

## **Comments on NW IFCA proposals put to Quarterly Meeting on 6<sup>th</sup> December 2011 regarding The Ribble Cockle Fishery**

These comments are based on the Ribble Cockle Fishery report (by Chief Executive, dated 25 November 2011) for Agenda Item 7 of NW IFCA Quarterly Meeting Tuesday 6<sup>th</sup> December, as downloaded from NW IFCA website on the morning of Monday 28<sup>th</sup> November 2011.

**Please be aware that parts of this document are a bit raw. It has taken some time (most of two days) to put together, but because only a short period was available to review and comment upon the Ribble Cockle Report (5 days including the weekend), I have not had opportunity to go back to review and edit (and organise) this document as I would have liked and normally do. You are effectively reading an un-edited first draft because of the time constraints. Please be tolerant of the rants, and the occasional jumping around ideas. Thank you.**

I have tried to put literature references in where I could easily re-discover them, but quite often I've not had time to re-locate the source of bits of information I have picked up over the years. If anything like that is missing, but wanted, please ask.

These comments are divided into two sections, the first covering the fishery management proposals in the report to the committee, and the second covering the impact upon fishermen of NW IFCA or others implementing the MCA small workboat code MGN 280 as published on the MCA website.

## Summary

- The NWIFCA data shows that “East Foulnaze” bed remains a significant bed of commercially sized cockles.
- The remaining cockle stock on Foulnaze is likely to have already, or by early February 2012 at latest, to have grown such that 80% of the stock will exceed the minimum landing size. By early April 2012 it is likely that 99% of the stock will exceed the minimum landing size.
- There is reasonable risk to the fishery in leaving the cockles until September 2012 (loss through storm damage or alterations to the Ribble channel), but no environmental or fishery benefit (those cockles will not enhance the chance of a 2012 cockle spatfall in the Ribble Estuary).
- There are no technical barriers to re-opening the fishery immediately for hand-gathering, because the various authorities have already demonstrated the capability of enforcing the various regulatory and safety conditions at the departure point, Seafield Road slipway in Lytham.
- There are no good reasons for allowing suction dredging of the remaining Foulnaze cockles, and lots of reasons why it is a very bad idea.
- Implementing the un-varnished MGN 280 small workboat code would place a significant new burden upon permit holding fishermen. Parts of that code are over-kill versus what is required of the equivalent commercial fishing vessel working in the same manner at the same location. It would be more rational, pragmatic and proportionate to agree with MCA and implement a hybrid between MGN 280 and MSN 1813 (F) (specifically those parts for open fishing vessels under 7m).

From my own contacts amongst the permit holding cockle fishermen who worked on Foulnaze this autumn, and from others reported in media coverage, there is a general belief that the Foulnaze cockle bed should be re-opened to commercial hand-gathering as soon as possible, with a strong preference for immediate opening. I know, and the same has been reported in the media, that many of the permit holding full-time fishermen who were working on Foulnaze are now without work, and have been since the closure of that bed under Emergency Byelaw. Furthermore, as my father keeps observing, the economic situation in the country [UK] at present is pretty poor; the Foulnaze cockles are a lot of work for a lot of permit-holding fishermen and are the cockles on this bed are a multi-million pound export item that would bring a significant amount of foreign money into the UK economy.

## **Comments on Fishery Management Proposals**

Fishing effort on Foulnaze Bank has been substantial. From the very beginning of the fishing on Foulnaze (circa 14<sup>th</sup> September) experienced fishermen reported to the IFCOs in attendance at the Seafield Road slipway in Lytham that:

- a significant proportion, likely a little over 50%, of the men venturing to work on Foulnaze did not hold Byelaw 5 permits;
- many of those men were using unfit small boats without even basic safety equipment (e.g. lifejackets);
- many of those men also lacked appropriate experience in the use of small boats in a strongly tidal channel;
- the situation was an accident waiting to happen, and that NW IFCA and the other authorities should take action before something serious did occur.

Unfortunately NW IFCA failed to act on these warnings, and it took a serious incident on the evening flood of Monday 24<sup>th</sup> October with subsequent media circus, to prompt any of the relevant authorities to take action. This is a very unfortunate, but wholly foreseeable and avoidable turn of events.

### **Fishing effort and profitability of the fishery for permit holders**

As regards the level of fishing effort, and the profitability of the fishery:

- the merchants have had the full benefit of all of the cockles landed by permit-holders and non-permit-holders alike;
- permit-holders have seen around 50% of their fishery taken by non-permit-holders, so have actually received only around 50% of the reported first sale value of the fishery, where they should have seen 100% thereof;
- permit-holders have (in general) had the expense of laying out gear to safely and effectively work the fishery, and in complying with all of the requirements of the various authorities for shore access permits have had additional expense of various vehicle, boat and personal insurances, whereas non-permit holders have had less of these (pretty certainly none of the insurances);

Therefore from the perspective of the permit holders, they have lost significant potential income from the fishery (50% of their potential income being taken by the un-restrained activities of non-permit holders), and the expense of what turned out to be effectively un-necessary insurances. In addition, they have also seen their fishery brought into dis-repute through no fault of their own, and despite their best efforts to the contrary.

### **Past and potential future cockle stocks on Foulnaze**

Whilst NW IFCA may currently have no SFC records of previous stocks on Foulnaze, there are literature references to cockle stocks there. It is my understanding from various sources (verbal from other older fishermen, and from literature) that there have been significant stocks of commercial sized cockles on Foulnaze circa 2000, circa 1990 and in the early 1970s as well as in the early 1980s. At other times cockle spat has settled, but not survived it's first winter. I would infer that Foulnaze is a good growing place for adult cockles, but receives spatfall probably only every 2 or 3 years, and most winters the year-0 spat is lost. As a result, it is quite possible that

Foulnaze could receive a spatfall in 2012 or 2013, and that such a spatfall could survive the following winter to give another good fishery in the following year. Whether or not the NW IFCA officers consider this a likely, it is a potential scenario that should be allowed for in planning future management of the fishery.

