Scottish Marine Protected Areas Assessing the Impact on Fishing and Marine Users

The Scottish Government

Session 6: Socioeconomic Monitoring

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Coastal Futures at the RGS, 18th January 2018

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What is this talk about?

- How can we conduct effective and efficient socioeconomic assessments of MPAs?
  - Scotland's approach
  - Successes and limitations
  - Future monitoring and evaluation

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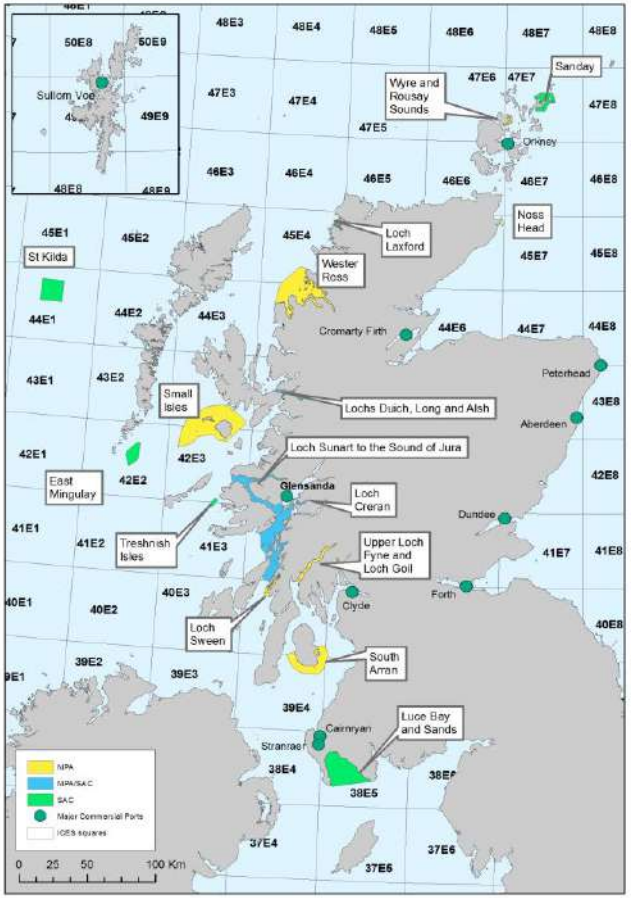
Background

Scottish MPA network covers approximately 20% of Scotland's seas and comprises:

- 1 Demonstration and Research MPA around Fair Isle
- 8 Historic MPAs – sites of historical importance
- 48 Special Areas of Conservation (SACs) under the EU Habitats Directive
- 45 Special Protection Areas (SPAs) under the EU Wild Birds Directive
- 61 Sites of Specific Scientific Interest (SSSI)
- **31 Marine Protected Areas (MPAs)**

MPA - Marine (Scotland) Act 2010 or the Marine and Coastal Access Act 2009

- Sites designated in 2014 (one 2017)
- Management measures (fishing) introduced for first tranche in Februar 2016
- Perceived as highly detrimental to the fishing industry – ministerial commitment
- Report assessed the impacts of the management measures six month post implementation (Feb - Sept 2016)



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Assessing socio-economic impacts?

Assessing social and economic behavioural change

- Social change: personal, work patterns, attitudes, education, lifestyle…
- Economic change: productivity, costs, profits, wealth, wages, employment…

MPAs (in most cases) **not established to achieve socioeconomic objectives** therefore socioeconomic impacts could be **secondary or indirect impacts of an environmental regulation – challenge of establishing genuine counterfactuals**

