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EVIDENCE TO THE ENVIRONMENT AND SUSTAINABILITY COMMITTEE INQUIRY INTO MARINE POLICY IN WALES

FEBRUARY 2015

Thank you for the opportunity to provide evidence on Welsh Government's implementation of the recommendations in the National Assembly for Wales Environmental and Sustainable Committee's report into Marine Policy in Wales, published in January 2013 and subject to a further inquiry session in February 2014.

Summary

The Welsh Fishermen's Association (WFA) and Bangor Mussel Producers Association Ltd (BMP) acknowledge the progress made in WG marine policy development and implementation, including the formation of a Marine and Fisheries Division the establishment of marine action plans and greater industry involvement in the development of marine policies and management. However, the failure to implement marine policy on time and the lack of targets for 2015 and beyond is of concern. Moreover, the delivery of European-driven marine goals, such as: Marine Plans; a coherent network of MPAs; Sustainable Fisheries biodiversity targets under the Marine Strategy Framework Directive; and discard reductions under the Common Fisheries Policy will require significant support and data from fishermen. Transparent work programmes with clear delivery timelines will help secure the trust necessary to positively engage fishermen, but unknown targets and failure to deliver without explanation will lead to disinterest and disengagement. Fishermen possess a wealth of marine knowledge that can help WG deliver its marine targets more effectively and efficiently whilst safeguarding fishing grounds, fishermen's livelihoods and fishing communities all of which are fundamental to sustaining our Welsh heritage, culture and language.

The WFA and BMP recommend:

- Higher priority for marine policy and its implementation across WG departments, policy and implementation;
- Clarification by WG of MFSAP actions and delivery timelines for 2015 and beyond;
- Review of the adequacy of WG's resources to deliver the MFSAP;
- Greater use of fishermen in data collection and monitoring work;
- Review of the reporting mechanism for Habitats Directive Article 17;
- Fair and consistent treatment of fisheries and aquaculture in Welsh MPAs; and
- A decision on WG's role in offshore MCZ designation and management.

Introduction

Created by fishermen for the wider fishing communities in Wales, the Welsh Fishermen's Association Ltd - Cymdeithas Pysgotwyr Cymru Cyf (WFA-CPC) is the representative body for fisherman's associations in Wales, namely Cardigan Bay Fisherman's Association Ltd, Llyn Fisherman's Association, Llyn Pot Fisherman's Association, North Wales Fisherman's Cooperative Ltd, Welsh Inshore Scallopers Association and South & West Wales Fishing Communities Ltd.

Operating in the Menai Straits, North Wales, BMP Ltd is an association of four mussel businesses: Deepdock Ltd, Extramussel Ltd, Myti Mussels Ltd and Ogwen Mussel Ltd.

The WFA's and BMP's views are described against each of the recommendations put forward in the National Assembly for Wales Environment and Sustainability Committee's inquiry into Marine Policy in Wales that are relevant to our respective organisations.

Recommendation 1. *We recommend that the Welsh Government affords a higher priority to marine policy in Wales.*

Response from WFA

We have been encouraged by some significant WG marine policy decisions and implementation since the marine policy inquiry reported in January 2013, including:

- The amalgamation of the fisheries and marine departments, which should increase efficiency and help streamline the delivery of WG marine and fisheries policy under the Marine Transition Programme (MTP).

- WG's Marine and Fisheries Strategic Action Plan (MFSAP) that recognised the importance of the fishing industry, the requirement to work more collaboratively and the need to improve profitability and production (a detailed critique of the MFSAP is provided under Recommendation 2).

- WG's Marine Transition Programme (MTP) that linked international, European and national commitments and policies on marine protection, management and fisheries. We are hopeful that the MTP will provide an effective way of dealing with the multitude of demands in the most efficient manner avoiding duplication and collecting data once and using it many times.

- The involvement of WFA and the IFGs in marine policy and management meetings to discuss how WG can improve delivery and how industry can assist in the development of

marine targets and where necessary appropriate management options to safeguard fisheries.

However, marine policy and interests such as biodiversity, natural resource management and food have not fared so well across wider WG policy development. Marine subject matter has been inconspicuous in WG's Wales Biodiversity Strategy Board. At the latest Biodiversity Board meeting it was acknowledged that marine biodiversity had received very little attention and it was agreed that this needs to be considered in more detail going forward. Very few marine-related projects were successful in WG's £6M Nature Fund. The failure to secure funds for the 'Llyn Ecosystem-Based Approach – from policy to practice' project put forward by WFA, Wales Environment Link, Gwynedd County Council and others, was particularly disappointing as the previous Minister for Natural Resources and Food, Alun Davies AC/AM had committed to supporting the WFA's proposal to implement an ecosystem-based approach to marine regional co-management outlined in 'Striking the Balance' (point 40, MFSAP) around the Llyn Peninsular. Seafood hardly featured in the initial development of WG's Food and Drink Action Plan until WFA intervened and requested greater recognition and consideration of seafood in WG's food policy work.

We recommend that marine policy is given greater emphasis across WG departments, policy and implementation as unclear policy and decision making can have a profound effect on sustainable jobs and growth in coastal communities by delaying decisions to invest in existing or new fisheries and aquaculture development.

Response from BMP

We are aligned in our support of the broader commentary provided by WFA in relation to its views into Welsh Government's Marine Policy work.

Recommendation 2. *By April 2013, we recommend that the Welsh Government publishes an action plan that sets out its priorities for delivering its marine environment duties. This strategy should include an action plan for delivering each duty. We would expect this to include details of the:*

- *expected outcomes;*
- *specific actions required to achieve the outcomes expected;*
- *timescale for delivery, including key milestones;*
- *cost of delivery (including resource considerations);*
- *details of where funding will be sourced from.*

Response from WFA

The WFA welcomed the publication of the WG Marine and Fisheries Strategic Action Plan (MFSAP) WG produced an action plan (MFSAP) and an outline of a MTP. The WFA is very grateful to be more involved in assessing the progress of MFSAP actions and the planning of work under the MTP. We note, however, that the MFSAP was produced six months after the Committee's initial recommendations and some of the actions remain incomplete and without explanation.

There can be plausible reasons for delays to delivery dates, such as the volume of work emanating from marine planning, the reformed Common Fisheries Policy (CFP) and Marine Protected Areas (MPAs), and we appreciate that timelines can slip and work can be re-prioritised, especially when faced with a significant extra workload. However, the lack of an explanation by WG for delays

breeds disillusionment and distrust amongst fishermen and wider marine stakeholders is a particular concern at a time when we need fishermen to fully engage in the process.

