



Picture courtesy of Lin Baldock

Time to rock the boat

Why the Community of Arran Seabed Trust thinks a network of MPAs presents a once-in-a-generation opportunity for Scotland and her seas...

It is crunch-time for our seas. The rich marine ecosystems which support and promise so much natural and economic wealth for Scotland are poised at a critical crossroads.

Not only do we now compete in a globalised market for fish, we are on the cusp of an offshore renewables boom and the development of technologies that could facilitate entirely new extractive activities from our seascape. This growing range of marine industries mean that we can no longer keep taking from the sea without a better understanding of their long-term impacts.

Some assemblages of fragile corals - which are fundamental pillars of Scotland's complex marine ecosystems - take literally centuries to grow. And yet they can be destroyed with the single run of a scalloper's dredge or sacrificed in short-termist pursuit of energy production or mineral extraction.

And there is a painful national precedent for this. The loss of our ancient Caledonian forest, which once covered Scotland's landscape, is surely one of our country's greatest collective regrets. Only 1% of our native pinewoods now remain and these trees stand as a stark reminder of a once rich ecosystem decimated first by climate change and then industrial deforestation.

Tragically, we are on the brink of sealing the same fate for our seas. Just as the push for farming and timber production fragmented and ultimately

devastated our forests, so now do modern industrial activities risk the long term health of our marine resource.

Economically-important marine species have already disappeared from Scotland's waters and many more are threatened with the same local extinctions that befell the lynx, the brown bear and countless other mammals, insects, lichens and plants as a result of short-sighted, widespread habitat destruction. We could not anticipate - let alone conceive - the impacts of terrestrial deforestation at the time, but in the case of our seas we are witnessing the collapse of fisheries and the degradation of marine environments within our own life times. We have the benefit of experience and can do something to halt the decline.

Right now, the Scottish Government is in the process of devising a network of Marine Protected Areas (MPAs) with the fine aim of protecting marine biodiversity and ecosystems "to ensure that the natural environment, and the diversity of industries which depend upon it, is safeguarded for the future." The resulting network promises to provide safe havens for priority habitats, free from the damaging impacts of exploitative activity.

A new approach

These MPAs are part of a new 'marine spatial planning' mantra - an attempt to devise a regulatory system for the

many interests that use our sea, like land-planning for our oceans.

It marks a significant step towards organising more democratically the way we use and protect our territorial waters, but unfortunately this new 'management' approach is not being embraced with open arms. There is a lot of skepticism based on recent history in Scotland when it comes to marine legislation.

Over the past few decades, the regulations governing Scotland's seas have become increasingly difficult to navigate, not least for our fishermen. A hundred years ago, there was no quota system, no day-at-sea regulations, no vessel licensing rules or mandatory GPS-monitoring for vessels over 15m. Fishing was extremely tough, but in many ways administratively simple: catch them if you can.

Fishing is harder now. There are far fewer fish and what catch opportunities remain are suffocated with regulatory red tape, which has forced many small-scale fishermen out of business.

The maddening waste of by-catch discards resulting from the Common Fisheries Policy (CFP), brought to recent mainstream media attention, has heralded a tipping point. It has exposed clunky, irrational rules that are dangerously slow in their response to the ecological reality of our seas. But, just as dangerously, the failure of the CFP has given 'marine

regulation' an extremely bad name in Scotland.

No surprise then that these MPAs are getting a cautious reception from those who earn their living from the sea. MPAs sound, on the face of it, like another nail in the coffin of freedom; a final solution for the regulation of our offshore wilderness, as control of sea-based livelihoods passes to marine managers with the power to zone and close off areas of the sea that have been fished for generations. But this notion is a romanticised dead-end. In the past, many areas of the sea were simply not fished due to the limitations of technology. These 'natural MPAs' have since been exploited by electronic navigation, more powerful engines and developments in fishing gear. The areas of the sea which are now effectively unfishable, are so only because there are no fish to catch there. Our only choice is to protect with legal force what we have collectively failed to respect. Without collaborative action, our once-cherished marine wilderness will continue to fragment.

A question of degree

The reason is regrettably simple. The current rules are just not working. The marine resource upon which so many depend is not as healthy as it once was. This article is premised on the sad recognition of a decline in Scotland's fish stocks. There may be debates on degree, but the evidence for a degraded ecosystem and reduced productivity is overwhelming.