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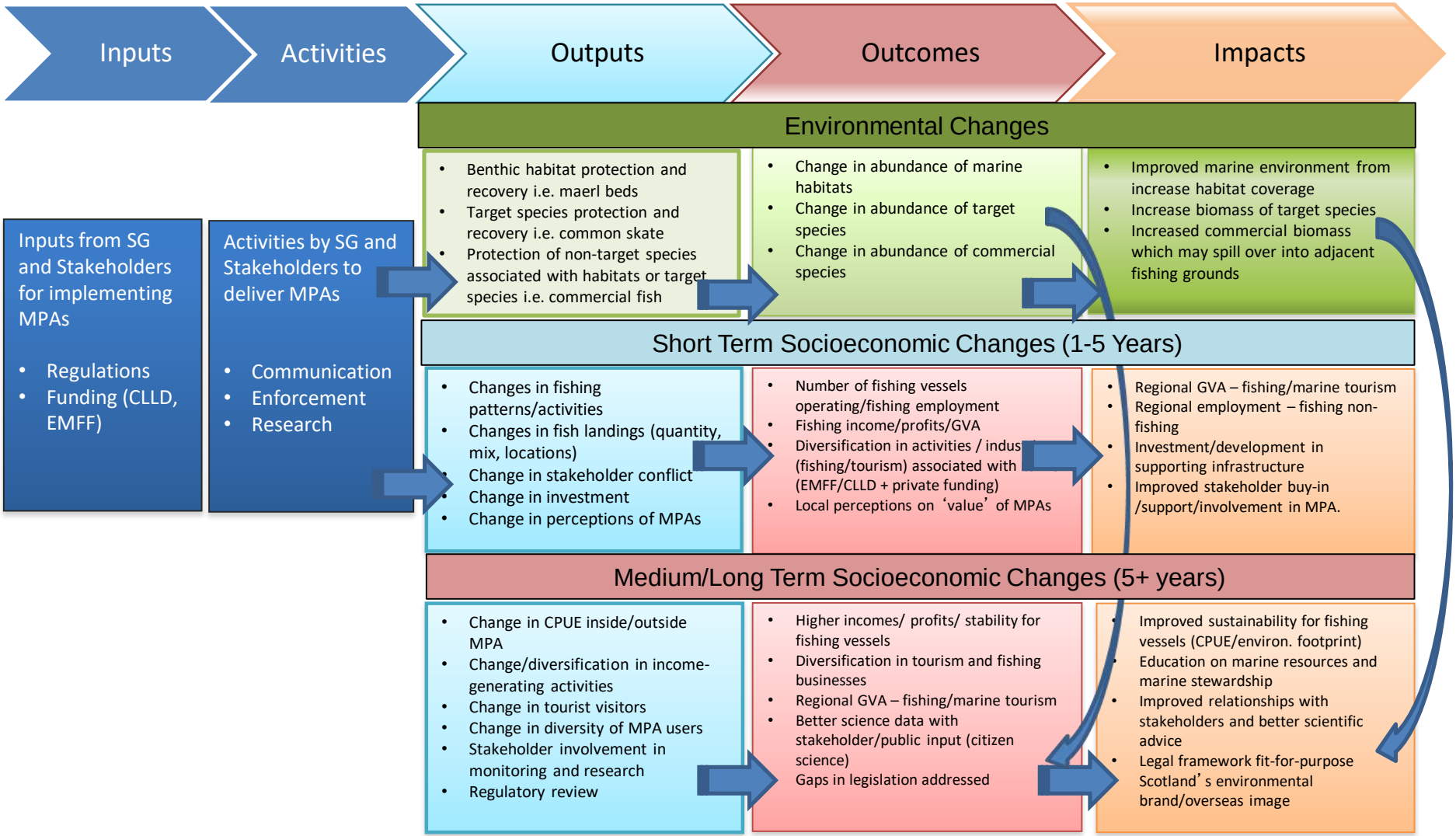
Inputs
Activities
Outputs
Outcomes
Impacts
Environmental Changes
Inputs from SG and Stakeholders for implementing MPAs
Regulations
Funding (CLLD, EMFF)
Activities by SG and Stakeholders to deliver MPAs
Communication
Enforcement
Research
Benthic habitat protection and recovery i.e. maerl beds
Target species protection and recovery i.e. common skate
Protection of non-target species associated with habitats or target species i.e. commercial fish
Change in abundance of marine habitats
Change in abundance of target species
Change in abundance of commercial species
Improved marine environment from increase habitat coverage
Increase biomass of target species
Increased commercial biomass which may spill over into adjacent fishing grounds
Short Term Socioeconomic Changes (1-5 Years)
Changes in fishing patterns/activities
Changes in fish landings (quantity, mix, locations)
Change in stakeholder conflict
Change in investment
Change in perceptions of MPAs
Number of fishing vessels operating/fishing employment
Fishing income/profits/GVA
Diversification in activities / indus (fishing/tourism) associated with (EMFF/CLLD + private funding)
Local perceptions on 'value' of MPAs
Regional GVA – fishing/marine tourism
Regional employment – fishing non-fishing
Investment/development in supporting infrastructure
Improved stakeholder buy-in /support/involvement in MPA.
Medium/Long Term Socioeconomic Changes (5+ years)
Change in CPUE inside/outside MPA
Change/diversification in income-generating activities
Change in tourist visitors
Change in diversity of MPA users
Stakeholder involvement in monitoring and research
Regulatory review
Higher incomes/ profits/ stability for fishing vessels
Diversification in tourism and fishing businesses
Regional GVA – fishing/marine tourism
Better science data with stakeholder/public input (citizen science)
Gaps in legislation addressed
Improved sustainability for fishing vessels (CPUE/environ. footprint)
Education on marine resources and marine stewardship
Improved relationships with stakeholders and better scientific advice
Legal framework fit-for-purpose
Scotland's environmental brand/overseas image

