

Annual Research Plan 2021-2022

NORTHUMBERLAND INSHORE FISHERIES AND CONSERVATION AUTHORITY This documentate Read, Biview AEQ4liaR at www.mica.cov.uk www.nifca.gov.uk

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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 (Aln 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: <u>alex.aitken@nifca.gov.uk</u> Andrew Boon: <u>andrew.boon@nifca.gov.uk</u> Beth Harvey: <u>beth.harvey@nifca.gov.uk</u> Katy Smart: <u>katy.smart@nifca.gov.uk</u> 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).

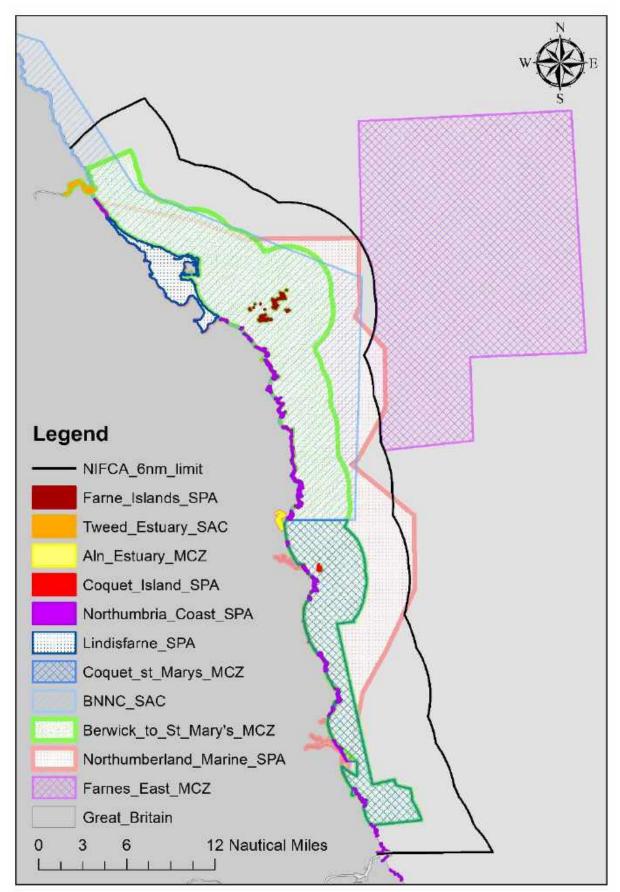


Figure 2 Map displaying Marine Protected Areas within and adjacent to the NIFCA district.

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

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, IFCAs 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).

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

Table 3 Focus and working groups attended by environmental officers

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

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 IF	CA Annual	Research Pla	an 2021-202	22												
														٦	Fime frar	ne					
Work- stream	Survey	Project	Objective	Method	Rationale	Timescale	Partners	Lead contact	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Priori ty
	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
cean	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
Crustacean	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													?

				previous			Station, Blue								
				studies			Marine								
				relating to			Foundation								
				gonad			roundation								
				-											
				development											
		5	T	stages.	T			AL A%1							
	Impact	Periwinkles	To understand the impacts	Quadrat	To understand the impacts of	Regular	-	Alex Aitken							1
	Assessment		of periwinkle collection on	surveys, timed	this activity based on current			Beth							
			both in situ populations and	searches and	levels to inform potential			Harvey							
			communities. To	shore patrol	management measures (if										
			investigate regional size of	observations	found to be needed).										
			maturity (SOM)												
	Impact	Scallops	To determine the impacts	Analysis of	To understand the impacts of	3-4 months	NE,	Alex Aitken							1
	assessment		of scallop dredging to	dropdown	scallop dredging by		Newcastle	Catherine							
			benthic habitats (sublittoral	camera	comparing imagery across a		University	Scott (NE)							
			mixed and coarse	imagery.	dredging pressure gradient.			Clare							
			sediment).		To understand effectiveness			Ftizsimmon							
					of MPA mobile gear closure			s							
					on benthic habitat indicators										
					of Good Environmental Status										
	Stock	Fenham Flats	Monitor size distribution,	Defra 'Walker	Annual survey to assess	1 day	Volunteers	Alex Aitken							2
	Assessment	mussel survey	density and spatial extent	and	mussel stocks within										
ŋ			of mussels.	Nicholson'	Lindisfarne protected areas to										
nsc					ensure enough food										
Mollusca					resources for birds.										
	Stock	Holy Island	Monitor size distribution,	Defra 'Walker	Annual survey to assess	1 day	NE	Alex Aitken							2
	Assessment	mussel survey	density and spatial extent	and	mussel stocks within	-									
			of mussels.	Nicholson'	Lindisfarne protected areas to										
					ensure enough food										
					resources for birds.										
	Stock	Blyth Estuary	Monitor size distribution,	Dutch wand	Annual survey to assess	1 day	NE	Alex Aitken							2
	Assessment	mussel survey	density and spatial extent	Duton nana	mussel stocks within	. aay		7 1070 7 111001							-
	Aboobaniont	mussersurvey	of mussels.		Northumberland Marine SPA										
			0111103013.		to ensure enough food										
					resources for birds.										
	Impact	Investigating	Investigate documented	Methodology	To understand causes of	3-4 months	EA,	Alex Aitken				 			2
	Assessment	declines in	declines in Northumberland	to be refined -	decline and potentially	3-4 monuts	EA, Newcastle	Beth							2
	10000001110111														
		mussel bed	mussel beds incorporating	MSc project	address them in the future		University,	Harvey							
		density	wide range of potential				Natural	Clare							
			factors				England	Fitzsimmon							
								s							

