
Initial Consultation on Firth of Clyde Regulating Order Proposal

1.0 EXECUTIVE SUMMARY

- 1.1 The Sustainable Inshore Fisheries Trust (SIFT) have submitted a Regulating Order (RO) application for the Firth of Clyde to Scottish Government for their consideration. This proposal involves the formation of a not-for-profit Clyde Shellfish Management Organisation, covering management of *nephrops* (prawns) and scallops (king and queen), and including management measures such as spatial management, gear restrictions, and technical measures. Some detail on this proposal has been reported previously to Councillors through a circulated briefing note and as part of a Members Seminar in April 2015.
- 1.2 Marine Scotland are currently assessing this application before advising Ministers on the way forward and as a preliminary step are seeking comments on the application and associated economic assessment by 18 January 2016.
- 1.3 The overarching aim of the RO is to 'increase the productivity and resilience of the commercial shellfish fishery' with a key objective to 'promote the recovery of finfish stocks to commercially exploitable levels. Over a 20 year period the RO intends to achieve a positive net economic value for the existing commercial shellfish fishery; reduce shellfish dependency; boost resilience in the commercial fishery; and provide wider economic benefits such as revising the recreational sea angling sector.
- 1.4 The Regulating Order proposal will have an economic impact on some parts of the fishing industry which may be offset over a 20 year period by future improvements to shellfish and finfish stocks and wider economic impacts on recreational sea angling.
- 1.5 At this preliminary stage, it is not considered appropriate to develop a clear view of support or not for the identified management proposals but initial views have been identified aimed at informing Marine Scotland's initial assessment of the application and the Minister's subsequent decision on whether to progress the application. Should the proposal move to a formal stage of consultation these comments identify areas where the Council considers further assessment and clarification are required.
- 1.6 It is recommended that the committee note the contents of the report and agree to the views identified in section 6 of the report forming an initial consultation response from the Council to Marine Scotland.

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2.0 INTRODUCTION

- 2.1 Marine Scotland received an application from The Sustainable Inshore Fisheries Trust (SIFT) on 15 October 2015, for a Regulating Order to manage the fisheries for *Nephrops* (prawns), King Scallops and Queen Scallops in the Firth of Clyde.
- 2.2. Marine Scotland are currently assessing this application before advising Ministers on the way forward and as a preliminary step are seeking comments on the application and associated economic assessment by 18 January 2016.
- 2.3 This report attempts to summarise over 500 pages of documentation, providing details on the background, proposed scope, objectives and measures and initial views on the proposal which the Committee is being asked to approve as the Councils first stage response to Marine Scotland.

3.0 RECOMMENDATIONS

- 3.1 That the Committee:
 - (i) notes the contents of the report; and
 - (ii) agrees to the comments made in section 6 of the report forming an initial Council response to Marine Scotland.

4.0 BACKGROUND

4.1 Summary of Regulating Order (RO) proposal

- 4.1.1 The Sustainable Inshore Fisheries Trust (SIFT) have submitted to Scottish Government, a detailed application for a Regulating Order to manage shellfish fisheries in the Firth of Clyde.
- 4.1.2 SIFT are a Scottish charity founded in 2011 with the following aim: *To promote the sustainable management of Scotland's inshore waters so that marine ecosystems provide the maximum long term social and economic benefits to Scotland's coastal communities.*
- 4.1.3 SIFT feel the current management of inshore fisheries in the Firth of Clyde needs to be revised, in order to restore a sustainable mixed fishery and revitalise the Clyde's marine economy. The RO proposal involves the formation of a not-for-profit Clyde

Shellfish Management Organisation, covering management of *nephrops* (prawns) and scallops (king and queen) only, and including management measures such as spatial management, gear restrictions, and technical measures.

4.2 Purpose of initial consultation & scope of response

- 4.2.1 Marine Scotland has no opinion on the merits of the application at this stage but has published the application document and an associated Economic Report and is seeking initial comments by 18th January 2016. This feedback, alongside Marine Scotland's assessment of the application will inform the Cabinet Secretary, Richard Lochhead in his decision as to whether to prepare a draft Order for publication and formal consultation, or to take no further action on the proposal.
- 4.2.2 Given that the first stage of formal consultation may only be four weeks in duration, it is therefore considered important to give this proposal early consideration and identify any issues or questions that need to be addressed should Scottish Government progress the proposal.

4.3 Application & Process for Consideration

- 4.3.1 Regulating Orders may be made by the Scottish Ministers under the terms of the Sea Fisheries (Shellfish) Act 1967. They are made for the establishment or improvement and for the maintenance and regulation of a shellfish fishery. A Regulating Order confers on its grantee the right to regulate fishing for named species of shellfish in a defined area, for a specified period of time. The grantee can issue licences, charge fees or royalties and enforce the observation of the terms of the Order and its associated Management Plan. Where the grantee applies a licensing system, only those licensed to fish the specified species in a regulated area may do so. Enforcement of a RO may be carried out by either the grantee, Marine Scotland Compliance, or both.
- 4.3.2 There are a number of stages to the process of Scottish Government considering an application for a RO. Following the initial consultation Ministers may decide whether or not to support the application at that point or to proceed with further consultation, including the publication of a draft Order, and may request an independent inquiry.
- 4.3.3 At any point in the process Ministers may decide not to support the application, otherwise the process may progress resulting in an Order being laid before Parliament. A period of 12-18 months may be necessary for a process resulting in a successful application.