Scotland's Approach

- Change in fishing activity
- Change in fish landings
  - Change in seafood processing
- Change non-fishing related marine sectors
  - aquaculture
  - coastal development
  - tourism
- Change in local community activity

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Scotland's Approach

Key Informant Interviews

Qualitative evidence of impacts observed across different communities

Case Studies

Detailed evidence in specific communities of interest

Analysis of Activity Data

Evidence of changes in activity of users of marine environment

MPA Socio-Economic Monitoring

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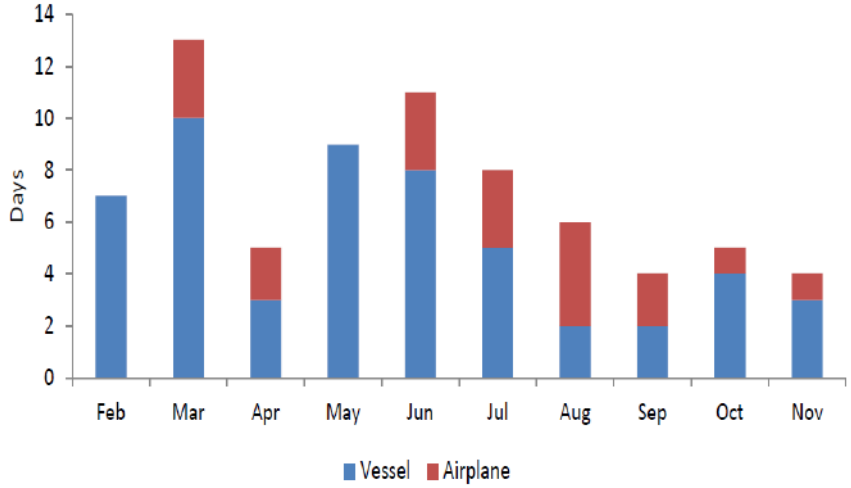
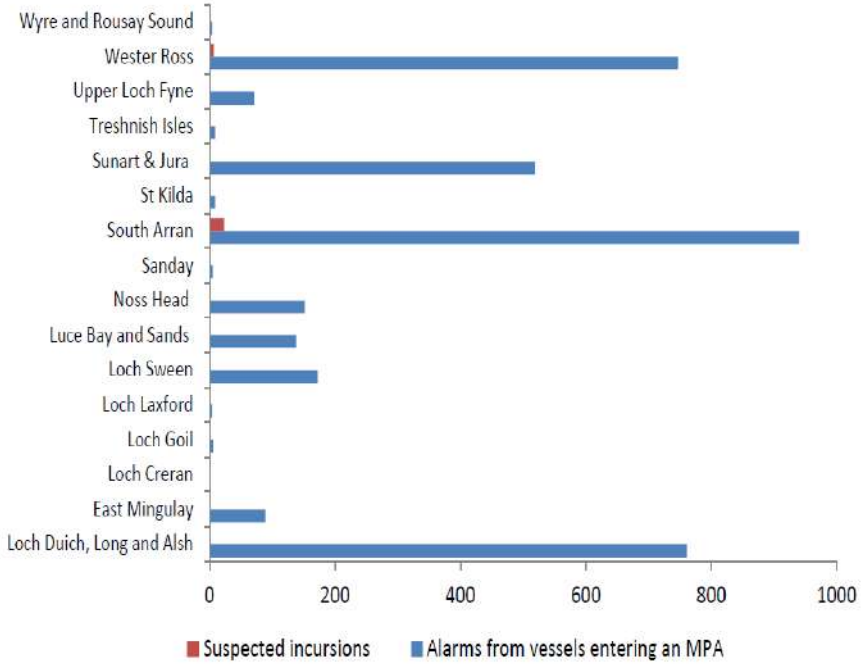
Inputs and Activities - Compliance





