NWIFCA Technical, Science and Byelaw Committee

5th February 2019: 10:00 a.m.

AGENDA ITEM NO. 8

MANAGEMENT OF WHELK FISHERIES 2019

Purpose:

i) to provide Members with a summary of the situation for all English whelk fisheries

ii) to provide members with a summary of whelk management for Wales, Isle of Man and Jersey States

iii) to provide Members with detail of the NWIFCA District's whelk fisheries

Recommendation:

i) that Members approve a precautionary management regime for whelk fisheries to enable sustainable potting for whelks across the District

ii) that Members approve conditions to be implemented as flexible permit conditions under the NWIFCA Potting Permit Byelaw for whelk fisheries:

a) increase of MLS to 75mm;
b) restrict vessel length to 15m across the whole District;
c) limit pots to 1000 per vessel (300 to <10m vessels with no track record in north of District);
d) restrict number of permits issued to those with track record and under 10s with no track record in north of District.

iii) that Members approve development of work with whelk potters to gather comprehensive data from fishing activity to inform evolving management of the fisheries

Background:

1. Members are aware that whelk fisheries are under pressure across the UK and require careful management to ensure their sustainability.

2. Whelk fisheries in the NWIFCA District could provide an important source of employment and income to the District's fishers. There is provision under the new NWIFCA Potting Permit Byelaw to enable an adaptive and flexible approach to fisheries management.

3. Officers have been working over the past few months to gain an in-depth understanding of whelk fisheries in the District. Contact has also been made with other regulators to determine methods of management and what issues they have identified.

4. Officers will be attending the inaugural meeting of the Whelk Working Group (WWG), a multi-sectoral body including IFCAs, Welsh Government, Isle of Man Government, States of Jersey, Cefas, Bangor University researchers at the TAG Conference in Lancaster on 19th February.

5. The eagerness of these regulators and scientists to attend the WWG is indicative of the perceived urgency to act and the risk of over-fishing in UK whelk fisheries.

Management of Whelk Fisheries

6. A report produced by consultants MRAG (https://mrag.co.uk/) for the NGO Blue Marine Foundation (https://www.bluemarinefoundation.com/) in July 2018 has been received which provides detail on the state of all the English fisheries at the present time and recommendations for sustainable management. The findings from this report are summarised at Annex A. All references can be found in the original report.

7. A summary of research into size at maturity of whelks in the north east Irish Sea is provided at Annex B. It indicates that the current MLS of 45mm is too small, and will result in growth overfishing. It may be the case that fishing pressure could already have driven down size at maturity in some areas of the UK.

8. Although it is understood that due to whelk life history, populations are likely to be discrete and may be subject to quite distinct spatial variability in size at maturity, there is a body of evidence that suggests size at maturity may be related to temperature and that latitude could be influential.

9. A summary of current management measures implemented by regulators in Wales, the Isle of Man and Jersey States is provided at Annex C. All three regulators introduced these measures due to concerns over sustainability of the stocks. All three regulators have increased MLS.

10. A detailed analysis of 2010- 17 landings data from MMO statistics and MSARs reporting has been completed and summarised. Information on current whelk fishing activity within and just beyond the NWIFCA District, describing the vessels used and information gained from industry consultation is also summarised. These can be found at Annex D. Annex D is for TSB Members only has been exempt from publication under s.7.4 of NWIFCA Constitution 2017 due to the commercially sensitive nature of the information provided.

Recommendations:

11. The NWIFCA has the opportunity under the new Potting Permit Byelaw to consolidate whelk management across the District. By introducing a suite of flexible management measures the NWIFCA can enable sustainable potting to proceed, thus benefitting stakeholders.

12. There is a vast knowledge gap about the District's whelk fisheries and population dynamics. To date whelk fishing has been limited by a number of factors. The importance of this fishery and the level of interest known indicates that without precautionary management there is a risk that over-fishing could occur rapidly and stocks be irreversibly damaged, clearly benefitting nobody.

13. The analysis of current and potential whelk vessels illustrates a possibility of a number of vessels wishing to prosecute the fishery. NWIFCA requires a suite of management tools to limit effort.

14. The informal consultation with whelk fishers revealed a willingness amongst the majority to fish the stock in a sustainable manner, which would include increasing the MLS in line with whelk fisheries in other parts of the UK and providing some form of effort limitation.

15. Increase in MLS could be achieved through incremental stages (see Welsh Government management measures in Annex C), or in one step. It is suggested that industry are consulted to define which of these actions would cause the least impact on the sector.