5.0 DETAILS OF REGULATING ORDER APPLICATION

- 5.1 This section of the report summarises what is included in the RO application document and presents the view of the applicant.

5.2 Historical Fishery and Reasons for Decline

- 5.2.1 The RO application document states that the Clyde has been a historically important commercial and recreational fishery producing landings of numerous finfish and shellfish species. However, from the 1970s, stocks of commercially marketable finfish declined rapidly so that by the early 2000s the Clyde had effectively become a shellfish fishery.

5.2.2 The application document identifies a number of reasons for the decline in the Clyde finfish fishery including:

- Combination of the loss of spatial protection from removal of the 3 mile limit and excessive harvesting in the 1970s & 1980s resulted in the loss of commercial finfish stocks;
- Bycatch of finfish in *nephrops* trawling gear considered to have further reduced stocks;
- Use of heavy gear (trawls & dredges) in areas which have historically acted as nursery grounds for finfish appears to continue to underlie the failure of finfish recovery;
- Mobile gear fishing considered to have reduced habitat complexity in the Clyde – which may have in turn, reduced food availability for finfish.

5.2.3 The historic diversity and abundance of near-shore fish species made the Clyde a world-class recreational sea angling destination for both shore and boat fishing. The decline in finfish stocks resulted in a dramatic decline in investment and participation in sea angling with just three charter boats in operation, compared to over 100 in the 1970s.

5.3 Current Fishery and Fisheries Management

5.3.1 The current commercial fishery in the Clyde is reliant on shellfish species (99% of landings), of which 89% is made up of *nephrops* (prawns) and king scallops. Most *nephrops* are caught by trawling (96.3% tonnage; 90% value) with a smaller proportion (3.7% tonnage, 10% value) caught in creels. Scallops are largely harvested by dredging (95% tonnage; 93% value) with a smaller proportion (5% tonnage, 7% value) harvested by diving.

5.3.2 The application document questions the sustainability of these stocks identifying that:

- current *nephrops* fishing pressure is considered to meet targets by ICES, although advised landings in 2015 were 33% less than advice in 2014 at no more than 3,776 tonnes; and
- No formal stock assessments for scallops are made by Marine Scotland. Management of this fishery relies on analysis of trends in landings and occasional market based sampling. Analysis of size structure of king scallop catch indicates it is heavily exploited.

5.3.3 The current biomass of demersal fish in the Clyde is estimated to be twice that of the 1930s and 40s. 90% of these fish are however below the minimum landing size and are heavily weighted towards small whiting.

5.3.4 The Clyde Ecosystem Review (McIntyre et al., 2012) considered the Clyde to be an ecosystem with great potential for future sustainable use and saw positive trends for the future of the finfish fisheries where the number of fish species was starting to increase. Between (1995-2004) and (2005-2009) the number of species that made up 95% of total fish biomass increased from 4 to 8 with the percentage of whiting decreasing from 87 to 72%.

5.3.5 The RO application document concludes there is broad recognition that Clyde could, with correct management measures, return to a state where it would support a diverse commercial fishery and a revived recreational sea angling sector.

5.3.6 The application document identifies a wide range of existing fisheries management measures covering the current shellfish fisheries in the Clyde. These measures include statutory and voluntary spatial restrictions, effort and temporal restrictions and technical measures. Existing spatial measures and those proposed for Marine Protected areas are illustrated in Appendix 1.

5.3.7 The applicant states that current spatial management restrictions have been implemented on a case-by-case basis and consequently do not form a coherent fisheries-management network. Where spatial restrictions have been implemented for fisheries management purposes there is a lack of monitoring and research to determine effectiveness. It is therefore concluded by the applicant that the more substantial measures are needed to bring about a recovery in commercial finfish stocks.

5.4 Aims of Regulating Order

5.4.1 The overarching aim is to 'Increase the productivity and resilience of the commercial shellfish fishery' with a key benefit of the proposal to 'promote the recovery of finfish stocks to commercially exploitable levels.

5.4.2 In doing so the RO intends to achieve the following outcomes over a 20 year period

- Achieve a positive Net Present Value for existing commercial shellfish fishery;
- Reduce shellfish dependency and boost resilience in the commercial fishery; and
- Provide wider economic benefits such as revising the recreational sea angling sector.

5.4.3 Important subsidiary benefits identified include: Greater local control; Greater flexibility for fisheries managers; Enhanced sustainability; Better use of science; and Complement other marine management measures.

5.4.4 The application document identifies the Clyde fishery as a public resource which is owned by the people of Scotland, and should be managed for the common good. The applicant (SIFT) initiated a 'Revive the Clyde' campaign in 2014 which attracted 7920 signatures supporting the following principals:

- Revive the marine environment
- Support a diverse fishery
- Promote management based on sound science

SIFT believes that the RO proposal provides a balance of the views and interests of different stakeholders and therefore provides the best hope for recovery of the fishery and ecosystem.