Stakeholders reported high rate of compliance over time frame

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CHANGES IN FISHING ACTIVITY

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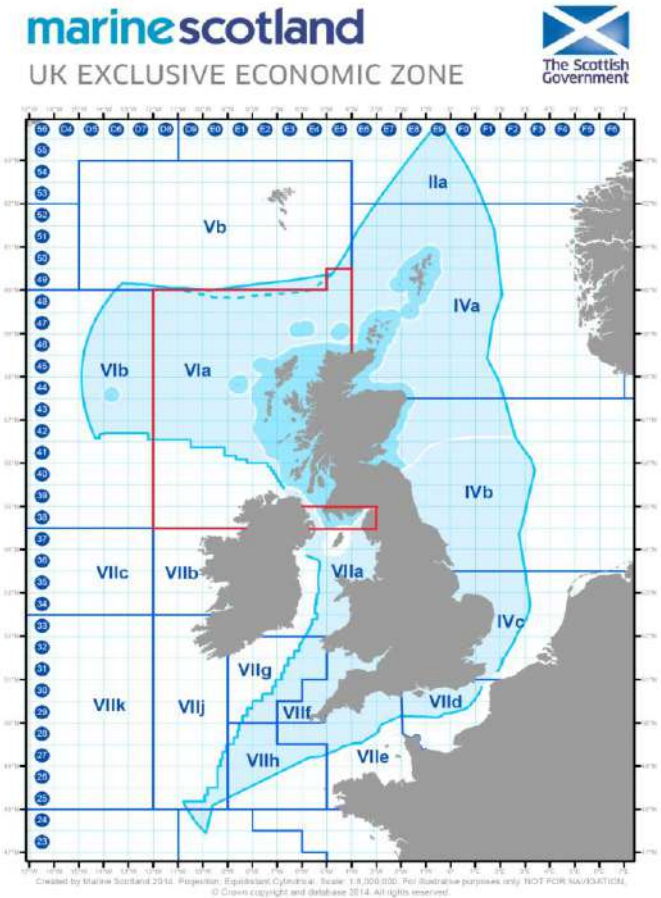
What was analysed



- *Nephrops* (mobile trawl and static trap)
- Scallops (mobile dredge)
  - landings into Scottish ports by UK vessels

- Change in the **number of effort days** and the **number of voyages** between same period (Jan-Sept) in 2015 (baseline) and 2016 (management measures) to look for differences. Analysed:
  - month;
  - ICES rectangle fishing activity was declared in, and;
  - gear type

- Key challenge – <10m vessels activity data by **rectangle**, so activity is apportioned across each rectangle

