Fremantle Sailing Club

ENTANGLEMENT OF BOATS WITH CRAYPOT GEAR

Prepared for:

Boating WA

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SUMMARY

Boating WA in collaboration with Fremantle Sailing Club is trying to reduce the number of incidents where a yacht becomes entangled in a lobster pot. Yachts regularly sail up and down the west coast of Australia in a wide range of water depths and distances offshore. Cray pots are often set in these locations, including on the leads to anchorages. Entanglement usually occurs with the surface float line catching on either the keel, the rudder or the stern gear, and results in the yacht effectively being anchored by the line. A log of over 30 entanglement incidents on the WA coast showed that 68% were at night and 20% were on the leads to an anchorage.

The consequences vary with circumstances; sometimes the line can be disentangled but more often it jams and has to be cut free. Often the line can be freed from on deck with no damage to the yacht; on other occasions severe damage to the yacht can occur and a crew member may have to free the yacht by diving under the boat with a knife, often in rough conditions and at night. This is clearly hazardous.

We are seeking the advice and support of both commercial and recreational rock lobster fishers to reduce the number of entanglements. We fully recognise that for a solution to be viable it should not impact unduly on the costs incurred by fishers or their safety. Changes to legislation are an onerous approach to resolving this problem. We suggest that any solutions found are implemented by a voluntary code of conduct and an associated education program.

We foresee possible solutions falling into 4 broad camps:

- Use new technology to improve sighting of the floats
- Reduce the consequences of entanglement
- Separate the boats from the pots (avoid sailing where the pots are set)
- Reduce the size of the target (minimise length of floating line)

The likelihood is that more than one approach will be required.

Some of the primary stakeholders identified so far are WRLC, WAFIC, Recfishwest, Dept of Transport, Dept of Fisheries, Boating WA and Yachting WA.

If we are to reduce the likelihood of an accident from entanglement we need effort from the boat owners but we also need support from the fishing community. We are actively encouraging boaters to develop ways of avoiding collisions with lobster pot floats but we are also looking for other approaches that may involve a small change in fishing operations with no discernible cost to the fishing industry – if we get it right then it might even reduce costs slightly by losing fewer pots.

CONTENTS

1 BACKGROUND

Yachts regularly sail up and down the west coast of Australia in water depths of 3-50m and beyond. Lobster pots are set in many of these areas, including on the leads to anchorages. Entanglement usually occurs with the surface float line catching on either the rudder or the propeller gear, and results in the yacht being effectively anchored by the line. The consequences vary with circumstances; occasionally the line can be disentangled from on deck with no risk to the crew. More often it jams solid and has to be cut free; the pot and its catch are then lost. On some occasions severe damage to the yacht can occur and a crew member may have to free the yacht by diving under the boat with a knife, often in rough conditions and at night. This is clearly hazardous.

Appendix A shows a log of 35 entanglements recorded on the WA coast. It is only a snapshot, collected from a quick internet search and a request for first hand reports. Those reports suggest that the likelihood of a boat getting entangled on an overnight passage appears to be about 50% when under sail and up to 80% when under motor.

The voluntary steps taken by the western rock lobster industry since June 2014, to adopt measures to reduce whale entanglements (see Appendix D), also holds promise for reducing boat entanglements in several ways:

- Some of the strategies adopted (coiled surplus line, adding weights), will also reduce the surface target size presented to boats.
- The pro-active response of the fishers shows they are willing to make changes if there are overall benefits.
- The effectiveness of this voluntary approach supports the view that education rather than legislation is the best path to follow.

2 BENEFITS OF A CODE OF PRACTICE

- Reduces the likelihood of injury or fatality for boaters.
- Improves the profile of the fishers by adopting best fishing practice.
- Reduces the loss of gear and catch from lost lobster pots.

3 STRATEGIES

In developing any strategies the following statistics are relevant, gathered from the entanglement incidents recorded in Appendix A:

- 93% were with lobster pots
- 68% occurred at night
- 20% were on the leads to an anchorage
- 35% were around the prop, 25% around the rudder, 10% around the keel. with the remaining 30% unspecified

This implies that there is no single solution, though night time visibility is clearly a very big issue.

3.1 Find new ways of detecting the floats

Several new technologies have been suggested, which might be fitted to boats.

FLIR
Forward-looking Infra-red (FLIR) vision may distinguish pots from background. This requires wearing goggles but may improve visibility at night. The technology is expensive.

Night vision binoculars and goggles
Like FLIR, these would improve visibility at night. They are less expensive than FLIR but must be used very carefully to avoid eye damage.

Forward facing cameras
It has been suggested that a forward facing waterproof camera with a display at the steering console would increase the likelihood if picking out lobster pot floats. Whilst this is worth investigating, it would somehow need to provide more advance warning than with the naked eye and must also not prove a distraction to the watchkeeper.

Sonar
Tests were conducted in June by the author in conjunction with Curtin University, on the potential for forward-looking sonar to pick out pot gear. The results were not at all promising.

Radar
The new broadband radars (sometimes marketed as “4G”) generate high resolution images at very short range. Tests could be conducted to see if radar pointing further down than usual could identify pots at a useful distance.

AIS Aids to Navigation (AtoN).
Some of the AtoNs in Gage Roads define the boundary of a lobster pot fishery. These are in place to mainly stop big ships destroying them. It would certainly be possible for virtual AtoNs to be established along the coast. Virtual AtoNs are AIS targets generated from a base station on land. An advantage for the fishers is that these would keep all vessels away.

3.2 Reduce consequences of entanglement

Boat underwater profile
There has been a trend lasting 50 years of sailing yachts adopting underwater profiles that increase the likelihood of catching ropes. On some boat shapes it is possible to fit a wire between keel and rudder which may help reduce entanglements. A search for information on its effectiveness has not yet revealed anything.

Other owners report some success in reducing rudder entanglements by modifying the leading edge of the rudder root near the hull.

Whilst these options are only suitable to some designs, we can make boat buyers more aware of the effect of different boat shapes on entanglement.

Removing lines
It is possible to fit rope cutters to most types of propeller. This significantly reduces the risk of entanglement when the engine is running. However, most devices have sharp edges which could injure a person diving under the boat. It does not reduce entanglement with rudders, or with stern gear when the engine is not running. It also increases the likelihood of the pot being lost.

Different methods and instruments for removing ropes without entering the water could be investigated for effectiveness.

Further information is given in Appendix B.

3.3 Reduce target size presented

At present the gear on the surface can extend for tens of metres if excess floating line is used. Reducing the surface target to just the pots themselves would greatly reduce the chances of entanglement , and may be the single most effective solution. Some possible ways of achieving this include:

Coil surplus line
If a pot is to be set in water depth much less than the line length, coiling surplus line will help reduce the amount of line on the surface. This may not be practical in shallow water (less than, say 10m) and it would take a bit of time to deploy a pot. This solution follows the existing whale entanglement guidelines.

Avoid using buoyant rope for top part of pot line
This would reduce the length of line on the surface in most circumstances except in strong currents. It would require fishers either to change all their rope material, or splice a piece of sinking rope onto the line. This requires some time and money, but it could be implemented gradually as pot lines wore out.

Add a weight to the pot line a few metres from the surface
This also requires some time and money, and may pose a hazard when launching or retrieving the pot using a winch.

Use acoustic technology to do away with surface floats
A system was developed in the 1980s (by Sonartec Ltd) whereby the surface floats were replaced by a subsurface acoustic device that would, when interrogated by a transmitter on the lobster boat, release the pot to the surface just as the boat reaches it. The system was proven effective – so effective that it was banned in order to prevent over-fishing, so the company closed down. This technology could be resurrected and put into practice, greatly improving catch efficiency and removing the entanglement problem entirely. However, it requires two significant obstacles to be overcome:

- A change in the fishing regulations currently requiring surface floats
- A company to be set up again to build and sell the devices

3.4 Improve visibility

A yacht typically travels at 6 knots and requires at least 5 seconds warning to be able to take avoiding action. This means that detection is only useful at ranges greater than about 15m.