5.5 Governance

5.5.1 A new organisation, the Clyde Shellfisheries Management Organisation (CMSO) will be formed to act as Grantee of the RO. The main functions of the CMSO are to:

- Regulate the shellfish fisheries as indicated by scientific advice;
- Set spatial and non-spatial management measures for each species;
- Issue licences and collect levies;
- Monitor and manage fishing effort; and
- Collaborate with Marine Scotland to enforce the RO.

5.5.2 A new organisation (Clyde Scientific Trust) will also be constituted to provide scientific information necessary to delivery fishery objectives. It is proposed to seek

funding from the EU and private sources to cover costs of the CMSO and Clyde Scientific Trust.

5.6 Developing the Management Measures

5.6.1 The management measures proposed in the RO application apply only to *nephrops* and scallops and have been developed by SIFT with advice from stakeholders, fishery management experts and the Environmental Defence Fund. Management proposals have also taken account of MPA proposals and examples of successful fisheries management from within and outwith the UK.

5.7 Fisheries Management Plan

5.7.1 A Strategic Management Plan will define what management measures can be introduced so that RO remains focussed on the main aim of increasing productivity and resilience of commercial shellfish fisheries. This plan will be reviewed every five years.

5.7.2 An annual management plan will allow adjustments to be made to management that are based on recent scientific advice while conforming to the Strategic Management Plan. It is expected that the first Annual Management Plan will adopt the management measures set out in the Strategic Management Plan to avoid a period of hiatus before the CSMO becoming operational and risks to the fishery from either 'business as usual' or a temporary closure of the fishery.

5.8 Spatial Management

5.8.1 Spatial management measures form the core of the RO proposed fisheries management. The following four types of Spatial Management Zones (SMZ) have been defined to deliver the RO objectives:

Spatial Management Zone	Nephrops and scallop fishing methods		Rationale
	Allowed	Prohibited	
Creel and Dive Only (CDO)	<ul style="list-style-type: none"> Creeling for <i>Nephrops</i> Hand diving for scallops Other low impacts fishing practices 	<ul style="list-style-type: none"> Scallop dredging Trawling for <i>Nephrops</i> 	Reduce gear conflict and promote lower impact fishing over complex habitats
Trawl, Creel and Dive Only (TCDO)	<ul style="list-style-type: none"> Trawling for <i>Nephrops</i> Creeling for <i>Nephrops</i> Hand diving for scallops 	<ul style="list-style-type: none"> Scallop dredging 	Reduce gear conflict and promote lower impact fishing over complex habitats
Restoration Area (RA)	Prohibition on the use of all commercial fishing gear and practices for <i>Nephrops</i> , king and queen scallops throughout the area.		Enable revival of complex habitats to restore fish stocks
Multi-Use	Open to all mobile and static licence holders		Continuation of existing fisheries

5.8.2 The following Design Objectives have been used to identify the location and extent of each individual SMZ:

- Promoting *Nephrops* fishery sustainability;
- Promoting scallop fishery sustainability;
- Promoting finfish recovery;
- Minimising impacts on the fishing industry;

- Minimising user conflicts; and
- Conserving biodiversity and promoting ecosystem resilience.

5.8.3 The SMZs were also designed to form a coherent network using the following network Design Considerations:

1. The network must be geographically dispersed around the Clyde in order to promote connectivity;
2. Total area protected from mobile gear fishing must be between 20-30% of sea area in order to sufficiently represent complex substrates and habitats;
3. Complex and important substrates must be most protected;
4. Habitat types must be represented across the network in order to support the sustainable use and protection of marine biological diversity and ecosystems;
5. Length of perimeter of SMZs must be high in relation to sea area protected to increase potential for spillover effects, to aid fishing industry; and
6. Individual SMZ shapes must be simplified where possible to ease compliance and enforcement.

5.8.4 10 of the 17 SMZs are located within Argyll and Bute coastal waters with a further two areas around Arran, close to Argyll and Bute fishing ports. The geographical extent of the proposed network of SMZs is shown in Appendix 2.

5.8.5 The RO application document estimates the current level of fishing activity within each SMZ and the rationale for each area based on relevant Design Objectives. It states that although the majority of SMZs are Restoration Areas which would be closed to *nephrops* and scallop fisheries, the majority of the Clyde area remains open to fishing, ensuring that:

- 75% of Clyde remains open to *nephrops* trawling;
- 72% of Clyde remains open to scallop dredging;
- 92% of Clyde remains open to static gear (creeling & diving).

5.9 Technical Measures

5.9.1 Technical measures have been identified to supplement the spatial management measures. No measures are proposed for the *nephrops* trawl fishery as this is managed under EU regulations. The only measure proposed for the *nephrops* creel fishery is to consider creel limits by vessel length.

5.9.2 For the scallop dredge and dive fisheries it is proposed to increase the minimum landing size and impose a night time curfew. Additional measures for the scallop dredge fishery include limiting bar length and dredge number and prohibition of the French Dredge.

5.10 Licensing Arrangements, Monitoring and Enforcement

5.10.1 The CMSO as grantee of the RO will issue fishing licences according to strict criteria, with the annual licence fee to be set at £250 per species. The CMSO will reserve the right to review licence fees annually and impose a levy per tonne of shellfish landed.

