



Eastern Inshore Fisheries and Conservation Authority

Eastern IFCA Shrimp Industry Workshop Report – 26th September 2016



Inshore Fisheries and Conservation Authorities will 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.

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1. Introduction

1.1 Background

A significant Brown shrimp (*Crangon* spp) fishery has existed in The Wash and North Norfolk Coast area for over 100 years. The shrimp fishery is of local and national importance.

The Brown shrimp fishery occurs in The Wash and North Norfolk Coast Special Area of Conservation (W&NNC SAC), a heavily designated marine protected area (MPA) of international importance. EIFCA was required to assess shrimp beam trawling environmental impacts within The W&NNC SAC, in line with the Habitat Regulations.

As a result of the assessment, new management measures are needed to ensure that shrimp beam trawling (along with other towed demersal gear) is not affecting the SAC conservation objectives. EIFCA has a legal duty to further the conservation objectives for this site as well as other MPAs in the district. This is balanced with our remit of supporting sustainable fisheries and viable industry.

To ensure that shrimp beam trawling can continue in this SAC, the following measures are proposed:

- (i) Spatial closures over subtidal mud and subtidal mixed sediment of greatest sensitivity from shrimping trawling and any other towed demersal gear.
- (ii) Permitting the shrimp fishery and managing shrimp activity so that annual activity does not exceed an annual 'footprint' capable of exceeding the site's capacity to recover.

EIFCA has drawn on fisher knowledge to identify closed areas that minimise impact to the fishery whilst ensuring that the site conservation objectives are achieved. The workshop was a chance to thank the industry for contributions so far and to share the latest draft of the new closed areas.

The assessment completed by EIFCA uses an annual impact 'footprint' and this is the basis for managing what level of shrimping activity should take place in the SAC, outside the closed areas.

The Brown shrimp fishery in the site is considered dynamic, there are complex interactions with other fisheries and there are many business models operating in the fishery. As such, there is significant management complexity. The industry's knowledge and input is vital in shaping proposals so these are workable for the industry and EIFCA.

The workshop was an opportunity to establish the reason for permitting, what options there are to using permitting and potential means of distributing effort. The industry's feedback was gathered on key requirements of a permit scheme,

pros/cons to permitting and identification of concerns to be addressed as proposals develop further.

The assessment uses best-available evidence such as scientific literature. However, there is recognition that additional evidence specific to shrimp beam trawling gear in the SAC is needed. Also, there have been calls from members of the industry to consider alternative shrimping gear, like the 'Seewing', to determine if there is a lesser environmental impact.

For these reasons, a collaborative study is taking place from 2016 to 2018, involving members of the shrimp fishery, EIFCA, academic and research institutions. An overview of the study objectives and methods was presented at the workshop together with an update on the status of the project.

Inshore vessel monitoring systems (i-VMS) will be part of future management measures for the shrimp fishery, as there are now MMO/IFCA type approved units. The workshop was an opportunity to share the latest news on i-VMS proposals and gather feedback on issues that need to be considered when EIFCA brings i-VMS into place.

1.2 Objectives of the workshop

The objectives of the workshop were as follows:

- To discuss draft proposals for shrimp permitting in The Wash and North Norfolk Coast Special Area of Conservation (W&NNC SAC);
- To present spatial closures for shrimp gear (and other towed demersal gear) in The W&NNC SAC; and
- To give an update on The Wash shrimp gear trial project.
- To complete a short questionnaire about shrimping activity to assist with 'sense-checking' EIFCA activity data.



2. Group exercise summaries

After the introductory session, participants chose their groups and each group had a facilitator to co-ordinate discussion and a recorder to note down points. All groups were facilitated by Eastern IFCA staff. In session one of the workshop, two exercises were conducted with three groups.

In the first exercise, there were five stations each with a different question relating to the shrimp fishery and last 100 years, potential downsides/benefits to permitting, requirements for a successful permitting scheme, and permitting in relation to the future of the fishery. Groups provided responses to the questions at each station and responses were written for all to see. Each group facilitator fed back key points during a plenary.

After a briefing presentation, the 3 groups commenced exercise two where they were asked to 'brain storm' the pros and cons of two options for managing shrimping effort; option a and b:

Option a. No limit on number of permits. Permit holder activity only managed if trigger points are exceeded

Option b. Limit on number of permits. Permit holder activity will be managed.

Suggestions by the group for alternative approaches were asked for and noted down during discussions. Where time allowed, group members were asked to vote for which broad option they would prefer.



2.1 Session 1, Exercise 1

Group participants were asked to respond to the following questions:

1. *Why has this fishery been going for over 100 years?*
2. *What do you see as the benefits of permitting?*
3. *What do you see as the downsides of permitting?*
4. *What do you think a successful permitting scheme needs?*
5. *How do you see permitting in relation to the fishery's future?*

Qu 1. Why has this fishery been going for over 100 years?

