



Avoidance of and mitigation against negative interactions between crab and lobster pot fishing gear and endangered, threatened and protected species in South Western Waters.

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Summary:

The MCS brown crab and lobster Fisheries Improvement Project (FIP), used the expertise of CEFAS, to identify endangered threatened and protected (ETP) species for further investigation. Only ETP species that were known to occur within potting areas were considered – those which do not – such as those which frequent deeper, offshore waters were not considered necessary to include. This report from potting industry representatives comments on the practicalities of their recommendations

- We agree with the recommendation from CEFAS, that *"sinking the excess or otherwise reducing the amount of unused vertical line slack is no more than general best practice"* and that it is appropriate as part of the SW brown crab and lobster FIP, to encourage further adoption of best practice techniques across the South West fleet.
- The reduction of vertical buoy lines by the addition of pots to a string/ fleet would be inappropriate within SW UK fisheries, as the majority of potters set pots in a string/fleet in line with the safety of hauling/stability of vessel.
- We agree with the CEFAS recommendation in report C4788, that operating within best practice is the most appropriate mitigation for the potential bycatch of the giant goby. Through the FIP, we can encourage reports of sightings and releases to increase scientific understanding of giant goby distribution.
- Through the South West MSC FIP, we are able to encourage the wider adoption of escape gaps across the fleet, which enable small animals to escape without human interference.
- We do not consider the use of biodegradable hatches to be particularly useful in South West pot fisheries as we do not consider ghost fishing have significant impacts on the giant goby; pots can readily be recovered from most areas.



1. Introduction into project.

A Marine Stewardship Council (MSC) Fishery Improvement Project (FIP) was established for the South West brown crab and lobster fisheries in 2017 and includes participants from the fishing industry, shellfish processing, retail and different areas of regulation. MSC is an independent eco-label and certification scheme which uses a number of indicators to demonstrate that a fishery is being harvested in a sustainable manner. Part of the South West brown crab and lobster FIP is to consider any potential harm that could occur to endangered, threatened and protected species (ETP) and to offer avoidance and mitigation strategies to reduce the risk of negative interactions with such species.

2. Geographic scope.

ICES areas relevant to the MSC South West brown crab and lobster fisheries improvement project are: VIIIE, VIIF and VIIG as shown in Figure 1. Potting occurs across the project region in differing intensity, as shown in the illustrative map which was produced by CEFAS and can be seen in figure 2.

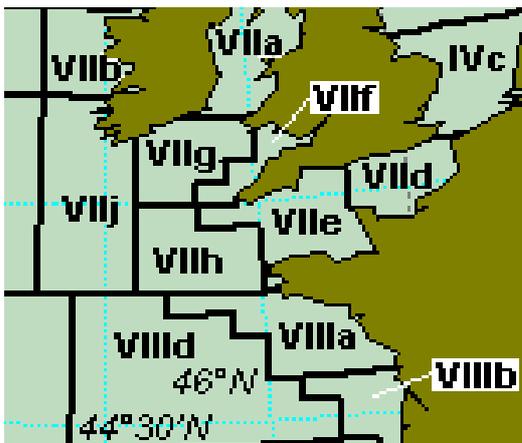


Fig. 1 ICES area chart North East Atlantic, FAO

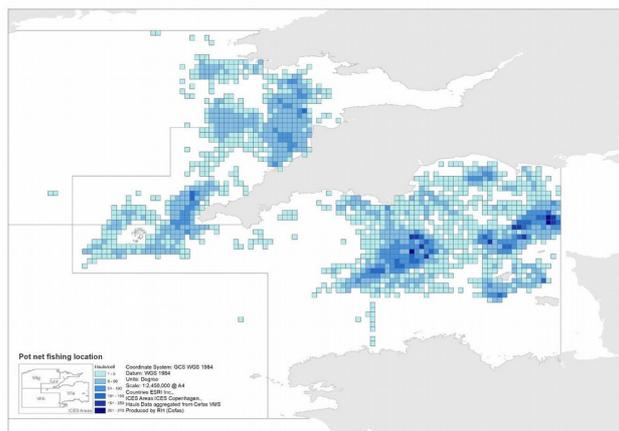


Fig. 2 Map of crab/lobster potting areas in Southwestern UK waters VIIIE-h

3. ETP species of interest in South Western Waters.

The MCS brown crab and lobster FIP used the expertise of CEFAS to identify ETP species for further investigation. In the CEFAS report C7488, only ETP species that were known to occur within potting areas were considered – those which do not – such as those which frequent deeper, offshore waters were not considered necessary to include. Other species, for which best available evidence shows are unlikely to interact with potting gear, such as birds were also excluded.