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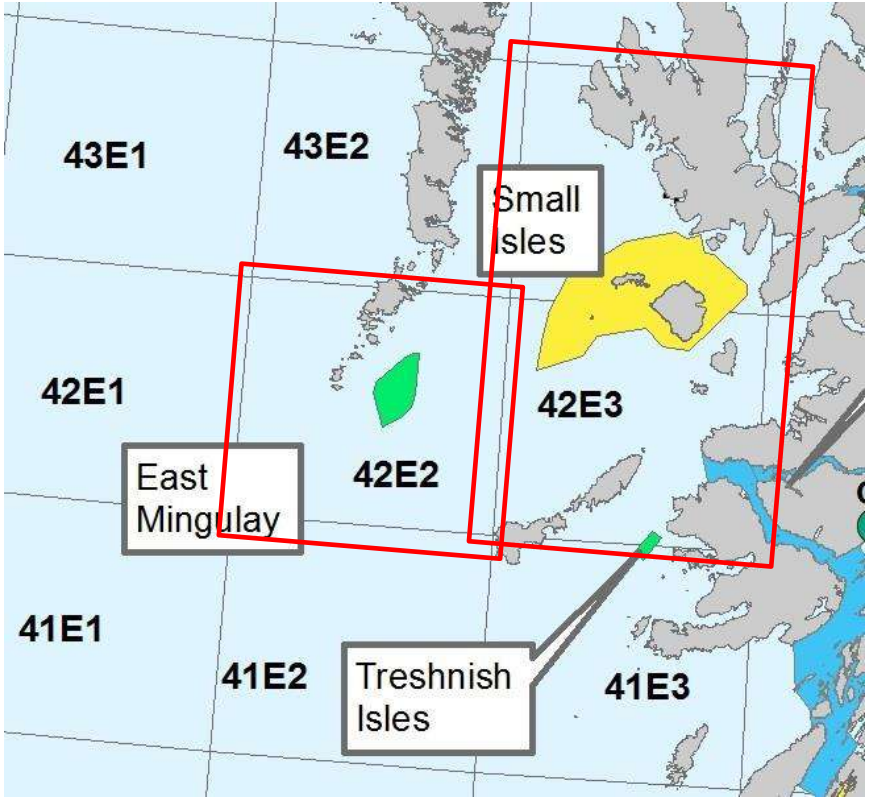
Why is that a problem?

- East Mingulay
  - only know activity for 42E2
  - MPA only a small part of the rectangle
- Small Isles
  - MPA crosses two rectangles (42E3, 43E3)
- <10m vessels make up a high proportion of the activity in inshore waters



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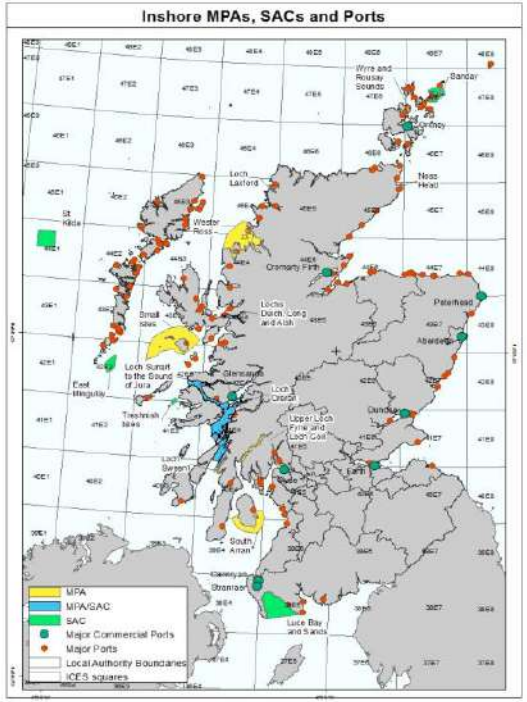
ICES rectangles associated with MPAs and impacted gear types

Rectangle	MPA associated with	Gear types potentialy impacted
38E5	Luce Bay	dredge
39E4	South Arran	dredge trawl traps
40E4	Loch Sween South Arran	dredge trawl traps
41E3	Treshnish Isles	dredge
41E4	Loch Sween Upper Loch Fyne Loch Sunart	dredge trawl traps
42E2	East Mingulay	trawl traps
42E3	Small Isles Treshnish Isles Loch Sunart	dredge trawl traps
42E4	Loch Sunart Loch Creran	dredge trawl traps
43E3	Small Isles	dredge trawl
43E4	Loch Duich	dredge
44E4	Wester Ross	dredge trawl
45E4	Wester Ross Loch Laxford	dredge trawl



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Combined data by impacted and non-impacted rectangles - Jan-Sept 2015 & 2016

Mobile Drege

	Effort Days Change 2015-16	Voyages Change 2015-16
Total for impacted rectangles	13% ↑	12% ↑
Total for non-impacted rectangles	19% ↑	15% ↑
Total for all	15% ↑	13% ↑

Mobile Trawl

	Effort Days Change 2015-16	Voyages Change 2015-16
Total for impacted rectangles	-5% ↓	-9% ↓
Total for non-impacted rectangles	-9% ↓	-13% ↓
Total for all	-6% ↓	-10% ↓

Static Traps

	Effort Days Change 2015-16	Voyages Change 2015-16
Total for impacted rectangles	4% ↑	2% ↑
Total for non-impacted rectangles	-14% ↓	-9% ↓
Total for all	-8% ↓	-5% ↓

These figures are an indication of direction only. They are not the finalised figures. Please refer to the final report for an accurate assessment.