Responses from all groups are listed below:

'Twin beaming/modern'

'Efficiency/modernisation'

'Wider markets – if can't sell there is no point in catching'

'Selectivity – veil nets'

'Good recruitment'

'Preservation of the shrimp once landed'

'Hardy species [Brown Shrimp] – breed 2/3 times [a year]'

'Environment has remained sustainable for shrimp for 100 years'

'Turn-over of shrimp creates better population – got to keep working the grounds'

'Sustainable'

'Fishery management by the industry e.g. 20 mm mesh size'

'Easier with technology and navigation rollers'

'Lack of pollution'

'fishery that doesn't harm the environment'

Qu 2. What do you see as the benefits of permitting?

Responses from all groups are listed below:

'Could support Marine Stewardship Council with data [for pre-accreditation work]'

'Keep the fishery local'

'Permit conditions could include beneficial measures e.g. selective days working/selective tides'

'Creates another level of bureaucracy that is not needed'

'Limit effort and outside influences'

'Different permit conditions for different gears'

'No benefits due to the measures that are already in place through Marine Stewardship Council [pre-accreditation work]'

'Encourages good practises by keeping 'professional' shrimp fishermen in work and limits 'amateur' fishers'

'In regards to the [Marine Stewardship Council accreditation]; this would only benefit some fishermen, not all. And would it be beneficial for the whole district?'



Qu 3. What do you see as the downsides of permitting?

Responses from all groups are listed below:

- 'Permits become a commodity'* *'Potential issues with permitting a single area'*
- 'Limiting the market e.g. gear/vessels to those with a permit - Boundary to modernisation as cannot sell old gear/vessels and cost and malfunction with more units more chance to get stopped - Developers could use it against fishers'*
- 'Who knows where the shrimp will turn up...data isn't everything'* *'Had led in the past to fishers turning to other fisheries en masse'*
- 'Takes ownership away from fishers'* *'Displacement into other areas and fisheries'*
- 'Devalues shrimping vessels - Cost of gear/vessel and this investment, a permit cannot be sold with vessels'* *'Some vessels lose track record because of poor fisheries performance'*
- 'How do we keep a permit?'* *'How [Eastern IFCA] look at intensity [of activity]'*
- 'Hard enough to get in [to the fisher] now'* *'Concerns about how the data is used e.g. area not getting fished might get fished in the future'*
- 'Expense of i-VMS and who gets the data'* *'Full time/part time fishers - needs to cater to different business models'*
- 'Concerns about confidentiality [i-VMS data]'* *'Permit conditions – depends on what they are'*
- 'Having to pay for [permits]'*
- 'It will be limited - replicate the Wash Fishery Order mistakes i.e. Local people can't get permits/Difficult to get new blood in'*
- 'Loss of jobs and commercial fishers'*

Qu 4. What do you think a successful permitting scheme needs?

Responses from all groups are listed below:

'Fishermen should not have to pay for permitting scheme'

'Permits should go to a person (or nominee) - individual not a company- and with a track record'

'Effort management makes more sense than quota in a shrimp fishery'

'Who decides what the right number of permits is for a sustainable fishery?'

'Gear specification can restrict future development'

'Will the number of permits be reduced year on year?'

'How can new entrants get a permit? Local crews and people who been in the job some time'

'Suggestion of limiting days at sea fishing'

'Suggestion of limiting annual tonnage'

'If permit goes with boats, should be able to sell permits with boat, not give back to realise investment'

'Cost should be proportionate to [engine] horse power'

'Effects of the permit will depend on the conditions'

'Some fishermen and boats need to do other things to maintain track records and licences'

'Permits should link to days at sea and horse power [of engine]'

'Permits not be related to catch'

'Permit should be allocated by person (individual or company) rather than boat'

'Track record – timescale? New entrants into the fishery? Some people only just getting into the fishery'

'Permit duration for life whilst being used'

'Track record applicable to this fishery'

'Commercial viability and job security'

'Permit should last for lifetime'

'Protection for those who have invested in the fishery: full time fishermen/part-time opportunistic'

'Permit should allow fishing all year around'

Qu 5. How do you see permitting in relation to the fishery's future?

Responses from all groups are listed below:

'Changes in activity to keep a track record in order to maintain permits'

'If it isn't broken, don't fix it'

'Need to consult fishers at every stage of the process'

'Consider some control on who is given permits based on gear types'

'Sale of vessel at

'How will new entrants enter the fishery?'

'Protection of full time fishermen who are dependent on the fishery'

'What is the cost?'