Two areas of concern to CEFAS were identified as follows:

i. Entanglement in crab/lobster vertical lines by sea turtle, marine mammal and pelagic sharks, for which action recommended by CEFAS is:

- Sinking the excess or otherwise reducing the amount of unused vertical line slack.
- Increasing the number of pots per string/fleet to reduce the number of buoy lines.

ii. Incidental bycatch or ghost fishing of the giant goby, for which the action recommended by CEFAS is:

- Following best practice guidelines in regard to the swift return of non target species to the sea.
- The use of escape gaps to minimise chances of bycatch of the giant goby.
- The use of biodegradable 'hatches' to restrict ghost fishing of the giant goby, should gear be lost at sea.

3.1 Sea turtles, cetaceans and pelagic sharks.

3.11 Sea turtles.

CEFAS report C4788 recognises that *reports of entanglement of turtles in fishing gear are few and anecdotal*, however, it is appropriate to consider potential mitigation against incidental capture of marine turtles due to the level of reports from other places around the globe and the potential for increased sightings as a result of changes to the local climate.

Protected under the Wildlife and Countryside Act 1981 and Conservation of Habitats and Species Regulations 2017 – it is an offence to intentionally kill, injure, take or disturb turtle species.

Of the sea turtle species of most concern, the leatherback turtle is the UK's most frequently recorded species, with 28 leatherback turtles sighted in English waters during 2017, with both live and dead sightings having been recorded in Cornish waters, and dead strandings in North Devon (*The British Isles & Republic of Ireland Marine Turtle Strandings & Sightings Annual Report 2017*), though mitigation will apply equally to all potential encounters with species of sea turtle.

3.12 Cetaceans and pelagic sharks.

CEFAS report C4788 recognises that reports of marine mammals interacting with static fishing gear in the UK are *relatively uncommon* and that no reports of shark entanglements with crab/lobster pot buoy lines were found during their literature review. The UK Cetacean Strandings Investigation Programme (CSIP) report to Government 2015 suggests that *"entanglement in fisheries gear (thought to be primarily due to entanglement in gear related to creel fisheries) is a significant issue in stranded minke*



whales in Scotland", with 3 /14 of the autopsied whales reported in Scotland from that year being confirmed as having died from entanglement, though as is explicitly identified by the authors, there is an uncertainty in regard to the specific type of fishing gear. Despite a lack of data on interactions with potting gear specifically, it is appropriate to consider potential mitigation against incidental entanglement of cetaceans and pelagic sharks due to the level of reports from other places around the globe and future impacts of climate change.

Of the mammal and shark species of most concern, it is likely that the minke whale may currently pose the greatest risk in terms of entanglement with potting gear in South Western waters, as it is the most frequently recorded species of whale (JNCC), although as with turtles, all potential ETP species interaction should be considered, including the humpback whale for which UK sightings data is increasing (Seawatch Foundation). The minke whale sightings data from JNCC suggest that minke and other whales may frequent South Western Waters during the summer months, with most sightings reported between May and September of the year.

Whale and dolphin species, basking sharks and angel sharks are protected under the Wildlife and Countryside Act 1981 and Conservation of Habitats and Species Regulations 2017 – it is an offence to intentionally kill, injure, take or disturb such species. Various additional shark species, including porbeagle and tope are protected to varying degrees under species specific fisheries legislation.

Although seals were not identified by CEFAS as an ETP species at potential risk from harm from potting activity, it is understood that there have been occasions upon which they have been observed interacting with surface markers, therefore the proposed mitigation for whale and shark species will also apply to seals. The Wildlife and Countryside Act '81 protects any wild animal within 12nm from intentional harm, although for seals there are certain exemptions, which are detailed in the Conservation of Seals Act 1970. The CSA70 protects seals from "unauthorised methods of killing" - commercial fishermen are legally allowed to kill common and grey seals that are "interfering" with their gear, but in certain areas only, using a rifle using ammunition and having a muzzle energy of not less than 600 foot-pounds and a bullet weighing not less than 45 grains, which is equivalent to a .22 Hornet centrefire rifle (Home Office). Despite the legality, it is unlikely that many commercial potters have inclination to shoot seals, nor the required legal permissions to carry such a firearm.