5.10.2 Enhanced monitoring of the fisheries and wider ecosystem, in terms of both stock assessments and biodiversity, is a key objective of the RO proposal. The proposed Clyde Scientific Trust would be responsible for overseeing the delivery of the monitoring programme which will necessitate close collaboration with Marine

Scotland and other outside bodies who deliver existing monitoring programmes relevant to the Clyde.

5.10.3 The RO can be enforced by the RO grantee and Marine Scotland Compliance. A key feature of the enforcement strategy is vessel monitoring, which will be a licence condition for all vessel types.

5.11 Proposed benefits of the RO

5.11.1 The application document sets out the proposed fishery benefits of the RO which include the following statements:

- Scallop dredging sector would benefit from effective spatial management leading to increases in scallop populations. Loss in dredging grounds would be more than compensated for by increasing richness of remaining grounds.
- Scallop diving industry would benefit from increased stocks and reduced conflict with dredging sector.
- Short-term costs on the *nephrops* trawling sector expected, although economic analysis indicates proposed measures would have less of a negative impact than declines that already occur from one year to the next in allowable catch levels.
- Fishing activity analysis shows that the great majority of Spatial Management Zones (SMZ) are not intensively fished by *nephrops* trawlers.
- *Nephrops* creeling sector would benefit from having large new areas where it could operate without any interaction with trawl fishery.
- Expected that over a 20 year period that gain in *nephrops* fishery would exceed losses.
- Compensation for some vessels incurring short term losses may be appropriate, assessed on a case-by-case basis.
- SMZs have potential to provide significant spillover benefits to commercial king and queen scallop fisheries.
- Recovery of white fish stocks and diversification of target species.

5.11.2 In terms of wider socio-economic benefits the RO is predicted to:

- Enable the Clyde to regain its former status as a major sea angling destination through the restoration of a diverse stock of large finfish; and
- Provide conditions which would promote the growth of the wildlife tourism industry and recreational diving.

5.11.3 The RO proposal is predicted to provide ecosystem benefits including an increase in biodiversity resulting from a reduction in mobile gear fishing and increased ecosystem resilience in the face of ongoing threats to the Clyde's marine ecosystem such as climate change.

5.12 Economic Impacts

5.12.1 The application document provides estimates of the economic impact of the RO management proposals, informed by a separate Economic report prepared by Bridge Economics, on behalf of SIFT.

5.12.2 A cost benefit analysis on the commercial fishing sector has been undertaken and the key findings are illustrated below.

Fishery sector	Economic Impact (over 20 years)	Detail
<i>Nephrops</i> - Trawl & Creel	Decrease of £940,000 (due to management costs of RO)	No expected increase in <i>nephrops</i> catch over 20 years
<i>Nephrops</i> Trawl		Gradual reduction in level of <i>nephrops</i> trawling (59 tonnes/year – 1.2% decrease on current level)
<i>Nephrops</i> Creel		Gradual increase in level of <i>nephrops</i> creeling (59 tonnes/year – 30% increase on current level)
Scallops – Dredge & Dive	Increase of £740,000	Reduction in scallop landings until year 6 then 10% increase in landings predicted each year
Whitefish	Increase of £2.7 million	Additional 2500 tonnes of landings per year from year 11. Predictions based on four main fish species (Cod, Whiting, Haddock & Saithe) returning to 40-60% of average landings between 1975 & 1990

5.12.3 The total net economic impact on the Clyde fishery over a 20 year period is estimated to be £2.5 million. This overall positive impact relies on the recovery of whitefish stocks and a significant increase in scallop stocks. For the existing shellfish fisheries alone the predicted net economic impact over 20 years is a reduction in value of £200,000.

5.12.4 Beyond the Clyde fishery, the predicted recovery of white fish stocks is estimated to result in a mirrored increase in the revenue from recreational sea angling. This revenue is predicted to increase from year 4 and represent an estimated total increase of £7.5 million over a 20 year period.

6.0 INITIAL VIEWS

6.1 Historic & Current Fisheries Management

6.1.1 The RO application document states that while some spatial management restrictions have been implemented in the Clyde there is a lack of monitoring and research to determine their effectiveness. This is not disputed, but in this regard it is questioned as to how the RO applicant can be sure that the existing measures are not working. The stated failure of existing management is the underlying reason for putting forward the RO proposal.

6.1.2 A number of potential reasons for the decline of white fish in the Clyde are presented in the RO application. It is agreed that it is important to consider the potential reasons for this decline, with overfishing in the 70s and 80s likely to be the greatest contributing factor. What seems more important in terms of defining new fisheries management is to try and determine what factors have prevented a recovery of finfish stocks in the absence of a targeted fishery. It is possible that the existing shellfish fisheries are a factor affecting whitefish recovery but clearly other environmental factors such as climate change, changes in the Clyde's food web, and seal predation may be significant factors.

6.1.3 The application document alludes to some signs of recovery in whitefish in the Clyde (increase in species diversity, reduction in proportion of whiting) and figures for 2010 to 2014 once available, may provide further evidence of recovery. It is therefore critical that we fully understand the trends in populations of shellfish and finfish populations and extent to which existing activity and management may be negatively affecting these populations before being able to conclude that new management is absolutely necessary and likely to achieve the agreed goals.