'How will the productivity of the fishery affect the permit?'

'Success of the fishery in the future will depend on what the permit entails'

'Impacts to industry and processors'

'Manage by considering gear configuration e.g. roller spacing'

'Of no benefit to the fishery'

'What about new entrants to the fishery?'

'Business models/availability of permits'

'How will the permits work in terms of by vessel or by owner?'

'Track record to reflect fluctuations in the fishery'

'Long-term viability of the industry'

'Permitting not needed'

'Distorts effort into other fisheries'

'Small people pushed out by those who put in high effort. Possibly encouraging extra effort while selecting out those who put in a smaller amount of effort'

2.2 Session 1, Exercise 1 – Summary

Key questions and themes arising from the exercise:

During the course of the exercise several key questions and themes emerged of particular importance to the fishers; these are summarised below. These will form an important part of Eastern IFCA's considerations as the permit scheme is developed and will help shape the scheme going forward.

How will a permit scheme work in terms of by vessel or by owner?

The mechanics of a permit scheme are of obvious importance to the fishers. At present, Eastern IFCA's model would follow that of the *Whelk Permit Scheme* in which the holder of a permit is the owner of a vessel (a registered fishing vessel in the case of commercial fishers). The mechanics of this system need to take into account changes in vessel ownership (for example if the holder of a permit purchases a new vessel).

One of the key themes related to this is the ability for new entrants to enter the fishery. Any permit system needs to balance protecting those fishers whose primary fishing activity is shrimp fishing and allowing for new and opportunistic fishing activity to occur.

What will be the cost?

The proposed cost of a shrimp permit is £44 annually. This fee reflects cost recovery for the administration of shrimp permits including the officer time required to enter shrimp fishing data into Eastern IFCA systems. The actual cost to the public is well in excess of this figure (when taking into account research and enforcement related to the measures).

What time-scale would be considered if using track record to determine eligibility for a permit?

If permits were limited to a set figure, Eastern IFCA would have to limit entry into the fishery by some criteria. Concerns regarding the use of track-record as a criterion emerged as a key theme during the workshop and this exercise. The criteria used to limit the number of permits need to be carefully considered to strike the right balance allowing fishers of differing business models access to the fishery.

How do we keep a permit?

Another key theme which emerged related to longer term business planning in the context of annual permits. One of the strengths of a permit scheme is that it allows Eastern IFCA to manage the fishery flexibly to reflect the state of the fishery and best available evidence. For example, the number of permits issued in any one year may need to be changed (increased or decreased) in line with new evidence. This presents some problems for business planning where there is no certainty that a permit will be issued each year. This issue is compounded

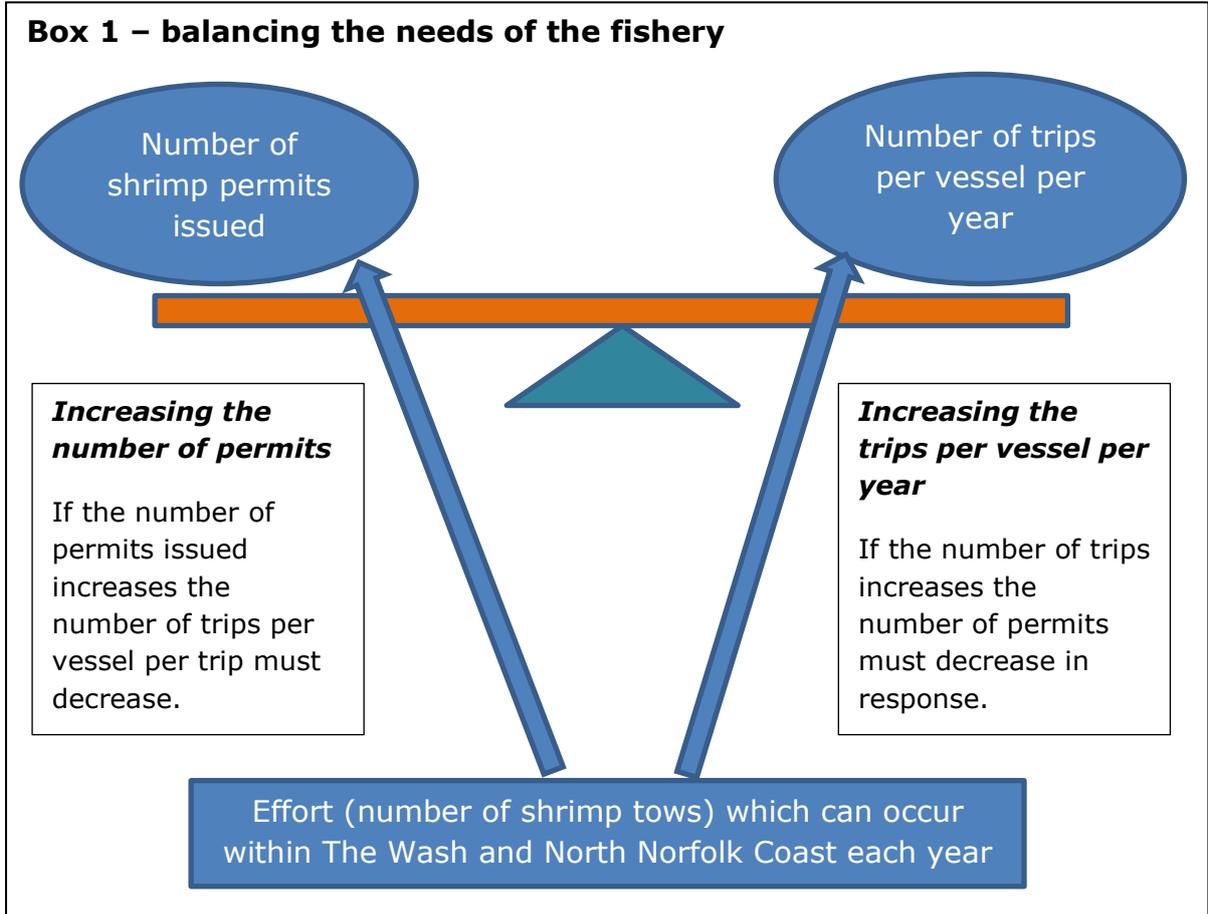
by the cost of shrimp fishing gear and equipment which can go into the tens-of-thousands – an investment which may not be realised if permits are not re-issued for several years.

