

NWIFCA Science Planning and Potential for Collaborative Work with Partner Agencies and Academic Institutions 2014 – 15

Task	Area	Frequency	Resource Requirements	Potential for Collaborative Work	Additional Resource Requirements
Core Work					
Cockle Surveys / Stock Assessments	Wirral – Leasowe - intertidal	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs Quads	Liverpool Uni PhD studentship Natural England RSPB WLT Low water bird feeding observations	Transport for other agency staff
	Ribble beds - intertidal	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs Quads	Lytham – WLT Marine Graduates Natural England RSPB Low water bird feeding observations	Transport for other agency staff
	Morecambe Bay beds - intertidal	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs Quads	Natural England RSPB WLT Low water bird feeding observations	Transport for other agency staff
	Solway – Cardurnoch - sandbank	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs Quads Industry boat for access	Marine Scotland Natural England RSPB WLT Low water bird feeding observations	Transport for other agency staff Insurance?

Task	Area	Frequency	Resource Requirements	Potential for Collaborative Work	Additional Resource Requirements
Mussel Surveys / Stock Assessments	Dee Estuary - intertidal	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs Quads	Natural England RSPB WLT Low water bird feeding observations	
	Fleetwood - intertidal	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs Quads	Natural England RSPB WLT Low water bird feeding observations	Transport for other agency staff
	Morecambe Bay beds – South America / Falklands	Annual – or monthly if significant recruitment	NWIFCA science and IFCOs RIBs Industry heli-flight, hovercraft and boats	Natural England RSPB WLT Low water bird feeding observations High water bird activities	Transport for other agency staff
	Morecambe Bay - intertidal	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs Quads	Heysham Flat – WLT Marine Graduates Natural England RSPB Low water bird feeding observations	Transport for other agency staff
	Duddon Estuary - intertidal	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs Quads	Natural England RSPB WLT Low water bird feeding observations	Transport for other agency staff

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Mussel Surveys / Stock Assessments	Solway - intertidal	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs Quads	Natural England RSPB WLT Low water bird feeding observations	Transport for other agency staff
	Solway - sub-tidal	Annual – or quarterly if significant recruitment	NWIFCA science and IFCOs IFCA boats - side scan?? Charter boats for dredge or grab sampling / drop-down camera	EA survey vessels – side scan, grab, drop down camera? Natural England RSPB WLT High water bird activities during fishery	Transport for other agency staff
<i>Sabellaria alveolata</i> surveys	Heysham Flat	Quarterly	NWIFCA Science	WLT Marine Graduates and Annual Report produced	
Unregulated bivalves	Duddon Estuary	Throughout spring/summer/autumn on large tides	NWIFCA science and IFCOs Quads		
EMS Review – Amber Sites					
Assessment of trawling activity	Dee Estuary	One – off initial assessment to inform Risk Assessments. Subject to review and amendment as new data collected	NWIFCA science and IFCOs NWIFCA quads and boats NWIFCA Comms Officer	MMO Fishing industry – stakeholder meetings and engagement EA survey vessels	Meeting rooms and advertising / publicity

Task	Area	Frequency	Resource Requirements	Potential for Collaborative Work	Additional Resource Requirements
Assessment of netting activity – all sites	Dee Estuary Mersey Narrows and North Wirral Foreshore Mersey Estuary Liverpool Bay Ribble and Alt estuary Shell Flat and Lune Deep Morecambe Bay Drigg Solway Firth	One – off initial assessment to inform Risk Assessments. Subject to review and amendment as new data collected	NWIFCA science and IFCOs NWIFCA quads and boats NWIFCA Comms Officer	MMO – data and enforcement officers. EA – survey vessels and shore patrols. LA beach patrols. Wardens – WLT / NT / etc Fishing industry – stakeholder meetings and engagement	Meeting rooms and advertising / publicity
Assessment of bait collection activity including crabs – all sites	Dee Estuary Mersey Narrows and North Wirral Foreshore Mersey Estuary Liverpool Bay Ribble and Alt estuary Shell Flat and Lune Deep Morecambe Bay Drigg Solway Firth	One – off initial assessment to inform Risk Assessments. Subject to review and amendment as new data collected	NWIFCA science and IFCOs NWIFCA quads and boats NWIFCA Comms Officer	Angling sector (eg. Angling Trust and local angling clubs etc) – stakeholder meetings and engagement. EA –and shore patrols. LA beach patrols. Wardens – WLT / NT / etc	Meeting rooms and advertising / publicity
Unregulated bivalves	Leasowe	Throughout spring/summer/autumn on large tides	NWIFCA science and IFCOs NWIFCA Quads NWIFCA Comms Officer	Liverpool Uni – Chris Frid	Translations?
Assessment of all fishing activities	Liverpool Bay	One – off initial assessment to inform Risk Assessments. Subject to review and	NWIFCA science and IFCOs NWIFCA quads and boats NWIFCA Comms Officer	MMO EA – survey vessels Fishing industry – stakeholder meetings	Meeting rooms and advertising / publicity