The absence of MFSAP actions and delivery timelines for 2015 and beyond is a concern and we request that WG establish timelines as soon as possible to ensure that:-

a) We clearly understand the status in terms of delivery the strategic components of the action plan and
b) A clear and considered revision of the MFSAP implementation plan will be necessary to communicate key timescales for delivering ongoing and new work such as marine SPA's and proposed SAC designations for Harbour Porpoise in 2015.

a & b will be fundamental to inform and focus a collaborative pathway for WG and Marine stakeholders to meet these duties.

Response from BMP

Whilst the major commitment toward aquaculture within the MFASP has now been adopted within the UK art 34 submission to the new Common Fisheries Policy– on Multi annual National Plans - we note with concern that the timelines for delivering up on the overarching objectives of the MFASP, at the domestic level, only extended to end 2014 – it is clear that these need to be extended to 2015 and beyond.

However we have considerable concern that despite the Government's commitment to growing the aquaculture sector – which we wholeheartedly share, we in fact are faced with a bureaucracy which at nearly every turn stifles this objective. We are concerned that officials still have an incomplete and flawed understanding of the requirements of the sector, both at the basic level and in the context of the growth objectives. We are deeply concerned and have serious reservations about the prevailing narrative from Welsh Government that refers to the application and functional ' fit for purposeness (?)' of the current fisheries and aquaculture legislative framework. This also appears to be having a perverse influence over the application and interpretation of wider European environmental objectives.

We are alert to and constantly reminded of, the reality that this questionable interpretation of the legislation and everything that flows from it has in Wales. Welsh companies are actively disadvantaged in comparison to those operating in the same sectors elsewhere in the UK. This further compounds the impact of the wider driver within Welsh Government to review, and make amendments to Legislation, which appears, in the this circumstance at least, to be having an unintended effect of obliterating any sense checking of need.. ON the basis of the old adage – if its not broken you don't need to fix it - We have serious concerns and have expressed numerous times to Welsh Government, but to no avail.

Without a fairly profound shift in the interpretation that Welsh Government have of the existing legal framework, a framework which has provided for the industry that we currently have in Wales (recognised at a European and international level as being highly sustainable (economically, socially culturally), demonstrably integrated and complaint with N2K objectives, and UK leading (shellfish cultivation) in terms of its relative size and innovation) , we cannot see any likelihood of meeting the aspirations for growth in aquaculture over the period 2014-2020, conversely we would anticipate a significant decrease in production and overall scale of activity over this period

At the wider scale, we concur with the WFA comments that all too often there remains evidence of a damaging inconsistency in terms of advice and guidance from statutory authorities in a north south sense of the interpretation and application of environmental obligations. This remains reminiscent of

the bad old days of individuals being able to actively interpret and apply legislative obligations on the basis of personal opinions.

Recommendation 3. *We recommend as part of the process of developing an action plan, resources are carefully considered. The Welsh Government should make use of external expertise where appropriate, but it should also look at whether it needs to better resource itself to deliver on the challenging statutory obligations it faces.*

Recommendation 5. *The Welsh Government should work with partners to identify the existing data sources available to underpin marine planning in Wales. Where opportunities exist, it should work in partnership with industry, university research centres and the Third Sector to coordinate data collection efforts. We expect the pathway to achieving this to be set out in response to Recommendation 2' above*

Response from WFA

Stakeholder participation is critical to the success of marine policy, particularly as there is incomplete scientific understanding of the marine ecosystem, and a multitude of activities taking place in the same areas. Fishermen probably know more about the seabed conditions around the coast in Wales than most scientists, because they are best placed to observe seasonal and annual trends. It is likely that less than 10% of the Welsh seabed has been properly mapped in respect of ground conditions, habitat types and species assemblages. This work is urgently required in order to provide a sound basis for marine planning and MPA designations and management. Fishermen are at sea on their local fishing grounds throughout the year and are potentially valuable participants in marine monitoring and data gathering. WFA recommend greater use of fishermen in data collection and monitoring work, which will ultimately, we believe, save money by avoiding high vessel chartering costs by utilizing the wealth of local knowledge held by fishing communities which would help to instill in fishermen a sense of ownership in the marine environment.

The WFA has been developing fishermen's capability in marine data collection to inform MPAs and statutory marine monitoring. In collaboration with Swansea University, a certified 'Marine Ecological Survey Training' course for fishermen was established and the first course took place in Nefyn in 2012 where fishermen were taught how to plan and undertake intertidal and subtidal habitat and species surveys and how to record and present survey data. Following the training course, a trial funded by CCW demonstrated how commercial fishermen with an interest in marine conservation could play an active role in seabed habitat surveys using underwater video equipment. A series of collaborative video surveys were planned and successfully carried out from inshore fishing vessels in partnership with staff from Natural Resources Wales, Pen Llŷn a'r Sarnau SAC and Seafish (*See attached report*). The surveys produced high quality seabed footage of 38 sites around the Pen Llŷn a'r Sarnau SAC whilst building the capacity to undertake further surveys with local fishermen and site officers. More recently WFA have been working with Succorfish to further develop their software App which is being designed to act as an e-log, recording catches of commercial species. The App also records a selection of easily identified marine invasive non-native species and marine mammals/cetaceans (supported by the use of photographic guidance) which as it is linked to the GPS position through the iVMS provides managers and scientists with an accurate and real-time record and location. The App is currently being trialled by fishermen involved in the Blue Marine Foundation's Lyme Bay initiative where 45 vessels are using iVMS as part of a Fully Documented Fishery project, part of which uses the App to record species of marine conservation interest in

addition to commercial catches. We are pleased to report that WG have supported an iVMS pilot with North Wales fishermen which will inform marine planning and landing obligation requirements under the reformed CFP. WFA is also involved in the establishment of an Invasive Non-Native Species (INNS) early warning system being developed by NRW and the School of Ocean Sciences at Bangor University. Additionally we are currently procuring marine survey equipment such as: side-scan sonar, underwater video sled and monitor to assist in the collection of future evidence requirements and monitoring programmes.

Response from BMP

We support the commitment of Welsh Government to further encourage collaborative relationships between industry and Research providers. However we would also request greater recognition of the relationships that are already in existence (and have been for some time) between Industry and RTD's in Wales – which is a central element of the science based sustainability identity that the Welsh Aquaculture sector in the main has at present.