Add reflective tape or fluorescent paint
A relatively simple way of making the floats more visible at night is to add retro-reflective tape. The cost is minimal and it would have no impact on fishing operations. Another option is to paint the floats with fluorescent paint. This would take some time and need repainting perhaps twice a year, but again would have little impact on fishing operations. Boaters are already having to use torches to try and pick out the floats at night; addition of tape would make this much more successful.

Fit flags
lobsterpot floats often used to have flags until the 1990s, but this practice died out presumably with the advent of GPS. Other countries still use flags (see Appendix C). Fitting flags would be an increased cost and make deployment and recovery more awkward.

Fit lights
As with flags, this would cost money and could make operation more difficult. However, if suitably small cheap lights were available this could prove a very effective strategy.

3.5 Separate boats from pots

Keep pots off leads
20% of the recorded incidents of entanglements are when boats are approaching or leaving anchorages whilst following leading mark transits. We are given to understand it is illegal to place pots on leading lines, so a strategy to reduce these entanglements is to educate fishers of the dangers and enforce the law. Both these strategies require the support of the WA Depts of Transport and Fisheries.

Clusters v spreading of pots
The recent industry initiative to reduce entanglements with whales is understood to include efforts to avoid laying the pots in clusters. This may well improve the whale issue but it could increase the number of entanglements with yachts unless the positions of the pots are made known.

Keep boats away from pots

If boat owners have information on where pot densities are greatest, they would be able to plan their voyages to avoid those areas. Accurate location of a commercial fisher's pots is commercially sensitive information, so the data needs to be general enough to retain that commercial advantage, but not so general as to be meaningless to boaters. This solution requires the fishers to provide advice, probably to Fisheries staff, and Fisheries staff to make the information available to boaters. This advice could take two forms:

- a generic calendar which contains broad advice that holds true for an entire season (e.g. "pots are likely in 30m depth south of Fremantle, but depths of 50m should be relatively clear in the months July to September" .

- specific local or time-dependent advice e.g. " Bouvard reefs will be heavily fished for the next 2 weeks" . This information could be distributed as a weekly notice, similar to Notices to Mariners for charts.

3.6 Most favoured solutions

- Coil surplus line
- Avoid using buoyant rope
- Paint floats a contrasting colour
- Fit rope cutters to props
- Investigate line cutting equipment for boats
- Obtain general advice on timing and locations of pot depolyments

3.7 Other promising solutions

- Fit weights to lines
- Obtain regular updates of pot locations (use Notices to Mariners?)
- Fit reflective tape to floats

4 WHERE TO FROM HERE?

We would like to meet with the commercial and recreational lobster fishing community, through discussions with their stakeholder groups, to find out what strategies might be supported.

APPENDICES

A YACHT ENTANGLEMENTS LOG

The following 35 events are a small sample of the total, initially gathered over 1 week in April 2014 then updated as reports come in. They are sourced from a short internet search, emailed reports from sailors, and a few from the memory of the author.
All vessels are sailing yachts unless otherwise stated.
Kim Klaka 21 January 2015

18th Jan 2015

Two 13m racing yachts in Bunbury Return race

Account from Fredoctor.com.au

Gary McNally from *Black Betty* said, "Sailing in to the morning sun made it difficult to see the water and picking up the craypot really slowed us down. We had it caught on the keel and then another around the rudder too"

On *Dirty Deeds*, their comment was that the gods must have seen them smiling at *Black Betty's* misfortune so gave them a craypot to collect too.

Dec 2014

41ft cruising yacht

Email from skipper
We tangled with one briefly west of Garden Island. Luckily under sail at time so it cleared itself.

31 May 2014

34 ft cruising yacht

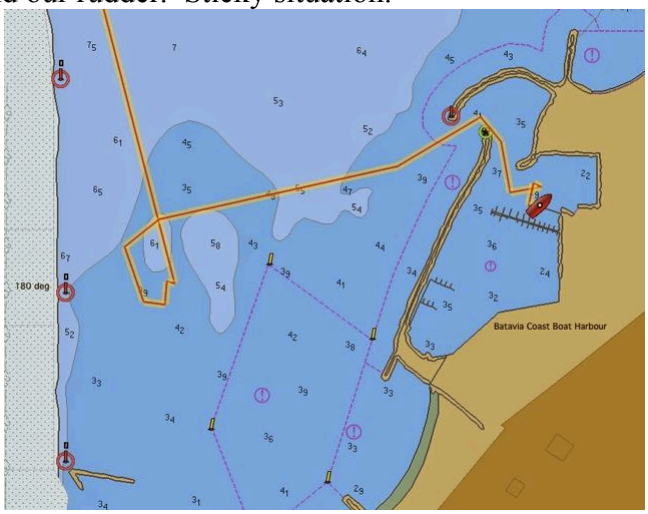
Account from yacht's blog
We motored until 2100 when a new NE breeze started to come in. Also we saw some craypot floats come by and decided that was a sign! Ten minutes later and under sail I heard a set of floats bump down the side of the boat, or think I did. Didn't see them. Just as well we killed the motor. 'Tis a bit of a lottery out here in light winds at night.

22 May 2014

34 ft cruising yacht

Account from yacht's blog
All went very well until a few hundred metres short of the Geraldton anchorage. I slowed down and with the boat on autopilot I went forward to unlock the anchor and prepare the snubber. Just as I finished I saw a red buoy passing by about 3 metres away. I raced it back to the cockpit and managed to get the engine out of gear just in time. However the buoy was

part of the mooring for an UNLIT fish farm and the mooring line from buoy to farm was between our keel and our rudder. Sticky situation.



The fish beds lie where our track SSE abruptly halted

Gradually we slid along the mooring line from the buoy end to the fish farm end. Fenders out and on the mobile phone to Geraldton Sea Rescue. They were superbly efficient. It was 2200 and their rescue boat was in the water within about 30 minutes and arrived about 15 minutes later. In that time I'd discovered all sorts of things about fish farms I never really wanted to know. Primary amongst the lessons was that this one was entirely plastic - there is a god! So the hull wasn't being "eaten" as we banged into the structure while stern-to in a 0.5m to 1.0m sea. Twasn't pleasant. I kept the engine going (in neutral) and revved it occasionally to ensure the waves weren't forcing water back up the exhaust into the engine. We took a couple of small greenies over the transom which wasn't fun.

The two guys on the rescue boat did an excellent job, communicating throughout on VHF. We tried several strategies to extricate Zen Again. Eventually one worked (precisely how is a mystery to all of us) and we were suddenly floating free. From there they led me carefully across to the marina where we're now secured. The guys were quite angry that the fish farm was not lit. There are buoys around it which carry lights but only one was lit and it was extremely dim.

We did sustain a little damage - the PVC tube holding our boat hooks and dinghy paddles was broken off our quarter and the gas bottle knocked partly out of its s/s holder.

22nd May 2014

40ft cruising yacht

Account from yacht's blog

We were trying to make an average of 5 knots to time our arrival at Geraldton early Friday morning but after dawn so we could see all the fish farms (unlit) and craypots recklessly placed near shipping channels and marina entrances (DoT or Fisheries really need to address this hazard).

28th April 2014

Bavaria 36

Report from skipper

On my passage to the Abrolhos, I got entangled in craypot floating markers. I also have a duo-gen which in water mode an impeller is pulled through the water to charge the battery.

This also got entangled. The entanglement occurred at night and I did not get the co-ordinates. My solution to this issue was to place a knife on a stick and cut them free.
25th April 2014

Beneteau 32

report from skipper
About 10.00 am on our return from Mandurah to Fremantle we picked up what I assumed to be a cray pot onto our rudder . This was 1 nautical mile south of Coventry reef (co-ords are on the chart on the boat). The wind was about 7 knots visibility was good. Unfortunately there was so many pots that we were going around one swarm with another in our sights when we missed one. With some leverage we were able to remove this and we can see no damage. I must say the sheer volume of the floating bouys (and assumed pots) on Friday saw sailing up to Garden Island a bit of a challenge. They did noticeably decrease in number the closer we got to Perth.