6.1.4 The RO application document questions the sustainability of existing *nephrops* and scallop stocks and identifies the need therefore for new management to improve sustainability. The application reports that ICES advice recommended a reduction of 33% in *nephrops* landings for 2015. Recently published ICES advice actually recommends a significant increase in maximum landings of 5554 tonnes, an increase in 47% on 2015 advice. This therefore appears contrary to the conclusion in the application document that the *nephrops* stock is at risk of decline and therefore weakens the argument that new management is required to improve sustainability of the *nephrops* trawl fishery.

6.2 Aims of Regulating Order

6.2.1 The overarching aim of the RO to increase the productivity and resilience of the commercial shellfish fishery and promote the recovery of finfish stocks is supported as a positive but challenging aspiration which if achieved could result in economic and environmental benefits. It is also considered appropriate that the Clyde fishery is managed in a way which recognises the marine environment and fishery it supports as a public resource. The three principles of the RO applicants 'Revive the Clyde' campaign are also supported and it is noted that the Clyde 2020 programme, initiated by the Scottish Government also supports these same principles.

6.2.2 From an initial assessment of the RO proposal it is not clear whether the RO proposal is the correct or indeed the only viable proposal which can achieve this aim.

6.3 Fisheries Management Plan

6.3.1 Should the RO be granted by Scottish Ministers, the applicant, who has designed the proposed measures, will not be the grantee and management organisation of the RO. This means that management proposals for at least the first year of operation will not have been developed or approved by the management organisation, which will require time to develop the management regime beyond year one. It is therefore important that if the RO is granted that proposed management for the first year of operation should have some level of support by those stakeholders who will make up the management organisation.

6.4 Spatial management

6.4.1 Spatial management has always been an important element of fisheries management with spatial measures already in existence in some parts of the Clyde and a number of further spatial measures proposed as management of Marine Protected Areas.

6.4.2 It is important that any spatial management taken forward has a high chance of meeting the objectives set and does not end up placing restrictions on parts of the fishing industry which do not result in anticipated benefits. In this respect the use of Design Objectives to define spatial management measures is a sensible approach

but needs to provide an adequate balance across the different types of objectives identified in the application document (para 5.8.2 of this report).

- 6.4.3 To use these Design Objectives to effectively identify spatial management zones it is assumed that a good knowledge of what areas in the Clyde support the individual objectives would be needed. The application document presents spatial information on predicted seabed habitats and available data on fishing activity but it is unclear as to whether there is spatial information for other important aspects such as: the location of finfish nursery habitats; areas of seabed which would enhance scallop spat settlement; areas of gear conflict; and distribution of habitats associated with *nephrops*/scallop reproduction.
- 6.4.4 Network Design Considerations have influenced the design of the overall network of SMZs, with Objective 2 requiring the total area protected from mobile gear fishing to be between 20 and 30%. The proposed SMZs are estimated to equate to 25% but it is unclear whether this figure includes existing spatial restrictions such as the cod box and MOD restrictions. The sixth Network Design Consideration seeks a simplified boundary for SMZs to aid compliance. Given that the RO proposal will require all fishing vessels operating in the Clyde to have vessel monitoring equipment it is questioned as to the need for this Design Consideration as vessel monitoring of the accuracy suggested should allow enforcement of complex zoning arrangements.
- 6.4.5 The RO application document states that historic fishing activity has been considered in the identification of individual SMZs in order to minimise the socio-economic impacts of management restrictions. There are however a number of SMZs which overlap with areas of high value fishing activity. The 'Creel and Dive' only areas within Argyll and Bute all appear to be high value for *nephrops* trawling, with prawn creeling and scallop dredging of medium value within parts of the 'Kyles of Bute' area and across all other areas. The seven proposed Restoration Areas within Argyll and Bute are likely to align closely with MPA management measures and will therefore unlikely to result in a significant increase over and above expected fisheries restrictions. The exceptions to this appear to be the 'Mull of Kintyre' Restoration Area which overlaps with a very high value area for scallop dredging and the 'Upper Loch Long' area which is a high value area for *nephrops* trawling and creeling.
- 6.4.6 It is clear that the proposed spatial management will have the greatest impact on the smaller (less than 15m) prawn trawling and scallop dredging vessels. The ability for these vessels to maintain catch levels outwith the restricted zones therefore needs to be considered.
- 6.4.7 Care needs to be taken in interpreting existing fishing data as the VMS data for larger vessels only covered activity between 2010 and 2012 and distribution and intensity of fishing may have changed in recent years. For smaller vessels ScotMap only covered approximately 50% of fishermen working in the Clyde and will therefore underestimate activity and value. It is therefore considered important for Marine Scotland to further assess this value of fishing activity affected by the SMZs.
- 6.4.8 The RO document concludes that implementation of the proposed spatial management restrictions would still leave 75% of the Clyde open to *nephrops* trawling, 72% open to scallop dredging and 92% open to static gear fishing. While these figures are not disputed it is the proportion of the actual available fishing

ground for the different fishing types rather than proportion of the entire Clyde marine area which will determine the actual change in fishing practices and economic impact. This should be reassessed by Marine Scotland or the RO applicant.