Total increase in 2016 compared to 2015. Increase in activity in impacts rectangles as well as non-impacts rectangles

Total decrease in 2016 compared to 2015. Decrease in activity in impacts rectangles as well as non-impacts rectangles

Total decrease in 2016 compared to 2015. Increase in activity in impacts rectangles and decrease in non-impacts rectangles

Other factors driving behaviour?

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Live weight (tonnes) landings by combined rectangle - Jan-Sept 2015 & 2016

Nephrops	Live weight
	Change 2015-16
Total for impacted rectangles	24% ↑
Total for non-impacted rectangles	4% ↑
Total for all	17% ↑

Scallops	Live weight
	Change 2015-16
Total for impacted rectangles	10% ↑
Total for non-impacted rectangles	18% ↑
Total for all	13% ↑

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Total increase in 2016 compared to 2015. Increase in activity in impacts rectangles as well as non-impacts rectangles

Other factors driving behaviour:

- View of industry and stakeholders is it is too early to tell
- Impacts more likely over winter months (not assessed)
- Displacement - Pressure on stocks outside MPA not yet measurable

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Other Marine Users

- No change in aquaculture activity
- No change in tourism activity
  - measurable results from 2017 onwards
- No decrease in raw material into processors, but reports of impact the size composition and an impact on confidence (investment) in the industry
- New community groups associated with MPAs – range of activities, including research
- No change to coastal development, but concerns that conservation status will impact on operations in the future

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Reflections

- Report addressed the key question of whether fishing has been significantly impacted – **no evidence at this time**
- Opportunity to explore the scope of socio-economic monitoring and promote socio-economic monitoring as useful evidence
- Assess the quality of our data and data gaps
- Collect views from marine industries and stakeholders on future monitoring of MPAs

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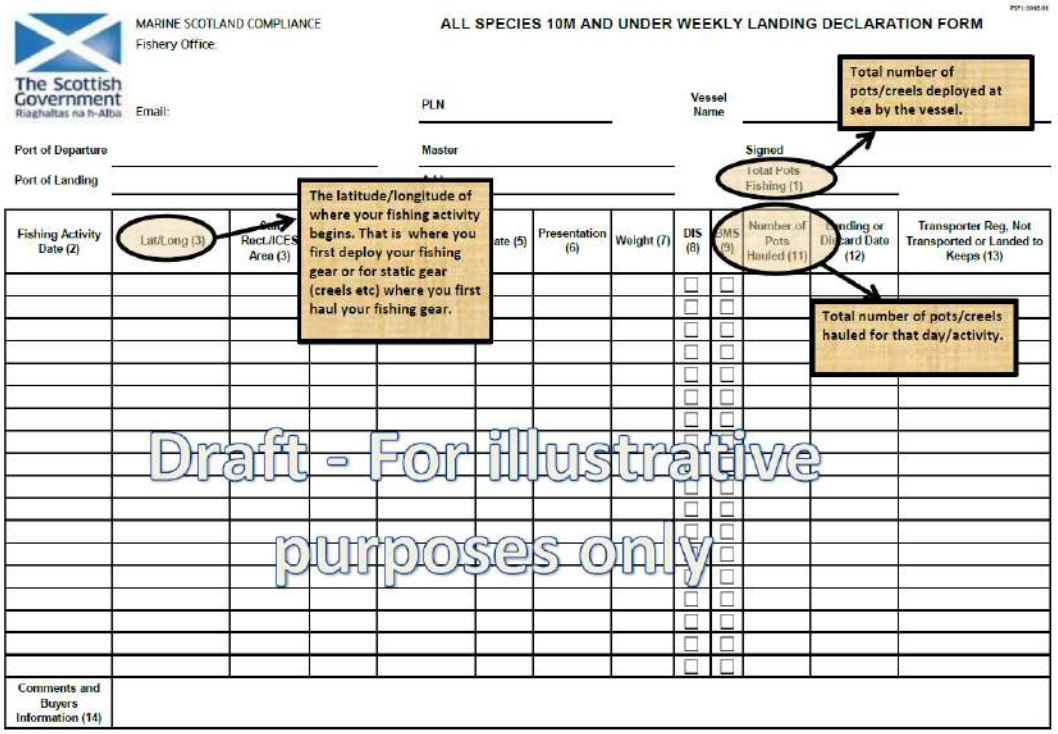
Data Quality

