the fact that the fishery is a public asset.

Table 1 | Proposed structure of the CSMO board

SECTOR	BOARD REPRESENTATIVES
Independent Chair	1
Mobile gear fishermen	4
Static gear fishermen	2
Local Authority representatives	2
Clyde Scientific Trust representative	1
Scottish Environment LINK representative	1
SIFT	1

The CSMO’s executive team would comprise of an Executive Director who would report to the board and is responsible for delivering strategy set by the board. The Executive Officer would be supported by an Administrative Officer and a small group of Fisheries Officers, headed by a Senior Fisheries Officer.

Clyde Scientific Trust (CST)

The CSMO would be advised on scientific issues by a new, independent scientific body; the Clyde Scientific Trust (CST). It is proposed that the CST would apply for status as a Scottish Charitable Incorporated Organisation. The CST would undertake or oversee Clyde-specific scientific research on a wide range of issues and would employ an experienced fisheries scientist who would be managed by a board of senior scientists. With regard to the RO, the CST would inform the CSMO on:

- Identification of ecosystem baselines;
- Spatial management plans for the Firth of Clyde;
- Other management measures, if appropriate; and
- Monitoring of fisheries performance.

A key function of the CST would be to **foster collaboration between the fishing industry and fisheries scientists**, with the aim of increasing research into topics prioritised by the fishing industry.

Proposed Management Measures under the Regulating Order

The proposed Management Measures summarised below have been informed by best practice from around the world and after extensive consultation with fisheries scientists, fishing industry representatives, policy makers and a range of Clyde stakeholders.

Management measures would be the responsibility of the CSMO. However, in order to establish a shellfish fishery management regime which can also promote the sustainable recovery of a mixed finfish fishery, it is necessary that some core management measures are 'hard wired' into a Strategic Management Plan. A draft **Strategic Management Plan** will be submitted as part of the RO application to government and will cover the first five years of operation of the CSMO.

The CSMO would be tasked with annual management planning for the duration of the RO. It would produce **Annual Management Plans** that respond to the health of the fishery. In order to assist with the first year of operation of the fishery, the first draft Annual Management Plan is currently being developed. The measures it contains will be open to change by the CSMO (which will in turn be answerable to the Scottish Government).

The key management measures promoted in the RO application will include:

- 1) **Spatial management**
- 2) **Gear restrictions & effort controls**
- 3) **Licencing arrangements**

Spatial Management

The key element of the Strategic Management Plan will be spatial management. Spatial management involves limiting the use of specific fishing gear types by area.

It already plays a key role in fishery management internationally, where it has enabled stock-recovery (by allowing seabed ecosystems to recover from the impact of heavy gear) and minimised interaction between gear types, as shown in Box 2.

At present there are some small spatial closures in the Firth. However one of the most significant management measures is temporal closure. In particular, the Firth is closed to all mobile gear at weekends. So on 2 out of every 7 days the Clyde mobile gear fleet cannot fish the Clyde. This represents 28% of their time. It is proposed that under the RO the weekend ban is lifted. But in its place spatial restrictions on mobile gear would be imposed over specific complex substrate areas of the seabed.

Box 2: CASE STUDY,

Spatial Management in the New England sea scallop fishery

The New England Sea scallop fishery demonstrates the benefits of spatial management measures. Although the measures were implemented to bring about ground-fish recovery, wider benefits were accrued particularly to the scallop fishery and it is now one of the most valuable in the USA.

Biomass of scallops in the protected areas increased more than 10 fold within 6 years and have remained above that level since (Hart *et al* 2013). In addition, the rotational reopening of portions of the protected areas have contributed to the high scallop landings over the past decade (Hart *et al*, 2013).

Spatial Management Scenarios

SIFT has developed three spatial management scenarios for the Clyde. The scenarios were developed after consultation with a number of stakeholders and fishery spatial modelling experts.

The scenarios are based on a wide range of parameters including seabed substrates, slope morphology, and - crucially - recent fishing patterns (obtained from Vessel Monitoring Systems and ScotMap - a Marine Scotland project which provides spatial information on the fishing activity of Scottish registered commercial fishing vessels under 15m in overall length.).

The management planning processes currently underway for the three Clyde based Marine Protected Areas (MPA) have also been taken into account. All the scenarios are based on the premise that the key requirements are to protect complex habitats in order to boost shellfish and finfish stocks, and to leave the more robust seabed areas (the muds and sands which are more capable of withstanding the impact of mobile gears) open to the existing fishery. The scenarios each involve slightly different compromises between the Firth's many users.

We set out Scenario 1 in this summary document. Scenarios 2 & 3 will be set out in the full Draft RO proposal document.