## **Enforcement**

In terms of enforcement, I fail to see how Foulnaze is inaccessible to NW IFCA officers, when several hundred fishermen, and 5 large fishing vessels, are accessing the same location daily. I understand that it is difficult to enforce Byelaw No 5 on Lytham beach near Seafeld slipway, however NW IFCA and Sefton Borough Council did manage some effective level of access enforcement to the Penfold and South Gut beds from Southport during the first couple of days of the fishery, which was much publicised. The relevant authorities also demonstrated the capability of doing the same at the Seafeld Road slipway in Lytham on Tuesday 1<sup>st</sup> November. It would have only taken a few occasional days of carrying out such enforcement operations early on to prevent the whole situation from spiralling out of control. Ultimately it would also have been less expensive for everyone involved, not to mention the positive PR.

## **Suction Dredging Proposal**

Unfortunately it seems that some of the officers at NW IFCA seem to fail to understand or appreciate the serious negative environmental impacts of suction dredging, or the fishery management implications of allowing it to occur.

It is important to understand that whilst a cockle bed might appear to be a mono-culture, there is in fact much more life present. At the macroscopic level, besides cockles, the bed typically contains various worms, brown shrimp, some tellens, and some green shore crabs. At the microscopic level, the ground contains phyto- and zoo-plankton and bacteria. The burrowing, emerging and shaking actions of cockles release otherwise trapped nutrients which are taken up by benthic phyto-plankton, as well as admitting oxygen further into the ground than would be the case in their absence. Those same benthic phyto-plankton, when re-suspended close to the seabed by the flood tide (there are other factors which naturally tend to keep this benthic phyto-plankton close to the seabed) become food for the cockles themselves. The bacteria also release nutrients essential to the benthic phyto-plankton<sup>1</sup>. Presumably the zoo-plankton and some bacteria re-cycle any faeces and pseudo-faeces from the cockles.

Other important known aspects of cockle biology :

- The diet of adult cockles, depending on availability, consists of benthic phyto-plankton, pelagic phyto-plankton, and the right sized small organic particles from e.g. decayed plant matter. Some research has documented adult cockles utilising each of the three sources about equally. All are present in abundance on Foulnaze.
- Spat and small juvenile cockles are much more dependant on benthic phyto-plankton for good healthy growth.
- Spat cockles strongly prefer a silty sandy location (with more silt than sand) for settlement.
- Adult cockles are more tolerant of coarse sandy locations (they can be displaced to such

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<sup>1</sup> In algal culture, most marine algal species grow far better with some natural bacteria present. Some will not grow in axenic conditions.

locations during their lives).

Suction dredging cockles involves forcibly jetting the seabed to fluidise the seabed sediments. Everything not ejected through the steel grilles around the back and sides of the dredge is then sucked up a 30ft steel pipe, through a centrifugal pump (these are actually pretty gentle – they can be used to pump eggs), passes through a rotary riddle, which allows sand, and most of the shell and small cockles to escape, then whatever is still retained is put into whatever bags or bins are onboard the vessel.

- The jet which fluidises the seabed is capable of lifting a 1½ tonne dredge head up off a solid concrete surface (e.g. a typical quayside). Its effect on a muddy-sandy seabed is to fluidise the substrate to a depth of 18-24in (0.5-0.6m), which usually goes well into the anoxic sediments, releasing whatever is trapped there (natural hydrogen sulphides, and any trapped anthropogenic pollutants otherwise locked up).
- Any bivalves (cockles or mussels) actively feeding when the dredge passes over them are forcibly injected with sandy grit which lodges in the meat of the animal. As a result, in terms of processed meats, cockles from suction dredging are always slightly gritty to eat as compared to hand-worked cockles.
- The material (sediments, shell, live animals) passing out the back and sides of the dredge is abraded by the suspended mixture of sediments, and by being forced out through the grille. Fine sediments and microscopic benthic phyto- and zoo-plankton are either killed outright, or suspended into the water column and carried a very long way away by the prevailing tidal currents. Un-protected macroscopic benthic animals, e.g. the various worms, arenicola, and brown shrimp (often buried in the sand) are shredded. Protected macroscopic benthic animals, e.g. small cockles, mussels or tellens, are banged and rattled as they are suspended then forced out through the grille. Small bivalves, e.g. recently settled cockle spat, are killed out-right. Larger animals (e.g. year-1 cockles) often suffer shell damage, and one must assume must also suffer internal bruising from the knocking.
- Transport through the steel pipework in a gritty seawater medium further abrades and knocks any suspended animals.
- Passage through the rotary riddle involves more abrasion and knocking of the animals involved.

The consequences of suction dredging on a cockle bed are:

1. Any cockle spat passing through a cockle suction dredge is killed out-right.
2. Any small cockles which are discarded either at the dredge-head suffer abrasive damage and internal bruising, as well as forced grit ingestion/embedding in the animal's flesh, ultimately leading to death of the animal usually within one month, but almost certainly within six months. Trials by Eastern SFC have shown that after a single pass through a suction dredge (either escaping at the dredge head, or at the riddle) discarded small cockles suffer over 90% mortality after one month. Experienced fishermen (those that speak out) report that when a cockle bed is dredged commercially, any stock remaining there after dredging ceases is completely lost after about 6 months. Further anecdotal evidence for damage to cockles through the suction dredging process, is that un-processed suction dredged cockles are typically dead within 24 hours of landing, and are not accepted for the live market.
3. All of the other benthic life on a cockle bed is wiped out by suction dredging : worms, brown shrimp, tellens, phyto- and zoo-plankton, and bacteria. The worms and tellens are

food for birds. The phyto-plankton are food for shrimp, bivalves and zoo-plankton. The zoo-plankton are food for shrimp, if nothing else. The bacteria fulfil a wide variety of essential roles.