ollection	Impact Assessment	Practical uses of Unmanned Aerial Vehicles (UAVs).	Feasibility study to determine survey and analysis methodologies for the us of UAVs in NIFCA intertidal monitoring.	Methodolgy to be refined.	Increase robustness of NIFCA intertidal surveys, use novel techniques to monitor impacts of activity / intertidal features.	3-4 months	Newcastle University, Natural England	Alex Aitken Beth Harvey Mark Southerton Catherine Scott Clare Fitzsimmon S							2
Angling and Bait collection	Fishing activity	Monitoring intertidal digging/pumpi ng for bait	Monitor bait collection activity throughout the district and identify hotspots to inform MPA assessments.	Shore patrol observations	Monitoring will identify hotspots to generate activity levels to inform MPA assessments.	Regular	-	Alex Aitken Beth Harvey							2
	Stakeholder engagement	Develop and work to an Angling Strategy	To increase engagement with this sector to understand where we can work with anglers to increase knowledge and build better relationships.	Working groups / stakeholder meetings	Develop a strategy with the aim of increasing engagement with the Angling sector in the NIFCA district	Regular / ongoing	Angling sector	Katy Smart Andrew Boon							1
eral	Fishing Activity	Vessel Sighting Data	Record the location of fishing vessels observed throughout the district during sea patrols.	Sea patrol observations	Monitoring will continue to build a detailed picture of different fishing activities occurring throughout the district which can be used to inform MPA assessments	Regular	-	Alex Aitken Andrew Boon Mark Southerton							1
General	Stakeholder engagement	Develop a Fisheries Working Group	To build better relationships with local fishers and understand where we can work together to improve management and work towards sustainable fishing.	Working groups / stakeholder meetings	Increase engagement and develop structure for functioning working groups.	Regular / ongoing	Fishing industry	Alex Aitken Andrew Boon Mark Southerton							1
Finfish	Habitat use/fish habitat	Aln Estuary Fish Survey	Collect and analyse size and species composition of fish communities.	EA TRaC survey method.	To understand Aln Estuary MCZ habitats importance for juvenile fish species.	4 days	EA, volunteers	Alex Aitken							2
Habitat	Habitat mapping	OLEX data collection	Collect high resolution seabed habitat maps focussing on the northern area of the Berwickshire and North Northumberland Coast SAC.	Operating WASSP multibeam sonar during routine patrols with some targeted area.	To better understand to spatial extent of protected features in relation to fishing activity.	ТВС	NE?	Mark Southerton, Alex Aitken							Not confi rmed 2

Habitat	Ground	Collect high resolution	Drop down	To better understand to	TBC	NE?	Mark	Not
mapping	truthing OLEX	seabed habitat maps	camera and	spatial extent of protected			Southerton,	confi
		focussing on the northern	grab samples	features in relation to fishing			Alex Aitken	rmed
		area of the Berwickshire	to confirm	activity.				
		and North Northumberland	habitat					2
		Coast SAC.	(preferably to					
			EUNIS level					
			3)					

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.

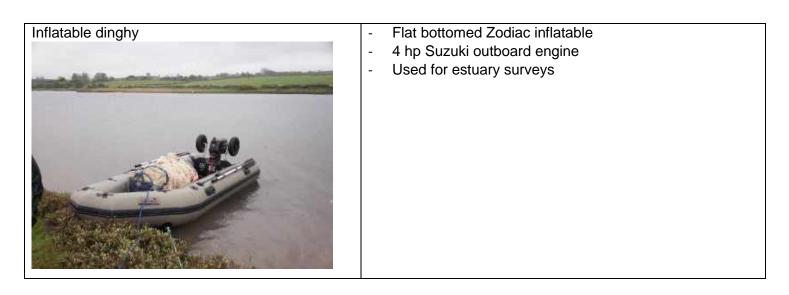
Benj Sives

Status: Unknown

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

Appendix A

Vessel	Description
Patrol Vessel St. Aidan	 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
T.T. St. Aidan	 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.
Robert Arckless MBE Image: Comparison of the second seco	 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



Equipment	Item description	
category		
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	

	Linux laptop running OLEX software and multibeam, hardness licence	
Video & stills	 STR Seaspyder Camera with custom frame. Equipment consists of: 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 	
	Unmanned Aerial Vehicles (UAV) DJI Mavic 2 Pro + 3 batteries	

FIFISH Remotely Operated Underwater Vehicle	
Olympus Tough digital camera x3 2.1m shockproof, 15m waterproof	
Olympus Tough digital camera 2.1m shockproof, 10m waterproof	
2 x GoPro 3+ black edition camera with accessories	
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	

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

	Surface box: GPS and text overlay, Lyyn Hawk video enhancer, Pinnacle dazzle HD screen capture card, 7-inch LED screen, Getac fully rugged laptop including additional storage	Serief State Dest in Train Serie Assessed Train
Seabed sampling	0.1m ² offset Day grab and stand	
	0.1m ² Van Veen grab	
	Grab table, damper and separator	

	Wilson Auto-Siever	
Deploy &	1000kg lift A-frame (St. Aidan)	
recovery		
	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	

	Estuary Survey Seine Net 43m x 4m deep - 210/12 6.5mm & 14mm	
	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	
	2 x Standard fyke nets (including anchors	A second s
	and buoys)	the second s
	7-hoop large double dee fyke net 10 &	
	14mm – 100cm x (2 x 5.3mtrs) – 32ft	
	Leader	
	Fish storage buckets, air pumps,	
	measuring boards and hand nets	
Intertidal survey	2 x 'Dutch wand'	
	2 x 6mm mesh aluminium sieve	
	2 x 1m ² stainless steel quadrat	