- Lack of spatial resolutio
  rectangle level resolutio
- Changes to Fish1 forms
- Scottish Inshore Fisheri
  Project (EMFF - Univers
- 2018-19 next assessme



The Scottish Government
Riaghaltas na h-Alba

MARINE SCOTLAND COMPLIANCE
Fishery Office:

ALL SPECIES 10M AND UNDER WEEKLY LANDING DECLARATION FORM

Email:

PLN

Vessel Name

Port of Departure

Master

Signed

Port of Landing

Total number of pots/creels deployed at sea by the vessel.

Total Pots Fishing (1)

The latitude/longitude of where your fishing activity begins. That is where you first deploy your fishing gear or for static gear (creels etc) where you first haul your fishing gear.

Total number of pots/creels hauled for that day/activity.

Fishing Activity Date (2)	Lat/Long (3)	Stat Rect./ICES Area (3)	ate (5)	Presentation (6)	Weight (7)	DIS (8)	SMS (9)	Number of Pots Hauled (11)	Landing or Discard Date (12)	Transporter Reg, Not Transported or Landed to Keeps (13)
						☐	☐			
						☐	☐			
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Comments and Buyers Information (14)										

Draft - For illustrative purposes only

SIFIDS
Scottish Inshore Fisheries Integrated Data System

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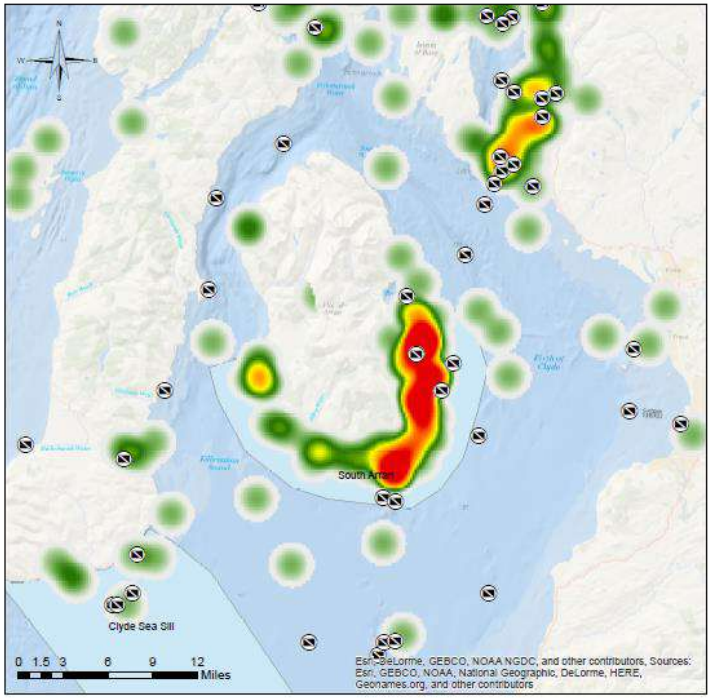
South Arran MPA
Marine Scotland's Recreation and Tourism Survey 2015
Scuba Diving Activity and Sites



