DEVELOPING A MANAGEMENT PLAN
WHILE BALANCING DIVERGENT
STAKEHOLDER OBJECTIVES
INTRODUCTION

In northeast Scotland, there has been a history of conflict between seal conservation and salmon fisheries in the Moray Firth, a large area covering approximately 5,230 km². Seals prey on salmon migrating into the river estuaries and around coastal netting stations, impacting fishing activities.

HISTORICALLY, SHOOTING SEALS TO SAFEGUARD FISHERIES HAD BEEN PERMISSIBLE UNDER NATIONAL LEGISLATION. IN 1992, THE UK GOVERNMENT ADOPTED THE EUROPEAN UNION HABITATS DIRECTIVE, WHICH AIMED TO SECURE FAVOURABLE CONSERVATION STATUS OF LISTED SPECIES THROUGH THE DESIGNATION OF SPECIAL AREAS OF CONSERVATION (SACS).

Atlantic salmon *Salmo salar*, harbour seals *Phoca vitulina*, and grey seals *Halichoerus grypus* were all listed, presenting a challenge for seal and salmon management alike as the protection of one species potentially impacted the status of the other. However, this challenge presented an opportunity for the various stakeholders to come together and develop the Moray Firth Seal Management Plan. This case study follows the process of developing this plan.
Eighteen major rivers flow into the Moray Firth, historically supporting an annual run of up to 270,000 Atlantic salmon, managed by statutory District Salmon Fishery Boards (DSFBs). The Moray Firth supports both coastal netting stations and in-river rod fisheries, but is also an essential habitat for marine mammals, including harbour and grey seals.

In the 1990s, up to 1,500 harbour seals and 900 grey seals were found in the Moray Firth, supporting a growing wildlife tourism industry. Seals of both species interacted with the coastal nets and preyed on migrating juvenile and adult salmon in the rivers and estuaries.
In the 1990s, salmon stocks declined, with seal predation thought to be one of the causes, resulting in increased shooting efforts by the fisheries under the UK’s Conservation of Seals Act 1970. Between 1994 and 2002, up to 425 seals of both species were shot annually. In 2002, a second outbreak of Phocine Distemper Virus occurred in harbour seals (the first outbreak having taken place in 1988, but populations had since rebounded). Consequently, the Scottish Executive (now Scottish Government) introduced and implemented a precautionary national Conservation Order for the harbour seal, to protect and conserve the population of the species by introducing a permanent national close season for seal shooting, which remained in effect from September 2002 to September 2004. The Conservation Order acted as a watershed moment, creating a window of opportunity to introduce a new approach to managing seals, salmons and their interactions.
The drivers highlighted in the problem analysis triggered the adoption of an adaptive co-management approach (ACM) to resolve the situation. This initiative was set in motion when a DSFB executive convened several meetings among the various stakeholders, in 2002. The Moray Firth DSFBs, the Scottish Executive, Scottish Natural Heritage and other stakeholders collaborated to jointly negotiate with the government for the formulation of an alternative management approach for seals and salmon in the Moray Firth.

In 2002, the Moray Firth DSFBs actively interacted with the wildlife tourism industry, local communities and other fisheries sectors by intensifying their engagement within the Moray Firth Partnership (an integrated coastal zone management group, established in 1999, that provided an opportunity for coordination between tourism, fisheries and other stakeholders) and the Seals Working Group (a consultive forum of national-level stakeholders established in 2002).

During these meetings, facilitated by the DSFB executive, the stakeholders identified, negotiated and subsequently reached consensus on a comprehensive set of goals for the upcoming management plan.
These goals were to:

01  Restore and maintain the Favourable Conservation Status of harbour seals in the Dornoch Firth SAC and salmon in the Spey, Moriston, Oykel, Cassley, Berriedale and Langwell SACs.