		amendment as new data collected		and engagement	
Task	Area	Frequency	Resource Requirements	Potential for Collaborative Work	Additional Resource Requirements
Assessment of potting	Shell Flat and Lune Deep Morecambe Bay (Cumbria coasts – not strictly EMS but collect data for sustainability use)	One – off initial assessment to inform Risk Assessments. Subject to review and amendment as new data collected	NWIFCA science and IFCOs NWIFCA boats NWIFCA Comms Officer	MMO EA – survey vessels Fishing industry – stakeholder meetings and engagement	Meeting rooms and advertising / publicity
Assessment of activity of beam trawl for whitefish	Dee Estuary Liverpool Bay Ribble and Alt Morecambe Bay	One – off initial assessment to inform Risk Assessments. Subject to review and amendment as new data collected	NWIFCA science and IFCOs NWIFCA boats NWIFCA Comms Officer	MMO EA – survey vessels Fishing industry – stakeholder meetings and engagement	Meeting rooms and advertising / publicity
Assessment of activity of trawling for shrimp	Solway Firth	One – off initial assessment to inform Risk Assessments. Subject to review and amendment as new data collected	NWIFCA science and IFCOs NWIFCA boats NWIFCA Comms Officer	MMO EA – survey vessels Fishing industry – stakeholder meetings and engagement	Meeting rooms and advertising / publicity
Assessment of Winkle Hand-gathering activity – background research into biology and ecology of species	Barn Scar, Drigg	One – off initial assessment to inform Risk Assessments. Subject to review and amendment as new data collected	NWIFCA science and IFCOs NWIFCA quads	WLT Marine Graduates	

Task	Area	Frequency	Resource Requirements	Potential for Collaborative Work	Additional Resource Requirements
MCZ Tranche 1					
Assessment of all fishing activities including recreational (desk-top initially)	Cumbria Coast MCZ	One – off initial assessment to inform management	NWIFCA science and IFCOs NWIFCA boats NWIFCA Comms Officer	MMO Fishing industry – stakeholder meetings and engagement	Meeting rooms and advertising / publicity
<i>Sabellaria alveolata</i> surveys	Cumbria Coast MCZ	Annually	NWIFCA Science and IFCOs Quads	WLT Marine Graduates	
Mussel bed surveys	Cumbria Coast MCZ	Annually	NWIFCA Science and IFCOs Quads	WLT Marine Graduates	
Assessment of all fishing activities including recreational (desk-top initially)	Fylde MCZ	One – off initial assessment to inform management	NWIFCA science and IFCOs NWIFCA boats NWIFCA Comms Officer	MMO EA – survey vessel Fishing industry – stakeholder meetings and engagement	Meeting rooms and advertising / publicity
MCZ Tranche 2					
<i>Sabellaria alveolata</i> monitoring surveys	Allonby Bay MCZ	Annually	NWIFCA Science and IFCOs Quads	WLT Marine Graduates	
Mussel bed surveys	Allonby Bay MCZ	Annually	NWIFCA Science and IFCOs Quads	WLT Marine Graduates	

