

Annual Research Plan 2021-2022

NORTHUMBERLAND INSHORE FISHERIES AND CONSERVATION AUTHORITY

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1. Introduction

The Northumberland Inshore Fisheries and Conservation Authority (NIFCA) is one of ten IFCAs in England created in April 2011 under Section 150 of the Marine and Coastal Access Act 2009 (MaCAA, 2009). The IFCAs aim to lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry.

The NIFCA district extends from a line drawn through the centre of the River Tyne to the Scottish border out to 6 nautical miles and up to the normal tidal limit of rivers and estuaries (Fig. 1). The NIFCA district neighbours the North Eastern IFCA district to the south and Scotland to the north.



Figure 1 Boundaries of the Northumberland Inshore Fisheries and Conservation Authority district.

This Annual Research Plan sets out NIFCA's work priorities and research plans between April 2021 and March 2022. The research plans outlined here are based on on-going priorities carried forward from NIFCA's 2020/21 Annual Plan as well as new research based on recent issues/knowledge gaps. With the disruptions to the research plan experienced due to restriction for Covid 19, many of the research priorities have been carried forward to this year. The key main areas of focus for the April 2021 – March 2022 period are:

- assessment of shellfish stock status and sustainability of potting fishery within the district;
- intertidal fisheries monitoring, with a focus on periwinkle hand gathering and bait collection;
- increased stakeholder engagement, with a focus on commercial industry and angling sectors, including bait collection and hand gathering;
- continuation and development of annual monitoring plans including Fisheries Management Plans and Marine Protected Area (MPA) Monitoring and Control Plans.
- continuation of annual survey work e.g. monitoring of mussel beds (Blyth & Fenham) and fish nursery areas (AIn estuary).
- assessment of fishing activities within Marine Protected Areas (including monitoring & control plans).

This research plan has been produced to outline the research activities needed to be undertaken to collect the data required to inform these work priorities and provide a sound evidence base to aid NIFCA's decision making process for ensuring continued sustainable fisheries management and protection of the marine environment within the district.

2. Personnel and Resources

Northumberland IFCA has 14 members of staff comprised of a Chief Executive Officer, Chief Officer, five enforcement officers, four environmental officers, and four financial and administrative staff. Enforcement officers and partner organisations assist the environment team with the collection of data (see Table 2).

The members of the Environmental team are:

Alex Aitken: alex.aitken@nifca.gov.uk

Andrew Boon: andrew.boon@nifca.gov.uk

Beth Harvey: beth.harvey@nifca.gov.uk

Katy Smart: katy.smart@nifca.gov.uk

Please see Appendix A for a detailed breakdown of all NIFCA survey resources.

3. Marine Protected Areas

NIFCA are responsible for monitoring and managing fishing activity within the network of marine protected areas in the district (Fig. 2). Sites are outlined in Table 1:

Table 1 Breakdown of Marine Protected Areas within Northumberland IFCA's jurisdiction.

Designation	Site name
Special Area of Conservation (SAC) (European Marine Site)	Berwickshire and North Northumberland Coast SAC
	Tweed Estuary SAC
Special Protection Area (SPA) (European Marine Site)	Lindisfarne SPA
	Farne Islands SPA
	Coquet Island SPA
	Northumbria Coast SPA
	Northumberland Marine SPA
Marine Conservation Zones (MCZ)	Coquet to St Mary's MCZ
	Aln Estuary MCZ
	Berwick to St Mary's MCZ

The sites outlined in Table 1 are in addition to several Sites of Special Scientific Interest (SSSIs), Ramsar Sites, the Lindisfarne National Nature Reserve (LNNR) and the Northumberland Area of Outstanding Natural Beauty (AONB).