Scenario 1

The scenario designates four categories of spatial management area, and is set out in Figure 3. The categories are:

1. **Trawl Only:** exclusively for prawn trawling;
2. **Creel & Dive Only:** exclusively for creeling, scallop diving and other lower impact fishing;
3. **Restoration:** closed to all fishing;
4. **Multi-Use:** open to all RO licence holders.

The spatial management proposals in Scenario 1 are designed to:

- Ensure that the majority of the Firth's existing shellfish grounds remain open;
- Create a balanced network of closed areas that will enable spill over benefits around the Firth;
- Protect the most important complex seabed areas which will assist the recovery of finfish; and
- Reduce incidences of gear conflict;

The scenario ensures that 51% of the Firth's complex habitats and 20% of its muddy sands and sandy muds are protected. External advice supports this level of protection as reasonable to meet the objectives of the proposal. The table below expresses the area covered by each spatial management category.

Table 2 | Percentage of the Firth of Clyde area covered by each management category

ZONE	IMPACT	COVERAGE OF RO AREA (%)	RATIONALE
Trawl Only Area	Closed to static gears	2	Reduce gear conflict
Creel & Dive Only Area	Closed to mobile gears	17	Reduce gear conflict Promote lower impact fishing over complex habitats
Restoration Area	Closed to all fisheries	10	Enable revival of complex habitats to restore fish stocks
Multi-Use Area	Open to all mobile and static gear	71	Continuation of existing fisheries