3.13 Giant goby.

JNCC regard the giant goby, which grows to 27cm, as an extremely rare sighting in Britain, as the species present at the extreme edge of their range. Available records suggest that they may be present on the South Western coasts between Wembury and Isles of Scilly, most often in intertidal rock pools with freshwater input, but also to depths of 10m. According to JNCC, there is no evidence that they are endangered in the UK, however, they are protected under the Wildlife and Countryside Act 1981 and are sensitive to disturbance from humans.

The giant goby is considered by CEFAS to be at risk from incidental capture during the



normal fishing process – although sightings are extremely limited, it is possible to consider the best practice surrounding the return of the species to the sea, and the recording of information about the fish, should it be accidentally captured in pots.

4. Pot fisheries for brown crab and lobster within the project area.

It is not possible to determine standard practice across the project area; potting gear, although of similar construction across the region differs from port to port and even between two potters working from the same port, and is largely dependent on the target species and the ground being worked. There are several options available fishing for crab and lobster – the traditional inkwell shaped pot and the creel shaped pot. The creel is a rectangular 'D' shaped pot that can be constructed in a number of different ways, depending on the target species (image 1). All of the varieties will catch crabs and lobsters, but generally the parlour pot is the preferred option for lobsters.

Aside from two basic shapes, there is a vast variation in the way pots are fished including the use of parlours, soft or hard entrances, the materials used in pot construction, the use (or not) of 'pot locks', or rubber 'skirts' (both intended to slow a crabs progress out of the pot back through the entrance), the single/double netting of the pots, the base construction of the pots, presence of escape gaps and so on - and then again, variations in the rigging of the gear the types and amount of rope used and number of pots attached.



Image 1 - illustrating a selection of different pot constructions, courtesy of Mustang engineering, Cornwall Creels and Mike Cornish Gear suppliers.

Inkwells, creels and parlour pots tend to be set in strings/fleets in South West commercial fisheries, with the number of pots on each string/fleet differing with individual preference, deck space, ability of vessel to haul the gear, ground worked, local tides; however, it is not uncommon for single pots to be fished by small scale and recreational operators.

4.1 The issue of entanglement.

Entanglement data specific to the South West UK is generally poor and as such, there has been little opportunity to determine the number of entanglement incidents that occur with potting gear specifically. It has however been illustrated by other fleets operating both within UK waters and abroad, that entanglements in the ropes of potting gear can cause an animal to suffer injury, if not a prolonged death should it be unable to free itself.

In England, the use of acoustic deterrent devices (ADDs/pingers) for certain species of marine mammal is currently regulated by the Marine Management Organisation. Different frequencies deter different animals, but they are not currently recommended for use in pot fisheries. Other, technical measures are being assessed around the globe, in places that entanglement is considered to be a significant issue (Hamilton & Baker), and the CEFAS led 'Reducing Cetacean Bycatch' project will further explore measures that may be relevant to pot fisheries in the South West for which the potential for negative interactions with ETP species is significant. (Hauling Up Solutions).

It is agreed that the best currently available mitigation, in terms of *'sinking the excess or otherwise reducing the amount of unused vertical line slack is no more than general best practice'* - because not doing so poses risks to safe navigation as well as marine animals, particularly at slack water (image 2).

Excess floaty rope - *vertical line slack* - is understood to be most often connected to the individuals experience, both in relation to pot fishing generally and the area being worked.