We are heartened by the continuing commitment by Welsh government to continue to encourage and plan for the co-location of activities (including aquaculture) within the Welsh marine zone and would hope that Welsh Government will be able to assist in further industry driven work in this area in the near future. As an aside, the Welsh driven co-location work has been recognised internationally, as being ground breaking with organisations as far afield as Korea actively engaged in developing better appreciations of the outputs from the work undertaken to date.

Recommendation 10. *By the 31 December 2013, the Welsh Government should voluntarily lay before the Assembly a report that meets the requirement of section 124 of the Marine and Coastal Access Act 2009. This report should include an appraisal of the environmental status, governance and enforcement of existing marine protected areas.*

Response from WFA

The WFA raised concerns over the inaccuracy of information CCW submitted for a report into the condition and status of Marine European N2K sites in 2012, as part of the 'Third Report by the United Kingdom under Article 17' of the Habitats Directive. Despite NRW acknowledging, that adjustments were necessary to the 3rd Report we remain uncomfortable with the inaccurate information that has been cited in the 'Developing the Welsh National Marine Plan - Draft Strategic Scoping Exercise' report as the flawed Article 17 data will be used to inform the marine monitoring programmes under the MSFD. We continue to revisit this issue with NRW and will continue to do so until our concerns are resolved.

In response to Recommendation 10, WG's 'Report to the National Assembly for Wales on Marine Protected Areas in Wales' (February 2014) did not appraise the environmental status, governance or enforcement of existing marine protected areas. In addition to our concerns about current status reporting (outlined above) we are also worried about the inconsistency of MPA management in Wales.

It has not gone unnoticed that NRW HQ Fisheries staff continue to deal with fisheries and aquaculture case work in South Wales. There is a history of difficulty with current NRW and ex-CCW staff in South Wales. Whilst a proactive approach to dealing with fishing-related issues and development exists in North Wales, this doesn't appear to be the case in the South. We call for fair and consistent treatment of fisheries and aquaculture across Welsh MPAs.

Recommendation 11. *(a) The Welsh Government should engage with the offshore Marine Conservation Zone designation process and facilitate the co-ordination of Welsh stakeholder input*

to these processes. (b) When the Secretary of State consults the Welsh Ministers on the proposed creation of a Marine Conservation Zone in Welsh offshore waters, the Welsh Government should inform us in writing of this and set out the steps it intends to take to ensure the UK Government considers Welsh interests.

Defra is consulting on the second tranche of proposed Marine Conservation Zones (MCZs) which comprise 23 new Marine Conservation Zones in English inshore and offshore waters. Defra has decided not to consult on any of the 5 potential sites identified in the Welsh offshore area (Celtic Deep; South of Celtic Deep; East of Celtic Deep; Mid St George's Channel; North St George's Channel) pending the outcome of the Silk Commission recommendations.

The WFA respectfully recommend that a decision on how WG intend to proceed with the offshore sites is made quickly and fishermen are adequately consulted to allow fishermen's data to be collected satisfactorily to fully inform impact assessments, and ensure displacement issues are properly addressed, to avoid fishing activity being forced to work in areas that are less understood environmentally and inadvertently increasing fishing pressure to areas without understanding the potential impacts of such displaced activity. We believe that WG would be best placed to undertake the offshore MCZ process in the Welsh Zone given that this area clearly sits within the WNMP as the site management and enforcement duties would rest with WG.

To Conclude:

The WFA-CPC and BMP acknowledges Welsh governments progress in relation to implementing the recommendations of the Environment and Sustainability committee regarding the Marine Policy Inquiry Report, however, much remains to be done.

Clearly in 2014 ministerial re-shuffles and restrictive budgets have and will continue to place unrealistic demands on the Marine & Fisheries Division's capacity to deliver the Committee's recommendations, it is our considered opinion that Marine & Fisheries have figuratively been the "poor relation" for too long, the statutory duties placed on government in respect of the Welsh Marine area are equal to terrestrial designations and deserve equal consideration. In our view we do not believe that the required level of marine stakeholder engagement and maintenance of such a demanding approach can be sustained by WG given the further budget cuts proposed for Natural Resources beyond March 2015. This additional pressure cannot be under estimated as there are already significant challenges this year that will consume resource and risk delivery.

We trust that the Committee finds our joint submission helpful and we congratulate the Members for your continued scrutiny of Marine Policy in Wales.

Should you have any further questions in respect of our submitted evidence or marine and fisheries issues generally we would be pleased to be of assistance.

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Welsh Fisherman's Association Ltd – Cymdeithas Pysgotwyr Cymru Cyf

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Bangor Mussel Producers Ltd

Fishermen's Video Survey Trial – Pen Llŷn a'r Sarnau SAC

Abstract: This trial set out to demonstrate how commercial fishermen with an interest in marine conservation could play an active role in seabed habitat surveys using underwater video equipment. This type of information is often crucial to inform the management of fisheries in sensitive sites to ensure that sensitive habitats are adequately protected from disturbance.

A series of collaborative video surveys were planned and successfully carried out from inshore fishing vessels in partnership with staff from Natural Resources Wales, Pen Llŷn a'r Sarnau SAC and Seafish.

The surveys produced high quality seabed footage of 38 sites around the Pen Llŷn a'r Sarnau SAC whilst building the capacity to undertake further surveys within the local fishermen and site officers.

Cyfoeth Naturiol Cymru
Natural Resources Wales

WFA CPC

SEAFISH
the authority on seafood

Contents

1. Introduction

1.1. The Pen Llŷn a'r Sarnau SAC

The Pen Llŷn a'r Sarnau Special Area of Conservation (SAC) is the largest SAC in Wales and until recently the second largest in the UK. The Pen Llŷn a'r Sarnau SAC extends for 230 km around the coast from Nefyn in the north, westward around the Pen Llŷn, encompassing Bardsey Island and then onwards to Tremadoc Bay, Barmouth and the Mawddach estuary, southwards to the Dyfi estuary and ends at xxxx north of Aberystwyth. The SAC extends seaward to encompasses an area of seabed of 146,024 km^2 , see Figure 1.