Assessment of all fishing activities including recreational (desk-top initially)	Allonby Bay MCZ	One – off initial assessment to inform management	NWIFCA science and IFCOs NWIFCA boats NWIFCA Comms Officer	MMO EA – survey vessel Fishing industry – stakeholder meetings and engagement	Meeting rooms and advertising / publicity
Assessment of all fishing activities including recreational (desk-top initially)	West of Walney MCZ	One – off initial assessment to inform management	NWIFCA science and IFCOs NWIFCA boats NWIFCA Comms Officer	MMO EA – survey vessel Fishing industry – stakeholder meetings and engagement	Meeting rooms and advertising / publicity
Impacts and Activities (see below for research issues)					
Cockle and Mussel Fisheries	Bird and food resources Bird disturbance Impact on stocks and recruitment Habitats/features re method and access				
Unregulated bivalves	Bird and food resources Bird disturbance Impact on stocks and recruitment Habitats/features				
Worms (bait)	Bird and food resources Bird disturbance Impact on stocks and recruitment of target species Habitats/features				
Crabbing (bait)	Bird and food resources Bird disturbance Impact on stocks and recruitment of target species Habitats/features				
Winkle gathering	Impact on stocks and recruitment Bird and food resources				

Netting	<p>Bird and food resources</p> <p>Bird disturbance</p> <p>Target species - impacts on stocks and recruitment of bird prey species</p> <p>By-catch - impacts on stocks and recruitment of bird prey species</p> <p>Habitats/features</p>
Potting	<p>Bird disturbance</p> <p>Target species</p> <p>By-catch</p> <p>Habitats/features</p>
Size Mussel Dredge Fishery Solway Firth	<p>Bird and food resources</p> <p>Bird disturbance</p> <p>Target species - impacts on stocks and recruitment of bird prey species</p> <p>By-catch - impacts on stocks and recruitment of bird prey species</p> <p>Habitats/features</p>
Beam trawl for whitefish	<p>Bird and food resources</p> <p>Bird disturbance</p> <p>Target species - impacts on stocks and recruitment of bird prey species</p> <p>By-catch - impacts on stocks and recruitment of bird prey species</p> <p>Habitats/features</p>
Beam trawl for shrimp	<p>Bird and food resources</p> <p>Bird disturbance</p> <p>Target species - impacts on stocks and recruitment of bird prey species</p> <p>By-catch - impacts on stocks and recruitment of bird prey species</p> <p>Habitats/features</p>

Key Issues, Evidence Gaps and Research Needs for MPA Management NWIFCA District – March 2014

Cockle and Mussel Fisheries – Bird Requirements

- 1) When are the critical periods for shellfish eating birds?
 - ie. beginning of autumn when they arrive from migrations and will be out of condition
 - mid-winter when weather at most severe
 - spring before migrations and building up reserves
- 2) What proportion of SPA wintering birds are using shellfish beds and associated access areas (for feeding or roosting)? How (and when) are these figures calculated?
- 3) How to define acceptable levels of disturbance or displacement to feeding / roosting birds from fishery activities (compared to background levels)?
- 4) How best should assessments of what stock should be left for birds be made, and based on what figures?

Collection of new evidence

Low Tide Count data:

- Low Tide Counts
- Additional LTC count(s) – if such is possible, use to compare distribution of and use by birds on fished and un-fished days, to help assess disturbance/displacement and inform current/future fisheries management.

Monitoring of disturbance/displacement of birds from areas associated with shellfish fisheries (roost sites, access routes, fishery area):

- Direct observations of disturbance/displacement of birds by fisheries activities
- Fishery areas. How might we get pre-, during and post-fishery observations of bird disturbance/displacement from active fishery areas.

Oystercatchers:

- 1) Improve understanding of OC wintering site fidelity vs distribution in relation to prey availability:
 - within specific bays / estuaries
 - across the north west (including Scottish and Welsh areas)
 - daily distances travelled for feeding
- 2) OC dependency on cockles:
 - size preference and adaptability particularly in years when none of size preference available
 - how quick they can change from cockles to mussels and vice versa for their food preference

Eiders:

- 1) Improve understanding of eider feeding:
 - where eiders observed feeding, establish what prey – diver surveys, grab samples, side scan sonar
 - also stomach contents and faeces analysis, observations
 - daily distances travelled to feed within Bay – hotspot areas
 - is shrimp an important food resource for chicks and has the reported reduction in shrimp numbers affected chick survival
- 2) Improve understanding of pressures in other geographical areas and effects on their population numbers and distribution, and how this relates to Morecambe Bay birds:
 - effects of climate change and extent of their range