14 April 2014

Catalina 40

Account from yacht's blog
http://www.svaquavitae.blogspot.com.au/
"When it came time to turn in toward the leads for Port Dennison, DS radio'd back that there were hoards of cray pots at the point where we needed to turn! NICE...NOT!! We didn't know if they were all tied together somehow or not, so after deliberating and cogitating for some time, made a dash across the line of pots and didn't snag anything."

13 April 2014

Yacht returning from Jurien Race

Account from WA sailing website
http://freodoctor.com.au/index.php?option=com_fireboard&func=view&catid=2&id=31881#31881
"We had an adventurous trip home, left late Sat evening in company with ME2. Got our prop tangled in a cray pot in the wee hours of Sunday morning. We finally managed to get her free in the rough conditions, but the lines also took our prop, so a slow sail back with the breeze direct on the nose all the way."

12 April 2014

Catalina 11m

report from skipper
Approximate location 10 miles west of Cervantes at 1 am. Winds less than 10 kts, about a 1m sea. Pot caught on prop. Action required was to take down sails, swim over the side and under the boat, knife, much swearing. No damage to boat. I usually have at least one entanglement per trip to Abrolhos.

22 Feb 2014

Beneteau 30. Support vessel for Rottnest swim.

Verbal report from owner next day:
Coming into Leighton Beach with swimmer on board, before dawn, became entangled with shark drumline. Managed to free it without sending anyone into the water. Slight damage to leading edge of keel.

14 Feb 2014

Marten 49

report from skipper
On the feeder race for the geography bay race week off Garden Island. Calm weather, 10 knots, night (of course) we caught 4 pots and one cray pot line with 3 floats that was just floating around. The 4 pots stopped us and we lost around 1.5 hrs clearing all of them thru the night we reckon. The loose line dropped our speed and then we had to physically pull the line in to free us. We reckon caught on keel (T keel!!). Action to remove- manoeuvre until free, sail backwards etc. no cutting of anything. No damage sustained.
Same on recent Jurien race, same conditions early am, dark etc but only caught one. There was a line of pots set for some miles in a north south line off the coast which we caught one on the way up. On the way down we were in day light so could avoid them.

25-26 Oct 2013

Yachts on race from Fremantle to Cape Naturaliste and return
From Yachting WA news page
http://www.yachtingaustralia.com.au/newsletter/newsletterdisplay.asp?ID=6799&SP=10100-6-WA
"Royal Perth Yacht Club's Cape Naturaliste Race. Most yachts also reported becoming entangled in craypot lines during the race, the long floating lines creating a constant hazard at night."

Sept 2013

Sewaind 11 m catamaran

Account from yacht's blog
http://seawindwhiskers.blogspot.com.au/2013/09/2013-september.html
"I was having trouble keeping my speed down until a couple of hours before dawn, when the boat slowed to less than 2 knots under single reefed main and one engine just ticking over. That was the speed I wanted so I didn't question my good fortune too much, although I did have a bit of a look to see if I had picked up a cray pot. I couldn't see any sign of floats or ropes.
I arrived at the leads to Jurien Bay just after first light. There was still about 6 miles to go to the anchorage and a likelihood of breakers because the swell was around 4 metres. I dropped all sail and started to motor so that I would have better manoeuvrability if the swells did start to break. But neither engine would rev-out, my speed was inexplicably (I thought) low and the autopilot was making odd labouring noises. It occurred to me that I might have picked up a cray pot so I had a good look around and, sure enough, one was trailing from my port rudder!!! I cut the pot and floats free but there was still some rope caught on the rudder, which badly affected steerage. So on with the wetsuit, tie a rope to the stern and skipper-overboard! It took less than a minute to pull the rope free and the upside was that I got to have my monthly bath. It also woke me up and focused my attention after an overnighter."

28 April 2013

S&S39

report from skipper
I picked up a cray pot on the last night of my 5-year circumnavigation in my 12 meter sloop. It was night time, with the moon at about 3/4. Fortunately, at the last moment, just as I was about to enter South Pass, I decided that the wind was favourable enough to allow me to sail

through the pass, just south of Rottnest Island, rather motor as I had planned. The wind was moderate from the SE and the sea was also moderate. By sheer luck I was working a port winch when I saw a float whiz by in the moonlight. I inspected the stern with a spotlight and sure enough I had picked up a cray pot, which was caught on the propeller. I spent the night in Gage Roads dodging ships under sail and in the morning I made contact with Cockburn Sea Rescue which sent a boat that stood by as I went down the ladder into the water and cut the cray pot line, which by now was well tangled around the propeller and shaft, with a knife in repeated dives. There was no serious damage because I was fortunate enough to not have started the engine.

Despite my feelings of joy and benevolence at returning to wonderful Australia with myself and my boat in good condition I was extremely annoyed that it was still allowed to put the cray pots in such a well defined and well used traffic lane. These cray pots turn night navigation through designated passages into game of luck through a minefield.

May 2012

Seawind 1160 catamaran

Personal account
Entering Geraldton Harbour channel after dark, a dredger was operating so we moved to just outside the port (north) side of the channel. Caught a craypot round both props. Motored gently at 1.5kn for 1 mile, dragging craypot along seabed, intending to anchor off the beach then dive on it after sunrise. Just before the beach one prop broke free from the pot line, so motored under one engine to marina. Dived on boat next morning and cut rope free from both props. No disabling damage, though slipping the boat a few months later revealed some misalignment.

April 2012

Blackwatch motor boat
Account from Whitfords Sea Rescue newsletter

http://www.whitfordssearescue.org.au/newsletters/201206.pdf?sID=1plqid9glckv7km15et27qeu23
"Hi, yesterday 10/4/2012 we were stuck out at sea tangled in a craypot rope. We called you guys & Rottnest rescue?, With all your communication the Rottnest Rescue team were with us in a flash. The Rottnest rescue guys towed us to near Hillarys & Whitfords Rescue then took over & towed us to our pen at the Hillarys Marina. Not only did you guys help free us from the stupid craypot rope that was tangled around our propeller but the amount of phone calls to see if we were ok & to tell us exactly what you were doing was ever so thoughtful as it put our minds at ease. You probably did not see me, but I was the girl on the boat, My name is Leesa & I have a disability (Multiple Sclerosis), I can't walk very well let alone swim if I had to & I am telling you this because I panicked, I am only new to this venturing out on a boat & going fishing. You all assured me that, me, my boat & my 2 friends on the boat were going to be ok. "

Approx 2011

Bavaria 36

Report from skipper
There was another situation a few years ago when I was sailing at Mindarie when I got entangled in craypot floating markers. This caused a dangerous situation as the rope had

stopped the motor blades and I was unable to start the motor. I was also between two reef's on either side. The winds were approximately 25knots and I was slowly drifting towards a reef. On this occasion I was lucky to have been able to move the rope from the engine blades to get the motor started, which allowed me to free the boat from the entanglement.

May 2010

Radford 40

From FSC Bluewater Bulletin June 2010 p49
"3 metre swells and 2-3 metres seas off Port Denison…<*yacht name*> unfortunately had an altercation with a craypot.. unable to cut this loose during the night and unwilling to jump into the sea in the dark and do it. The pot was utilized as a sea anchor and they hove-to, until day break and then Bart jumped in and cut them loose.

27 Dec 2009

44-ft Beneteau Oceanis Sloop

report from skipper
6 nm west of Challenger Passage (32 deg 09 min E, 115 deg 36 mins E) Night time, wind 20 kts SE. Pot caught on prop, the boat spun around stern to the wind. We steered up to reach a heaved-too position. Crew put on harness and climbed onto the transom to reach ~ 2 m down to hook the craypot line with the boat hook. Eventually, it was hauled out of the water and cut with a knife to release us. We sailed on and dropped anchor in Geographe Bay next day. Crew dived on the propeller and freed the tangled line and float. No serious damage reported.