You can almost hear "the herring have gone" whispering across the Kyles. But widespread, anecdotal evidence will not suffice no matter how many fishermen you meet - mostly over the age of forty - on the West coast who describe the sea as a shadow of its productive past.

Instead, we must turn to official figures. The Scottish Government's annual publication "Fish and Shellfish Stocks 2010" states West coast Cod stocks are 'suffering reduced reproductive capacity' and are being 'harvested unsustainably.' It warns that their spawning stock biomass is also well below the critical limit.

No-one has to be a scientist to know that this is bad news. This is no

longer the pretty picture of yesteryear, summed up by what has become the sad and soggy cliché: "I can remember when the harbours were so full of fishing boats that I could walk from one side of the loch to the other."

The sea, if we didn't already know it before, is not an infinitely renewable resource. Scotland's fishing industry may now sell its products on a global market, but it does not have the same 'potentially limitless' resources of the knowledge economy. Fish stocks can get hammered.

Big business

Despite this, we are fishing like never before. Never before have we fished the seas with such a small fleet of huge, powerful boats. Just 1,784 registered vessels brought in a grand total of £390 million to the Scottish economy in 2008. This climbed to £435 million last year and these are Scottish vessel landings only. Once processing and peripheral services are considered, fishing is worth more than £1 billion to the Scottish nation. Fishing is big business.

It is understandable then that any restrictions on the commercial fishing sector's assumed access to fish are regarded with extreme suspicion. This is undeniably an important mainstay of the national economy. And the annual outcry by the Scottish Fishermen's Federation (est 1973) following EC quota allocation is the noise of worried economic interest.

Red herring

But Europe and its now totally discredited Common Fisheries Policy is something of a red herring. By virtue of the Inshore Fisheries (Scotland) 1984 Act, the Scottish Government has full regulatory control over its inshore fisheries within twelve miles of the coastline. This has been the case since devolution. This means that Scotland (or previously the UK) has always had the power to protect its inshore fish nursery grounds.

Indeed it was the Scottish Office that decided to close the North Sea sand-eel fishery in 2000 around the Firth of Forth. So what is now different about the "ecologically coherent network" of Marine

Protected Areas to which Scotland is legally committed to establishing by the end of this year?

The answer lies in their breadth of purpose. Although we have closed off areas of our sea before, these

"Marine scientists vary in their enthusiasm for MPAs, with the greatest disagreements being over their effectiveness as a tool in fisheries management. The evidence for the effects within the MPAs themselves is much stronger and this gives them a special value to the science community.

When we are attempting to understand the natural world we often have multiple possible causes for any changes we see. For instance we need to disentangle the effects of natural climatic variability from those caused by fishing or other human activities. MPAs should provide us with "reference sites" in which we can study the natural functioning of marine systems. The information gained will then help us understand how best to manage marine resources. Controlled scientific access to MPAs will greatly increase the value of these sites to society."

David Bailey, Marine Biologist, University of Glasgow

were mostly single-issue closures. MPA networks now represent one of the few management tools that can help to coordinate the activities of all marine users, from the highly consolidated oil and gas industry to the more diffusely local - and therefore harder to quantify - interests of recreational sea angling, and everything in between. The 'spatial management' approach which includes MPAs has opened up policy discussions to what were previously fishing-only decision-making processes.

The world of stakeholders

This widening of the debate is necessary. The sea is becoming a busier place, with a rising number of offshore renewable energy developments, expansions in aquaculture and ambitious plans for

"Whilst SSACN fully support MPAs, we believe the target goals should be specific and blanket bans should only be implemented to achieve specific targets.

We regard it as vital that in the identification and creation of new MPAs an open and inclusive process is followed to enable the broadest cross section of views including socio-economic issues to be taken into account with no single entity having any 'superior' claim.

MPA's though will not be the whole answer - pressure on fishing policies, practices, capacity and discriminatory gear will have to be stepped up with the introduction of more scientific processes to establish the real situation regarding stocks and the marine environment."

Steve Bastiman, Scottish Sea Angling Conservation Network

"The development of MPAs is under consideration but the merits of any proposals will need to be considered on merit taking account both of the specific MPAs objectives and the wider use of marine resources."

Phil Thomas, Scottish Salmon Producers Organisation

growth in marine tourism and travel. In this increasingly complex seascape, if you plan to work at sea, you now have to consider more than ever your many fellow 'stakeholders.'