Who decides what the right number of permits is for a sustainable fishery?

The measures currently being considered deal solely with the issue of protecting sensitive, designated habitats from potentially damaging shrimp fishing activity. The permit scheme can incorporate fisheries sustainability but at present, protection of habitats is the key concern.

Eastern IFCA has determined the maximum amount of fishing effort the habitats in The Wash and North Norfolk Coast can be exposed to before significant impacts occur. This has primarily been determined through research on the sensitivity and recoverability of these habitats. The amount of effort which the site can be exposed to is represented by a number of tows per year rather than a number of permits issued or vessels active.

One method of ensuring effort is limited to the required amount would be to limit the number of vessels which can take part in the fishery and the number of fishing days or trips these vessels can undertake in a year. The number of permits issued would reflect a balance between each vessel having enough shrimp fishing trips in a year and the number of vessels issued with a permit.



A key consideration during the development of the measures so far has been considering how best to share out the effort across the fishery.

How will the productivity of the fishery affect the permit?

The measures will aim to prevent the amount of effort in the fishery exceeding that which the habitats can recover from during each year. With this in mind, if shrimp fishing is particularly good in any one year (e.g. the productivity increases) and effort increases as a result, this may result in levels of fishing effort which are damaging to the site.

The productivity does not play a role in the measures being considered for the protection of habitats but may do in the future if measures are introduced to protect the stock.

Would permit conditions [including beneficial measures e.g. selective days working/selective tides] benefit the whole district?

The Measures currently being designed relate only to limiting effort within the Wash and North Norfolk Coast Marine Protected Area. This is as a result of an assessment which concluded that shrimp fishing was potentially having an impact with the site. Similar assessments did not detect a potential impact in other areas.

That said, initial proposals included a requirement for all shrimp fishers within the district (i.e. Lincolnshire, Norfolk and Suffolk) to obtain a shrimp permit. This would enable Eastern IFCA to implement measures if needed in other areas and to monitor levels of fishing activity through all the Marine Protected Areas within the district to detect any future issues.

How Eastern IFCA use i-VMS data

i-VMS will be a requirement of the fishery going forward and will be an important tool in managing the fishery and monitoring the impacts of the measures which are brought in. A key theme emerged during the workshop relating to how Eastern IFCA would use this data.

These concerns will be an important consideration of designing the measures.

2.3 Session 1, Exercise 2

Implementing effort limitations within the shrimp fishery is very complicated, a reflection of the diverse fishing industry, changeable marine environment and differing business models. There will likely be impacts on the industry regardless of the method used.

In this exercise, fishers were asked to consider the 'pros' and 'cons' of two models which could be used.

Option a. No limit on number of permits. Permit holder activity only managed if trigger points are exceeded.

This option was designed as a reflection that current fishing activity is below that which would be considered damaging to the habitats of the site. The level of shrimp fishing activity in any one year depends on the market (i.e. the price of shrimp), the availability of the shrimps and the productivity of other fisheries.