4. In the longer term, settlement of cockles, mussels, and other small bivalves is adversely affected by the suction dredging effects, and it can take many years before conditions on the bed return to something conducive to cockle settlement<sup>2</sup>.

There are various studies looking at the effects of suction dredging on cockle beds. Those which look at the impact of a single dredge track through an otherwise healthy cockle bed typically show short-term (up to 3 months) effects during which recovery occurs. Such studies are typically short (only a few months) and limited scale (single dredge track through otherwise healthy ground). The observed recovery is typically due to lateral infill re-colonisation of the dredge track from adjacent areas of healthy un-disturbed cockle bed. Such studies infer the damage of large scale dredging activity in a favourable light.

Those studies which look at the actual typical effects of large scale commercial suction dredging on cockle bed<sup>3</sup>, report that the whole bed is wiped out, that recovery starts to become noticeable after 5 years, and that full recovery takes around 10 years. Those studies report that of the macro- and micro-benthos is lost, and that all of the fine silts are lost so that the ground consists of coarser sands. Noticeable recovery only begins as the fraction of finer sediments return through natural accretion processes. They hypothesise that the post-dredging recovery observed for a single dredge track through an otherwise healthy cockle bed is due to lateral infill of fine sediments and healthy benthos : where, as is typical, this healthy benthos has been substantially damaged or completely erased over a wide area, little or no infill can occur, so recovery of the bed becomes dependant slower multi-annual processes of fine silt accretion and re-establishment of a balanced natural benthos at the phyto- and zoo-plankton level.

In terms of experience elsewhere :

- In The Wash, suction dredging has been permitted since circa 1990. After initial high landings in the first 3 years, cockle stocks crashed leading to significant mortalities of wading birds, especially oystercatchers. As a result there was a period of no suction dredging, and a management plan was agreed which allowed only a third of the available adult cockle stock to be taken. From circa 1995 to 2008 TACs for the dredge fishery (mirroring the available adult stock) have followed a repeated annual pattern, roughly : 4,000t TAC, 3,000t TAC, 2,000t TAC, no fishery, repeat<sup>4</sup>. I believe that this unsteady pattern is a predictable result of the 5-10 year post dredging recovery time, coupled with spatfall patterns (on average any one bed receives spatfall once every 2-3 years) as described

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2 Piersma et al., Long-term indirect effects of mechanical cockle-dredging on intertidal bivalve stocks in the Wadden Sea, *Journal of Applied Ecology* (2001) 38, p976–990

See also Discussion in Kraan, C., Piersma, T., Dekinga, A., Koolhaas, A. and van der Meer, J., 2007. Dredging for edible cockles (*Cerastoderma edule*) on intertidal flats: short-term consequences of fisher patch-choice decisions for target and non-target benthic fauna. – *ICES Journal of Marine Science*, 64: 1735–1742.

3 E.g. Hiddink, Effects of suction-dredging for cockles on non-target fauna in the Wadden Sea, *Journal of Sea Research* 50 (2003) 315– 323

4 Since the 2009/10 cockle fishery, this pattern has been disrupted by an atypical mortality amongst adult cockles

in the CEFAS report by Dare et al.<sup>5</sup>. Essentially post dredging it is at least 5 years before a bed will support a reasonably healthy cockle population (any cockles there too soon in the recovery are weak and much slower growing than is normal for the same bed) : in contrast the minimal damage from hand-working means that on average a bed should support a healthy cockle population to fishable size on average every 2-3 years.

- The Thames is exclusively a dredge cockle fishery, largely restricted to 14 licence holders. It has many more beds, and much more area of beds than The Wash. It also supports sub-littoral cockle beds (unheard of in The Wash). Some of the cockle beds in The Thames consist of a thin veneer of sand on top of stiff clay, so are much less affected by the jet of the suction dredge than the deep silty sands in The Wash. As a result, the same dynamics (post dredging recovery time and spatfall interval) which make for an unsteady dredge cockle fishery in The Wash still allow a sizeable Thames cockle fishery every year.
- Looking at the reports for Cumbria SFC, and the Scottish side of The Solway, it appears that the same dynamics (post dredging recovery time and spatfall interval), probably exacerbated by a slightly longer interval between spatfalls, have lead to the demise of the cockle fishery in that area.

So far as Foulnaze is concerned, it has been suggested that because cockle fisheries on the bed are historically infrequent, it will not matter if the bed is dredged and takes a decade to recover. This fails to take into account that:

- The damage through dredging would extend probably the interval between fisheries from say 10 years to 13-14 years;
- An average is a measure of probability, not certain definite measure, so there is a reasonable chance of a good spatfall in say 2012 or 2013 or 2014 which survives it's first winter, grows well (because the site is good), and gives a decent commercial fishery in the following year. To some extent tis depends on whether the current configuration of the channels around Foulnaze remain steady for a few years (in which case conditions are conducive to a good surviving cockle spatfall and subsequent fishery), or alter again as they done about 2 years ago.

One final point with regard to suction dredging cockles on Foulnaze. The recent aborted proposal to allow suction dredging there, attracted interest from many fishermen around UK. Out of those which I am aware of (from The Solway, The Wash, and The Thames), more than half have no previous material participation in the actual gathering of cockles anywhere in the NW IFCA district as fishermen on the ground physically and personally gathering cockles. Therefore had that suction dredging gone ahead, it would have created by precedent new fishing rights for cockle suction dredge boats with no previous history of working in the NW SFC district<sup>6</sup>, at the expense of those with existing fishing rights (the hand-work cockle and mussel permit-holders).

In conclusion : any cockle suction dredging on Foulnaze would be wrong from the environmental,

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5 Dare, P.J., Bell, M.C., Walker, P. and Bannister, R.C.A., 2004. Historical and current status of cockle and mussel stocks in The Wash. CEFAS Lowestoft, 85pp.