02  Mitigate the impact of salmon fisheries’ shooting on harbour seal populations.

03  Diminish the effects of predation by harbour and grey seals on depleted spring salmon sub-stocks.

04  Conduct monitoring and research on the status of harbour and grey seal populations, as well as the condition of salmon stocks, and their interactions.

05  Develop and implement non-lethal methods of reducing instances of seal-salmon interactions.

These gatherings fostered the exchange of vital information, including the DSFB’s shooting records, and served as dynamic platforms for cultivating trust among the diverse stakeholders involved.
Launched in April 2005, the Moray Firth Seal Management Plan (MFSMP) focused on six key facets:

**01** The Moray Firth Seal Conservation Order 2004 was formulated. The Order treated the harbour seals within the Moray Firth as one distinct population unit. Under this arrangement, the DSFBs would annually apply for a single joint license to perform targeted shooting of a specified number of each species. This approach aimed to ensure the protection of the salmon fisheries from potential impacts while preserving the seal population.

**02** The Potential Biological Removal (PBR) method was employed and utilized by the Scottish Executive to conduct an appropriate assessment that aimed to determine whether the proposed level of shooting would have a detrimental impact on the harbour seal population.

**03** Management areas were established in zones where seals were known to prey on salmon, facilitating the targeted addressing of seal-related problems. These areas were delineated to ensure pupping sites, where the management activities might impact breeding animals, were avoided. The locations were agreed upon with the local tourism bodies, and fishers could also only shoot seals close to nets. Each management area had a quota for the maximum number of seals that could be shot, based on the number requested by the DSFBs.

**04** A specialized training course was provided to 25 nominated marksmen responsible for the shooting. This training course was collaboratively designed by the stakeholders. Furthermore, the marksmen were not only obliged to identify and document the species of seal shot, date, location of the shot seal, and if possible, retrieve the carcass for research, but also to promptly submit the data to the Executive.

**05** Monitoring and research endeavours were undertaken, aimed at exploring the use and efficacy of non-lethal tools to exclude seals from rivers, understanding seal behaviour within the river systems and evaluating the impact of seals on salmon stocks.

**06** The results of the research were used to inform forthcoming iterations of the plan following an adaptive framework.
Between 2005 and 2011, the number of seals shot never exceeded the license allocated. During this period, the annual figures for shot seals witnessed a decline from 47 to six for harbour and 46 to 16 for grey seals. Research conducted into seals predating on salmon revealed the identification of specific individuals more prone to predation within rivers. This provided a rational basis for the targeting of individual seals within management areas. Acoustic deterrent devices (ADDs) were trialled in several locations with some success in reducing the movement of seals upstream. Still, broader adoption of this deterrent has been limited due to the cost implications and operational difficulties.

INITIALLY ASSESSED IN 2003-2004, THE SACS FOR SALMON WERE EVALUATED AS "UNFAVOURABLE RECOVERING", WITH HARBOUR SEALS ASSESSED THE SAME IN 2009. HOWEVER, IN 2011 A COMPREHENSIVE REASSESSMENT OF ALL SITES WAS CONDUCTED, RESULTING IN THE DETERMINATION THAT ALL SITES, EXCEPT FOR ONE, HAD EXHIBITED SIGNS OF IMPROVEMENT OR FULL RECOVERY. Between 2005 and 2011, the number of seals shot never exceeded the license allocated. During this period, the annual figures for shot seals witnessed a decline from 47 to six for harbour and 46 to 16 for grey seals. Research conducted into seals predating on salmon revealed the identification of specific individuals more prone to predation within rivers. This provided a rational basis for the targeting of individual seals within management areas. Acoustic deterrent devices (ADDs) were trialled in several locations with some success in reducing the movement of seals upstream. Still, broader adoption of this deterrent has been limited due to the cost implications and operational difficulties.