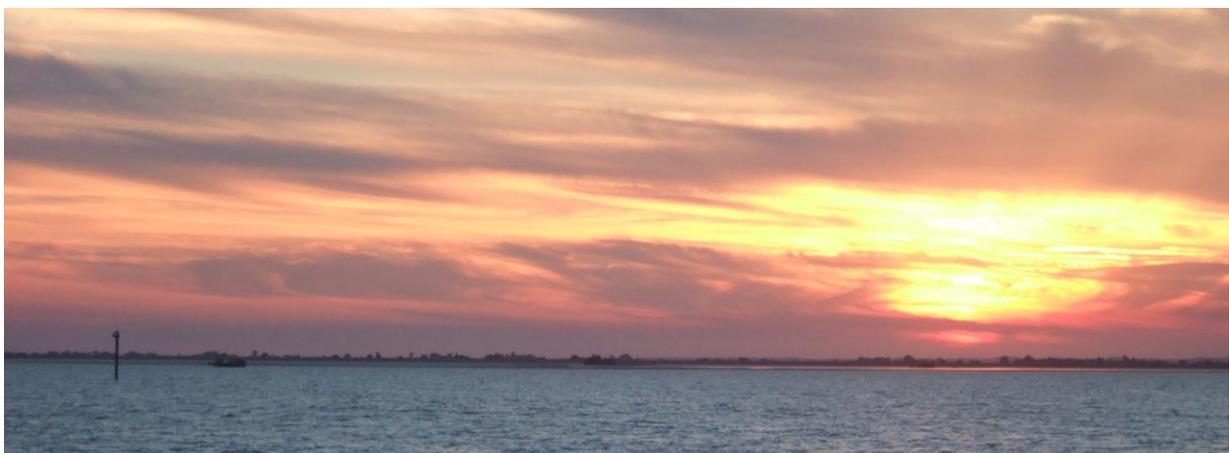
Given that it fluctuates year to year, one option of management would be not to limit effort initially (i.e. no limit on the number of permits or trips per year) but to monitor the activity levels. Should effort reach a 'threshold' effort limitations could be brought in to prevent damage.

Option b. Limit on number of permits. Permit holder activity will be managed.

This option reflects a more traditional approach to limiting effort and would place restrictions on fishing activity each year. The number of permits issued would have to be limited as would the number of trips each vessel could undertake in a year.

The allocation of permits and effort would require careful consideration so as to balance the differing business models of the industry.

Suggestions by the group for alternative approaches were also noted and considered.



Option a. No limit on number of permits. Permit holder activity only managed if trigger points are exceeded.

Responses from all groups are listed below:

Pros

- No track record
- Doesn't artificially increase effort
- Activity may never reach trigger point
- Large vessels move to fish outside Wash.
- Permit will stop new effort coming in from outside that is not local
- Fishery fluctuates
- MSC [accreditation] and supporting this

Cons

- If you don't shrimp all year around, will you lose out if full time fishermen use up all the annual trips?
- Accelerates the level of activity in the fishery
- May lead to a drop in the price of shrimp
- No protection to full time shrimpers or factories
- Uncertainty in terms of business planning
- Lots of foreign boats in
- Driver for people to get a track record
- Conditions can distort how fishing is done
- If limits set on number of tows, could be variable – should be time/distance not number
- Could restrict fishing even if fishing is good
- Too complicated if have lots of conditions and difficult to change
- No benefits if doesn't limit number of permits

Option b. Limit on number of permits. Permit holder activity will be managed

Responses from all groups are listed below:

Pros

- Prevents opportunistic fishermen taking away commercial fishermen's livelihoods
- Limit the number of permits and have management in the mean time
- Make trips non-transferable and be allocated per boat
- If local fishermen can be assured they will get a permit, then it's a good thing
- Protects fishers already taking part
- If done properly could benefit local fishermen
- MSC needs

- Do need a limit but how will this work in the beginning? Need to bring in slowly
- Should have simple permits and bring in conditions over time

Cons

- The environment at its current level of activity is not compromised so don't need to limit permits
- Annual permits
- Track record forces artificial increase in effort
- Concern that genuine fishermen might not be able to get a permit
- Might stop 'new blood' (local) coming in
- Who decides who gets a permit?
- Will result in increased effort to get a permit
- Flexibility is very important – permitting will restrict flexibility
- Ideally don't want to see any changes

Other options

One group suggested an option of limiting permits with transferable activity [trip] quota.