- 6.4.9 The detailed analysis of individual SMZs only show map outputs of fishing density for vessels over 15m but do not show data from ScotMap covering vessels less than 15m. These maps therefore do not fully present overall fishing effort, although it is recognised that the smaller vessels are reflected in the tables.
- 6.4.10 The rationale for each SMZ considers that when there are no ports in the immediate vicinity of an SMZ this will minimise impacts on the fishing industry. While many SMZs do not have fishing ports within their boundary there are a number of SMZs close to the key fishing ports of Tarbert, Carradale and Campbeltown and therefore impacts on the fishing industry are not considered to be minimised in this respect.
- 6.4.11 It is noted that the SMZs seek to fully replicate the proposed MPA management measures and add to these. Once final decisions on MPA management in the Clyde have been made this assessment should be updated to reflect any changes. It should also be noted that management measures have yet to be proposed for the Clyde Sea Sill MPA which are likely to be consulted on by Marine Scotland in 2016.
- 6.4.12 Based on the comments above, it is considered important for Marine Scotland to carefully consider the rationale for each SMZ as part of their initial assessment of the RO application.

6.5 Technical Measures

- 6.5.1 It is not clear whether the proposed technical measures will replace or are in addition to some of the current measures in place in the Clyde, such as the weekend closure for scallop dredging and *nephrops* trawling which appears to be viewed as a positive management proposal by most fishing sectors at present.
- 6.5.2 The proposal for a night time curfew for scallop diving and dredging may be an issue for any harbours to which access is limited by tides, meaning that it may not be possible to land catch during daylight hours on a frequent basis. This needs to be considered further.

6.6 Proposed benefits

- 6.6.1 The fishing activity analysis presented in the RO application document concludes that the great majority of SMZs are not intensively fished by trawlers. While many areas might be considered to be fished at lower than high intensity they have a higher economic value which needs to be considered.
- 6.6.2 It is considered that there is a significant degree of uncertainty as to whether the management measures proposed to promote finfish recovery will be effective as there are likely to be many factors influencing the recovery of whitefish stocks which might not be affected by management changes. Such complex factors might include changes in the Clyde marine food web and some fish species potentially having evolved to be reproductive at a smaller size. It is therefore considered important that Marine Scotland carefully consider the potential for proposed measures to achieve their stated goals and associated benefits in order to reduce the risk of predicted long term economic and environmental benefits not offsetting any economic and social impacts from changes in management.

- 6.6.3 In seeking recovery of white fish stocks there does not appear to be any consideration of how this will interact with the *nephrops* stock as some whitefish species predate *nephrops* which could lead to a reduction in available fishing opportunities for this species. In promoting a white fish fishery the application document does not appear to have considered how this new fishery will interact with or impact: other fishing activity; the seabed and biodiversity; and increased recreational sea angling. It is questioned as to whether the anticipated recovery of white fish stocks will support both a targeted white fish fishery and a significantly larger sea angling industry. These aspects need to be considered in the overall prediction of benefits.
- 6.6.4 In relation to the identified potential benefits from RO management on the recreational diving sector, it is questioned as to what evidence there is that existing wrecks are being damaged by fishing activity and that mobile gear fishing is impacting overall clarity of water in the vicinity of dive sites.

6.5 Economic Impacts

- 6.5.1 A detailed economic assessment of the potential positive and negative economic impacts of proposed management proposals is welcomed. This assessment estimates the economic impact of management measures based on the impact they will have on predicted changes in landings from the different fisheries over a 20 year period. The comments below identify questions and queries on this assessment which it is felt need to be considered further.
- 6.5.2 Table 51 of the Economic Report estimates the area of *nephrops* habitat that would be needed to support the proposed annual landings of 5150 tonnes at different harvest rates. The report identifies that there is around 1990km² of *nephrops* habitat in the Clyde which could support an annual harvest of 5150. What is not clear is the amount of *nephrops* habitat which will no longer be available to trawling as a result of proposed spatial management and therefore whether there is likely to be a significant increase in harvest rate to compensate for this. If this is the case then an increase in intensity of fishing in areas remaining open might offset perceived environmental and stock enhancement benefits.
- 6.5.3 The overall net positive impact on the Clyde fishery over 20 years, resulting from all aspects of proposed management, relies on the economic benefits associated with the recovery of whitefish and a predicted significant increase in scallop stocks. There are considered to be a number of risks associated with these predicted benefits which include:
- An increase in overall scallop stock resulting in a direct increase in landings assumes that the areas where scallops are in larger amounts are actually open to scallop dredging and diving.
 - The economic assessment predicts that scallop stocks will keep on growing by 10% each year. This cannot carry on indefinitely and at some point the environment (available habitat and food) will limit growth. It is therefore questioned as to whether it can be assumed that scallop stocks will continue to grow by 10% each year between year 5 and year 20.
 - If white fish stocks increase this is likely to have a negative impact on *nephrops* stock through predation. The annual landings estimates predict a gradual decrease in landings each year but the spatial closures will all happen in year

one. Can it therefore be assumed that this decrease is a result of an increasing white fish biomass which is predating *nephrops*?