16. Effort limitation can be achieved through all of some of the following:

- pot limitations overall
- pot limitations per vessel
- restrict number of permits
- restrict engine capacity
- restrict vessel length - in all of District or seasonally within the 0-3nm and 3-6nm.

17. Officers recommend the following conditions should be implemented as flexible permit conditions under the NWIFCA Potting Permit Byelaw **for whelk fisheries**:

a) increase of MLS to 75mm;
b) restrict vessel length to 15m across the whole District;
c) limit pots to 1000 per vessel (300 to <10m vessels with no track record in north of District);
d) restrict number of permits issued to those with track record, and under 10s with no track record in north of District.

18. Officers also recommend that comprehensive data from whelk fishing activity should be gathered from permitted fishers, as well as the continued NWIFCA Size at Maturity work to inform the evolving management of these fisheries.

19. TSB may be minded to consider setting up a stakeholder working group with whelk potters.

Mandy Knott and Jon Haines
Senior and Deputy Science Officers
18th January 2019

Annex A - *Management recommendations for English non-quota fisheries: Common whelk. Blue Marine Foundation. Final Report. 16th July 2018* (unpublished)

Introduction:

a. "The Blue Marine Foundation has requested the provision of recommendations for the future management of a non-quota fishery in England, namely the common whelk (*Buccinum undatum*). Recommendations are supported by a desk-based review of the current state of knowledge using available literature and insights from stakeholders, where possible".

b. Whelk fisheries round the UK can contribute a valuable income locally to the fleet and in places offer a seasonal alternative to those who predominantly target crab and lobster. They may also offer displacement fishing opportunity from other more regulated fisheries. They are considered to be among the most important shellfish fisheries for the UK, after nephrops, scallop, crab and lobster.

c. UK whelk fisheries have seen effort growing over the past decade or so with landings increasing from 8.4 to 22.7 thousand tonnes between 2003 and 2016, and valued at over £22.9 million in 2016.

d. In some areas effort has been seen to be decreasing in recent years when markets have been opening up, suggesting fisheries may be in trouble.

e. Whelks are relatively sedentary animals and have been identified as potentially vulnerable to overfishing. It is crucial to gain baseline life history data to inform stock assessment and management.

Whelk Biology:

f. Whelks are distributed over most of the northern Atlantic and neighbouring seas. They are subtidal carnivorous gastropod molluscs, found between low-water and up to 1000 metres. They are regularly captured between 40 - 60 metres, and in some areas in shallower water.

g. Whelks are gonochoristic animals (having separate sexes). Egg laying is thought to be dependent on ambient water temperature, and starts once it falls below 9°C - ie. from around November through to April. This indicates that England may be the southern limit of whelk distribution as warmer waters are likely to inhibit reproduction.

h. Eggs are fertilised internally and then laid on benthic substrate. Stages of larval development occur within the egg and juveniles emerge after 3 - 5 months, thus avoiding a pelagic phase. Predation is thought to be high whilst in the egg masses - the empty cases of which are commonly found along the strandline on many beaches around the UK.

i. The lack of planktonic phase and sedentary lifestyle of adult whelks suggests that populations are relatively isolated and discrete, with reduced connectivity and gene flow. This could result in localised variations and adaptations. This has implications for whelk management and means that knowledge of stock from one area may not be easily transferable to another.

j. Genetic analyses suggests that there is little mixing between sub-populations, on quite small spatial scales, again increasing vulnerability to localised overfishing.

k. Whelks may be susceptible to localised depletion and if overfishing occurs may lead to prolonged recovery times. Regionalised management may be most appropriate.

l. Research from around the UK, including the Defra funded Cefas' project (Determination of the Size of Maturity of the Whelk *Buccinum undatum* in English Waters – Defra project MF0231) which analysed landings data from Whitehaven, suggests regional variations in size at onset of maturity (SOM), which is known to be highly variable throughout much of its range.

m. The only current regulation in many parts of England including NWIFCA District is the EU-wide minimum landing size (MLS) of 45mm, which is thought to fall below the estimated SOM and to increase the risk of recruitment overfishing. If whelks have not reached sexual maturity by 45mm shell length but are being fished before they can contribute to the spawning stock, this undoubtedly leads to reduced recruitment.

n. In addition to regional variability in SOM it is also understood variation can occur on much finer scales. In some areas whelks caught in shallow water have been shown to have matured at a smaller size than those from deeper waters. Some research provides evidence that SOM in England is negatively correlated with depth and temperature.

o. There is also evidence that a fished whelk population may result in animals reaching SOM at a smaller size over time, when compared to an unfished population.

p. Unlike male whelks, adult females do not always reproduce every year.