One group proposed an option with the following details:

- Issue permits only to people who currently fish in The Wash
- Require proof of 'bona fide' fishermen e.g. tax
- Could link permit to individual but also specify which boat will be used (as in the Thames cockle fishery)
- Vessel length not relevant – should be based on engine horse power or fishing capacity

Key questions arising from the exercise:

'If you don't shrimp all year around, will you lose out if full time fishermen use up all the annual trips? [in relation to option a]'

'Who decides who gets a permit? [in relation to option b]'

'Would effort be limited over a year or a shortened period? (Main season is September to December)? [in relation to option b]'

'Will the permit scheme be just for The Wash or whole district?'

'What are the trigger points and why? [in relation to option a]'

3. Presentation summaries

There were presentations in the first, second and third sessions of the workshop by EIFCA officers. A summary of the presentations and the key questions/messages which came out of them are presented below.

3.1 Session 1 - Shrimp fleet footprint and effort management ideas (Frances Burrows, Eastern IFCA)

Outline of points raised:

EIFCA's assessment of shrimp fishing activity in The W&NNC SAC identified that there is potential for the activity to have a detrimental impact certain habitats. A 'footprint' of activity was determined which represents threshold of activity above which, the site is at risk of damage. This 'footprint' was determined primarily through analysing the recoverability of habitats in The Wash and North Norfolk Coast.

It was concluded that, to have a protective effect on the site effort in the fishery needed to be limited to within this 'footprint'.

The actual 'footprint' of shrimp fishing activity has in the past five years potentially exceeded this threshold however, this has not been the case in in the last two years. This is likely to be a reflection of the poor market for shrimp and poor catch returns over the last two years. It is recognised that the levels of activity within the fishery is dependent on many factors and varies from year to year.

Several approaches have been considered in relation to limiting the levels of shrimp fishing activity to within the threshold. Two broad models were described as follows:

a) No limit on number of permits. Permit holder activity only managed if trigger points are exceeded

- Shrimp fishing requires a permit but without a limit on number of permits available.
- Fleet activity must be monitored.
- If activity levels (e.g. vessel trips) reach certain thresholds, then action is taken by EIFCA to ensure that the footprint is not exceeded e.g. limiting trips for vessels for rest of year.
- This approach is management when required and reflects that in past years, the fleet 'footprint' has not been great enough to trigger management.
- Refining trigger points and thresholds would require careful consideration and in particular, looking at what limitations on activity would be needed and how to go about this.

b) *Limit on number of permits and number of trips per vessel per year.*

- Limit number of permits available through a set of criteria.
- Effort is shared out between permit holders at the beginning of the year which could be achieved in a number of different ways:
 - share evenly between permit holders;
 - Allocate trips by vessel length or vessel power;
 - Allocate trips based on whether or not permit holders have Wash Fishery Order entitlement;
 - Other methods of allocating effort among permit holders to be considered.

The two models are broad and there is a lot of detail and complexity which EIFCA has been considering. We want to share our thinking with the industry to be transparent and to initiate discussion to help shape the final proposals. This is what exercise 2 in session 1 is about.

Key points raised during presentation and EIFCA response (in blue):

- *The footprint is distorted. The fishery has been small in recent years. EIFCA: This has been taken into account in calculations of actual footprint. The threshold is determined through an analysis of habitat recoverability.*
- *There have been bad and good years in the fishery – 2006 was a very bad year but 2007 was a good year. EIFCA: Having looked at landings records and calculating footprints for each year from 2010, it is clear there are years where the fleet is below the footprint threshold – especially the last couple of years. But there have also been years where the threshold has been exceeded, when the fishery has been a good year. Future management is about keeping fleet activity within the allowable footprint and not going above the threshold.*
- *We are not harming the environment because we still have a shrimp fishery*

The workshop chair asked that remaining questions and perspectives on the management approaches be saved for exercise 2 in session 1.



3.2 Session 2 - New towed gear closed areas (Judith Stoutt, Eastern IFCA)

Outline of points raised:

Aims of the closed areas include:

- To support viable fisheries whilst meeting conservation duties;
- To protect areas of seabed where EIFCA has a legal duty (UK Habitats Regulations);
- Suite of management measures;
- Help achieve Marine Stewardship Council accreditation;

There are many considerations to the closed areas:

- Where is the feature? (*evidence on habitat location is variable*);
- How much of the feature do we need to protect? (*some areas more sensitive than others*);
- Where do you fish? (*your input*);
- Which areas are crucial to keep the fishery viable?
- What about existing closures? (*fisheries, windfarms, ...*);
- Are there any win-wins? (*Byelaw 12 – inshore trawling restriction; accreditation goals*);
- What other measures could work? (*permitting to manage effort*); and
- Will closures be effective? (*monitoring is required*)

Fishers were thanked for their responses to the towed gear activity questionnaire in February 2016. EIFCA used responses to identify the following:

- Locations in the SAC where shrimp gear (and other towed demersal gear) is used.
- Seasonality of towed fishing gear activity.
- High priority trawling locations where closures should be minimised or avoided in order to minimise impacts on the fishing industry.
- Lower priority trawling locations where closures could protect designated habitat whilst minimising impacts on the fishing industry.