6 As distinct from the Cumbria SFC district now also subsumed by NW IFCA

fishery stock/husbandry management, and fishery access management perspectives, and should be completely and unequivocally ruled out as an option by NW IFCA.

### Remaining stock on Foulnaze

The NW IFCA officers are to be commended for doing a thorough of the majority of the commercial cockle beds. However, it appears that they have (for understandable reasons) missed what might be a significant pretty much un-exploited bed. So far as I can determine, with reference to Figures 1A and 1B in Annex E, the southern-most survey point on Foulnaze containing adult cockles<sup>7</sup> is at position Lat 53° 42.400' Long W 003° 03.200'. If this estimated position is correct, it places the survey point on the northern side of a gutter running roughly east to west, the southern side of which is a middle sand accessible only by boat<sup>8</sup>. This middle sand is over half the size of the part of Foulnaze which has already been fished. It was only fished on one of the last days before the fishery was closed, and then only by a few people. I believe that you will find it to contain a fair quantity of cockles. Probably (if density and coverage is comparable to the already fished part of Foulnaze) a guess-timate of 1,500 tonnes would be reasonable, all of the same 2010 year class as the rest of Foulnaze. It is understandable if this middle sand has not been surveyed, because of the access issue, however if it does contain such a quantity of cockles, then would mean that a much more substantial fishery remains.

A second issue with the reporting of the Foulnaze cockle bed, is the extent of the bed as described in Annex E. This might reflect the bed in terms or presence or absence of cockles on the ground, but it does not reflect the commercial part of the bed. It is an innate problem in choosing a minimum stock density below which fishing cannot occur, that whether you are above or below that threshold is to some extent dependent upon what you choose to be the extent of the bed. In essence, if you make the bed large enough by using very sparse cockles to justify a very large bed, then even a moderate sized patch of dense cockles can fall below whatever threshold is chosen. Annex E does not explain what is the boundary between “East Foulnaze” and “West Foulnaze”, however if “East Foulnaze” is everything north and east of the three null points, that appears to correspond to everything east of a sandy brink just west of a shallow gutter running about north-west across the top of the sand : so far as I observed, pretty much all of the commercial fishing took place east of that brink, i.e. I believe most of the commercial fishing was on “East Foulnaze” with little or no effort on “West Foulnaze”. From the data presented in Annex E<sup>9</sup>, “East Foulnaze” is a distinct cockle bed covering 1.67km<sup>2</sup> (167 hectares) with a good stock density of 329 cockles / m<sup>2</sup>, which is well above the 20 cockles / m<sup>2</sup> threshold. Of course if placed in the context of a wider area, such as much or even the whole of the Ribble estuary intertidal sand, average cockle density will appear much lower. The problem is that you end up stock on good cockle ground versus stock over a large area, much of which isn't even viable cockle ground in the first place. Furthermore from data in Annex E, “East Foulnaze” contains approximately 1,470 tonnes of oversize cockles and approximately 1,800 tonnes of just undersize cockles making approximately 3,270 tonnes in total<sup>10</sup>. “East Foulnaze” is (still!) a substantial clearly defined commercially valuable cockle bed, and

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7 For clarity, there are two points surveyed as being the southern extremity of the Foulnaze cockle bed -- I refer to the western-most of these two

8 This middle sand is separated from the South Gut cockle bed (on the Southport foreshore) by the South Gut channel.

9 See Figure 1B and Table 1

10 From Annex E:

$$\text{undersize : } 5.1g * 211 / m^2 * 1.67 km^2 = 1,800 t$$

$$\text{oversize : } 7.5g * 118 / m^2 * 1.67 km^2 = 1,470 t$$



should be treated as such<sup>11</sup>.

It would have been useful to explicitly report the tonnage of remaining undersize stock. As far as I can infer from Annex E:

	Proportion (assumed by weight)	Weight	Average length
Oversize	38.00%	1,700 tonnes	27.0mm
Undersize	62.00%	2,770 tonnes	23.8mm
Total		4,470 tonnes	

Item 42 of the Ribble Cackle Report has that the Foulaze stock was about 10,500t in mid-September, with about 6,500t, and about 1,700t remaining. It infers total other mortality (predation, damage from the fishery, and natural mortality) of about 2,300t. I would ask that this is checked, and that all of these figures are quoted with appropriate uncertainty, and stating whether the figure refers to oversize, undersize or total stock.

- The Ribble Cackle Report does not make clear whether the 10,500t in September is just oversize stock, or total (oversize and undersize) stock. The 6,500t is a mixture of oversize and undersize stock. The 1,700 in early (not late) November is just oversize stock. It is important to compare apples with apples, not with oranges.
- If the 10,500t in mid-September is just oversize cockles, then given the amount of trouble with undersize cockles in the fishery, there was probably at least 5,000t undersize cockle on Foulaze at the same time. Calculating the difference between total stock mid-September, reported stock fished, and total stock early November, the difference (other mortality) is

$$10,500 + 5,000 - 6,500 - 4,470 = 4,530\text{t}$$

That level of mortality on a sand where a lot of men were working, would have stood out very clearly.

- If the 10,500t in mid-September is total stock, then the non-direct-fishing mortality is

$$10,500 - 6,500 - 4,470 = -470\text{t}$$

i.e. but for the cockles removed by fishing, the total stock biomass actually increased between mid-September and early November, which is actually quite likely.