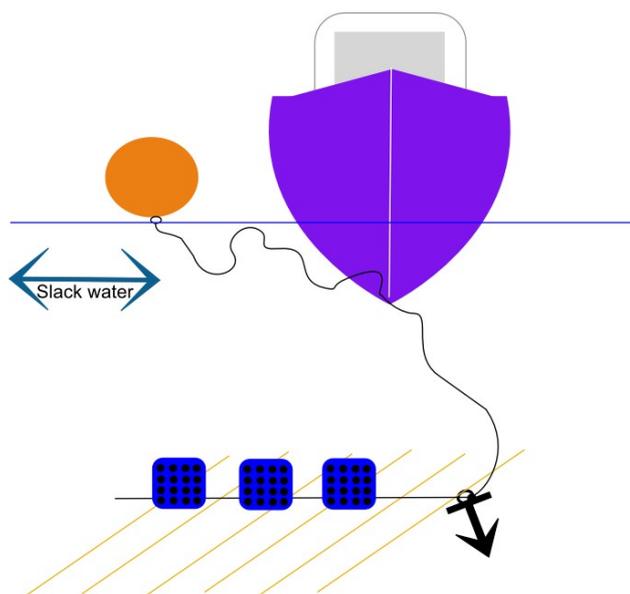


Image 2. Illustrating risks associated with excess floaty rope.

Although not technically relevant to the brown crab and lobster FIP, a well documented example of a humpback whale becoming entangled in whelk pot gear occurred within the SW fishing area of Start Bay in 2017, and was, as is anecdotally understood locally, the result of an excess of floaty rope being used on whelk pots belonging to a fisherman who was new to the area. Thankfully, British Divers Marine Life Rescue were eventually able to free the whale from the gear and it was able to swim away.

Despite it not being possible to determine a standard practice across the region, the illustration in image 3 represents 'best practice' in generic gear setting for fishing in variable depth, and on soft ground. Experienced commercial potters will usually use leaded rope for the backline on the sea bed and will generally use a length of floaty rope for the buoyline from the end weight to the slack tide buoy, that is equal to the depth of water at slack tide, plus an additional length of leaded rope called the top rope which is attached to the surface marker.

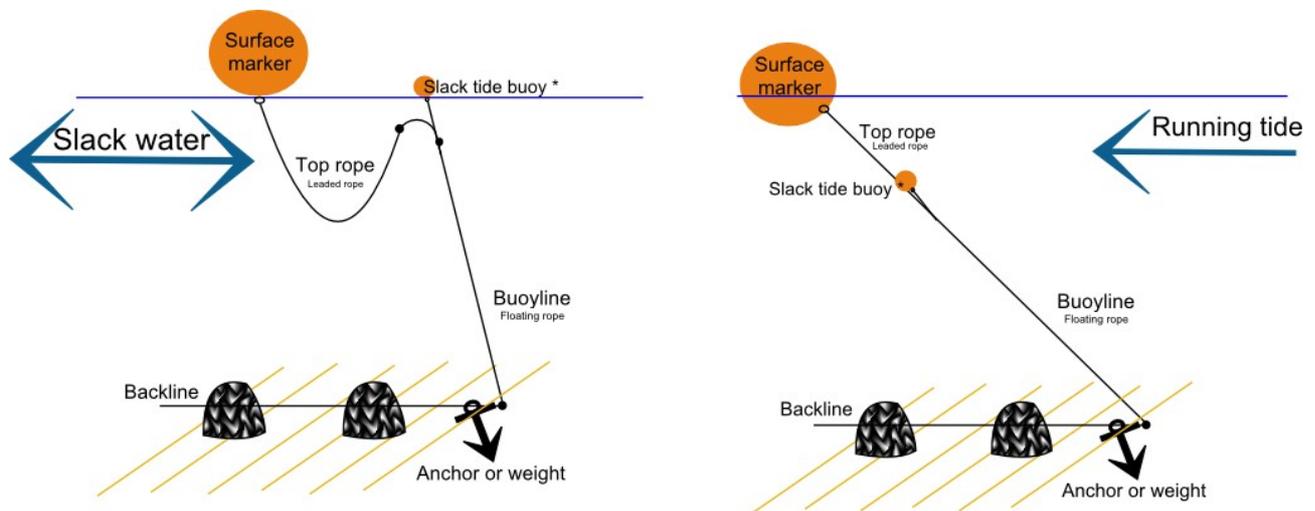


Image 3 – 'normal' gear configuration for marking the end of a fleet/string that is fishing in variable water depths.

It should be noted that the slack water illustration in image 3 represents a completely still day; it is more likely that the top rope will be pulled taught by wind and wave action.