There is existing towed gear closed areas in The W&NNC SAC to protect Ross worm (*Sabellaria spinulosa*) reef and boulder and cobble habitat (now known as subtidal stony reef).

EIFCA is proposing 5 new closed areas to protect subtidal mud and subtidal mixed sediment from shrimp trawling (as well as other towed demersal gear). The 5 closed areas are in draft at this stage.

There is a balance between the scale of the closed areas and maintaining areas where shrimping can occur. EIFCA has worked to maintain this balance by minimising closed area extents and combining this with shrimping effort management. Whereas the alternative scenarios have been larger closed areas plus effort management, or even closure of the entire SAC to shrimp trawling (and other towed demersal gear).

The closed areas are in draft and the next steps are:

- Finalise close areas - Autumn 2016
- Formal consultation – Autumn 2016
- EIFCA marine protected areas byelaw implemented – December 2016
- Review closed areas, including monitoring and gear trial results – 2019

EIFCA has an adaptive approach to management and so the closed areas will be reviewed. Evidence from habitat monitoring and the shrimp trial project will be used to review the closed areas against the conservation objective of the SAC. EIFCA also reviews the closed areas against our core duties of maintaining a viable industry, sustainable fisheries and healthy seas.

Key points raised during questions and EIFCA response (in blue):

- *Can we see a chart with latitude and longitude? EIFCA: We will make available a chart with latitude and longitude and will e-mail this out to attendees.*
- *How many years will it take to see if there is no damage from shrimping? EIFCA: there is a 2 year monitoring cycle and then review of the closed areas*
- *What evidence is there to close off area 4? EIFCA: Area 4 protects subtidal mixed sediment and subtidal mud considered sensitive to shrimping impacts. EIFCA did look at the questionnaire returns and on balance this closed area protects habitat whilst leaving other areas of the SAC open to shrimp trawling.*
- *No point in closing inshore area of North Norfolk coast - impact from northerly wind/weather on shallower areas must have a greater impact than fishing. Why close shallow areas where we fish? EIFCA: not specifically targeting shallower areas. We have considered natural disturbance impacts.*
- *There is fishing inside area 4 and this is seasonal (i.e. during winter). We need a corridor to work in along the coast. EIFCA: These closures are draft and it's worth bearing in mind that changes in once place are likely to have a knock-on effect elsewhere – there are trade-offs with the closures. EIFCA to consider a trade-off or seasonal closure in area 4 corridor as it's a winter fishery?*
- *What about extending area 4 to the north, away from the coast and having a corridor along the coast? EIFCA: Also benefits of i-VMS come in when talking about enforcing a spatial corridor. [EIFCA: to be looked into but as below, a major reason for inshore parts of area 4 is to protect inshore fish nursery area].*
- *There is a corridor in area 4 used by fishers during winter which is approx. 0.25 nm from low water mark out to sea. [EIFCA: a major reason for closed*

area 4 was its importance is because the inshore part is a fish nursery area and shrimp by-catch impacts. We would need to carefully check the location of the sensitive features and it may well be that such a narrow corridor couldn't be put in place until iVMS is routine and to demonstrate compliance with a tight spatial restriction.]

- *Could area 3 be extended to east and remove area 1? EIFCA: Some respondents to the questionnaire highlighted areas that would be of least inconvenience if closed. Area 5 and 3 included these. Also area 3 includes habitat already protected by Protected Areas Byelaw.*

N.B. Copies of draft closures chart (including coordinates) sent out for review ahead of consultation. Attendees were asked to send in further comments after the workshop (email: mail@eastern-ifca.gov.uk) and to do within a week of the workshop.

3.3 Session 3 - Measuring and assessing the effect of trawling disturbance on the diversity, biomass and structure of subtidal mixed communities (Laura Rutland, Eastern IFCA)

This project is also known as the shrimp gear trial project.

Outline of points raised:

- Defra's revised approach to fisheries management requires that a precautionary approach is taken. An absence of adequate scientific information cannot be used as a reason for postponing or failing to take management measures.
- This project has resulted from the realisation that no specific peer reviewed literature exists for the interaction of shrimp beam trawling within The W&NNC SAC. This means that initially we will need to introduce management measures based on "best available evidence" until a peer reviewed study is completed.
- The project will be conducted as a Research Masters in collaboration with institutions, academics and the shrimp industry.
- The study will be conducted as a research degree, in collaboration with several science institutions, academics and part of the shrimp industry.
- The study will last 2 years and will replicate an ongoing shrimp fishery. Trawling will be carried out on a monthly basis over specified grounds consisting of subtidal mixed sediment
- There will be three treatment types in the experimental areas:
 1. Trawling with traditional beam
 2. Trawling with 'SeeWing'

3. Control, no trawling

- Trawling disturbance will be assessed using several techniques including side scan sonar of seabed, drop-down camera and grabs to take sample of biota and sediment.
- The aims of the study are:
 - a statistically robust study with an unbiased answer;
 - publication in a peer-reviewed journal;
 - Comparative evidence of impacts from the Seewing and traditional shrimp gear to inform a review of management measures.
- A questionnaire to inform the trial set-up is to be circulated shortly.