Our Scandinavian neighbours have started to understand this already. In Norway, where the fishing industry employs some 30,000-40,000 people, the government has recently initiated a co-management project for establishing MPAs in local communities, a collaborative project between local government, fishery

"Scottish Renewables are working with Marine Scotland and the Statutory Nature Conservation Bodies to ensure appropriate management measures are put in place that do not preclude or delay development of offshore renewable energy. At this early stage of the offshore renewable energy industry, with projects about to enter the planning process, it is imperative that the ecologically coherent network of the Marine Protected Areas does not unacceptably increase the level of risk for these projects, or overburden the consenting process given strict existing requirements for projects to carry out Environmental Impact Assessments."

Renewable energy in itself is being developed to tackle man-made climate change, one of the biggest threats to the marine environment, and therefore consideration of this sustainable development should be taken account of as part of the MPA development process. The industry are pleased that Marine Scotland have adopted a science-based approach to developing a robust network."

Johanna Yates, Offshore Policy Manager, Scottish Renewables

management and research, explains Alf Ring Kleiven, a well-connected scientist at the Institute of Marine Research, Arendal.

Four lobster MPA reserves were set up in Norway in 2006 where fishing is only permitted by hook and line. The survey results are due to be published soon. "They [MPAs] are quite small," explains Kleiven, "but implemented to understand the effects of protection... the reserves are working well with increased density and mean size of lobsters."

The Fishery Directorate of Norway has also put in place a 'coastal cod recovery plan' which prevents large boats and trawlers from entering the fjords and closes two identifiable spawning areas along the coast:

Henningsvær (Lofoten Islands) and Borgund Fjord.

Kleiven points out that there are scientific debates as to whether these are actually MPAs, because the spawning ground closures are protected from static gear only in the first half of the year and may be opened if the proportion of Northern Arctic Cod reaches a certain limit. Whilst the measures may have not yet reduced the total catch to below that level set during a quota agreement, the Norwegians are, at least, in healthy discussion about what constitutes an MPA.

Cod stock "on its knees"

Both Sweden and Norway already 'use' MPAs to a significant degree and Denmark is beginning to follow suit, with some new real-time closures for the Skagerrak area to protect juvenile fish.

In collaboration with Sweden, Denmark set up a closed area to protect cod which encompasses several zones with different gear restrictions (including no take) and the results will be evaluated next year at the end of a short 3-year experimental period. "The cod stock is really on its knees in the Kattegat so I am eager to see if a closed area has had any effects," says Kirk Thomas Sorensen, who works as a marine biologist at the

Danish National Institute of Aquatic Resources. There is a palpable sense of urgency amongst scientists working in this field.

Scotland's pressing timeframe

On the ground Scotland has been lagging behind. With the first NoTake Zone only established in 2008 in Lamlash Bay on the Isle of Arran, the accompanying MPA has yet to be established even after several years of negotiations.

Due to EU legislation and the recent passage of Scotland's Marine Bill there is now a pressing timeframe to establish a coherent network of MPAs by the end of this year, but some marine stakeholders including elements of the commercial fishing

industry have been predictably cagey about the process. "The complexity and breadth of marine legislation newly in force and in development is such that the industry is very badly placed to defend itself, or even understand the full impact, without expert assistance," explained the Scottish Fishermen's Federation, after

"The Scottish Fishermen's Federation agrees with the principle that there should be Marine Protected Areas (MPAs) to protect valuable and rare areas and species such as lopolia coral beds. Working together with the likes of Scottish Natural Heritage (SNH) and the Joint Nature Conservation Committee (JNCC) who select and put forward sites is high on the list of priorities of the Scottish Fishermen's Federation as it is vitally important that MPAs and SACs are sited in the most effective places."

If sites are not located correctly then our members can be in a position of losing valuable fishing grounds while there is no conservation benefit for closing an area to fishing which is nowhere near the site of interest."

Working together helps to build trust between the fishing industry and the environmental community which both need to recognise each other's place in the world and the Scottish Fishermen's Federation is always willing to work with other parties to come up with the best and most workable solutions for everybody."

Bertie Armstrong, Scottish Fishermen's Federation

it secured £40,000 of funding for a planning legislation consultant to help engage it with future MPA policy discussions.