In 2011, the project team interviewed stakeholders to evaluate the evolution of ACM developed throughout the project and identify key factors underpinning its success. While the triggers for the approach have been outlined in the problem analysis section of this case study, three distinct phases were identified for how the ACM approach evolved. Firstly, local leadership emerged, setting the groundwork for change. In the second phase, the proposed policy changes legitimised the initial opportunity for change and provided a legal framework and sanctions to underpin the process. Lastly, once identified, collaborative engagement and knowledge exchange amongst the various stakeholders created a culture of learning, and hence an adaptive system.

The first evaluation also identified that following an initial perceived success, the process encountered a stall due to declining government support and engagement amongst the stakeholders. The cessation of the research programme also hindered further innovation and curtailed the integration of technical outputs into management.

SUBSEQUENT EVALUATIONS HAVE SHOWN THAT A SHOCK IN THE FORM OF GROWING CONSERVATION ADVOCACY AGAINST THE SHOOTING OF SEALS, PLUS SHARP DECLINES IN THE ABUNDANCE OF SALMON, GENERATED A RE-EMERGENCE OF COLLABORATION AMONGST THE STAKEHOLDERS.
KEY INSIGHTS & LESSONS LEARNT

01 | SCALING CHALLENGES
Conducting ACM at a large scale posed difficulties as it required significant resources to consistently bring all the stakeholders together from across the region. Operating at a smaller scale is more likely to yield success, as it requires fewer resources. However, the wide ecological distributions of the species concerned (seals and salmon) demanded this broad-scaled approach.

02 | FROM PROBLEM TO OPPORTUNITY
Initially regarded as a daunting challenge, the legislative changes impacting the Moray Firth situation eventually presented an avenue for positive transformation. Involving all stakeholders led to the production of the Moray Firth Seal Management Plan, a framework that garnered consensus among conflicting parties.

03 | EMBED RESEARCH IN THE PROCESS
The Moray Firth Seal Management Plan’s development and subsequent implementation was collaborative, resulting in DSFBs contributing valuable knowledge to the process. The research into non-lethal tools and testing of new ideas was also conducted in partnership with salmon fishery stakeholders, which aided knowledge exchange and innovation.

04 | LONG-TERM FUNDING
Although funding had been available for facilitating and holding meetings to develop the MFSMP, shifting priorities resulted in decreased government and DSFBs’ funding by 2009. This reduction in resources hindered progress, following initial success, and limited ongoing joint research and evaluation.

05 | ADAPTIVE FRAMEWORK
The MFSMP involved an ACM approach, with yearly seal population assessments which informed the Seal Working Group’s determination of quotas for the following year. Periodic evaluations by researchers also generated lessons learned (and continue to do so) which were then transferred back into the process.

06 | LOCAL CHAMPION
The DSFB executive who initiated the meetings between the various stakeholders had good relationships with all parties and, although coming from a fishery background, was considered legitimate by all interests.

07 | COMPROMISES
The timeframe for the MFSMP development, aligned with legislative changes, necessitated compromises from all stakeholders. However, stakeholders also recognised that these concessions were preferable to the current situation, promoting openness to experimenting with an alternative governance approach.

08 | VIGILANCE AFTER SUCCESS
Following the initial success of the MFSMP, funding and resources became limited as they were diverted to more immediate concerns, leading to a stagnation of the ongoing process. Long-term and sustainable financing and championing by leaders is required to sustain such management approaches; otherwise, the situation can quickly revert to the original conflict.
FURTHER INFORMATION

- Evaluating adaptive co-management as conservation conflict resolution: learning from seals and salmon. Journal of Environmental Management. 2015

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ABOUT THE CASE STUDIES

The Food and Agriculture Organisation of the United Nations (FAO) and the IUCN SSC Human-Wildlife Conflict & Coexistence Specialist Group (HWCCSG) have jointly developed a set of case studies with the aim of covering the process projects have taken to manage various aspects of a human-wildlife conflict & coexistence situation. This case study is one of many that will be used to illustrate key components of the IUCN SSC Guidelines on Human-Wildlife Conflict & Coexistence. The published case studies can be found in the Human-Wildlife Conflict & Coexistence Library.

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