The majority of commercial potters already minimise *vertical line slack* - excesses of rope that float on, or near the sea surface for reasons of safe navigation; some by using an additional section of leaded rope within the buoyline (illustrated in image 6, p12).

It is appropriate as part of the SW brown crab and lobster FIP, to encourage wider adoption of best practice techniques across the SW fleet.

Additionally, CEFAS suggested that individuals increase in the number of pots per string/fleet, in order to reduce the number of vertical lines in the water. Is is not an appropriate form of mitigation for reasons of safety. Commercial potters will usually be fishing at capacity; that being the stability of the fishing vessel on hauling, appropriate load weights for the hauler, the availability of deck space for safe operation and so on.



4.2 Capture of non target species, such as the giant goby.

In terms of potential interactions with pot fisheries, we consider that the giant goby is at minimal risk of harm. The way pots are constructed means that even without the installation of escape gaps, there are open sections on the vast majority of pot bases and in the net meshing of the pot frame. In addition, the majority of pot fisheries occur away from where most sightings thus far have been- the intertidal zone - making incidental capture less likely. Any giant goby accidentally captured within shallow water fisheries will have a good chance of survival because the impacts of depth and pressure changes will be of lesser effect than in deeper water.

We agree with the CEFAS recommendation in report C4788, that operating within best practice is the most appropriate mitigation for the potential bycatch of the giant goby. As with other non target species, it should be returned alive to the sea as soon as possible.

As part of the SW crab and lobster FIP, we would seek to encourage reports of releases of the giant goby to increase scientific understanding of their distribution.

4.3 Escape gaps.

The use of escape gaps of '*sufficient size that there may be passed through the gap a rigid, box shaped gauge, 84 millimetres wide by 46 millimetres high and 100 millimetres long*' (DSIFCA potting permit conditions) are commonly used within pot fisheries relevant to the project area, particularly Devon, for which it is a legal requirement to install them if fishing within 6nm of the shore with pots which have either soft eye entrances, or internal soft eyes (parlour pots). It is understood that in other areas the use of escape gaps has increased in recent years, with some volunteering to install them to speed up the clearing of the pots – and some as a result of an MMO requirement for escape gaps to be fitted in pots funded through the European Maritime and Fisheries Fund (EMFF).

Through the SW FIP, we are able to encourage the wider adoption of escape gaps across the fleet.

4.4 Biodegradable materials.

CEFAS suggest the use of '*biodegradable hatches used to allow larger species to escape should the surface buoy be lost and ghost fishing take place.*' The assumption that 'ghost fishing' from pots is a regular occurrence must be approached with caution, as UK fisheries have a lack of data on such matters. Using data pertaining to global fleets enables the use of the precautionary principle to mitigate risk in UK waters, but should not be assumed to prove that ghost fishing from pots is a significant issue for South West waters, as unless a pot has been moved a considerable distance, they can be readily recovered.

Differences in pot construction will significantly impact an ability of a pot to 'ghost fish' – for example, it is more normal to use coated metal mesh in the construction of traps in USA



lobster fisheries, where ghost fishing from unmarked traps is considered to be an issue (NOAA). Additionally, the presence of bait is what causes a pot to 'fish' in any sense; in UK fisheries, bait specific for crab or lobster is used and when exhausted, the pots cease to fish for crab. Any animals which enter a pot after the bait is exhausted will likely be seeking a home – if unable to escape through the entrance or an escape gap, they may eventually die and would likely attract species such as whelks to the pot – therefore the likelihood of 'ghost fishing' for any species being a significant risk is questionable. Pots that have lost their surface markers may still be in their set location and can therefore be located easily. If the pots have been moved, either through rough weather, or from interaction with mobile fisheries, their owners will spend significant time on attempted recovery using a grapple known as a creep, as the average pot costs in the region of £100 to construct.

Inkwells, parlour pots and creels used in South West UK waters are most commonly covered in a trawl mesh net which it is possible for small animals to escape through, and for crabs and lobsters to cut through if given sufficient time. Pots which have been moved by mobile fishing activity and have been recovered some time later exhibit signs of damage from crabs and lobsters, as can be seen in image 4 - showing a partially mended hole in the meshing.