While the SFF's claim to be under-represented and baffled by marine legislation must be taken with a pinch of sea salt, perception of MPAs within the diverse Scottish fishing industry has not exactly got off to a flying start. Pre-legislative pressure from the fishing lobby in Holyrood committee rooms has meant that our brassy new Marine (Scotland) Act 2010 does not actually define MPAs as a method of fisheries management. This was a significant missed opportunity, because it began to shape the perceived scope of MPAs by workers within the industry before the network was even established.

But meanwhile the process rolls on. Identification of MPA sites is being coordinated by a partnership between Marine Scotland, Scottish Natural Heritage and the Joint Nature Conservation Council. At a recent workshop, fishermen are now sitting down beside a whole range of other

stakeholders including wind and tidal energy developers, recreational sea anglers, marine conservation groups, international farmed salmon producers and oil and gas companies.

Airing views

It is a bustling crowd of interests, where relationships of trust must be forged and compromises made. For the time being, these stakeholders are expressing mainly sectoral concerns.

'SIFT is committed to exploring and promoting sustainable management of our inshore waters based on an ecosystem approach. SIFT believes that a research and demonstration MPA could be used to create a static gear reserve on the Firth of Clyde. The key idea is that by substituting trawling and dredging for creeling you can generate more jobs and wealth for the area as well as protecting the sea bed. This in due course will allow commercial fish stocks to recover which will bring more wealth to the area in the future. To succeed such an MPA would need widespread support; in particular a financial package may need to be offered to trawlers to allow them to convert to creeling or decommission and retire.'

Bob Younger, Sustainable Inshore Fisheries Trust

For marine conservationists, who are concerned with the long-term recovery of the natural marine resource, the central problems to address are depleted fishing stocks and degraded seabed habitat. Studies show that fishing methods such as dredging for scallops and bottom-trawling for prawns are doing damage to valuable biodiversity and the future productivity of Scotland's inshore fisheries, essential to the health of connected offshore stocks. The added value generated by more sensitive methods of fishing will also serve to benefit the many coastal communities economically-dependent on the sea. An MPA network is welcomed as a means to tackle this, but local community groups such as the Community of Arran Seabed Trust (COAST) are also concerned that a focus on priority species rather than wider ecosystems could result in a scatter of spatially insignificant marine nooks and crannies with little ecological relevance.

The Scottish Fishermen's Federation is worried that MPAs will reduce the available fishing grounds for their members and dent the productivity of the sector. They also argue on conservationist grounds that

closures could lead to a damaging 'displacement-of-effort' effect whereby other fishing areas become over-fished by those fishermen forced to pursue catches elsewhere.

Displacement is also a concern of the static fishing sector, but many static fishermen see how it will benefit fishing in the long-term, however much it might affect their short-term interests. Fishermen in this sector already prefer creeling as a lower-impact method of fishing which does no damage to the seabed habitat, unlike bottom trawling and scallop dredging, and so therefore welcome measures designed to protect priority habitats and species.

Cold feet

Offshore energy developers are concerned that the MPA process does not "overburden" the planning process and jeopardise investment. A projected valuation estimates offshore energy to be worth £14 billion to the Scottish economy between now and 2050, with the potential to generate tens of thousands of jobs in the process. Protracted uncertainty over the scope and nature of MPA sites could give investors cold feet, so they have a major seat at the table.

Others are conspicuously circumspect in their response to MPAs. The Scottish Salmon Producers Organisation feels the process for MPA site selection is still too much a 'work-in-progress' to comment on fully. It is a fair point; no-one yet knows exactly how MPAs will operate on-the-ground.

Scientists too have an integral role in collecting and analysing the data that will inform policy. The ingenuity, integrity and research design of Scotland's marine scientists will shape the quality of what is the "best available science" to policy-makers.

These sectoral statements flag up legitimate concerns and reveal a generally hesitant approach to the identification of MPAs. It is understandable that offshore developers, fish farm owners

and fishermen are cautious—the network is still at blueprint stage—but if anyone behind the scenes is simply working out how individual MPAs will affect their bottom line in the short-term, they are seriously missing the point. MPAs represent a real opportunity to do things differently within a context of marine spatial planning. For generations the reliance solely on effort control has meant we have been managing our seas with one hand tied behind our back.

Fear not the MPA

There is never absolute consensus within any scientific community and marine biology is no different, but the evidence base supporting the practical value of MPA networks around the world is strong. Although our Scandinavian neighbours are just beginning to realise the benefits of marine reserves, New Zealand has a longer pedigree. Its first marine reserve was established in 1977 and since the initial vision of campaigning biologist Bill Ballantine, New Zealand's Department of Conservation has moved to protect 12,795 square kilometres of its territorial waters.