May 2008

Beneteau 41

Personal account
Sailing north on Fremantle Sailing Club Abrolhos cruise, about 20 miles west of Jurien in 25kn SW wind, 3m swell. Caught craypot round the rudder in the night. Yacht tethered stern on to waves. Cut rope free with knife by one person outside the guardwires, another one inside guardwires hauling in line with boathook. No obvious damage.

May 2007?

Radford 42
This yacht was awarded the prize for snagging the most craypots on the FSC Abrolhos cruise. They caught 6 pots over the 3 week cruise whilst sailing and motoring.

April 2006

Thompson 9.8 sportsboat.

report from skipper
Off Jurien coming in towards the marina via north of Favorite Island. A dark night (must have been cloud cover, certainly no moon). Wind SW 15knts approx., a bit of a swell, 2m? We were motoring, having suspected damage to rudder gear. It was so dark we did not see craypot rope, but pulled up as it wrapped around the prop. The Thompson had a fin keel with massive lead bulb so it was amazing the rope managed to find the prop. By the time we stopped the motor the rope had melted into the prop (saildrive folding). It took some time to cut it free, diver in water with dolphin torch and sharp knife. The rope was so melted into the gap the prop would not turn unless it was all cut away.

May 2005

Beneteau Oceanis 440 – 44-ft

report from skipper
Off Cervantes in daylight, wind 5 kts – slight seas, motoring. Pot caught on prop. We sailed on to the bay behind the island off Jurien, where we dropped anchor. On diving, we freed the rope and small float, but it had worn the cutlass bearing. We put into Geraldton, hauled out and found a "Tradie" to replace the bearing. 24-hr delay and ~$1000 in costs.

2004/5

Adams 40

Related by owner
Entering Jurien Bay on leads through north passage at night, caught craypot round prop, disabling vessel. Towed in by Jurien Sea Rescue

2004

Runnalls38, 10.4m

report from skipper
Approximate location 10nm sw of Cape Naturaliste in >100m water depth, night time. Wind25kt ssw, 3m swell. Pot caught on keel; used small anchor & line to grab, knife to cut away, floats remained trapped under hull. Returned to Quindalup to remove.

2003

Runnalls38, 10.4m

report from skipper
Approximate location 10nm nw of Mandurah, night time. 20kt sea breeze. Pot caught on keel; used small anchor & line to grab, knife to cut away, floats remained trapped under hull. Retired from race due to crew sea sickness induced by entanglement.
We had numerous near misses involving encountering floats with long lines on the surface. This changed my attitude from one of trying to disentangle intact to one of immediately getting the knife.

~ 1998 to 2002.

UFO 34

report from skipper
Off Penguin Island in about 10 to 12 metres of water. Around 0900 Wind moderate easterly (cray line across direction of travel) light sea and swell. Craypot caught on rudder. On turning back 180 degrees the line dropped free.
Pot was dark green or black and although we knew we were in a cray pot zone (coming towards to the leads into Warnboro Sound) we did not see it until it floated free. As a comment it seems to me that a weight or change in the line specification is needed to avoid so much line floating on the surface.

May 1998

Van de Stadt 34

Personal account.
This was a near-miss. Entering Port Denison on leads after sunset, wind NE 20kn. Required a person on deck with spotlight for 1 hour to dodge the pots set along the leads.

Between 1993 and 2001

Roberts Offshore 44

report from skipper
We made 5 trips to the Abrolhos islands. On all those trips we traveled overnight to Jurien bay and then made another overnight hop to the Pelsaert group. We counted on picking up at least one craypot in the prop going each way and at least once picked up one south of Jurien and another approaching Pelsaert. We believe that if you travel overnight between Fremantle and Geraldton the odds are you will definitely pick up a pot. <*yacht name*> a had a long fin keel and skeg hung rudder. We had a 22 inch 3 blade prop that we let freewheel when sailing. In general if we hit a pot rope while sailing it would tangle in the prop. A few times we were then effectively anchored to the bottom until daylight when a dive would be necessary to cut free. If we ran over a pot rope motoring, or if we were sailing fast, the rope would be cut but we would still have it tangled in the prop with at least one float banging against the bottom of the hull and requiring a dive to clear.

Between 1993 and 2001

Halberg Rassy 38

report from nearby yacht
For the record we sailed up one year in company with two other yachts. One boat - a Halberg Rassy 38, picked up a pot approaching Pelsaert in the early hours of the morning. John called me and I said he would have to go for a swim - not thinking that he wouldn't wait until daylight. What he did was to go in the water, with a safety line, and cut the pot rope. Somehow the line to the pot tangled his safety line and he was being pulled down. He made a guess and cut one line. Fortunately it was the right one and he lived to tell the story. It could have been a disaster and the moral is don't even think about going in the water at night. A few times we have sailed on with a fouled prop and then hove to at daylight to clear it.

December, late 1980s

Herreshoff H36, long keel traditional design, keel and transom hung rudder

report from skipper
Approximate location between Carnac and Garden Islands, outside. Night time; light sea breeze, medium sea/waves. We must have sailed between two floats and rope caught between keel and rudder, approximately 1.5m below water line. We managed to cut away the pot from on deck but could not remove the floats, one on each side of the rudder. We removed it once at anchor in Bunbury. The only damage was loss of anti-fouling paint and then not much.

Dec/Jan 1988

Viking 30

Personal account
Sailing north about 20 miles off Jurien, wind SW 25 kn, 3m swell. Caught craypot round rudder during daytime. Yacht tethered stern on to waves. Cut rope free with knife by one person outside the guardwires. No obvious damage.

Unspecified date

Spirit 28

Report from skipper
I can report catching a cray pot line on the rudder of my old Spirit 28 many years ago whilst running in light winds under genoa half way between Longreach and Hillarys. The rope traversed the keel and prop (two blade folding type) ok, but lodged firmly in the gap above the rudder. (From memory it had a short skeg with semi-balanced rudder, but could have been fully balanced?) Tried unsuccessfully to dislodge it with boat hooks in conjunction with moving the rudder, but in the end had to dive on it and cut it free, which was dangerous due to a swell causing the stern to rock up and down in the proximity of my head!

B PROP PROTECTION

Ocean Navigator website

http://www.oceannavigator.com/May-June-2010/Prop-protection/
Ocean Navigator / May-June 2010 / Prop protection
Jun 24, 2010 Twain Braden
We've all had that experience, sailing peacefully along on a sunny afternoon in coastal waters, an eye on the sails, thoughts drifting off, perhaps toward the evening's hoped-for destination, when suddenly — clunk! — your headway drops to nothing and the boat veers awkwardly like a fish caught by the tail. You've snagged a lobster or crab pot in your propeller. You then execute a series of futile turns and sail combinations in a feeble, hopeless attempt to free the wheel, knowing in your heart that the only thing that will clear the line involves you, a knife clenched between your teeth and getting wet and banged up under the rolling hull. You know the line is a snarled mess around the blades and shaft, extending almost bar-tight, out of sight below you to the sea floor.

What's even worse is when you're motoring along and a snagged line violently causes the motor to stall; the line has become so jammed on the shaft that it has welded itself together, and it might be hours before you can continue on your course.
I've fouled a propeller in pot warp or mooring lines more times than I can remember — both in the open sea (fishing net) and near the coast (lobster or crab gear). And although the experiences run together, I can clearly remember the awkward and dangerous experience that hacking at a line underwater involves.
Sometimes there's no avoiding a snagged propeller, but this story examines several methods for avoiding snags and then, should they occur, what you can do to prepare for such eventualities and keep yourself and your boat safe.
Clearly, some boat designs seem to snag any lobster pot within 30 feet of the boat, almost as if they suck them toward the hull and then into the propeller. Other boats seem impervious to catching traps — no matter how many times you see the lobster pot slip beneath the boat and you just know you've snagged one, just as quickly it pops up in your wake and slips harmlessly past.