Key points raised during questions and EIFCA response (in blue):

- *What type of shrimp gear is to be used? EIFCA: Two vessels from John Lake Shellfish, each with a beam length of 7m.*
- *Why 7 meter beams? EIFCA: 7m is an average beam size across fleet.*
- *It is not right if money is limiting what the study looks at. A range of beams should be used. EIFCA: This is an expensive scientific study (budget up to £200,000) and so there is a compromise of cost and what gear sizes are studied.*
- *What if there is an unfavourable result for vessels with 7m beams? What about fishers with 4/5m beam length? Are alternative gears to the Seewing being considered and can we do other things to minimise impact? EIFCA: This is a piece of scientific work to test impacts of gear and once evidence is collected the shrimp measures can be re-assessed. We will still have management measures in place to conserve the SAC but may have to re-assess about gear impacts.*
- *There could be other parts of the gear beside beam weight to consider. Have seen the marks left by vessels with lots of rollers, not just shoes that have an impact.*
- *There are 3 types of beam trawling which are not differentiated in studies: chain mats, open trawl and shrimp. EIFCA: The study will gather data on shrimp trawl used in the site which is useful in itself as this is more data specific to the site and this gear, rather than heavier beams as found in literature already published.*
- *What about using one to the study controls as a closed area as it will be closed for 2 years? EIFCA: Within the experimental areas there will be monthly fishing nearby. [EIFCA: When the trial areas have been decided,*

there is potential to consider if the control zones within the trial areas can offer any further closure mitigation]

- *It is important that fishers know where the trials will take place.*



4. Conclusion and next steps

The workshop provided an opportunity for EIFCA and industry members to openly discuss 3 strands of EIFCA work on the brown shrimp fishery in The W&NNC SAC:

- Proposals to manage the fleet's fishing effort within The W&NNC SAC designated habitats by (i) permitting and managing shrimping effort and (ii) using closed areas;
- New closed areas are proposed to protect the most sensitive areas of subtidal mud and subtidal mixed sediment from shrimp trawling (and all other towed demersal gear); and
- Shrimp gear trial study - a collaborative, scientific study to collect evidence of shrimp trawl and 'Seewing' impacts on subtidal mixed sediment in The Wash. The study aims to collect robust and credible data to inform site-specific management measures.

Attendees were also asked to complete a short questionnaire about shrimping activity to assist with 'sense-checking' EIFCA activity data.

Attendees were asked in the closing session, if there was a preference for smaller closer areas and effort management, as opposed to larger closures and effort management. There were comments in favour of smaller closed areas, but it was emphasised by Eastern IFCA that this does mean some form of effort management also.

Using the outputs from the workshop

The shrimp fishing industry within the Wash and North Norfolk Coast has been going for more than 100 years. In that time gear advancements and changes in market demands have changed and shaped the current fishery. Many of the fishers taking part in the fishery have done so their entire working lives and are carrying on from previous generations. This knowledge and understanding of the fishery is invaluable to the development of fisheries management measures.

The fishery is complex and includes differing business models from full-time shrimp fishers to more opportunistic, smaller scale fishing activities. Any management measures implemented by Eastern IFCA will be fair and proportionate and take these different business models into account. As such, this workshop has provided invaluable information to help strike the right balance.

Further development of management measures will be tested against the key concerns and issues raised by the fishers to help shape the resultant regulation.

Following the workshop, The Authority will take the following actions:

Action 1 – Permitting and effort management

- Review questions raised in session 1 to inform the proposals;
- Review questionnaire responses;
- Refine proposals for permitting; and
- Keep industry informed of proposals.

Action 2 – New closed areas for shrimp and all towed demersal gear

- Circulate a draft chart for review;
- Consider points raised in session 2 of the workshop; and
- Formally consult on the closed areas later in Autumn 2016.

Action 3 – Shrimp gear trial study

- Circulate a questionnaire; and
- Keep industry informed of the progress of the study.

5. Acknowledgements

The Authority would like to thank all attendees of the workshop for their co-operative and enthusiastic contributions to discussions.