Figure 1. Map demonstrating the 146,024 km^2 Pen Llŷn a'r Sarnau Special Area of Conservation

The Pen Llŷn a'r Sarnau SAC is designated for 5 Annex I habitats:

- Sandbanks which are slightly covered by sea water all the time
- Estuaries
- Coastal lagoons
- Large shallow inlets and bays
- Reefs
- Mudflats and sandflats not covered by seawater at low tide
- Salicornia and other annuals colonising mud and sand
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Submerged or partially submerged sea caves

There are no Annex II listed as a primary reason for the site designation but 3 are present:

- Bottlenose dolphin *Tursiops truncatus*
- Otter *Lutra lutra*
- Grey seal *Halichoerus grypus*

1.2. Concept

This project was conceived to investigate the utility of involving fishermen and their vessels in survey work to inform SAC management.

Survey and monitoring work in the marine environment is notoriously difficult and costly to undertake. This often leads to a paucity of information on the nature and extent of sensitive seabed habitats and species. Very often these information shortfalls prevent effective site management and can force managers to adopt a precautionary approach which leads to conflict with marine users. Information shortfalls can prevent Habitat Regulation Assessments from progressing with the result that consenting process of sustainable development such as aquaculture and certain wild capture fisheries can be delayed or prevented with associated economic impacts[1][2].

Welsh Government and therefore National Resources Wales have a series of legal commitments to monitor the marine environment e.g. Water Framework Directive and Habitats Directive. These commitments are a significant cost burden to the Welsh Government and government agencies. The Welsh Fishermen's Association (WFA) has expressed an interest in participating in survey and monitoring work where its members may have relevant skills. The use of fishing vessels and crews could be a cost effective solution for some survey work especially where deployment of sampling gears is involved.

There is a growing recognition in the value of collaborative fisheries science studies that involve researchers working in partnership with fishermen. In such studies researchers and fishermen work in partnership to better understand the marine environment; the fishermen are able to provide their Local Ecological Knowledge (See box), whist the researchers are able to provide formal scientific techniques.

Seafish have recently developed an underwater video system for use on board fishing vessels. The current project aims to use the system from small inshore vessels typical of those operating around Wales to gather seabed habitat information in the Pen Llŷn a'r Sarnau working in partnership with NRW and SAC site officers.

Local Ecological Knowledge
(From Seafish, Fishermen's Environmental Monitoring Pilot)

"Fishermen have an in-depth knowledge of their fishing grounds built up over many years experience fishing and from traditional knowledge passed down from the older generation. This knowledge has become more accepted as a potential source of valuable information in fishery and conservation management over the last decade and a half. There are a number of terms commonly used to describe this knowledge and perhaps the most commonly used are "Traditional Environmental Knowledge" (TEK), "Local Environmental Knowledge" (LEK), and "Fishermen's Environmental Knowledge" (FEK) and very often "environmental" is replaced by "ecological". Fishermen's Ecological Knowledge may incorporate a variety of information types acquired through their own experience, from their peers and based upon more traditional cultural knowledge. This may include ecological information such as inter-annual, seasonal, lunar, diet and food-related variations in the behaviour and movements of marine fauna and physical information such as tidal streams, seabed types, local operating constraints and effects of prevailing weather conditions."

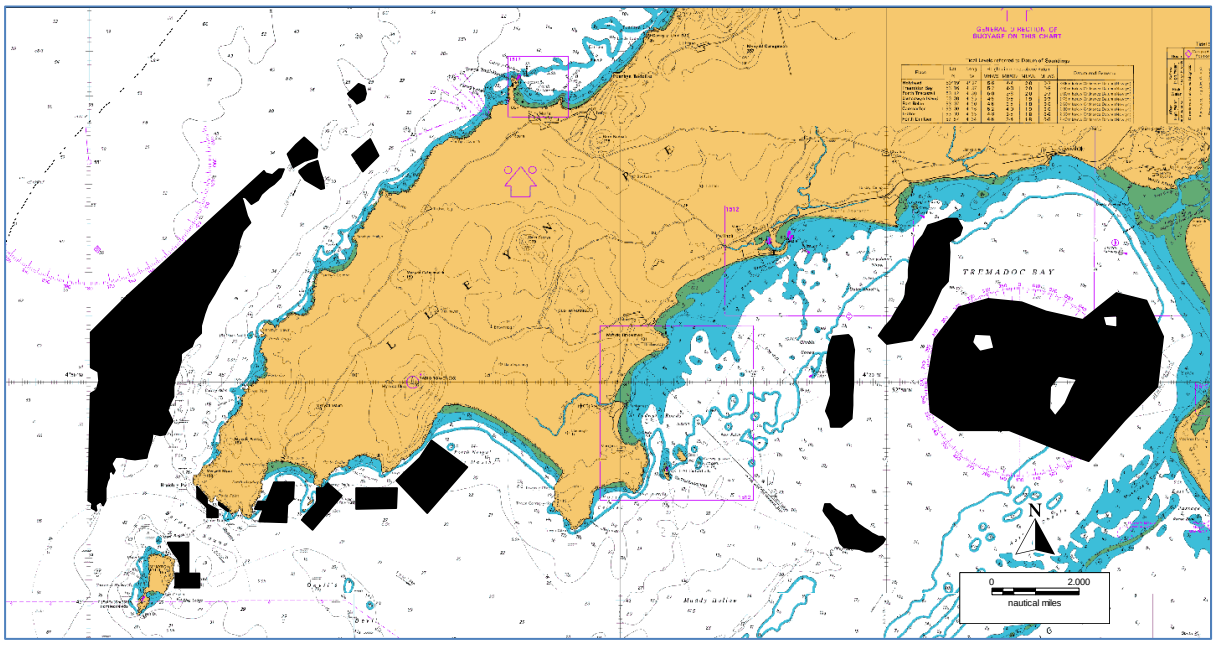
[1] http://www.seafish.org/media/Publications/StrategicEnvironmentalAssessmentProject.pdf
[2] Fishermen's Environmental Monitoring Pilot, Seafish 2013 in prep (link to be added)

2. Method and approach

2.1. Planning workshop

Identification of priority areas for the surveys was carried out in collaboration between NRW officers, SAC site staff and fishermen at a planning workshop facilitated by Seafish. The workshop for participating fishermen served to introduce the aims of the project and to build working relationships. A series of GIS charts were produced by NRW highlighting areas were previous survey work had been undertaken or where records of seabed habitats and species existed. The areas where information gaps existed where highlighted as polygons (Figure 2). These charts served as a focus for discussions and enabled fishermen to suggest areas of interest discuss local operational constraints such as tidal streams and areas of shelter. Following the workshop a revised set of charts were produced with target polygons highlighting the priority areas for the survey work to take place within.