q. The tendency for significant variation in measurable parameters (size, growth, age, maturity) indicates that large-scale management may not be appropriate. Small-scale management should be considered on a region-by-region basis to assess the practicality of each measure.

r. It is accepted that UK whelk fisheries are data poor and that stock status across most of the UK is unknown. CPUE (Catch per Unit Effort) or LPUE (Landings per Unit Effort) is often used as a proxy for stock abundance, but this can create problems. Many perceive that the risk of over-exploitation is increased by the lack of data and understanding of stock status.

s. The lack of data and stock assessment, makes it impossible to define Total Allowable Catch (TAC) with any confidence.

t. The overall global increased demand for whelks, and the parallel increase in effort on previously unexploited populations and by new entrants to established fisheries, has highlighted the biological vulnerabilities of the fisheries. *With a lack of appropriate regulation it has been widely concluded that good fisheries management necessitates pre-emptive safeguarding against future threats.*

u. A control or cap on effort and reduction in removal of juvenile stock would provide useful management solutions. In addition measures could include limits to pots, closed seasons to protect spawning stock and regionalised micro-management. Restrictions on permitted pot number and permits issued have been shown to be effective and enforceable tools in controlling effort in other shellfish fisheries.

v. Any introduction of new regulations or permitting schemes should be done cautiously. Measures need to be effective in achieving the desired outcome and require robust scientific data. Potential socio-economic impacts must also be considered.

w. However, short-term economic impacts to fishers need to be weighed against longer-term benefits of increased yield and sustainability. A balance between ensuring people's livelihoods against biological sustainability needs to be struck.

x. For example an increased MLS should be introduced in gradual steps to ease short-term economic losses.

Below are five key recommendations based on consideration of the supporting literature.

• **Increase data reporting requirements:** in order to define stock boundaries and monitoring of sub-populations of whelks sufficient data is necessary. Introducing requirements under any permitting scheme for fishers to report at spatially appropriate levels will assist and inform management on a finer spatial scale.

• **Prevent active gear-types:** ensuring that effort in pot fisheries is manageable. Preventing trawl fisheries for whelks which have seen collapses of fisheries in the US, Netherlands and Georgia.

• **Procedure to control effort:** prevent 'boom and bust' fisheries using effort (and access controls) - eg. limited licensing or permitting schemes. Without sufficient evidence it is problematic to define at what level effort should be capped, and therefore a flexible and proactive procedure is necessary so that catch (CPUE not landings) can be monitored, and if it drops effort can be capped or reduced.

• **Appropriate MLS:** to avoid localised overfishing size or age at capture should be set at an appropriate level for sub-populations. If sufficient data were available regionally appropriate MLS should be put in place. A UK-wide increase in MLS may not be appropriate and would impact some fishers greater than others and offer increased protection to some stocks over others. "However, although ensuring MLS is biologically relevant, this does not ensure sustainability and therefore controlling effort is considered a more important first step, especially considering the wide variation in SOM, even between shallow waters and deep waters".

• **Regionalisation:** the available evidence indicates that fine-scale management should be adopted to ensure the social, economic and biological sustainability of whelk fisheries. Management measures need to be appropriate to sub-populations and this is achievable, with effective monitoring and enforcement. Consideration needs to be given to the potential for effort displacement to offshore waters (>12 NM).

Summarised by:
Mandy Knott
Senior Scientist
3rd January 2019

ANNEX B - SIZE OF MATURITY

There have been a number of studies carried out in the Irish Sea on the size of maturity of whelks. The difficulty in comparing the data is that early papers use different methodologies for assessing size of maturity. Therefore four paper have been used that are the most recent and have comparable methodologies: McIntyre et al. (2015), Lawler (2015), Hollyman et al. (2017) and Emmerson et al. (2018).

All papers give figures for the L50, which is the shell length where 50% of the sampled whelks are sexually mature. Two of the studies contain whelks landed into Whitehaven (McIntyre et al. 2015) (Lawler. 2015). The L50 of these whelks were 67.2mm and 69.5mm for females and 71.6mm and 74mm for males. Other Irish Sea figures include samples from North Wales with a mixed L50 of 51.4mm (females from Menai Bridge) to 77.9mm (males from Nefyn) and samples from the Isle of Man with a mixed L50 of 63.9mm (females from the south of the island) to 73.1mm (males from the west of the island). All papers discuss the variability of SoM around the UK due to whelks having relatively small distinct geographical populations.