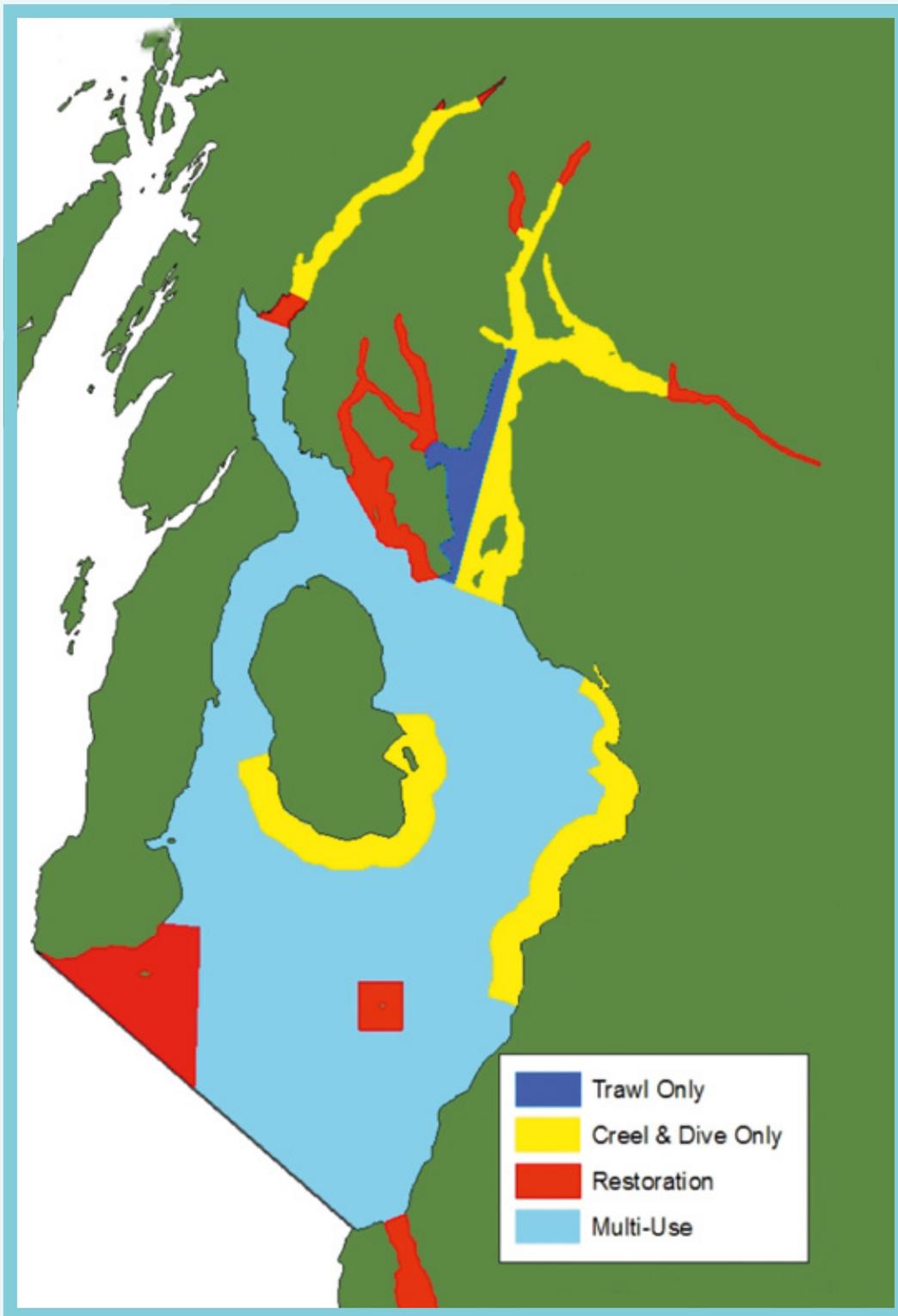


Figure 3 | Scenario 1 Proposed spatial management

The effect of the proposals is to ensure that **73% of the Firth remains open to prawn trawling**, **71% of the Firth remains open to scallop dredging** and **88% of the Clyde remains open to static gear**.

In comparison, the reintroduction of a 1 nautical mile limit would result in 66% of the Clyde being open to mobile fishing gear and **the reintroduction of the 3 nautical mile limit would result in only 45% of the Clyde being open to mobile fishing gear**.

Gear Restrictions and Effort Controls

In addition to the spatial management measures outlined above, the RO provides powers to implement a range of gear restriction measures and/or effort controls. These would fall under both the Strategic Management Plan and the Annual Management Plans.

The International Council for the Exploration of the Sea (ICES) will continue to advise European Ministers on fishing limits for the Clyde as part of its advice for *Nephrops* in the Firth of Clyde and Sound of Jura (West of Scotland, Functional Unit 13). There is no intention to set additional limits within the RO area.

Strategic Management Plan

Proposed measures to be included under the Strategic Management Plan include:

Prawn Trawling:

- Single Net Rule (No twin-rigging)

Prawn Creeling

- Creel Limits - based on vessel length within the Creel & Dive Only and Multi-Use Areas
- Gear marking / creel tagging regulations
- Return berried females

Scallop Dredging

- Minimum landing Size (MLS) increase. Year 1 to 105mm, year 2 to 110mm
- Carriage restriction in line with MLS staged increase
- Bar length will be restricted to only allow a maximum of 6 standard (75cm wide) Newhaven scallop dredges on each side of the vessel
- Night-time curfew (daylight hours or 6am until 9pm)

Scallop Diving

- MLS, carriage and night-time curfew restrictions in line with Scallop dredge proposals.

Annual Management Plans

Proposals for measures under the Annual Management Plans (other than those proposed for the first year of operation) will not form part of the RO Application process; such decisions will be the responsibility of the CSMO as the RO Grantee. However the management measures which may be considered by the CSMO during the RO include:

- Further spatial management measures depending upon stock survey outcomes including
 - Rotational spatial closures;
 - Seasonal spatial closures.
- Vessel restrictions such as vessel length or engine size;
- Additional gear restrictions;
- Total Allowable Catch limits.

Licencing Arrangements

All commercial fishers who wish to fish in the area of the RO for the three species managed under the RO will need to hold a licence from the CSMO. In the event of oversubscription, licences will be allocated following a prioritisation process based on track record. Separate criteria will be set for each licence type.

Separate licences will be issued for each species covered by the RO; although an individual vessel may hold licences for all of the species licenced under the RO.

Allocation of licences will be undertaken by a Licensing Sub-Committee which will be comprised of non-fishing-interest members of the CSMO.

Application process & timescale

The process of applying for a Regulating Order involves consideration by the Scottish Government, consultation with stakeholders and a possible public inquiry and a determination by Ministers. This process can take over 1 year to complete. An overview of the stages involved are set out below.

The Regulating Order application will be submitted to the Scottish Government by the end of March 2015. On receipt of the application, the Scottish Government will assess whether all information necessary has been provided and if so will subsequently carry out any preliminary consultations deemed appropriate with users of the seabed.

On the basis of an initial assessment of the merits of the application, and taking into account the comments from consultees, the Scottish Ministers will decide whether to prepare a draft Order for publication and consultation. If it is decided that the application should proceed, a draft Order will be prepared by the Scottish Government, following which a consultation period will commence.

Any objections and representations must be made in writing to Scottish Government within one month of publication of the draft Order. Following Ministerial consideration, Scottish Ministers may appoint an inspector to undertake an inquiry into the application for the Order. Twenty-eight days' notice of the holding of an inquiry will be given.

The Scottish Ministers will then review all the information available in relation to the application, taking full account of comments and objections made. They will also take account of the conclusions and recommendations of the inspector.