Image 4– Jack Elliot, FV Newbrook, showing damage to pot mesh from crabs attempting to escape

Hard entrances (eyes) which are most commonly used in inkwells and creels are subject to biofouling (illustrated in image 5) which, if given sufficient time, enable crabs to escape through the entrance, regardless of the use (or not) of pot locks, or rubber 'skirts'. Crabs will readily escape through a standard 10" hard entrance, which is a size commonly used in inkwell pots.



Image 5 – courtesy of John Grundy, an example of some light biofouling on a pot entrance.

We do not consider that ‘ghost fishing’ has a significant negative impact on the giant goby and consider the use of biodegradable hatches to be both inefficient and costly and therefore an inappropriate form of mitigation.

5. Best practice.

With doubt over the levels of risk of harm to ETP species from potting in SW waters, and an absence of innovative and workable technological solutions that further minimise chances of entanglement, the appropriate mitigation is encouragement of wider adoption of best practice techniques. It is acknowledged that these are 'every day' actions for the majority of experienced commercial potters, but recognise that there will be some individuals within the SW fleet who would value guidance. By promoting best practice, it is possible to minimise the chances of negative fishing gear/ETP interactions and also increase understanding of ETP species distribution and incidents of gear interaction should they occur.

5.1 Guidelines.

Watch out for the species of most concern to CEFAS that frequent SW waters most often in the summer months. Report any sightings to national bodies – the Cetacean Strandings Investigation Program for mammals and the Turtle Project for turtles - or if anonymity is preferred, and for the giant goby, use the form on the South Devon and Channel Shellfishermen's Association [website](http://www.shellfishermen.org).

Ensure best practice by using escape gaps and by minimising the use of floaty rope - consider ways to help it sink at slack water. Image 6 illustrates the suggestion from



experienced potters who fish in variable water depths in South Devon; other areas may use different methods.