Studies have shown that after 20 years of protection, densities of legal-size fish in protected areas were significantly greater than in fished

The creation of Marine Protected Areas affords coastal communities with an opportunity to halt the decline of fish stocks and habitat within our inshore waters, so seriously degraded by destructive fishing methods. If we are to implement the changes necessary to restore our marine environment some tough and controversial decisions must be made. Commercial fishermen must set aside their avarice and consider the impact that their activities have on the public in general. Our coastal waters are a 'public asset,' yet have seldom been considered so. Proposed MPAs must be given time to demonstrate their benefits to society as a whole without interference from those within the fishing industry who wish to maintain the status quo. Decision-makers whether MP's or civil servants must ignore the interests of the select few and consider the economic and social benefits to the community we know as Scotland. We expect no less from our MSPs when we offer our support through the ballot box.

Alistair Sinclair, Chair, Scottish Creelers and Divers

areas. And the bottom-line for the economy is that fisheries have been boosted via the spill-over effect.

Skippers often now fish close to the reserve where catches are better.

This spill-over effect is not straight forward. MPAs must be well-designed and consider the connections between functionally linked habitats as well as complemented with the right management measures, but New Zealand at least demonstrates that they can happen if the design is right.

The New Zealand MPAs, at first resisted by commercial boats, are now perceived by most New Zealanders as a necessary measure for long-term environmental benefit. A recent study by the WWF showed that 84% of New Zealanders believe either 'definitely' or 'probably' that it is reasonable to stop commercial and recreational fishing in marine reserves.

Unfortunately we Scots do not share such a consensus. Recreational interests are supportive of 'angler friendly' MPAs such as the one currently proposed for an area in the Firth of Clyde, but within the commercial fishing industry there is a failure to embrace the long-term benefits of MPAs. A 2011 study by authors from the University of Aberdeen concluded that commercial fishermen in general are more accepting of MPAs that are implemented for the purpose of fishery management rather than for conservation. It is highly ironic then, that the SFF did not want Scottish MPAs to be given the full legal force of a fishery management tool.

Although the SFF acknowledges the role that MPAs have to play in protecting "valuable and rare" pockets of biodiversity, it makes no

mention of their role in actually promoting their industry's interests. The New Zealand experience underlines the basic fact that people need to agree with why MPAs are being introduced. And if local fishermen believe MPAs will positively support their livelihoods, there will be greater buy-in and any protected areas are more likely to be self-enforcing.

The way forward

The current resistance is in part driven by the concern that MPAs might create highly-restrictive 'designations-in-perpetuity.' And an emergent theme from the range of marine stakeholders is that it is important to identify specific targets before imposing any blanket bans on all types of marine activity. The broad consensus is that any MPAs should be reviewable according to the targets they were set up to achieve and this will require evidence via the collection of marine biological data.

There are some signs that this will encourage more cross-sector cooperation. The SFF is making the right noises and chairman Bertie Armstrong recently declared it was "essential that we forge even closer relationships with scientists so as to have the most accurate information flow as possible."

This certainly heeds advice from the Independent Panel on the Future of the Scottish Fishing Industry which last year urged fishermen to develop a strong rationale for their position as a "contributor to the marine environment," adding that the success of the sector will depend upon how

well it can compete with other marine users on this front. The real test will come when the scientists make uncomfortable recommendations. Fishermen are natural mass-collectors of data, but they must be prepared to act on the data they collect for the long-term benefit of all. They, as well as the many other industries that seek to benefit from the public marine resource, must start to play a genuinely positive role in the process.

All in the same boat

For MPAs to work they must involve all stakeholders in their design and be understood in the wider context of marine spatial planning.

This is a progressive ecosystems-based vision, unhindered by short-termist or purely sector-specific considerations. We have a duty to acknowledge the historical and ecological context within which we act otherwise we risk squandering a public resource for short-term gain. "We are all in the same boat, when it comes down to it," explains Andrew Binnie, COAST's project officer. "Scotland's coastal stakeholders have a real chance to act with vision and ambition. The result could be a coherent and enviable network of MPAs integrated with marine spatial planning and a holistic ecosystems-based approach to the management of our seas." In short, we need to get the balance right and cooperate if want our seas to continue to provide the resources we have so far taken for granted.



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