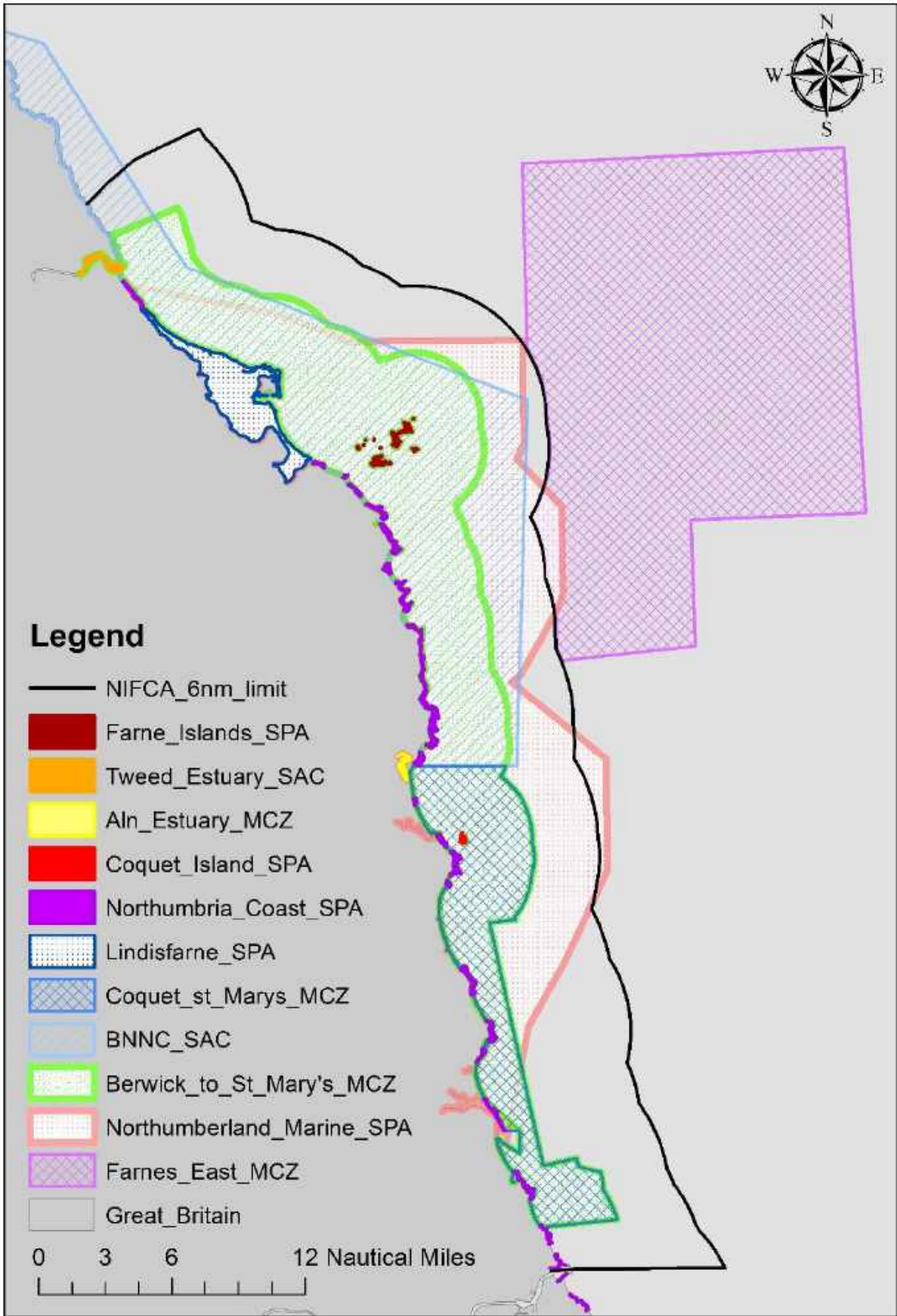


Figure 2 Map displaying Marine Protected Areas within and adjacent to the NIFCA district.

4. Marine Protected Area Assessments

Following Defra's revised approach to fisheries management in MPAs, IFCA's were tasked with carrying out assessments of fishing activity in MPAs within the area of their jurisdiction to bring them in line with other activities in the marine environment. NIFCA are continuing with this process into 2021-22, please see below for a breakdown of assessments that have been completed and those still in draft (Table 2).