Figure 2. Areas where information gaps exist on seabed habitat types identified by NRW



2.2. Methods Handbook

A Video Survey Handbook was produced to provide participating fishermen and SAC staff with information that would enable them to familiarise themselves with the procedures and for future reference. This drew upon previous Seafish work which developed Standard Operating Procedures to enable shellfish farmers to undertake video surveys to inform aquaculture developments. The Handbook provides an introduction to basic video surveys, and provides some background on the requirements for better seabed information for MPA management. The Handbook is clearly laid out leading the reader through a description of the equipment, survey planning and the importance of collaboration, survey design, and finally a simple step-by-step SOP for the survey itself. See Appendix I.

2.3. Implementation and Video Survey

The surveys were carried out from two beach launched inshore fishing vessels; the FV “Lara B” a 19ft Orkney Fastliner equipped with a cuddy for protection operated by Brett Garner and the FV “William Stanley” an 8 m catamaran built locally by Colin Evans.

Both vessels normally work static gear which results in a clear deck layout even on a small vessel as there are no winches, warps or trawl gear.

Figure 3. The FV “Lara B” launching from the stone slip on Hells Mouth

Figure 4. The FV “William Stanley” launching from Poth Colman

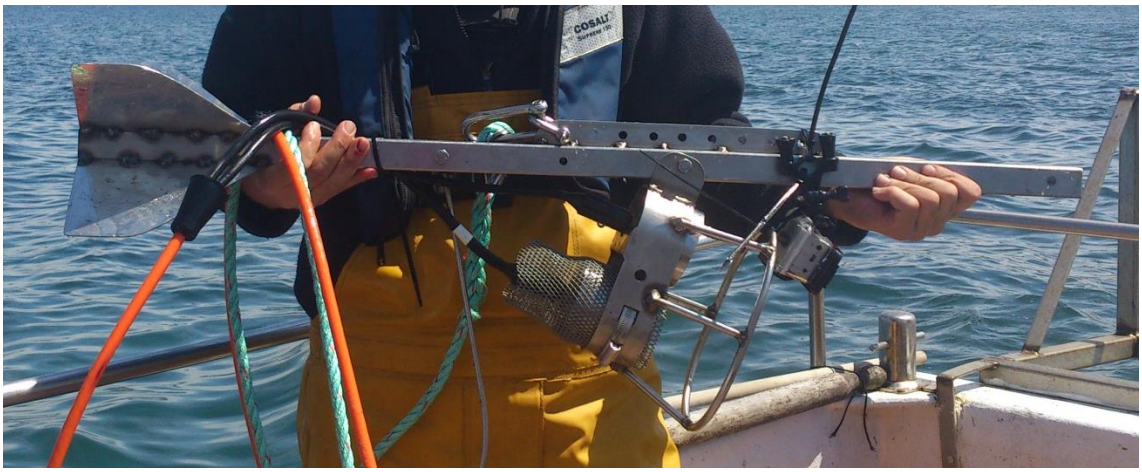
In addition to participating fishermen SAC Officer Alison Hargrave and Seafish Wales Officer Holly Whitley joined the surveys on alternate days. This approach aimed to build capacity at a local site and national level to enable them to participate or lead future surveys.

The video survey procedure closely followed that laid out in the Handbook (Appendix I). A video log form used by NRW surveyors was used and was filled out at each station. Key tasks were naturally delegated utilising the skills of the participants; fishermen were involved in navigating and manoeuvring the vessels, the site or Seafish officer present key tasks operated the topside video control unit and acted as recorder, the fishermen usually undertook deployment and recovery of the sledge and the adjustment of lights, cameras and scaling lasers. Recording sheet was completed SAC or Seafish staff but the live video feed was observed by all participants who all provided identification and interpretation.

Figure 5. Fisherman Brett Garner and SAC Officer Alison Hargrave undertaking video survey work off the South Llyn

In addition to deployment of the Seafish video sledge a tow fish was trialled. This piece of equipment was developed for use over rocky ground and sites where seaweed or seagrass cover would obscure the video cameras.

Figure 6. Prototype video towfish



3. Results

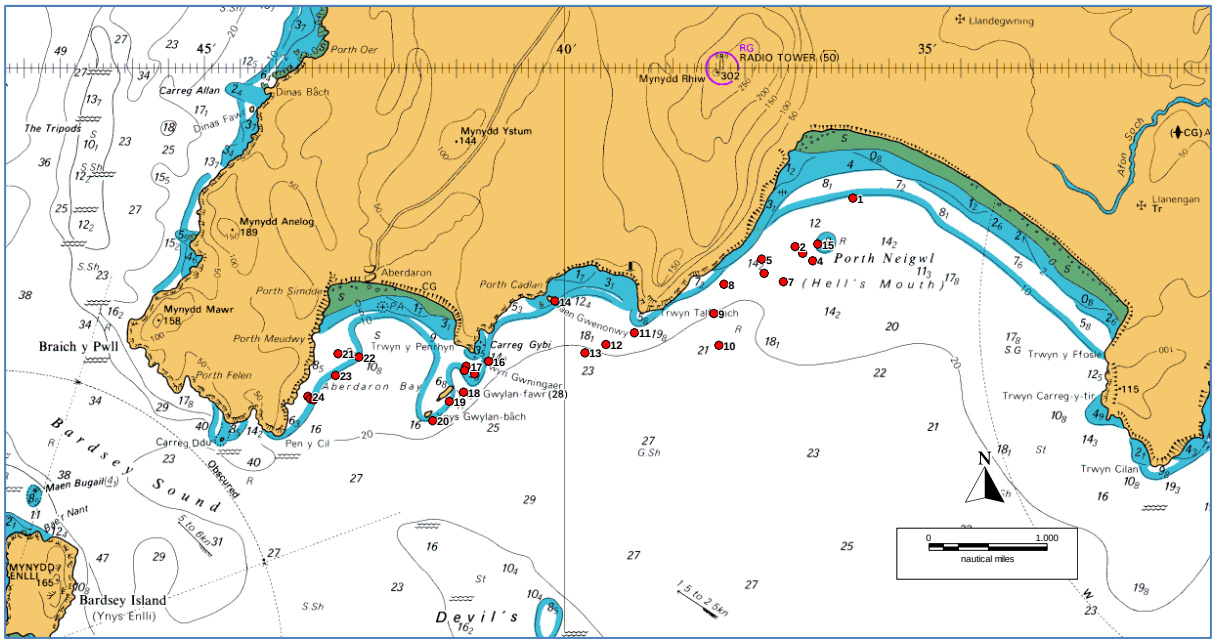
3.1. Account of survey days

A total of 38 video stations were worked over the 3 days of survey and training, these produced over 5 hours of video footage.