- All of these calculations (mine and that in the Ribble Cackle Report) should have errors quoted. My understanding with these kind of surveys is that the stock levels reported are typically  $\pm 20\%$ . As soon as you start doing arithmetic, the uncertainties grow rapidly. In doing plain addition and subtraction, mathematically the uncertainties add, so if we assume the reported fishery landings are exact, then looking at the calculation in the Ribble Cackle Report and using an uncertainty of  $\pm 20\%$  we should calculate:

$$(10,500 \pm 2,100) - 6,500 - (1,700 \pm 340) = (2,300 \pm 2,440)$$

Thus the uncertainty in the total other mortality as given in the Ribble Cackle Report is

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<sup>11</sup> Just to put this into some kind of context, “East Foulaze” as surveyed in early November, contained 25% more cockles in a bed about 25% of the size of the main cockle bed (Breast Sand) fished in The Wash in summer 2011. That bed was surveyed at 2,660 tonnes over 612ha.

actually greater than the final result, rendering that calculation meaningless anyway.

If, as the note accompanying Graph 1A and 1B of Annex E implies, size cockles are generally reckoned to be those over 25.0mm length, then at the time of the survey at the beginning of November, the average undersize cockles are only just below the size threshold. From Graph 1B, about 70% of the undersize cockles are over 23.0mm length. When these become oversize, about 80% of the total stock will be oversize<sup>12</sup>. This would require 2mm growth in cockles which have grown at least 24mm in about 16 months since settlement. Even with poorer over-winter growing conditions, bearing in mind that the stock has been thinned (by being fished) so there is less competition for the available food, the remaining cockles may reach 80% oversize or better by early January, and certainly should do so by early March at the latest<sup>13</sup>.

The Ribble Cackle Fishery Report makes mention of conserving the remaining adult cockle stock on Foulnaze so as to enhance the potential recruitment of cockle spat in 2012 and future years. There is no evidence presented as to the efficacy of such a measure, and based upon the biology of cockles, it is unlikely to have any positive effect. In terms of biology, from egg release cockle larvae go through a pelagic phase of 4-6 weeks depending upon sea temperature etc. After this time the mature larvae are ready to settle as spat. In the pelagic phase the larvae are carried by the net prevailing tidal drifts, with some weather influence<sup>14</sup>. They presumably have some degree of control over location by moving up and down in the water column, but are heavily influenced by dominant external factors. They are able to some extent to choose settlement location, and presumably, as with mussel and oyster larvae, during their settlement phase have a 2-3 day window in which to settle at a location, not like that site, so re-enter the water column to try somewhere else. The key factor here though, is that in the 4-6 week pelagic phase the larvae can be carried many miles along the coast away from the beds which spawned them. Large enclosed bays and estuaries such as The Dee, Morecambe Bay, The Solway, The Wash and The Thames can generally retain a large portion of the larvae spawned there : a smaller estuary on a stretch of open coast such as the Ribble cannot.

It is important to consider that all of the Foulnaze beds are to some degree vulnerable to storm damage with gales anywhere between south-west and north-west. Whilst the fishery was on-going, there were some periods of south-westerly gales over mid-range and neap tides : after this weather there were significant wash-outs of adult cockle. Since the fishery was closed, we have already had one period of south-westerly gales. At the time of writing (29<sup>th</sup> November) we are in the midst of another very unsettled spell, with bouts of south-westerly, westerly and north-westerly gales and stronger forecast for the Lancashire coast for nearly the whole of the next week. If this continues throughout the winter, the cockles may well bury deep to escape, but there could equally be massive losses of commercially valuable stock. There is no benefit to anyone in closing beds to conserve stock for next year's fishery, if that stock is likely to be lost to winter storms (as with seed mussels at Heysham and Morecambe).

### **Immediate future management of the Foulnaze cockles**

Regardless of whatever is the stated requirement for cockles by the major merchants, there is a

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12 38% already oversize plus 70% of the 62% currently undersize

13 But bear in mind my own earlier comments about average probabilities versus certainties!

14 See Dare et al., Historical and current status of cockle and mussel stocks in The Wash (2004) CEFAS

premium export market, with good demand, for live cockles, which the Foulnaze cockles can satisfy, and which the Lytham, Southport, and other independent fishermen can supply. At the very least it is not right for NW IFCA to stop fishermen from fishing a major well-stocked adult cockle bed to supply that market irrespective of the wants of the major merchants. In any case, I believe it is quite likely that if the fishery were open, all of the merchants previously active in the fishery would return to buy cockles.

In terms of safety, NW IFCA, and the other relevant authorities demonstrated on 1<sup>st</sup> November that they are capable of curtailing the activities of non-permit holders, and those attempting to work using unsafe and unfit craft. The same demonstration also highlighted the effectiveness of such operations. There is therefore no short-term reason why the Foulnaze cockle bed should not be re-opened to permit holding fishermen (and those local fishermen working from registered licenced British fishing vessels) who are operating in a responsible manner and with all of the right safety equipment. There is also no reason why that fishery should not be re-opened on 6<sup>th</sup> December, or very shortly (a few days only) thereafter. In this context, there is certainly no justification for keeping the fishery closed until as late as September 2012.

In terms of safety equipment, given that we are currently part way through an active fishery, it would be sensible to agree with MCA a pragmatic approach to the safety of vessels used to access and carry cockles back to the shore from Foulnaze, as an interim code part way between MGN 280 and where we are at present. This would be something like requiring all of the safety equipment for an open under-10m commercial fishing boat, plus having a suitably qualified skipper on each vessel. See comments below on the implications of implementing MGN 280.

## Comments on the potential implications for fishermen of implementation of MCA small workboat code MGN 280

These comments are based on MCA document MGN 280 Small Vessels in Commercial Use for Sport or Pleasure, Workboats and Pilot Boats – Alternative Construction Standards, 2004, as fetched from the MCA website at

[http://www.dft.gov.uk/mca/mgn\\_280-2.pdf](http://www.dft.gov.uk/mca/mgn_280-2.pdf)

I've done the best I can in the time available, but due to time constraints I haven't had time to get other experienced fishermen to review my comments, or to always go into full detail. I hope I've covered pretty much everything applicable, but I could have missed some things.