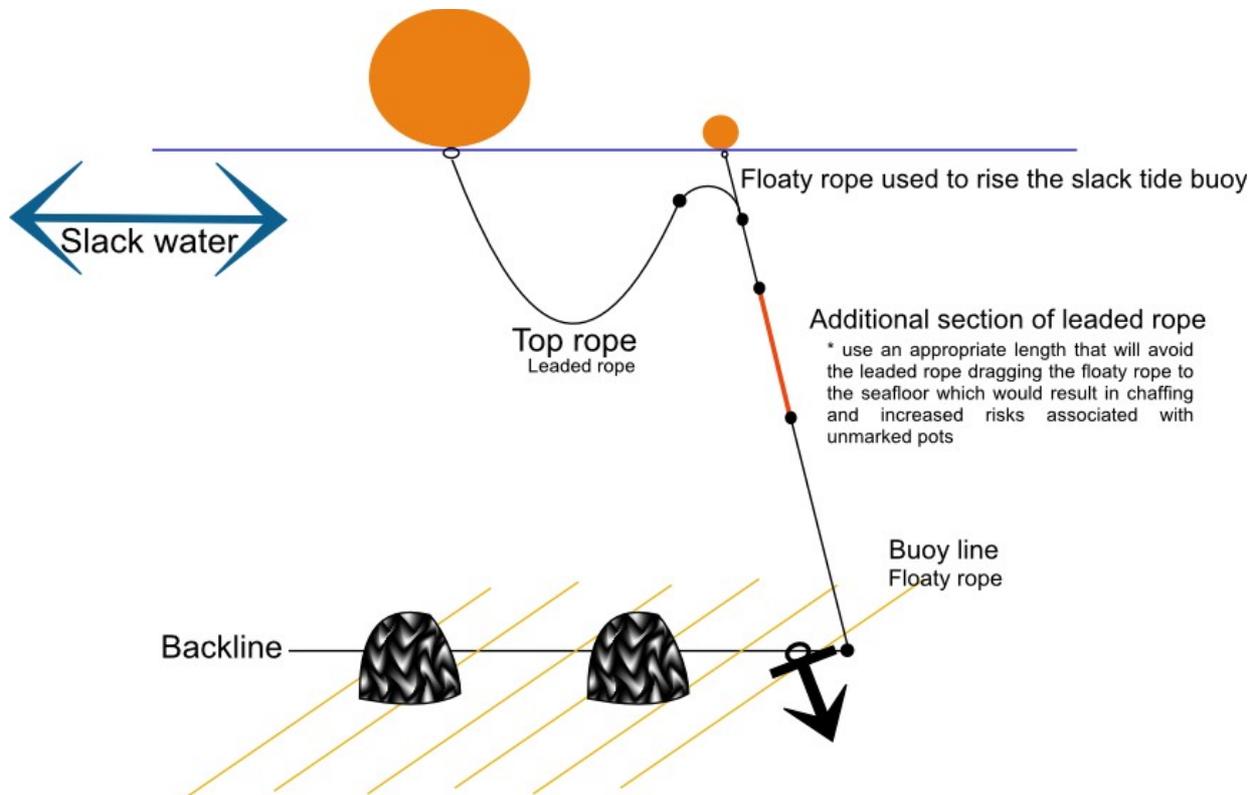


Image 6 – method of sinking any excess floaty rope used in South Devon.

Tend gear regularly to ensure that any entangled animals have the best chance of survival.

Tell British Divers Marine Life Rescue immediately, by calling **01825 765546** if an animal is found entangled in gear. They can offer advice as well as practical support.

Report any entanglement events, or species of interest, either directly to CSIP or anonymously using the [form](#) on the South Devon & Channel Shellfishermen Association website.



References / Further information:

BDMLR creel entanglement booklet: <http://www.bdmlr.org.uk/uploads/documents/resources/Creel%20Entanglement%20booklet.pdf>

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FAO North East Atlantic area 27 chart: <http://www.fao.org/fishery/area/Area27/en>

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Wildlife and Countryside Act 1981 - <https://www.legislation.gov.uk/ukpga/1981/69>



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Chris Martin - Cornwall Creels

David Morgan - Chairman South Devon & Channel Shellfishermen / Skipper FV Southern Star

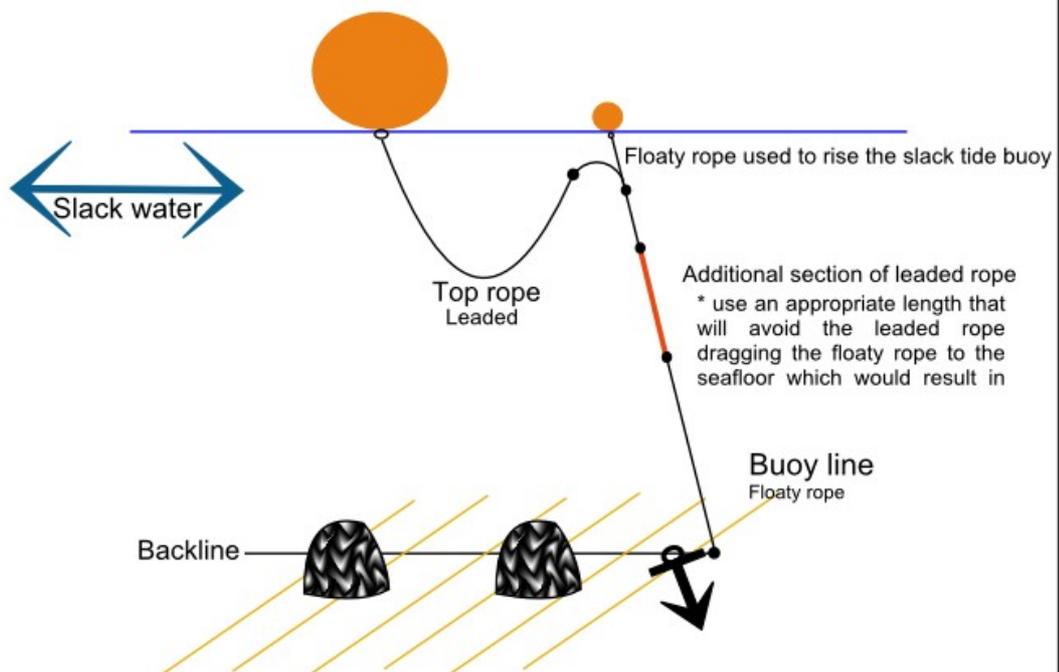
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Rob Stuckey - Mustang Engineering

Best Practice guidelines

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Ensure best practice by using escape gaps and by minimising the use of floating rope - consider ways to help it sink at slack water. Below is the suggestion from experienced operators for those who fish in variable water depths.



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