Table 2. NIFCAs progress to date with Marine Protected Area Assessments. Assessments are either Habitats Regulations Assessments (HRAs) for European Marine Sites or MCZ assessments. For both the assessments cover a number of 'interactions'. An interaction is a type of fishing activity and a protected feature of an MPA for example, potting on subtidal rocky reef. All interactions go through a screening process. The first step in the screening process is a 'simple assessment' or 'Part A' assessment (for MCZs). Interactions can be screened out of the process at this stage if the assessment concludes the activity is not having a significant impact on protected features. If not screened out, the interaction goes through a 'detailed assessment' or Part B assessment (for MCZs). At this stage, if further information is needed to determine whether there is a risk to protected features from fishing activity an 'appropriate assessment' is carried out and management measure may need to be considered.

Site	Assessments in draft		Assessments completed	
	Assessment details	Number of interactions	Assessments details	Number of interactions
Coquet to St Marys	1 - Coquet to St Mary's MCZ Assessment Part B (detailed)	63	Coquet to St Mary's MCZ Assessment Part A (simple)	385
Aln Estuary	1	1	12 simple assessments and 2 detailed assessments completed	157
Berwick to St Mary's MCZ	Berwick to St Mary's MCZ Part A (simple) and Part B (detailed)	Unknown – awaiting conservation advice	0	0
Berwickshire and North Northumberland Coast SAC	2 detailed assessments	8	21 simple assessments completed 5 detailed assessments completed 3 appropriate assessments completed	405
Tweed Estuary SAC	1 simple assessments 2 detailed assessments	20	24 simple assessments completed	187

Northumbria Coast SPA	1 simple assessments 2 detailed assessments	10	30 simple assessments completed 2 detailed assessments completed	113
Northumberland Marine SPA	10 simple assessments 9 detailed assessments	26	25 simple assessments completed	67
Lindisfarne SPA	4 detailed assessments	14	18 simple assessments completed 4 detailed assessment completed	208
Farne Islands SPA	3 detailed assessments	12	18 simple assessments completed 4 detailed assessment completed 1 appropriate assessment completed	121
Coquet Island SPA	2 detailed assessments	3	25 simple assessments completed 2 detailed assessments completed 1 appropriate assessment completed	140

The EMS and MPA assessment process differ slightly. A Part A MCZ assessment equates to a simple assessment (Test of Likely Significant Effect) for EMS assessments, Part B MCZ assessment equates to a detailed assessment. The majority of the assessment process has been completed to date, with bait collection and hand gathering assessments in some sites still outstanding. As well as assessments for Berwick to St Mary's MCZ for which conservation advice is pending.

Following the assessment process, IFCA's were advised to complete monitoring and control plans which keep fishing activity assessments up to date. The plans have threshold built into them, if this threshold is reached it triggers a reassessment of the fishery and any protected feature which it interacts with. Monitoring and control plan reviews are completed annually at the end of the research year (Feb/Mar).

5. Partner Organisations and Working Groups

The Research and Environmental Projects (section 6) outline the key workstreams that will be carried out by NIFCA this year. Partnership working is vital to ensure this work is carried out and disseminated effectively.

Key partner organisations for the NIFCA's research and environment team include:

- Northumberland County Council (funding authority)
- North Tyneside County Council (funding authority)
- The Marine Management Organisation (MMO)
- Natural England
- The Environment Agency (EA)
- Newcastle University
- The Centre for Environment, Fisheries and Aquaculture Science (Cefas)
- MARINELife/North East Cetacean Project
- Northumberland Rivers Trust
- Wildlife NGOs including the Royal Society for the Protection of Birds and the Wildlife Trusts
- Blue Marine Foundation / Berwickshire Marine Reserve / St Abbs Marine Station

In addition, the NIFCA benefits from collaborating with other relevant authorities on the management groups for the Berwickshire and Northumberland Marine Partnership within the district.

The environmental team sits on a variety of focus and working groups relevant to NIFCA's work which involve key partners listed above (Table 3).