In looking at implications of implementing this Code for fishermen accessing Foulnaze, there are four typical use cases to consider

1. **Fishing Vessel** : A group of fishermen working from a British Registered Fishing Vessel, which happens to be an under-10m (and generally under-8m) open fibre-glass boat, often towing another small fibreglass or inflatable boat (some of the local Lytham fishermen are working in this manner). In this case the fishermen often land cockles on the shore.
2. **Angling Boat** : A group of fishermen working from an open (or partially decked) fibreglass boat (typically a boat designed for recreational sea-angling) which is not a British Registered Fishing Vessel, often towing an inflatable boat around 4.2-5.2m, sometimes with a quad-bike on board. In this case the fishermen will carry cockles to land on the shore if there is no larger boat on Foulnaze, or if they do not normally deal with the merchant operating that larger boat.
3. **Inflatable** : A group of fishermen working from an inflatable boat 4.2-5.2m which is not a British Registered Fishing Vessel, often (in the 5.2m case) towing an inflatable boat around 3-4m, sometimes with a quad-bike on board. In this case the fishermen will carry cockles to land on the shore if there is no larger boat on Foulnaze, or if they do not normally deal with the merchant operating that larger boat.
4. **Rib** : A group of fishermen working from a rib, typically 5m or 6m, which is not a British Registered Fishing Vessel. These fishermen are typically gangs, and rarely tow another boat. They will usually load cockles on to a larger boat on Foulnaze, and may not fish if no such larger boat is out (although they will sometimes make other arrangements).

Note that strictly MGN 280 does not apply to the British Registered Fishing Vessel case, but it is useful for comparison.

In reading MGN 280, we have to first figure out what Area Category applies, before we can determine what rules apply. Foulnaze is (I believe) within 3 nautical miles of Seafield Road slipway at Lytham, which serves as the departure point for most fishermen, and would be a suitable Nominated Departure Point (in MGN 280 jargon). It is also (as has unfortunately had to be demonstrated) well covered by RNLI and other rescue services. Therefore, it pretty much meets Area Category 6 waters. However, we have to consider if operations occur exclusively in daylight, which for MGN 280 means between 1 hour before sunrise, and 1 hour after sunset. Working from Lytham, the cockle boats depart about 2½ hours after high water, and land about 3-2½ hours before the next high water. Any tide can be worked, weather permitting, but the neap tides offer only a short working time so fewer men go out to fish, whereas the spring tides offer longer working time

so more men go out to fish. A typical (near) spring tide would be the weekend 15/16 October 2011.

<b>When to work</b>	<b>Outbound High Water</b>	<b>Inbound High Water</b>	<b>Time Out (2½ hours after high water)</b>	<b>Time In (3 hours before high water)</b>	<b>Daylight starts</b>	<b>Daylight ends</b>	<b>Wholly daylight according to MGN 280?</b>
Sat 15 Oct	01:17	13:30	03:45	10:30	06:38	19:17	<b>No</b>
Sun 16 Oct	01:48	14:00	04:15	11:00	06:40	19:14	<b>No</b>

*All above times are BST because that is what was in force at the time*

So we have a pretty good working tide (from the cockler's perspective), where although departure in the dark, most of the working time, and the landing are in daylight. From the safety perspective, when going out to fish, there is daylight in the working day ahead, so if any problems are encountered, there will be better/safer working conditions ahead (as opposed to looming darkness). However this means we are working outside “daylight” according to MGN 280, so we cannot be Area Category 6. In fact we must come under Area Category 3 : Up to 20 [nautical] miles from a safe haven, because this is the least demanding Area Category which does not restrict activities to “daylight”.

MGN 280 covers small vessels with up to 12 people onboard. This covers pretty much all of the working patterns employed fishing Foulaze from Lytham (most groups are 2-4, occasionally 6 men, except gangs in ribs which can be around 10 men), so should not introduce any problems.

All of the small boats used by fishermen to access Foulaze from Lytham fall within the definition of “open boat” given in MGN 280. This includes the partially decked boats which are typically designed for recreational sea angling and the like.

I am not sure of the applicable Category of the waters for the Ribble Estuary to Foulaze. It would typically fall into Category D whilst the fishermen are out cockling, but can on occasion be Category C due to wind strength (more than Force 4, although the experienced men will not venture out if the forecast includes anything above Force 5, and less than that if the direction is unfavourable) however shelter from the land and dry or nearly dry sandbanks means that the wave height is not so great as Category C during the states of the tide that the fishermen are out.

Para 4.1.2 implies that none of the small boats currently used to access Foulaze, the local registered fishing vessels, as well as many of the various other craft, should normally be allowed to operate where they will be operating outside of daylight (i.e. where they will operate part of the time in Area Category 3 conditions rather than Area Category 6 conditions). There is reasonable justification for an exception here, because

- the local fishing vessels are all open boats and are allowed to operate in the area;

- the angling boats are of similar design and construction to the fishing vessels, so provided that they are maintained and outfitted to an equivalent level to the local fishing vessels they should be at no greater risk;
- the inflatable boats range from ex-MOD and ex-RNLI (inshore) stock built by reputable manufacturers such as Avon and Zodiac, to cheaper poorer quality craft. Those which are Avon or Zodiac, built to MOD or RNLI standards, and in good condition, are at no greater risk than when they served as MOD or RNLI craft in similar conditions, so should be okay. Those which are of poorer build quality, or in poor repair, should be judged on a case by case basis, but many are likely to be unsuitable for Area Category 3 usage;
- the majority of the ribs in usage are ex commercial offshore usage (e.g. Humber craft). Most should be suitable for Area Category 3 by design, so long as they are in good repair;

Para 4.1.3.1 implies that none of the boats currently being used should carry more than 1 tonne of cargo (total equipment and any cockles) and passengers. Also, the boats ought not<sup>15</sup> be engaged in towing operations.