The Scottish Ministers will notify the applicant of their decision. If the application is to be refused, reasons for refusal will be given. If it is to be granted, either in the form applied for, or in an amended form, and whether with or without conditions, a copy of the Order will be laid before the Scottish Parliament.

Frequently Asked Questions

A range of additional questions have been posed regarding specific aspects of the proposal. We have amalgamated these questions and provide answers below.

Quota & Licences

Q: How would an RO affect my *Nephrops* quota? Will there be a separate quota for the Clyde?

A: The International Council for the Exploration of the Sea (ICES) will continue to advise European Ministers on fishing limits for the Clyde as part of its advice for *Nephrops* in the Firth of Clyde and Sound of Jura (west of Scotland, Functional Unit 13). There is no intention to set additional limits within the RO area.

Q: Isn't a change in UK or European Law needed to effect any impacts on UK fishing licences?

A: No, an RO is a piece of legislation granted exclusively by Scottish Ministers under the Sea Fisheries (Shellfish) Act 1967 (the Act).

Q: But this RO is the first in Scotland that would include a pressure stock species?

A: Yes, this would be the first time an RO was granted for an EU quota species (in this case *Nephrops*). However, the Act allows for an RO to be granted for any shellfish species.

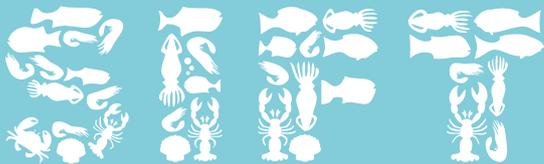
Horse power

Q: Fishermen buy kilowatts (kW) for their fishing licences. How can it be fair to restrict kW and so confer a cost on the licence holder? If such a restriction is to be imposed, what compensation will be provided?

A: There is no intention to propose any restrictions on engine size in the RO application, however the RO grantee (the CSMO) will retain the right (with Ministerial agreement) to impose restrictions of this sort at a later date.

References

- Beevers, N, D., Kilbride, E., Atkinson, R, J, A. & Neil, D,M. (2012). *Hematodinium* seasonality in the Firth of Clyde (Scotland) *Nephrops norvegicus* population: a re-evaluation. *Diseases of Aquatic Organisms*. 100: 95–104
- Bell, M., Tuck, I. & Dobby, H. (2013). *Nephrops* Species in Lobsters: Biology, Management, Aquaculture and Fisheries. Second Edition.
- Bergmann, M., Wieczorek, S, K., Moore, P, G. & Atkinson, R, J, A (2002). Discard composition of the *Nephrops* fishery in the Clyde Sea area, Scotland. *Fisheries Research* 57: 169-183
- Hart, D, R., Jacobson, L, D. & Tang, J. (2013). To split or not to split: Assessment of Georges Bank sea scallops in the presence of marine protected areas. *Fisheries Research*, 144: 74-83
- Heath, M.R. and D.C. Speirs (2011). Changes in species diversity and size composition in the Firth of Clyde demersal fish community (1927-2009). *Proceedings of the Royal Society, B*
- Howarth, L, M., Roberts, C, M., Hawkins, J, P., Steadman, D, J. & Beukers-Stewart, B, D. (2015). Effects of ecosystem protection on scallop populations within a community-led temperate marine reserve. *Mar Biol* (DOI 10.1007/s00227-015-2627-7)
- ICES. 2014 *Nephrops* in Division VIa (ICES Advice 2014 Section 5.3.20). See (http://www.nwwac.org/_fileupload/Opinions%20and%20Advice/Year%2010/Neph-VIa_WoS.pdf). (accessed 12th December 2014)
- McIntyre, F, Fernandes,P.G and Turrell, W.R (2012) Clyde Ecosystem Review. *Scottish Marine and Freshwater Science*. 3: 1-119
- Murray, F. & Cowie, P, R. (2011) Plastic contamination in the decapod crustacean *Nephrops norvegicus* (Linnaeus, 1758). *Marine Pollution Bulletin*. 3: 1- 11
- Worm, B., Barbier, E.B., Beaumont, N. *et al* (2006), Impacts of biodiversity loss on ocean ecosystem services. *Science* 314, 787-790.



Sustainable Inshore Fisheries Trust

The Sustainable Inshore Fisheries Trust (SIFT) is a Scottish charity that aims to promote the sustainable management of Scotland's inshore waters so they bring the maximum sustainable social and economic benefits to all of Scotland's coastal communities.

5 Rose Street Edinburgh EH2 2PR

www.sift-uk.org

Sustainable Inshore Fisheries Trust is a Registered Scottish Charity No. SC042334, Scottish Charitable Company Limited by Guarantee, Registered No. SC399582.

Cover Image Credit: Jim McDougall flickr.com/jimmed