Table 3 Focus and working groups attended by environmental officers

Group	Area	Other members	Frequency
IFCA Technical Advisory Group	National	IFCAs	Quarterly
Northumberland Rivers Catchment Partnership	Northumberland	NRCP; Northumberland Wildlife Trust; Environment Agency; Port of Blyth; Tyne Rivers Trust; Natural England; Northumberland Coast AONB; Berwickshire and Northumberland Marine Nature Partnership	Quarterly
Joint Working Arrangement	Northumberland	MMO; Natural England; Environment Agency	Annually

Berwickshire and Northumberland Marine Nature Partnership steering group	Northumberland	Natural England; MMO; Northumberland Wildlife Trust; Berwick Harbour Commission; Eyemouth Harbour Trust; Scottish Natural Heritage; Scottish Borders Council; Environment Agency	Quarterly
Berwickshire and Northumberland Marine Nature Partnership research group	Northumberland	Natural England; Environment Agency; Newcastle University; Berwickshire Marine Reserve; Scottish Natural Heritage	
North East Marine Monitoring Group	North East	Natural England; Environment Agency	Ad hoc
Lindisfarne Joint Advisory Committee	Lindisfarne	Natural England; Berwickshire and Northumberland Marine Nature Partnership; British Association for Shooting and Conservation; Royal Yachting Association; RSPB, Environment Agency	Biannual
Cullercoats Harbour Working Group	Cullercoats	North Tyneside Council: local fishermen	Quarterly (postponed due to Covid restrictions)
Whelk Working Group	National	IFCAs, Cefas, MMO, Seafish, Universities/Research Institutes and fisheries management organisations	Quarterly
Bait Collection and Hand Gathering Working Group	North East	NE, EA, National Trust Harbour Authorities, Local Authorities, AONB, Marine Nature Partnership, Northumbria Police, Tweed Commission	Quarterly
IFCA and MMO Licensing Engagement	National	IFCAs; MMO	Quarterly
Berwickshire Shellfish Working Group	North East	TBC	TBC

6. Research Plan

The research plan is detailed in Table 4. The table is broken down into work areas with individual research projects/survey work that feeds into the work area. There is also information on

objectives, a brief description of methods, rationales, and timescales included in the table. It also sets out a timeframe for each piece of work. This is a loose timeframe set out to guide the work throughout the year however work may fall outside of the timescale specified in the table.

Areas of work have been prioritised based of NIFCAs current research priorities. Officers aim to carry out all work with a priority of 1. Unconfirmed work has been included in the table but may not be carried out due to time or resource constraints.

All data collected through research and monitoring work is shared to the ERIC NE records centre where it can be accessed by other organisations or individuals for future use.

Table 4 Northumberland IFCA Annual Research Plan

Northumberland IFCA Annual Research Plan 2021-2022																					
Work-stream	Survey	Project	Objective	Method	Rationale	Timescale	Partners	Lead contact	Time frame												Priority
									Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
Crustacean	Stock Assessment	Lobster	Assess lobster stock status and exploitation levels based on size distribution and sex ratio of lobster catches	Measure lobster carapace length and record biometric data	To build dataset for stock assessment work.	Regular	Fishing industry	Andrew Boon													1
	Stock Assessment	Brown crab	Assess brown crab stock status and exploitation levels based on size distribution and sex ratio of brown crab catches	Measure brown crab carapace width and record biometric data	To build dataset for stock assessment work	Regular	Fishing industry	Andrew Boon													1
	Stock Assessment	Wholesaler	Record carapace length, weight and sex of lobsters and brown crab landed in the district.	Measure lobster carapace length and brown crab carapace width and total weight.	To build dataset for stock assessment work.	Regular	Fishing industry, wholesalers	Andrew Boon													1
	Stock Assessment	Fleet & Quayside Sampling	Record carapace length and sex at sea of lobsters and brown crab captured in pots.	Measure lobster carapace length and brown crab carapace width.	To build dataset for stock assessment work.	Regular	Fishing industry	Andrew Boon													1
	Fisheries Management Plans	Lobster	Outline key parameters of the NIFCA lobster fishery, as well as highlight management strategies.	-	To provide a comprehensive overview of the NIFCA lobster fishery.	Annually	-	Andrew Boon													1
		Brown crab	Outline key parameters of the NIFCA brown crab fishery, as well as highlight management strategies.	-	To provide a comprehensive overview of the NIFCA brown crab fishery.	Annually	-	Andrew Boon													1
	Cross-border size of maturity project	Brown crab	Gather contemporary, region-specific size of maturity data for brown crab in the NIFCA district.	Methodology to be refined. Study will focus around adapting	Contribute to ongoing stock assessment work by gathering region specific maturity data.	Several months (timescale to be refined)	Fishing industry, wholesalers, St Abbs Marine	Andrew Boon													?