Day 1: The first day of survey was carried out by Holly Whitely (Seafish Wales) and Brett Garner (FV "Lara B"). The first stations were worked in two areas at the western end of Hells Mouth (Figure x). Good progress was made and deploying the video sledge proved straightforward from the small vessel. The for'ard cuddy of the FV "Lara B"proved to be ideal for the topside unit keeping it out of the spray and in shade. Good quality footage was recorded at 15 stations.

Day 2: The second day of survey was carried out by Alison Hargrave (SAC Officer) and Brett Garner (FV "Lara B"). The survey focused on Aberdaron Bay and areas around the islands Ynys Gwynlan-bach and Yny Gwylan-fawr where a total of 13 video stations were worked. The video towfish was tested in both areas and despite the need for some adaptations to improved directional stability proved to be effective in the rocky kelp beds.

Figure 7. Video survey stations worked on Days 1 & 2



Day 3: The third day of survey was carried out by Alison Hargrave (SAC Officer) and Sion Williams (FV William Stanley). This work took place on the north of the Llyn Peninsula working from Porth Colmon. We were unable to target the priority areas identified by NRW to the south west of the launch site due to sea conditions. The decision was made to use the time to gather information on areas of conservation interest as directed by local knowledge. The first stations aimed to investigate areas thought to contain *Modiolus* reef. The second set of stations gathered footage of the seagrass beds in Porthdinllyn. A further station was worked on the return passage to gather footage of a historic wreck close to Porth Colmon. A total of 10 video stations were worked as a longer time was

spent steaming between areas. The video towfish work well following overnight adaptations and proved to be effective in providing footage of the seagrass beds.

Figure 8. Video survey stations worked on Day 3

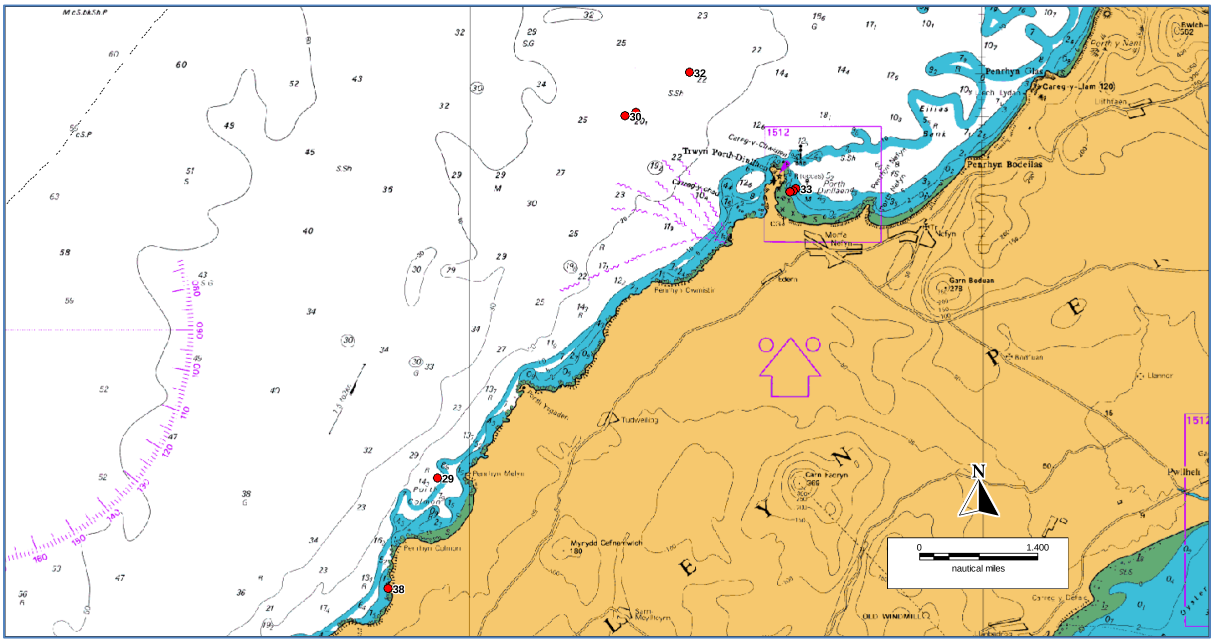


Figure 9. Fisherman Brett Garner and Seafish Wales Officer Holly Whitley engaged in a video survey.

3.2. Field log and observations

Table 1. Exerpts from field log sheets recorded during surveys.

Location	Station	Longitude	Latitude	Depth (m)	Sediment	Conspicuous Species
Llyn Hells Mouth	**1**	52.81511667	-4.6	9.5	Mixed ground of gravel, pebbles, areas of gravel waves and sand	Kelp and red and green seaweed
Llyn Hells Mouth	**2**	52.80828333	-4.613316667	16.5	Gravel, cobbles,, pebbles and areas of larger cobbles and gravel	Hermit crabs, sponges, spiny starfish (*marthasterias*)
Llyn Hells Mouth	**3**	52.80733667	-4.611585	13.5	Gravel, pebbles and cobbles with areas of cobble reef	Seaweed, sponges
Llyn Hells Mouth	**4**	52.80622	-4.609333333	12.5	Pebbles, cobbles, large cobbles, boulders	Red seaweeds, sponges and sea urchins
Llyn Hells Mouth	**5**	52.80646667	-4.621158333	16.5	Pebbles, cobbles, on a gradient of gravel and sand	Sponges, ascidians, red seaweeds and hydroids
Llyn Hells Mouth	**6**	52.80448667	-4.620488333	18.6	Area of gravel, pebbles, sand and silt. Area clean shell gravel and pebbles. Areas of pebbles, large cobbles and boulders	Bryozoans and hydroids
Llyn Hells Mouth	**7**	52.80333833	-4.616196667	21.1	Gravel, pebbles, silt, shells	Scallops, hermit crabs
Llyn Hells Mouth	**8**	52.80302167	-4.629961667	20	Gravel, pebbles, gravel waves and cobbles, areas of larger cobbles and large boulders	Scallops, anemones, hydroids, bryozoans, spider crab
Llyn Hells Mouth	**9**	52.79886	-4.63215	24	Shelly gravel and gravel waves areas, cobble and pebbles, areas of boulders and cobbles	Hydroids, bryozoans, urchins, dead mans fingers
Llyn Hells Mouth	**10**	52.794425	-4.631115	24.5	Pebbles, cobbles, sparse boulders. Area of sand	Sponges, dead men's fingers, dogfish, hydroid, red seaweed
Llyn Hells Mouth	**11**	52.79611667	-4.650691667	24.4	Gravel waves, pebbles, sand waves	Red seaweed
Llyn Hells Mouth	**12**	52.79453667	-4.657235	20.2	Cobble reef, large boulders. Area of gravel, pebbles cobble and occasional boulder	Sponges, bryozoans, hydroids, starfish, soft coral
Llyn Hells Mouth	**13**	52.79331833	-4.662013333	25.3	Gravel , pebbles, cobbles. Area of	Hydroids, dead mans fingers,