Cutting blades
An obvious answer to the potential of a fouled propeller is to install cutting blades on the shaft and wheel. The most visible brand, Spurs, has been installed on more than 100,000 boats around the world, from small yachts to full-size ships. Shaft sizes for shaft-mounted cutters range from half an inch to seven inches. For prop-mounted blades, the size of the shaft

is potentially unlimited — such that they are installed on vessels over 1,000 feet long with shafts over two feet in diameter.

The Spurs system consists of two rotating blades that are clamped to the shaft. A fixed blade is held in place by a V-block which is fastened to the bearing housing. All of the blades are double-sided so that they will cut whether the engine is running ahead or astern, and for both left-hand or right-hand turning propellers, according to Susan Correa of Spurs Marine, which is based in Fort Lauderdale, Fla. Sound-dampening "plugs" between the stationary cutter and the wedge holding block prevents metal-to-metal contact.

Even at slow speeds — when, for example, a vessel is making way under sail — the cutters still slice through line because of the weight and inertia of the spinning blades. "We've had no trouble cutting lines on sailboats," Correa said. "Our cutter cuts with minimal resistance with the guillotine effect, therefore even in a slow speed the cutters cut any obstructions."

Skip Strong, a Penobscot Bay and River Pilot based in Searsport, Maine, has a Shaft Razor installed on the company's pilot boat — a product made by Evolution Marine in Rockland, Maine, where the vessel is berthed.

"We still have to have a diver go down every once in a while, but not as much as in the past (without cutters)," Strong said. "We usually run with a search light on at night to help us avoid the gear." He said that roughly 10 percent of the vessels — from tugs to tankers to cruise ships — that call on the Maine midcoast ports he and his partners serve are equipped with cutting blades. Most vessels build the cost of divers into their operations budgets, sending divers down regularly to clear fouled line. Even when a propeller is spinning (its blades having cut through the line), line can nonetheless tangle in the blades and cause friction, sacrificing fuel efficiency.

"We usually send a diver down when the temperature gauge begins to creep up," said a ferry operations manager in the Northeast who preferred not to be identified for this story because of potential conflicts with local fishermen whose gear the company's vessels routinely snag. But what about when a Kevlar jib sheet is hanging overboard and it gets sucked into the propeller's cutting blades?

"Whatever rope cutter design a vessel uses there will be circumstances where the result is not as expected," Alan Carr of Evolution Marine said. "For instance, no matter what the brand or design, if the rope is held perpendicular to the shaft, entanglement is guaranteed. Other non-functioning instances would involve entanglement with wire-cored rope or mooring chains."

Evolution's Shaft Razor Cutter serves the fishing, commercial, and recreational market — about 40 percent are installed on commercial vessels, he said. Initially, the workboat market was leery of either promoting or installing cutting gear on commercial vessels, since doing so would seem to be promoting the destruction of underwater lines.

"If a vessel were to become entangled in trap gear, cutting the buoy at the GPS location affords some retrieval possibilities rather than having the gear tow where it cannot be found," Carr said. "Additionally, some of our commercial customers have opted for the product after (fouling their propellers and needing a tow)."

The Shaft Razor features a pair of round, serrated blades, one perpendicular, and the other parallel, to the shaft and at 90 degrees to one another. This configuration makes the cutter particularly "aggressive" at cutting through lines, regardless of the angle of the approaching line. While having the cutters does not guarantee tangle-free sailing, Carr said the combination also limits shaft and alignment damage in the event of a really nasty snag, such as what might occur from contact with metal or high-strength line.

The basic difference between Spurs and the Shaft Razor, according to the manufacturers, is that Spurs cut suddenly and instantly like a guillotine, while the Shaft Razor saws away at the line because of its circular shape.

“With the Shaft Razor, one may feel the vessel slow hesitantly and then clear,” Carr said. The units are machined several thousandths of an inch over the shaft diameter as a “slid fit,” Carr said. The shaft is then dimpled (drilled) to catch the head of the stainless cone head set screws. Loctite or silicone is utilized on the set-screws in the thread cavity to prevent marine growth build-up.
Maintenance of the Shaft Razor is fairly simple, provided the vessel is on the hard.
“Check the points of the serrations when the vessel happens to be out of the water,” Carr said. “If one or two are bent over, merely straighten with a small bronze hammer. Occasionally, take a half-round file and dress the serration edges. This can be easily done with a small hobby grinder. Check that the set-screws are tight to the shaft. All of this can be done with the unit still on the shaft.”

Dealing with a snag

The whole strategy behind the marketing of these cutting units is built around the belief that the blades will cut through the majority of what it comes in contact with. Needless to say, if the cutting blades fail to cut whatever is snagged, whether a Kevlar sheet, an enormous cluster of line, or a line laced with metal, you have an even bigger problem on your hands when it comes time to clear the propeller — because now you have a set of sharp, serrated blades on the shaft that would just as soon cut through a finger as a piece of pot warp.
“Have you ever been on a boat with cutters that have picked up a line? I have, and don’t want to be again. It was on the close side of violent,” Rob Benson, service manager at Portland Yacht Services in Portland, Maine, said. “Furthermore, I can’t imagine having that happen 10 times a year would do anything positive for your alignment.”
“I consider protection for the prop to be more directly related to safety as a result of lines on the boat going overboard maneuvering in the harbor or at sea,” Phin Sprague, owner of Portland Yacht Services and of the 65-foot Alden-designed staysail schooner called *Lion’s Whelp*, added. “We have these new Kevlar lines for sheets and I am concerned that when we are handling sails in Gulf Stream squalls and have the boat essentially stopped, a line will get washed overboard and into the prop. Unless you have been in one of the night squalls where visibility is zero in rain and spray and an inexperienced helms person heads up instead of off, and the whole boat is a mass of loose lines and thrashing sails, you probably wouldn’t appreciate the number of lines that can go overboard and potentially get into the prop.”

Diving equipment

Sooner or later, then, you will have to go over the side to free a tangled prop. Hopefully, it’s not at night in the conditions described above. A number of years ago I wrote a piece for this magazine that compared products for underwater breathing equipment (see *Emergency dive gear*, *Ocean Navigator* Sept/Oct 1998, issue #92), from portable compressors to emergency scuba gear. Whatever the preference, it is wise to have some combination of the following equipment: a good diving mask; a portable scuba tank like Spare Air or conventional dive gear; a hookah-style breathing tube connected to an air compressor on the boat; a sharp, preferably serrated knife with a fixed blade that won’t collapse on your fingers; a pair of swimming fins; a pair of Neoprene gloves to protect your hands from burrs on the prop blades; and a wetsuit for cold water.
When diving in cold Maine waters, I wore a Neoprene hood when working underwater, primarily for warmth. But after getting bonked on the head the first 10 times, I realized the foam acted as a helmet, too, and now I carry a Neoprene diving hood for going over the side, regardless of the temperature of the water.
Once, when sailing off Nantucket on a 48-foot cutter on a delivery from Florida to Maine, the boat I was on snagged a section of fishing net that turned out to be about the size of a

blanket. We were motoring at the time, and the thunk of the engine, followed by an immediate stall, left no question as to what happened. But the preparedness of the skipper — who happened to be *Ocean Navigator* Contributing Editor Chuck Husick — was a pleasure to witness: Chuck immediately went below and locked the shaft from inside the engine room; fired up the generator; pulled his well-oiled air compressor from a locker and plugged it into a pilothouse electrical outlet; donned a full wetsuit, mask, snorkel, and fins; lashed a serrated knife to his thigh; rigged the overboard ladder; and then disappeared over the side with the hookah in his mouth as dashingly as a Jules Verne character. He reappeared a few minutes later with the offending net in his grip. We were stopped for all of 10 minutes. (I don't want to describe the times when I was less prepared — bloody and painful experiences.)
One final note bears mentioning: whenever I've cut a line I've made every attempt to rejoin the buoy to the fishing or mooring gear before setting it loose. A string of lobster gear can cost many hundreds of dollars that would be lost otherwise. A little goodwill goes a long way.
Cutting blades require little maintenance and are not particularly expensive as far as boat gear goes — a few hundred dollars plus installation. Whatever the choice, it pays to think ahead about how to deal with these underwater nuisances.