6.5.4 The predicted wider socio-economic benefits are dependent on proposals delivering environmental benefits claimed. In this respect the following is questioned:

- What evidence is there that specific wildlife species important for wildlife tourism are currently under threat and will therefore benefit from RO proposals?
- What evidence is there that existing commercial sea fishing is impacting on wrecks? These will deteriorate naturally and so it is unclear as to whether there will be any significant benefit to recreational diving.
- If promoting an additional 35,000 of additional finfish landed from a new finfish fishery then this will increase amount of demersal trawling activity in the Clyde and will reduce the fish available to recreational sea angling. It is questioned as to whether the predicted economic benefits for a targeted white fish fishery and increased sea angling activity can occur together and whether the economic benefits are therefore being double counted.

6.5.5 The Economic Report provides information on the running costs of for the RO with estimates including operating costs for staff and overheads. These estimates do not seem to include other costs which may be associated with implementing the RO proposal: including licence fees; levies; gear changes; running costs of the Clyde Scientific Trust; and research and monitoring costs. It is estimated that the initial revenue from licensing will be around £20,000 per year which is very small compared to the likely overall running cost. More information on the full costs of implementing the RO over 20 years is needed to assess whether the overall benefits will outweigh the costs.

6.5.6 The RO Application document states that until there is a recovery of the fishery it will be necessary to support the cost of managing the fishery through philanthropic and public sector funding. This approach is going to require significant upfront funding and given difficulties in securing external funding this appears to be significant risk in implementing the RO in the short and long term.

6.6 Integration with other management initiatives and alternatives

6.6.1 There are a number of management groups and processes operating in the Clyde which are involved in or are relevant to fisheries management. These include the Scottish Government Clyde 2020 initiative, Regional Marine Planning, the South West Inshore Fisheries Group, Marine Protected Areas and River Basin Planning. As identified in the RO application document it is important that these groups and processes all work together and complement rather than duplicate each other.

6.6.2 The RO application document states that the management proposals have been designed so that they could form the basis of a wider fisheries action plan under the Clyde 2020 initiative, capable of delivering fishery management proposals for the Clyde. The role of the Clyde Scientific Trust appears to be similar to the Research Advisory Group set up as part of the Clyde 2020 programme. Further clarification on the relationship between these two would be welcomed.

6.6.3 Recognising the benefits of the Clyde being managed as a shared resource seeking benefit for all sectors, it is considered that improved fisheries management could be developed and implemented in a number of different ways, including:

- Consideration and approval of the RO management approach as part of the Clyde 2020 initiative;
 - The Clyde 2020 initiative making recommendations for new fisheries management to be implemented separately;
 - For the South West IFG to consider future fisheries management as part of the development of a Fisheries Management Plan for the Clyde area; and
 - For new fishery management proposals relating to shellfish and finfish species to be implemented through a Demonstration and Research Marine Protected Area.
- These alternatives have various pros and cons but it will be necessary for Marine Scotland to consider whether there are other more appropriate alternatives to managing the Clyde fishery and wider ecosystem.

6.7 Summary of initial views of fishing industry

6.7.1 The following initial views have been provided by Clyde Fishermen's Association who represent mainly mobile gear fishermen:

- Concerned that proposed fisheries restrictions will result in loss of jobs and further depopulation;
- Concern that some science from before 2000 may not reflect current situation in the Clyde;
- Concern over long-term funding and reliance on competitive EU funds, leading to likelihood of increase in licence fees and introduction of levies; and
- Economic figures for loss of income to fisheries are underestimate and angling benefits overplayed.

6.7.2 The following initial views have been provided by the Scottish Creeler's and Diver's Association who represent creeling and shellfish diving:

- Supportive of RO proposal as considered an opportunity to promote best method of catching *nephrops* and expanding a higher value creel caught market;
- Consider potential for increasing *nephrops* creel landings is higher than proposed in RO; and
- 98% of creel boats are based in local communities and therefore expansion of the creel sector would result in localised economic benefit.

7.0 CONCLUSION

7.1 The Regulating Order proposal will have an economic impact on some parts of the fishing industry which may be offset over a 20 year period by future improvements to shellfish and finfish stocks and wider economic benefits for recreational sea angling.

7.2 The comments detailed in section 6 of the report present initial views which are aimed at assisting Marine Scotland in their initial assessment of the application and the Minister's subsequent decision on whether to progress the application. Should the proposal move to a formal stage of consultation these comments identify areas where the Council considers further assessment and clarification are required.

8.0 IMPLICATIONS

8.1	Policy	Positively influencing the proposed management of a Scottish network of marine protected areas assists the Council deliver the SOA outcome for a diverse and thriving economy, and its commitments for the
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		environment.
8.2	Financial	None
8.3	Legal	None
8.4	HR	None
8.5	Equalities	None
8.6	Risk	Not applicable at this stage
8.7	Customer Services	None

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Glossary

Clyde Ecosystem Review – A review of previously published information and knowledge concerning the Firth of Clyde ecosystem.

Clyde Shellfish Management Organisation (CSMO) - non-profit making company which would be grantee of RO.

Demersal fish – fish that live and feed on or near the bottom of the sea.

Demersal trawling - demersal trawling methods fish along or just above the seafloor catching bottom dwelling fish.