					cobbles and boulders	bryozoans
Llyn Hells Mouth	**14**	52.80064	-4.66905	14.1	Cobbles, boulders	Kelp, red seaweed, sponges
Llyn Hells Mouth	**15**	52.80857333	-4.608093333	16.2	Gravel, pebbles, occasional cobble	Hydroids, red seaweed, sponge
Aberdaron	**16**	52.7922	-4.684481333	15.4	Boulders, cobbles,	Starfish, dead man's fingers, spider crabs, sponges, anemones
Aberdaron	**17**	52.79144	-4.689571667	11.3	Area of sand then rocky reef	Red seaweed, sponges, mussels starfish, kelp, spider crabs
Aberdaron	**18**	52.78777167	-4.690278333	20	Coarse sand, gravel, pebbles	Red seaweed, crab, dead mans fingers, ross coral, octopus, bryozoan
Aberdaron	**19**	52.7865	-4.69342	14.4	Rock, cobbles, boulders	Starfish, sponges, dead man's fingers, sponge crab, velvet crabs, bryozoans, red seafish
Aberdaron	**20**	52.78386167	-4.697351667	20.2	Rock, boulders	Dead mans fingers, sponges, bryozoa
South Llyn Park Meudwy	**21**	52.79324667	-4.71938	11.1	Areas of mixed ground cobble pebble and sand. Area of boulders and rock	Octopus, red seaweed, scallops, red seaweed, sponges, crabs
Aberdaron	**22**	52.79279333	-4.71451	12.8	Coarse sand and gravel	Starfish, crabs, dead mans fingers, hydroids, sponges, red seaweed
Aberdaron	**23**	52.79013667	-4.71998	14.1	Mixed cobble, gravel, sand	Dead man's fingers, bryozoa, hydroids, sponges, colonial ascidians, red seaweeds
Aberdaron	**24**	52.78722333	-4.726386667	11.7	Boulders and rock	Kelp, red seaweed, hydroids, dead man's fingers, sponges
Aberdaron	**25**	52.78686167	-4.725628333	12.6	Boulders, cobbles, coarse gravel, pebbles	Sponges, kelp, hydroids, fish, bryozoa, dead man's fingers, red seaweed
Aberdaron	**26**	52.786805	-4.724978333	13.4	Boulders, cobbles, coarse gravel, pebbles	Spider crab, fish, red seaweed, sponge, bryozoa, hydroids, kelp
Aberdaron	**27**	52.79083833	-4.689996667	12.9	Boulders, cobbles, gravel, mixed ground	Kelp, red seaweed, spider crab, dogfish, mussel bed, dead man's fingers, sponges
Aberdaron	**28**	52.79041667	-4.687741667	16.1	Rocky ground, cobbles, boulders with areas of flatter mixed ground	Red seaweed, sponges, bryozoans, hydroids, spider crabs, mussels,

						starfish, dogfish, wrasse, dead man's fingers
North Llyn – Porth Colmon	**29**	52.88728667	-4.677446667	14	Boulders, cobbles	Red seaweed, fish, bryozoa, sponges
North Llyn - Horse Mussel Reef area	**30**	52.95864667	-4.616545	28.5	Gravel, cobbles, occasional boulders	Fish, seaweed, dead man's, anemone, bryozoa
North Llyn - Horse Mussel Reef area	**31**	52.95928	-4.612898333	22.4	Gravel, areas of boulder and cobbles	Dead man's fingers, sponges, bryozoa
North Llyn - Horse Mussel Reef area	**32**	52.96716167	-4.595511667	23.9	Gravel, cobble	
North Llyn - Porthdinllaen	**33**	52.94420833	-4.560953333	3.5	Sand	Seagrass, seaweed, fish
North Llyn - Porthdinllaen	**34**	52.94380333	-4.561881667	2.79	Sand	Seagrass, seaweed,
North Llyn - Porthdinllaen	**35**	52.94358167	-4.562961667	2.3	Sand	Seagrass, seaweed, *Sargassum*
North Llyn - Porthdinllaen	**36**	52.94358667	-4.562925	2.2	Sand	Seagrass, seaweed, *Sargassum*
North Llyn - Porthdinllaen	**37**	52.94356167	-4.562803333	2.3	Sand	Seagrass, seaweed, *Sargassum*, bivalves, anemone
North Llyn - Porth Colmon	**38**	52.86564333	-4.69362	5	Sand areas, boulders, bedrock, wreck	Kelp, red seaweeds, fish

3.3. Example screenshots from footage

Figure 10. Mussel bed at Aberdaron with rich associated fauna including brittlestars and crabs