- I believe that none of the fishermen going out on the boats fall within the definition of “Passenger” given in The Code<sup>16</sup>, but this should be confirmed with MCA;
- Depending on the towing provision (next, below), the restriction to carrying not more than 1 tonne should be quite workable. Most of the experienced men are already working within this limit, even when landing cockles on to the shore (e.g. because the larger vessels are not on the sand that day);
- It should be confirmed with MCA that towing is permissible (perhaps with some provisions). Many groups of fishermen are operating with one boat to carry the men, perhaps some gear and some cockles, and are towing one or more similar sized or smaller boats carrying just cockles and gear. It is essential for the fishermen to be able to carry their cockles to the shore in some manner – it makes them independent of the actions of the larger boats and the merchants behind them; additionally some fishermen are supplying other merchants (e.g. live trade) so their cockles have to be landed on the shore. The ability to carry cockles and gear in some towed craft is essential for the viability of fishermen working Foulmaze, and enhances the safety of the main vessel (because it does not have to be fully loaded). See also Para 11.7.

Given that the operating conditions are basically Area Category 3, some thought needs to be given to the application to the inflatable boats and ribs (which are almost all under 6m) of sub-paragraphs of 4.5.1. The various Avon and Zodiac inflatables, and the Humber ribs currently in use, should meet the requirements of these paragraphs. Some of the poorer quality inflatables will likely not meet these requirements.

Para 7.3 and sub-paragraphs (relating to Petrol engines, which encompasses outboards) should already be met by most operators. Likewise Paras 7.5 (Engine Starting and Stopping).

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<sup>15</sup> Para 4.1.3.1 uses “may”, so this is **not** a requirement of the Code per para 3.1.9

<sup>16</sup> “Passenger” means any person carried on a ship except: (a) a person employed or engaged in any capacity on the business of the vessel ... The fishermen going out on the boat are engaged in the business of the vessel.

The handling of bilge pumping requirements in Paras 10.3 and 10.4 should be pragmatic. If I read this correctly, it appears that an inflatable operating in Area Category 3 should have two bilge pumps. For an inflatable which is essentially a bare hull with only an outboard engine, in practical terms this means a hand pump or a bucket. In terms of suitable fitting, an inflatable lacks much substantial structure upon which a hand bilge pump can be effectively mounted. It is therefore important to confirm with MCA that for the open inflatable boats, two suitable buckets are sufficient to meet this requirement. See also MGN 1813 (F) Annex 1.1 giving requirements for open fishing vessels of less than 7m registered length, where there is no bilge pump requirement, and only one bailer mandated.

Someone had better ask MCA about 11.5.2 (Damage tests – inflatable boats). The good quality (Avon and Zodiac) inflatables and ribs (Humber) should meet this requirement, but are they actually going to test it? In the first instance it might be more pragmatic to apply service limitations per Para 11.5.2.2, based on a case by case judgement, rather than try to go through each boat with this test.

Para 12.2.2 about freeboard should be okay. I don't think anybody is going to carry more than 1000kg of passengers and cargo (which would trigger a load-line marking requirement).

I believe Para 12.2.4 (about freeboard for inflatable boats) should be achievable for the Avon and Zodiac inflatables, and for Humber ribs. Not sure about other poorer build quality inflatables.

Para 13.2.3 (Liferafts - Vessels Operating in Area Category 2,3,4,5 & 6) introduces new cost to operators. It's not unreasonable from the safety perspective, but should be considered as part of the impact assessment. We're looking at Area Category 3, and waters below 10°C, so a suitable grab-bag liferaft with insulated floor is pretty much dictated. Suitable stowage on an open inflatable needs to be considered. See also points about MSN 1813 (F) Annex 1.1 in comments about Table 13.1 below, bearing in mind that Annex 1.1 in that document does not require a liferaft.

Para 13.3 (Lifebuoys) introduces a new cost of carrying a suitable lifebuoy (because Area Category 3). Again not unreasonable from the safety perspective, but should be considered as part of the impact assessment. Also, stowage should be considered, particularly on an open inflatable. See also points about MSN 1813 (F) Annex 1.1 in comments about Table 13.1 below.

Para 13.4.3 applies : All lifejackets should be fitted with a whistle, retro-reflective materials and, [if operating in Categories 0, 1, 2 or **3**], a light.

Para 13.6 (Portable VHF) is common sense – a working fully charged portable VHF radio should be carried as a minimum : mobile phones are not sufficient (even though reception in the Ribble Channel and on Foulness is actually pretty good).

Paras 13.7 and 13.8 reads as though it is not a requirement to carry a 406MHz or EPIRB or SART. That is reasonable, as the same is not required under MSN 1813 (F) Annex 1.1. Such pieces of

equipment are intended for boats working some way offshore, and are considerable over-kill for small boats working close inshore on relatively sheltered waters as the cocklers are doing.

Does any of 13.11 or 13.12 apply? It doesn't really make practical sense. It isn't required for commercial fishing vessels of similar size (although there the crew must have done the four basic SeaFish safety training courses which covers such material).

Table 13.1 details requirements for safety equipment. For small open boats (fibreglass, inflatable or rib) up to 6m, operating in Area Category 3, the lifebuoy and flares requirements in The Code are far greater than for the same boat as a commercial fishing vessel in the same waters – see MSN 1813 (F) Annex 1.1 detailing requirements for open vessels less than 7m length. From the perspective of a commercial fisherman, the level of equipment in MSN 1813 (F) Annex 1.1 is actually practical and achievable for the small boats being used by the cocklers. If the number of men per boat is limited to a maximum of four (as per the Fishing Vessel requirements), then safety risks ought be no worse than the commercial fishing boat case (and even small fishing boats can and do operate with up to four men). Given that the cocklers are working alongside such small fishing vessels, it makes more sense and is more proportionate, to ask for the same level of safety equipment, rather than the far greater level of MGN 280 for Area Category 3. There is also an argument that it is only the element of darkness working which means that the cocklers ought to be working to Area Category 3 levels rather than Area Category 6 levels.