International Council for the Exploration of the Sea (ICES) – Global organisation that develops science and advice to support sustainable use of the oceans, including fisheries advice.

Mobile gear fishing – Fishing activity which involves towed gear such as trawling or dredging.

Marine Protected Areas (MPA) – Scottish marine designated site to protect specific nature conservation features including habitats, species and geological features.

Nephrops – Norway lobster, Dublin Bay prawn, langoustine or scampi.

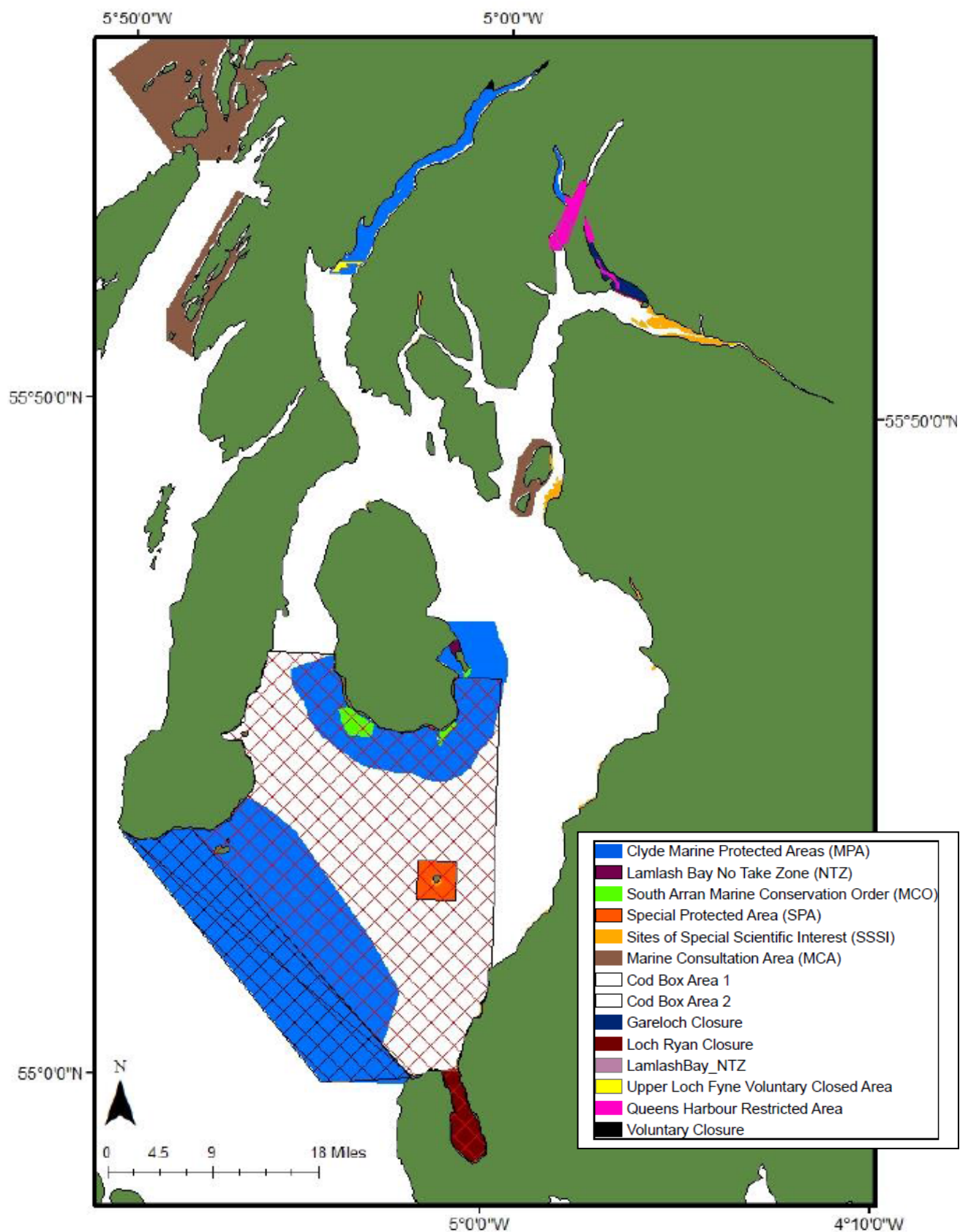
Regulating Order (RO) – Statutory Instrument which may be applied for under the powers of the Sea Fisheries (Shellfish) Act 1967, which gives a named person or body (“the grantee”) the right to manage a fishery and to regulate fishing therein for named shellfish species in a defined area of inshore or tidal waters, for a specified period of time.

ScotMap - Marine Scotland project which provides spatial information on the fishing activity of Scottish-registered commercial fishing vessels under 15 m in overall length.

Sustainable Inshore Fisheries Trust (SIFT) - A Scottish charity aiming to promote the management of Scotland's inshore waters so that they provide the maximum long term social and economic benefits to Scotland's coastal communities.

Vessel Monitoring System (VMS) - A satellite-based monitoring system which at regular intervals provides data to the fisheries authorities on the location, course and speed of vessels.

Appendix 1 – Illustration of existing spatial management of fisheries in the Clyde, including Marine Protected Area boundaries



Appendix 2 – Proposed Spatial Management Measures