7. Collaborative Research Projects

Collaborative research projects provide a number of benefits to Northumberland IFCA.

Northumberland IFCA, Newcastle University and Natural England's Northumbria Team have had a joint research group since 2009. Each member can bring different elements to the group with mutual benefits (funding, equipment, expertise, research questions, time, data etc.). Combining each organisations' strengths and resources allows the group to overcome these challenges and together the group has developed and successfully funded a number of projects to address evidence gaps and benefit all partners. Current, or recently completed projects are listed below.

Ashleigh Tinlin-MacKenzie

Status: Post Doctorate research due to completed in June 2020, publication of results in press.

Study: MSFD Subtidal Rock and Mud Indicators and Monitoring Protocols in the North Sea. Joint Research project between Newcastle University, Natural England and Northumberland IFCA.

Georgina Hunt

Status: PhD completed in 2020.

Study: Long-term change in Northumberland trawler fisheries using historic and contemporary data.

Imogen Dent

Status: MSc project due to complete in September 2021

Study: Effectiveness of the mobile gear closure on indicators of habitat health on Scallop fishing ground.

Sarah Richardson

Status: MSc project due to complete in September 2021

Study: Investigation of the potential factors causing declines in Northumberland mussel beds.

Cadie Chandler

Study: MSc project due to complete in May 2021

Study: Changes in Northumberland lobster potting distribution seasonally and temporally.

Emily Herford and Dominic Crate

Status: Second year undergraduate students due to complete April 2021




Study: Fishing litter components and distribution on the Northumberland Coast.

Benj Sives

Status: Unknown

Study: Prevalence of egg parasite infection (*Haliotricida noduliformans*) in the Northumberland lobster population.




Appendix A




Vessel	Description
<p>Patrol Vessel St. Aidan</p> 	<ul style="list-style-type: none"> - Built 2014/2015 at Goodchild Marine (Great Yarmouth) - 16metre GRP Catamaran, coded to MCA category 2 - Top Speed 23knts - Multi-Purpose Enforcement/Survey Vessel - Carries 5.3m RIB onboard (TT St. Aidan), deployed via A-frame on stern - Without RIB, 'A' frame can be used to carryout grab-sampling, trawling and towing of multi beam equipment. - 1 ton starboard pot hauler - 1 ton twin drum north sea winch - Electronics include: Olex navigation, WASSP Multi Beam echo sounder, Hemisphere VS330 GNSS receiver, GNNS Global Correction Service, SMC IMU motion sensor. Nav-net 3 in 1, Furuno Sat compass, GPS, Furuno radar and Furuno comms suite. 2x computer stations operating windows 10 desktop PC's
<p>T.T. St. Aidan</p> 	<ul style="list-style-type: none"> - Built 2014/2015 - On-board P.V. St. Aidan - 5.3metre Ribcraft - 90 HP Suzuki outboard engine - Multi-purpose RIB used primarily for enforcement boarding's but can also be used for close inshore survey work e.g. towing Starfish Side-scan Sonar. Garmin echomap 65 GPS plotter, iComm ICM 330 fixed V.H.F.
<p>Robert Arckless MBE</p> 	<ul style="list-style-type: none"> - Built 2018/2019 - 9.5 metre shore-based RIB (Ribcraft) coded MCA category 3 - Twin 250 HP Suzuki outboard engines - Used primarily for enforcement work -