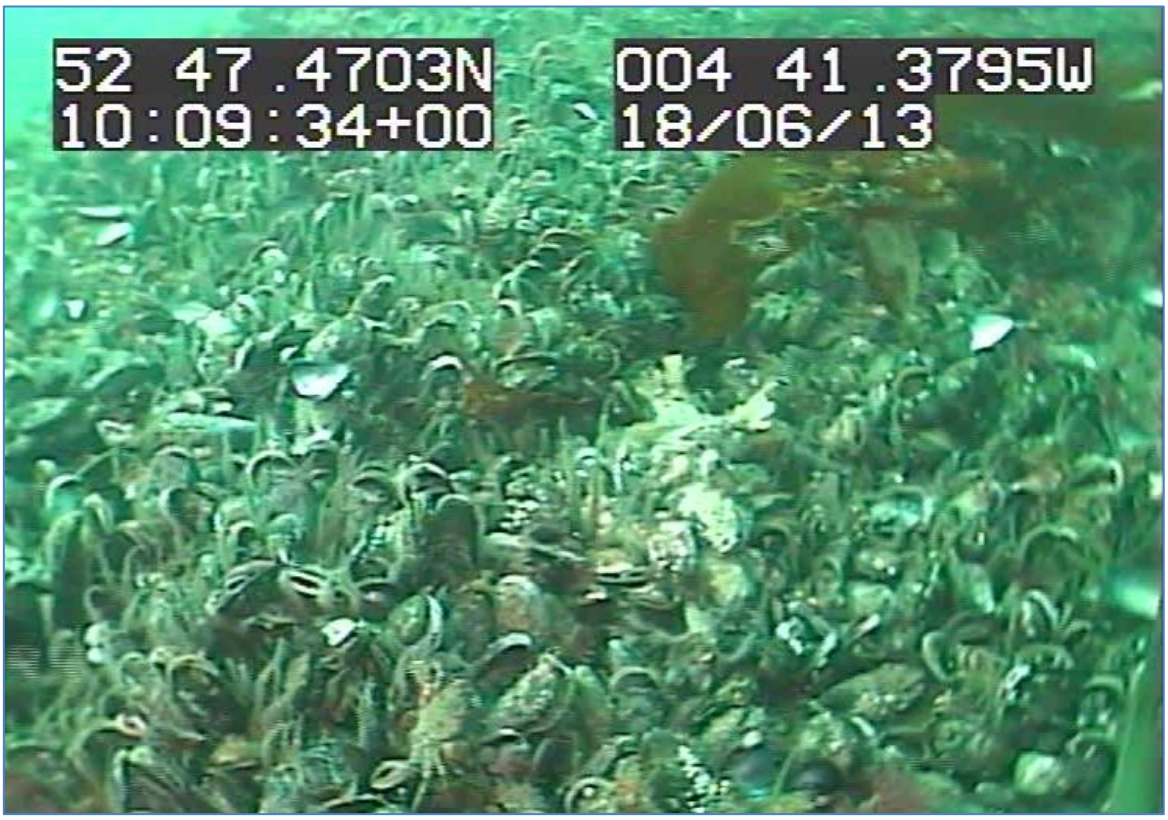


Figure 11. Rocky ground with dead man's fingers, sponges, hydroids and bryozoans off the island at Yny Gwylan-fawr

Figure 12. Mixed rocky ground in deeper water off north Llyn

Figure 13. The seagrass bed at Pothdinllyn (footage from the backup GoPro camera mounted on the towfish)

4. Conclusions

4.1. Operational considerations

The video survey work was successful in gathering high quality video footage of the seabed in the majority of the areas in with information gaps had been identified by NRW. The only constraint encountered was due to unforeseen sea conditions off the North Lynn but survey work was able to continue at fall back sites suggested by the SAC Officer to gather footage to inform and support SAC management.

Using local fishermen and their vessels proved to be a benefit as we were able to draw upon their local knowledge; this ranged from simply the best times to work in different areas in respect of the tide state to fine scale spatial knowledge of seabed features. Both of these aspects are necessary knowledge that the fishermen require for their day to day fishing activity but which when applied to survey work save time and increase the likelihood success. The fine scale spatial knowledge of small uncharted habitat features was surprising; Brett Garner was able to describe a rocky ridge running seaward from a promontory; Sion Willams was able to position the vessel and towfish directly over a small wooden wreck in shallow water at Porth Colmon. It was common that once inside a target area the fishermen would take the lead on positioning of the survey stations directed by their local knowledge and by that passed on by other fishermen. They showed a great deal of interest in the footage and clearly have strong curiosity to discover what is on the seabed.

Practicalities of working on these small vessels required some organisation but a short time spent setting up and siting the video equipment and generator in protected positions proved to be worthwhile. The FV “Lara B”, a 19ft Orkney Fastliner, is the smallest vessel that this equipment has been deployed from and proved to be ideal for working close inshore. Both vessels benefited from a cuddy or open wheelhouse which provides protection from spray and the weather. Working from an open boat would be more difficult as the topside control box does need to be kept dry.

4.2. Relationship building and collaboration

The recent Highly Protect Marine Conservation Zone consultation in Wales caused a degree of conflict between nature conservation interests and marine stakeholders, particularly fishermen. There is a desire amongst practitioners involved in marine conservation and fisheries management to rebuild relationships between fishermen, management bodies and conservation interests. The planning stage of this trial served as an opportunity for some bridge building to take place between NRW officers, SAC officers and the local fishermen who live and work in the Pen Llŷn a'r Sarnau SAC. The dialogue that has taken place during, and subsequent to, this trial has served to strengthen relationships between NRW, SAC officers and the local fishing industry.

The survey work was carried out using a partnership approach with the fishermen utilizing their skills and knowledge working alongside SAC site officers and scientists who brought formal science-based skills. The joint working approach enabled wide-ranging discussions on ecology, management policies and site management issues to take place with the result that all participants were able to develop a better shared understanding.

4.3. Legacy: beyond video surveys

The trial surveys served to build the capacity in terms of skills and experience for the participants to undertake future collaborative seabed surveys without the requirement for outside support. All participants, fishermen, Seafish and SAC officers alike, stated when asked that they would be confident in carrying out similar work in the future. This may be valuable for addressing site specific management issues or requirements for seabed habitat information to inform management.

Site management issues are varied and require more than seabed habitat information to inform them, likewise the requirement for marine monitoring data covers a wide range of information from seawater chemistry to population status of protected species. Discussions during this trial highlighted that fishermen may be able to play a role in gathering information or collaborating with scientists in monitoring and research. Some examples that were suggested were:

- Seasonal observations or sightings of key species e.g. seabird or marine mammals,
- Surveillance and early warning of invasive non-native species,
- Provision of survey platforms for bird surveys,
- Vessels as survey platforms for instrumentation such as temperature or sea water chemistry loggers,
- Climate change surveillance by recording unusual species or changes in behaviour of currently common species,
- Collaborations between researchers and fishermen

The Welsh Fishermen's Association is developing a project to take these ideas forward with NRW in 2014.