Twain Braden is director of Camp Glen Brook in Marlborough, N.H. His upcoming book, The Ultimate guide to Sailing & Seamanship, *will be published by Skyhorse in December.*

Propeller Guard Information Center, USA

http://www.propellersafety.com/propeller-accident-scenarios/

On occasion, propellers become caught / entrapped in cables, fishing lines, crab pot lines, lobster trap lines, decoy lines, ropes, and other underwater hazards disabling the ability of the boat to move. While disabled the boat faces extra dangers from bad weather, nearby outcroppings of rocks, oncoming vessels, even pirates in some areas. A 27 footer sank in this condition on 12 April 2006 in Maryland. A small crayfishing boat was capsized in 3 to 5 meter seas in Australia 15 April 2006 when a crayfish pot became entangled in the prop. Sometimes passengers are ejected such as in the 8 July 2010 Charlotte Observer (North Carolina) Notebook news report of a late January decoy line becoming caught in a propeller, a wave hit them, and two hunters were ejected into very cold waters.

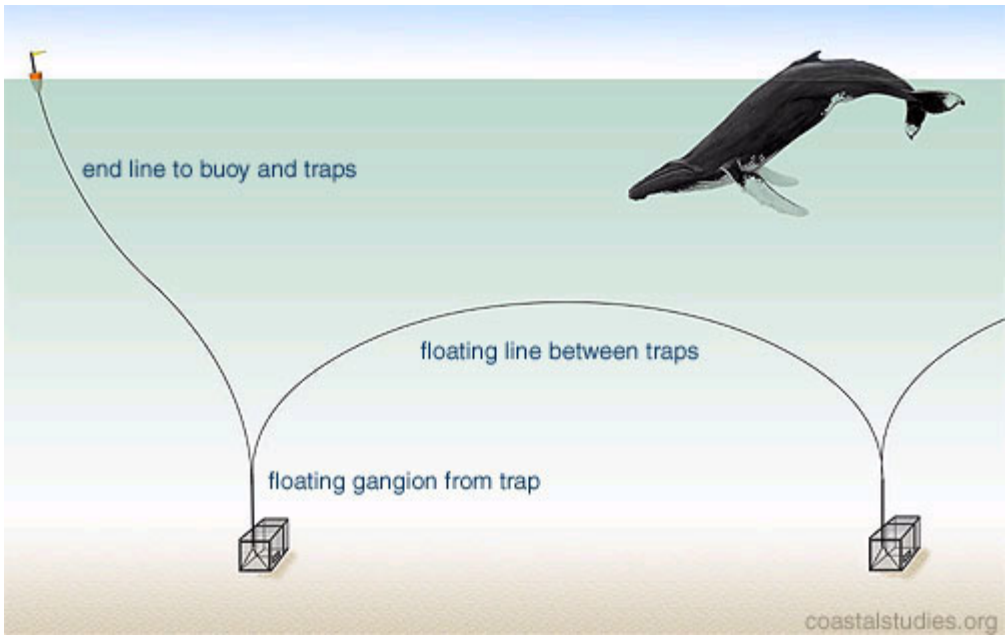
C LOBSTER FISHING OVERSEAS

Provincetown Center for Coastal Studies, New England 2012

http://www.coastalstudies.org/what-we-do/whale-rescue/lobster.htm

Lobstering, in New England, provides a livelihood for thousands of families. Lobster pots, or traps have been modified over time but, the basic principle remains the same: lobster are lured up a mesh ramp by a bag of bait and fall into a compartment.
A series of pots may be strung together with synthetic lines and marked by buoys with an end line for locating and hauling in the gear. In many areas floating lines and gangions (the line that connects the trap to the end line) are used to keep the set from snagging on rocks while hauling in. Typically, a five foot, floating gangion and connecting lines create an arc that rises 15-20 feet into the water column and stretches 80-90 feet between traps.
In different regions, a similar set up (collectively called pot fisheries) can be modified to target many different species, including crab or hagfish.
Gear modifications, based upon documentation of entanglements, to reduce potential by-catch of whales have included: reducing the end lines to one (in the past, buoys often

marked both ends of the set); reducing knots on lines that may snag on whale baleen; replacing floating lines with neutrally buoyant or sinking line; creating weak links that pull apart at certain weight pressures; and seasonal or dynamic area management closures where and when whales and gear coincide.



Cape Cod Times, USA 2014

July 28, 2014

EAST ORLEANS — Outer Cape lobster fishermen say that new federal regulations protecting whales don't just threaten their livelihood, they threaten their lives.

But supporters of the new rules say it's time to cut back on the nearly half-million lobster pot and fishing gear lines that entangle whales at twice the rate allowed under federal laws enacted nearly 20 years ago.

The Massachusetts Lobstermen's Association hopes to meet with state legislators on Wednesday to make their point on how new lobster regulations intended to protect whales from getting tangled up in their pot lines will adversely affect fishermen.

Lobster Day at the Statehouse runs from 10 a.m. to 2 p.m. Wednesday at the grand staircase.

"This is the first (lobster) regulation where you will have wholesale civil disobedience," predicted Orleans lobsterman Steve Smith, while transferring totes of lobsters from his skiff to his pickup truck at Snowshore Landing recently.

"People just aren't going to do it."

State surveys show that at least 30 percent of Massachusetts lobstermen regularly fish alone and many of them set a single lobster pot connected to a single marker buoy. That's particularly true of Outer Cape lobstermen who fish in one of the most exposed ocean environments in New England from vessels less than 30 feet. But, they say, fishing solo is an economic necessity because of limits on the number of traps and the shallow inlets they follow to get offshore.

National Marine Fishing Service data shows that there is an average of nearly 227,000 vertical fishing lines in the water every month in the Northeast. All but 6,200 are for buoys marking lobster pots. The new regulations, which go into effect Jan. 1, stipulate that lobstermen use a minimum of two traps per buoy with the goal of reducing the number of vertical lines in the Northeast by 30 percent.

Smith has a hydraulic winch to bring each pot up from the bottom, and can stand in one spot to pull the lobsters out of the trap, rebait it and let it slip back over the side. But with two traps, he'd have to put both on the deck and then move around to unload and rebait them. That means two things: He is more at risk for getting entangled in the extra line and he would have to move away from the throttle, which is critical in stopping a moving vessel if he gets caught by the rope and is pulled overboard.

Also, these traps are heavy, as much as 125 pounds apiece. Twice the weight means a lot when they get balled up in a storm, and even more when it threatens to drag you down to the bottom.

"Right now, if you're caught (entangled) in a single trap, you're right at the controls. You can put it into neutral and cut the line or get untangled," said Truro lobsterman Bill Souza. "With more than one, there's no way you can hold that back. It will take you right over the stern."

Lobster fishermen have a fatality rate 2½ times the national rate for workplace deaths, according to a 2005 report by the National Institute for Occupational Safety and Health. The majority are due to entanglements. In a safety institute survey of 103 lobstermen, 73 percent said they had lost clothing or been pulled to the stern or overboard by their own gear.

"Without a sternman, adequate deck space, and sufficient hydraulic power, the risk of injury to the lobsterman is unacceptable," Massachusetts Division of Marine Fisheries Director Paul Diodati wrote to NMFS regional administrator John Bullard on July 16 urging the agency to reconsider the impacts on Cape lobstermen.

The problems don't stop there. In his letter, Diodati also said that the new plan is flawed because it is based on a computer model based on incomplete data that might be underestimating whales and fishing activity outside Massachusetts.