- hunting
- where nesting – how successful each area and are they suffering same sex ratio issues

3) Improve knowledge of Morecambe Bay eider population:

- re-examine figures of eiders in Bay set during EMS designation
- nesting areas – cameras to monitor predation
- eider predation – fencing and monitoring success compared to non-fenced – foxes, badgers, gulls
- bird observers on vessels – esp. undredged areas – Kingfisher and windfarm transport
- examine sex-ratio of eiders further
- disturbance to eiders by vessels – effects of the increase in windfarm boat traffic

Further work on Existing evidence (RSPB):

Collate/review evidence of indicative relative importance of individual fishery areas for SPA wintering bird species by use of historic and recent core counts of adjacent roost sites:

- Mean peak count & dot density sector maps for all LSE species from historic core counts for winter months
- Core counts for winter months
- Ask WeBS counters which core count sectors are most closely linked with the individual fishery areas [waders tend to roost close to their preferred feeding areas to minimise energy expenditure]
- Collate/review evidence of direct use and importance of individual fishery areas by SPA wintering bird species from low tide count data/observations

- Review all fishery areas Low Tide Count data
- Review key bird areas map and information previously provided by WeBS counters to Natural England

Collaborative Opportunities:

- National Grid – will be carrying out overwintering bird studies in Morecambe Bay and Solway for routing corridor impacts work – (Penny Williams SLR Consulting - Hannah Booth from Natural England, and rep from RSPB)

Morecambe Bay Mussel Fisheries:

- 1) Modelling to detect broodstock for Morecambe Bay mussels particularly South America, and destination of scoured out seed mussel
- 2) Investigate ways of detecting spawning times on Morecambe Bay beds and relate to weather, temperature, rainfall, salinity etc
- 3) Identify which beds self-recruit or seed the Bay, and assess what biomass needs to remain to protect recruitment levels
- 4) Foulney Mussel bed – management options – zoning and allowing harvesting of all sizes from defined areas; reducing MLS
- 5) Further investigations into effects of thinning mussels on overall biomass

Cockles:

- 1) Identify parameters for defining the area of a cockle bed
- 2) Investigate minimum density threshold requirements for fertilisation success
- 3) Investigate impacts on soft sediments from hand-gathering

Unregulated Bivalves:

- 1) What % of the population is exposed to exploitation (i.e. in areas accessible at spring low tide)
- 2) What is the life history information for the species being collected? (Some of this may be covered in Razor Clam Report)
- 3) What happens to areas that have been exploited? Do individuals from outside move in? Does this open up areas for new settlement?
- 4) Is this sustainable at current activity levels? At what level is this sustainable? Is this a self-recruiting population?
- 5) What bird species feed on these bivalves? How important are they in their diet?
- 6) What is the impact on bird disturbance and habitat/sedimentology?

Netting:

- Difficult to determine research questions until activity is understood.

Potting:

- 1) What is the impact of potting on hard substrate (reefs)?
- 2) What is the impact of potting on soft substrate (sands)?
- 3) Landings data of target species. Impacts on stock levels and recruitment.

- 4) What by-catch is there? What are the impacts on those species and stock levels? What are the impacts on bird prey resources?
- 5) Any bird disturbance issues?

Beam trawl for Whitefish:

- 1) What is the impact of this fishery on soft sediments – infauna & sedimentology?
- 2) What is the impact of this fishery on neighbouring boulder and cobble features – smothering etc?
- 3) Landings data of target species. Impacts on stock levels and recruitment.
- 4) What by-catch is there? What are the impacts on those species and stock levels? What are the impacts on bird prey resources?
- 5) Any bird disturbance issues?

Shrimp Trawls:

- 1) What is the status of shrimp stocks? Are they in decline (as seen in declining catches)? If so, what is causing this decline?
- 2) Is the fishery sustainable? Recruitment? Methods and discards?
- 3) What is the impact of this fishery on soft sediments – infauna & sedimentology
- 4) What is the impact of this fishery on neighbouring boulder and cobble features– smothering etc?
- 5) What bird species feed on shrimp? How important are they in their diet? (links into eider work)
- 6) What by-catch is there? What are the impacts on those species and stock levels? What are the impacts on bird prey resources?
- 7) Levels / impacts of bird disturbance?

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