Discussions on MLS in all of the papers indicate that the current EU MLS does very little to protect the spawning stock of whelks with only a few locations around the UK having a L50 figure close to the 45mm MLS. Emmerson et al discusses the importance of taking into account additional information when considering SoM and MLS. An example of this is the timing of when samples are taken and the breeding cycle of whelks. Samples taken between June and September will show gonads developed for animals that have not actually completed first spawning. Most research would suggest that egg-laying does not occur until late winter. Whelks in the Irish Sea may have grown in shell length by 5-7mm in that time (Emmerson 2018). Thus setting MLS from the June / September sample from gonad development may result in a fishery that removes individuals prior to their actually having reached sexual maturity.

Therefore a buffer in terms of shell length is recommended to ensure females have had the chance to lay eggs at least once.

Jon Haines
Deputy Senior Scientist
17th January 2019

Emmerson, J.A Haig, I.S.M. Bloor, M.J. Kaiser. (2018). The complexities and challenges of conserving common whelk (*Buccinum undatum* L.) fishery resources: Spatio-temporal study of variable population demographics within an environmental context. Unpublished

Hollyman, P. R. (2017). Age, growth and reproductive assessment of the whelk, *Buccinum undatum*, in coastal shelf seas. Bangor University. Unpublished

McIntyre R, Lawler A, Masefield R (2015) Size of maturity of the common whelk, *Buccinum undatum*: Is the minimum landing size in England too low? Fish Res 162: 53–57. doi:10.1016/j.fishres.2014.10.003

Lawler A (2013) Determination of the size of maturity of the whelk *Buccinum undatum* in English waters − Defra Project MF0231.

ANNEX C WHELK MANAGEMENT OTHER REGULATORS

Below is a summary of the current management of whelks in the Isle of Man, Welsh and Jersey fisheries. Information has been gained from phone conversation with regulators during November to December 2018.

Isle of Man

Minimum Landing Size

- MLS increased to 75mm

Licences

- Licences issued using track record for single day's fishing in 2016.

0-3nm Regulation

- Fishing between 0-3nm with track record with vessel size limit <15.24m
- 12 of the 21 licences eligible to fish within the 3nm
- 300 pot limit per licence inside the 3nm which comes out of an overall 1000 pot limit

3-12nm Regulation

- 21 licences
- 1000 pot limit per licence

New Entrants

- Re-issuing of licences not being used
- New entrants do not have full licence entitlement and have a reduced pot limitation within the 0-3nm

Reporting

- Under 10m monthly high resolution returns required
- 10-12m daily paper logs
- Over 12m use of VMS (and presumably logbook)

Welsh Government

Due to concerns over the sustainability of whelk stocks, possible over-exploitation and size at maturity the Welsh Government announced a package of management measures in December 2018 to go into a Welsh Whelk Statutory Instrument to come into force in spring 2019 with the following measures:

- A phased increase in the size at which whelks can be retained and landed, from 45mm to 65 mm. This increase will occur in two parts with an immediate increase to 55mm from the date the Statutory Instrument comes into force, moving to 65mm a year from the date the order comes into force. This will ensure protection of immature whelks and enable them to develop and, in time, recruit to the fishery.

- A cap on the allowable total monthly landings of 20 tonnes per vessel, per month from January to September each year. This will be applicable to all vessels fishing in Welsh Waters.

- A cap on the monthly landings of 5 tonnes per vessel, per month during the biologically sensitive period from October to December each year. This will provide protection of the breeding whelk stocks. This will be applicable to all vessels fishing in Welsh Waters.

Jersey

Jersey have a management plan for whelks (awaiting a copy of this)
A whelk working group has been set up with stakeholder participation where data is presented and fishermen asked to propose / decide on what management measures are appropriate.

Minimum Landing Size

- MLS increase to 50mm based on SoM in fished areas.

0-3nm Regulation

- 30kg per day allowance to all vessels
- 4 whelk specific licences issued on track record
- 1800 total pots split between the 4 licences
- Re-allocation of licence every 2 years where the total number of pots are adjusted based on the results from the stock assessment. This has led to a recent reduction in total number of pots from 2500 to 1800.
- Seasonal fishing with areas open between October and January which is when the fishing is most productive.
- Allocation of the pots stay with the fishermen not the vessel, and pot allocation cannot be traded or sold.

3nm – District Line (12nm or Meridian)

- Licenced whelk fishery - 10 licences in total (including the 4 issued for 0-3nm). Currently 7 issued overall but more boats interested.
- 900 pot limit per vessel for Jersey vessels with many fishing 200 pots and fishing whelks alongside other fisheries.
- Vessels are typically 8-12m with only a couple of vessels over 12m.
- There is an agreement with French vessels in regards to shared fishing grounds: 20 French vessels with 240 pots per crew on each vessel up to a maximum of 720 pots.