The state has higher record-keeping standards for its lobstermen than any other state, resulting in tougher regulations, and fewer exemptions than other states who weren't collecting that information. The commonwealth requires all its lobstermen to fill out trip reports that specify where they fished, what they landed and how many traps they were using. But Maine asks only 10 percent of its lobstermen to report, although the state has the highest lobster landings by far of any state, and the most lobster pot lines in the water — more than 50 percent of the 473,000 lines used annually in the Northeast.

The Massachusetts data meant the model worked really well in pinpointing whale entanglement spots here, but not in other states.

"Massachusetts is collecting data and those data have been used to impose measures that other states, that are not collecting that data, are being exempted from," said Sharon Young, marine issues field director of the Humane Society of the United States. Young is a member of the whale-protection team that put together the new lobster regulations.

Seventy percent of Maine's state waters are already exempt from much of federal whale regulations because state and federal officials believe whales don't enter those inshore waters. NMFS also granted a quarter-mile zone around some Maine islands to protect their solo lobstermen who, like their compatriots on the Outer Cape, said it was too dangerous to handle multiple trap trawls. That same exemption was granted in New Hampshire.

Dan McKiernan, deputy director of the Massachusetts marine fisheries division, said his agency will meet with lobstermen about possible relief measures but any new changes require a separate rule to be made by the whale-protection team. That process has typically taken a couple of years.

David Gouveia, NMFS assistant director for protected resources in the Atlantic, said exemptions were granted in other states because there is little evidence that whales use those area's inshore waters to the extent they do those of Massachusetts. Conversely, it's well-documented in scientific research, whale watch sightings and federal aerial surveying that the Bay State sees high numbers of whales feeding in places like Cape Cod Bay and Stellwagen Bank. Massachusetts DMF data from fishermen show there are also a lot of lobster pots and other fishing gear in those areas. Portions of Cape Cod Bay are designated for seasonal closure to all fixed fishing gear like lobster pots and gill nets, to protect large aggregations of right whales.

Young countered that, unlike Massachusetts, some states, including Maine, haven't put much effort into finding whales. Aerial surveys are sparse, she said, there are no acoustic buoys, like those on Stellwagen Bank, that listen for whale sounds and most fishermen aren't required to report what they do or see.

"If you don't look for them, how do you know they are not there?" Young asked.

But, Gouveia said, NMFS has to go forward and address known causes to comply with the laws and avoid litigation under either the Marine Mammal Protection or the Endangered Species act.

Despite continued entanglements, whale populations have made significant increases as a result of the protection plan. Although its growth rate is low, the North Atlantic right whale population, one of the most endangered large whale species on earth, has increased from 265 individuals a decade ago to more than 450 today. But those numbers could be even higher, Young argues, if the federal agency complied with the laws and ended all entanglements.

Young agrees NMFS is caught in a vice of conflicting interests. But she also argues the agency needs to be more assertive in tackling hard issues. The agency backed away from requiring that all gear be marked in such a way that fishing regulators or those freeing entangled whales would know more precisely where it came from.

"If you mark gear more finely to differentiate it from others, you could see where (entanglements) were happening," Young said. That could result in smaller areas and fewer fishermen having to comply with onerous and costly regulations.

She noted that the shipping industry was highly resistant to slowing down their vessels in areas where right whales were known to be swimming. Ships hitting whales were once the largest cause of mortality, and now they rarely occur.

"It is hard to make changes," Young said, "but it does happen and it can make a huge difference for whales."

Fishing off Protugal

Email report from FSC Yacht Songbird currently in Europe

Having sailed down the Atlantic coast of France, Spain and Portugal over the last couple of months we came across numerous minefields of craypots and fishing nets….these I used to worry about, but now I can sail through them quite relaxed knowing that a chance of a hook up is very unlikely……WHY you ask ??....hopefully the explanation below helps.

Because of the high volumes of traffic (both small and large vessels) the fishermen here use a very simple rig setup to minimise their losses of both nets and pots….I spoke with a fisherman in Portugal (who fortunately spoke very good English) about how they set up these rigs and he invited me on board to show me how they were put together…seeing this setup has made me relax a bit knowing more about what's sitting on and below the surface as you pass by.

He also explained the have very few losses and it makes it easier for them to find their pots in bad weather……France, Spain and Portugal all use similar rigs

Key features are:
The pots are connected to the main line with a float (large float) at the surface as they are in Australia. The most important part of this is there is a good sized weight hanging about 15 meters below the surface to hold the line vertical in the water to the float on the surface. If you hit the float at the surface its design is supposed to allow the float to roll down the side of your hull and off the stern.
The surface floats have flags attached to them so they can be spotted in rough weather. …It also helps distinguish them from a lone sea bird floating on the surface.
At the surface there is also a retrieval line generally about 3-4 meters long with a very small float (about the size of a grapefruit), so if you happen to hit this line and it rolls under your hull the float is small enough and the line short enough, that in most situations will not catch underneath.

Not totally fool proof…and doesn't negate all the problems being experienced…….but it stopped me worrying about pots in this region….. We have sailed past and I'm not exaggerating when I say thousands of pots and nets along these coasts, passing sometimes within a couple of meters without any problems……..as yet !!

D W.A. WHALE ENTANGLEMENT MEASURES

ABC News Aug 2014

The rock lobster industry says measures to reduce whale entanglements in fishing gear are working well.

http://www.abc.net.au/news/2014-07-30/less-whales-entangled/5634568
ABC Rural
By Joanna Prendergast and Sarah Taillier
Updated 1 Aug 2014, 2:33pmFri 1 Aug 2014, 2:33pm
Western Australia's Western Rock Lobster industry says it's confident mitigation measures to protect migrating whales from being entangled in fishing gear are working.
Last year, the lobster industry came under fire as 32 whales became entangled in fishing gear during their annual migrations along the WA coast.
Whales migrate north to breed in about May each year before returning home to the south in November.
In June this year, a number of measures were introduced for fishermen to reduce whale entanglements, such as a requirement to remove slack from pot ropes.
The Western Rock Lobster Council's John McMath says with six whales entangled in commercial fishing gear so far this year, the mitigation measures appear to be working.
"It's been a very positive acceptance of those mitigation measures. The commercial rock lobster industry is very aware of the fact that we do have to coexist with whales and other sectors that do operate in the commercial fishing industry," he said.
"Change is always something that needs to be embraced positively. What it has required is that people, ahead of that 1 June deadline, given that that was actually advised with very short notice, there was a lot of work required and the availability of things such as negatively buoyant rope did present some challenges to the industry, but it was certainly agreed between the industry and the Department of Fisheries that it would be an educative process for the first month or so.
"Most people have been very active in making sure that they do comply.

"The thing to take heart from is that the numbers compared to what has happened in previous years is certainly indicating that there has been some sort of positive response by virtue of what's being done in the mitigation measures.
"The real challenge is that we are faced with an increase in Humpback populations of around about 10 per cent per annum, so despite any attempts that are being made to try and reduce entanglements, there is going to be obviously some that do occur."
Terry Mouchmore, the president of the Abrolhos Islands Professional Fishermen's Association, agrees that the anti entanglement measures appear to be working for whales.
However, he says average prices and limited catches means only approximately 20 per cent of the lobster fleet is fishing at the moment, and fishermen that are on the water are reporting low whale numbers in general.
"Things always slow down around this time of year," Mr Mouchmore said.
"Catches are fairly moderate at the moment.
"Interestingly from personal experience and from comments of others, we're seeing a lot less whales this year for some reason."
Mr Mouchmore says the industry has generally accepted the gear mitigation measures introduced to reduce whale entanglements.
He says with entanglement numbers lower than at this time last year, he's confident the measures are working.