Inflatable dinghy








- Flat bottomed Zodiac inflatable
- 4 hp Suzuki outboard engine
- Used for estuary surveys







Equipment category	Item description	
Positional	Garmin etrex 20 handheld GPS x2	
	Garmin map 60Cx handheld GPS	
Acoustic	Starfish Sidescan 452F Including 50metres of tow cable and software key for Sonar TRX mosaic program	

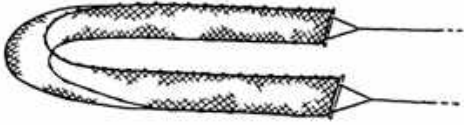



	<p>Linux laptop running OLEX software and multibeam, hardness licence</p>	
<p>Video & stills</p>	<p>STR Seaspyder Camera with custom frame. Equipment consists of:</p> <ul style="list-style-type: none"> - STR Seaspyder 18Mp U/W digital still camera (18 mega pixels) - STR Seaspyder High power U/W camera flash - 4 STR Seaspyder 20W High intensity LED light - 2 STR Seaspyder Subsea scaling laser (Red; 100mm spacing) (not 100mm spaced) - Seaspyder camera frame (Figure 6) - Recording Equipment - Seaspyder top side equipment (2 monitors and 2 PCs) running SeaSpyder software 	
	<p>Unmanned Aerial Vehicles (UAV) DJI Mavic 2 Pro + 3 batteries</p>	

<p>FIFISH Remotely Operated Underwater Vehicle</p>	
<p>Olympus Tough digital camera x3 2.1m shockproof, 15m waterproof</p>	
<p>Olympus Tough digital camera 2.1m shockproof, 10m waterproof</p>	
<p>2 x GoPro 3+ black edition camera with accessories</p>	
<p>Sony HDR 260 8.9 megapixel camera Seapro waterproof housing Colour filters, L.E.D. light rig and two laser scale pointers Aluminium 'drift' frame</p>	

	<p>Panasonic HC-X920 20 megapixel video camera</p> <p>Seapro waterproof housing</p> <p>Colour filters, L.E.D. light rig and two laser scale pointers</p>	
	<p>Aluminium 'drop' frame</p>	
	<p>Waterproof Seapro housing</p> <p>To install GoPro camera (for live surface feed)</p>	
	<p>60 metres umbilical cable</p>	
	<p>160 metres umbilical cable (with video amplifier)</p>	

	<p>Surface box: GPS and text overlay, Lynn Hawk video enhancer, Pinnacle dazzle HD screen capture card, 7-inch LED screen, Getac fully rugged laptop including additional storage</p>	
<p>Seabed sampling</p>	<p>0.1m² offset Day grab and stand</p>	
	<p>0.1m² Van Veen grab</p>	
	<p>Grab table, damper and separator</p>	

	Wilson Auto-Siever	
Deploy & recovery	1000kg lift A-frame (St. Aidan)	
	1000kg Spencer Carter pot hauler	
	1000kg Spencer Carter trawl winch with 200 metres warp	
Fishing equipment	Assortment of lobster pots, ropes, anchors and buoys	
	Beam Trawl 1.6m mouth	
	Standard estuary survey seine net	

	<p>Estuary Survey Seine Net 43m x 4m deep – 210/12 6.5mm & 14mm</p>	
	<p>Sand eel seine net Knotless netting, fully rigged, in 17mm, 10mm and 5mm in the centre. Five Panels per net, 25 yards x 6ft deep</p>	
	<p>2 x Standard fyke nets (including anchors and buoys) 7-hoop large double dee fyke net 10 & 14mm – 100cm x (2 x 5.3mtrs) – 32ft Leader</p>	
	<p>Fish storage buckets, air pumps, measuring boards and hand nets</p>	
<p>Intertidal survey</p>	<p>2 x 'Dutch wand'</p>	
	<p>2 x 6mm mesh aluminium sieve</p>	
	<p>2 x 1m² stainless steel quadrat</p>	