Legend

Dive Sites

Scuba Diving Activity

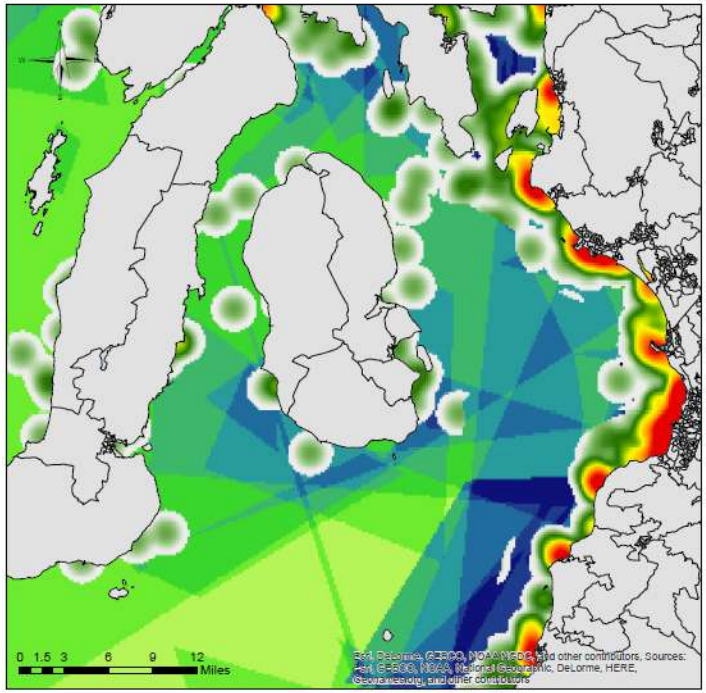
Value

High

Low : 0

MPA

South Arran MPA
Marine Scotland's Recreation and Tourism Survey 2015
Sea Angling Activity



Legend

Scottish Gov DataZone Boundary

Sea Angling (Shore based activity)

Value

High

Low

Sea Angling (Boat based activity)

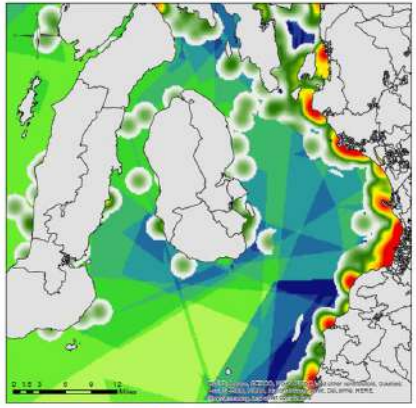
Value

High

Low



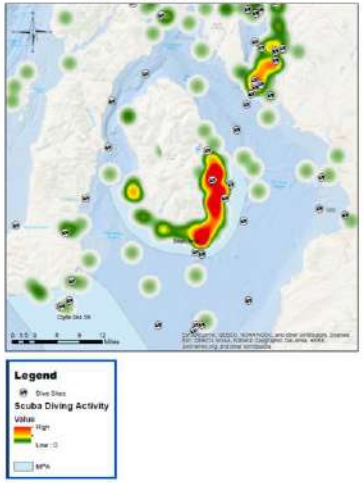

South Arran MPA
Marine Scotland's Recreation and Tourism Survey 2015
Sea Angling Activity



Thank you

estelle.jones@gov.scot

South Arran MPA
Marine Scotland's Recreation and Tourism Survey 2015
Scuba Diving Activity and Sites



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Important points

- 2016 data is not officially published data and has not been finalised.
- It has not been through the full quality check process to ensure its accuracy and therefore it is subject to change.
- The main issue for the quality of the statistics is the completeness of the information in the administrative system.
- One of the issues the concerns the quality of the data is that it can only reflect the information supplied by the fishermen on their activity and catch.
- The number of effort days for UK vessels are calculated using voyage data from the fishing logbook to determine the time spent fishing with each gear type and in each ICES rectangle.
- Landings are apportioned to each rectangle based on the number of days declared fishing in each, therefore, landings by ICES rectangle may not be a true reflection of what was actually caught in each rectangle.

The information on fisheries data analysis presented in this report should be considered as indicative at best and **no strong conclusions or policy decisions should be made from this analysis at present.**

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Assessing Impacts: Monitoring vs. Evaluation

Monitoring

- Observe and check the progress of [something] **over a period of time**; maintain regular surveillance **over time;** observe a situation for changes **over time**; regular observation and recording of activities and changes **over time**

Evaluation

- How **interventions affects outcomes** - intended or unintended; assess what has taken place because of an intervention which **wouldn't have otherwise** - credible counterfactual; Assesses **changes that can be attributed to a particular project**, program or policy

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