West Coast Rock Lobster Managed Fishery Code of Practice For Reducing Whale Entanglements

Introduction

The Western Australian Rock Lobster Council has developed this Code of Practice in conjunction with the Department of Conservation and Land Management (CALM) and SeaNet Environmental Extension Service, to reduce interactions with whales in Western Australian waters. Through a consultation process involving a range of stakeholders it was recognised that a Code of Practice was necessary. This Code of Practice is specifically aimed at minimising entanglement of whales in rock lobster pot lines, although the strategies proposed will also minimise entanglements with other marine wildlife. The Code of Practice will also help the industry to make progress against the following government and management considerations: Fishing activities in which fishing gear is set, particularly methods that use trailing ropes or tethered buoys, is identified as a potentially threatening process, particularly for migrating Southern Right and Humpback Whales which are protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* and the *Western Australian Wildlife Conservation Act 1950* Whale entanglements are recognised as a management issue by West Coast Rock Lobster Fishery Management . Whale entanglements and the need for disentanglement training are recognized as a priority issue by Department of Conservation and Land Management and Department of the Environment and Heritage.

The Rock Lobster Fishery

The professional rock lobster fishery is the most valuable single-species fishery in Australia, providing major economic benefits for Western Australia. In 2000 it was the first fishery in the world to be certified by the Marine Stewardship Council (MSC) as a well managed and sustainable Fishery. The fishery was declared limited entry in 1963 when boat and pot numbers were frozen, and is controlled primarily through a management system that limits the effort of the fishery (total number of usable pots, divided zones of access and a seasonal closure between June 30 and November 15). The fishery is managed in 3 zones: south of

Latitude 30° S (C Zone), north of latitude 30° S (B Zone) and, within this northern area, a third offshore zone (A Zone) around the Abrolhos Islands. Rock lobsters are found across the State but over 85% of the catch is taken from between Kalbarri and Cape Leeuwin. Rock lobsters are harvested using baited pots set on coastal reefs in depths up to 150m. Pots are normally set and hauled individually every 24 hours with a line running from each pot to surface floats.

Environmental Management

Recommendations have come from the Commonwealth Department of the Environment and Heritage, *Assessment report of the Western Rock Lobster Fishery.* Through the assessment the following points have been highlighted as areas requiring attention.

Information requirements - DEH Strongly recommends continuing monitoring and collection of information on all cetacean interactions in the fishery.

Assessment - The submission indicates that cetaceans may be at risk of entanglement in pot lines. It states that the increased level of interaction in the fishery may be related to two factors: the movement of fishers into shallower waters without shortening float lines; and the overlap between the start of the fishing season and the southward migration of the humpback whales, and the end of the fishing season with their northward migration.

Management response - The report states that when fishers move to shallow waters the lines should be shortened to account for the change in depth and avoid excess line suspended in the water column or floating on the surface.

Conclusions - DEH recognizes that the Western Australian Department of Fisheries (WADF) are working with industry and CALM to address the issue of whale entanglement in the fishery and encourage WADF, in conjunction with industry and the relevant officers in CALM, to review the management strategies in place to minimize these interactions. Particular attention should be given to the overlap between the fishing season and whale migration and the activities of fishermen when operating in shallow waters.

Fishing industry practices that reduce the risk of whale entanglements

Rocklobster fishermen should: Remain vigilant during the month of June avoid excessive slack in pot ropes, particularly during the start and finish of the fishing season. Ropes should be adjusted to a length appropriate to the depth and strength of tide being worked, especially inshore. Excess slack in pot ropes can be coiled and tied close to floats. Slack should be limited to enough rope to allow for recovery and to commence hauling safely (Dog bone / shanking); where possible avoid setting pots in clusters; regularly check pots, as per standard fishing practice. The Disentanglement teams have a greater chance of success if the entanglement is discovered quickly; not leave pots in the water if not fishing for prolonged periods. Pots should be retained on board or returned to shore when they are not fishing for prolonged periods; report entanglements as soon as possible. Rapid reporting ensures entanglement response teams have the best possible chance of successfully disentangling whales. Fishers should monitor entanglement situations, with due regard for the safety of the vessel and the whale, until assistance teams arrive; keep up to date contact details aboard; adopt a cooperative approach to avoiding entanglements and responding to entanglements when they occur. Fishers can voluntarily participate in Department training programs for involvement in disentanglement operations. This training will ensure that fishers are aware of procedures and are familiar with disentanglement team personnel. The readiness, local knowledge and vessel handling skills of fishers are beneficial to disentanglement operations. Fishers should not attempt disentanglement of whales without the assistance of CALM; collect any abandoned / lost or cut pot lines, rope or fishing gear investigate new technologies that may reduce entanglements.

Whale Ecology and Management

In Western Australia there are some whale species more vulnerable due to their migratory patterns. The most vulnerable is probably the Southern Right Whale (*Eubalaena australis*) listed under the *EPBC Act* as an endangered species. Other species likely to be affected in WA waters are migrating Humpback Whales (*Megaptera novaeangliae*) and the critically endangered Blue Whale (*Balaennoptera musculus*). The characteristics of some species that may lead to vulnerability are:

Southern Right Whale: □ Slow swimming, migrates through coastal waters, breeds inshore in coastal waters during winter between May to October □ Has rough callosities on head and very long baleen, which could increase the risk of entanglements □ Difficult to disentangle due to uncooperative nature

Humpback Whale: □ Migrates Northward through Western Australian waters during late May to August, returning Southward, September to December □ Slow swimming, has very long flippers with knobby leading edges

Blue Whale: □ Fast streamlined whale; feeds in West Australian waters from December to May □ Danger of entanglement in baleen or flippers while feeding □ Size and power could make it very difficult to rescue.

Entanglement of cetaceans with fishing gear poses a serious threat to some species, particularly those that are endangered. The causes of entanglement in Australia are varied but records of the types of materials involved include lobster pot lines. Wildlife managers believe that the likelihood of further entanglements occurring in WA will increase as whale numbers increase. The scale of whale entanglement in fishing gear varies from state to state. In Western Australia a total of 33 whale entanglements between 1990 and 2004 have been recorded. Twenty three of these entanglements (relating to Humpback Whales) have involved Western Rocklobster pot lines. On the South Coast, one Southern Right Whale was entangled in King George Sound, including one dead Humpback found washed up on the Beach. The remaining entanglements involve other fishing gears. There is a particular concern about whale entanglements because of their size. Whale entanglements present complex and often dangerous situations that require specialist skills and training if the whale is to be released unharmed. In addition, there is increasing public interest and concern about such events when they do occur.

Disentanglement program

The Department of Conservation and land management is dealing with the entanglement through the 'kegging' technique in use by Conservation officers in Western Australia for several years. This technique was developed by the Center for Coastal Studies in eastern USA. The disentanglement training program provides a standard operating procedure for attaching long lines and heavy buoys to the whale to slow it down, tire it out and keep it on the surface, allowing trained personnel to approach more safely and attempt to remove the entanglement completely. The entanglement is cut away using specialised knives attached to long poles. It is important to remove the rope not just free the animal. This procedure is being adopted by all Australian state government agencies. The rescue operations are conducted according to a recognised response system used for emergency situations in Australia. Fishers are also encouraged to participate in future training programs. While disentanglement provides a means for dealing with some individual incidences as they arise, the best 'solution' to the problem also involves treating it at the source. This can be done by finding ways to minimise risk of entanglement through a range of means as outlined in this protocol.

Benefits of the Code of Practice

1. As a conservation measure to assist in protecting whales from entanglement

2. The profile of the rock lobster industry can be improved by: their direct involvement in the reduction of whale entanglements by acknowledging best fishing practices at industry level; and their involvement in the disentanglement program.
3. Avoiding loss of gear and catch from lost lobster pots.
4. An established disentanglement network. The need exists for fast reporting of incidents so the disentanglement process can begin.

The Western Australian Rock Lobster Council would like to acknowledge the contributions and support of the following organizations. Disclaimer: This publication may be of assistance to you but organizations involved in the development of the publication and their employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication Important contact information To notify CALM of an entanglement call: Wildcare - 08 9474 9055 or General enquiries - 08 9334 0292