Paras 15.2 and 15.3 (Fire extinguisher requirements) should be compared to the equivalent under MSN 1813 (F) Annex 1.1 where only one extinguisher 5A/34B is required, and then only if the vessel has an inboard engine. Bearing in mind that boats up to 6m in Area Category 6 waters only need one such extinguisher, and Ribble Channel/Foulness is Area Category 6 except for the darkness element pushing the operations into Area Category 3, it would be more appropriate to go with the MSN 1813 (F) Annex 1.1 requirement of one extinguisher 5A/34B.

Section 16 (VHF) should be implemented pragmatically : some kind of VHF should be a requirement (see comments on Para 13.6 above), but MSN 1813 (F) Annex 1.1 allows a portable VHF, and Area Category 6 (to repeat, Ribble Channel/Foulness is Area Category 6 except for the dark working element) requires a portable VHF and makes a fixed VHF optional. For open inflatable boats a fixed VHF is not feasible. In those cases and other completely open small boats, a portable VHF should suffice. The more complex ribs, and partially decked/enclosed fibreglass boats perhaps ought to require a fixed VHF, but even there if the vessel is under 7m and has only up to 4 men (max commercial fishing boat manning at same length), then a portable VHF should suffice.

Section 17 (Navigation lights, shapes and sounds) :

- For angling boats and ribs, the all-round-white and sidelights should be required. Most already have these anyway.
- For inflatables there is generally no superstructure to mount lights. It was always my understanding that the Rules of the Road state “vessels under 7m and not capable of exceeding 7 knots are only required to be able to show a white light [in time to prevent a collision]”. This case would cover all of the inflatables in use. Therefore for the inflatables



under 7m, suitable all-round-white light, ideally with sidelights, should be encouraged, but not required; if not fitted then the vessel should be able to demonstrate having a suitable white light available for use (i.e. a functional high-powered torch). This exception is provided for under para 17.3 of The Code.

Paras 18.1 and 18.2 are common sense. All boats should be capable of carrying a compass. For inflatables this might be just a good quality pocket hand-bearing compass.

Para 18.3, means of determining the available depth of water is common sense. A long pole or oar should suffice for this purpose at least where fitting an echo sounder is impractical (i.e. open inflatables), but probably generally for small boats under 6m used for cockling.

Para 19.1 (charts) can be met with a minimum of a hand-held GPS chart-plotter with a suitable marine navigation chart installed. All of the cockling boats ought to be able to meet this requirement.

Para 19.2 (signalling lamp) is common sense. See also comment on Para 19.5 below.

Para 19.3 (radar reflector) should be easily achievable for angling boats and ribs. It is probably simplest to require that inflatables do not put to sea in fog, and return to shore if visibility deteriorates : that is no real hardship, because it is actually the most likely behaviour of the experienced fishermen anyway.

Para 19.4.1 isn't really appropriate. The Ribble cocklers are only in Area Category 3 because of the dark working element. Barometers are more appropriate to offshore situations and enclosed decked vessels.

Para 19.5 (Searchlight) is common sense and can easily be met with a suitable powerful hand-held torch. The same torch also enables meeting of Para 19.2 above.

Section 20 (Anchors) – carrying a suitable anchor and cable is common sense. The minimum total length of cable (about 30m) is not un-reasonable, although within the Ribble 20m would suffice. The proportion of this which should be chain needs to be reasonable : for use by under 6m cockle boats in the Ribble estuary, 4m chain should suffice, certainly for inflatables.

Para 20.4 (Tow line) is common sense. Implementing this would a vast improvement on what some of the ill-equipped cocklers were using (6mm polypropylene!). Length is not so much of an issue – small boats (6m and less) are generally better towed on a short lead, say 3-5m astern of the towing vessel; with a longer lead the small boat surges and snatches too much, and generally tows poorly.

Paras under 20.5 (Operations) should be handled pragmatically. In particular only one anchor should be required by the under 6m boats due to space limitations (per Area Category 6

requirements, rather than Area Category 3 requirements). The main anchor requirements of Table 20.1, viz. 6Mm chain and 12mm rope, are sensible. Implementing them would be a vast improvement on the 6mm polypropylene some inexperienced and ill-equipped cocklers were using.

Para 23 (Medical Stores) is easily met with a Category C medical kit. It's not unreasonable even for an open inflatable, although some thought needs to be given to secure protected stowage.

Annex 3 (Manning of small vessels) is mainly sensible stuff to be implemented, and is what was lacking, so leading to all of the incidents in the fishery.

- As per this Annex, at a minimum the skipper should have a suitable certificate of competency, for at least Area Category 3 waters (in this case Area Category 6 competence is not enough because of the dark working element). In many cases this can be met by commercial fishermen holding at least the SeaFish “Under 16.5m Skippers Licence (restricted)”, or other equivalent qualifications.
- The Medical Fitness Certificates (ENG1, ML5, etc.) is over-kill for the situation, provided that the vessel manning is 4 men or less : for the same size and manning of a fishing vessel those certificates are not required. However for ribs carrying many men it is probably quite reasonable.

The guidance in Annex 4, Section 4 (Additional Guidance for Vessels Involved in Group Working) is likely relevant, because this kind of group working is normal practice (albeit on an informal basis) amongst the experienced fishermen.

One final point not covered above, relates to operations involving the towing of small vessels by small vessels. For a small (under 6m) inflatable or fibreglass open vessel towed to carry equipment and/or cockles:

- construction standards should apply;
- loading (cargo) standards should apply;
- no passengers or crew should be carried;
- a suitable anchor and tow rope should be carried as per the requirements set upon the same vessel if it was crewed;
- no navigation, or safety equipment such as flares, torches, medical kit, VHF, compass, hand-held GPS, should be required;
- probably no navigation lights should be required, provided that the vessel can be illuminated (e.g. by torch from the towing vessel) to highlight it's presence;