



World Animal Protection

Commissioned Report

Cornwall  
SEAL  
Group  
Research  
Trust



# Ghost gear in Cornwall, UK 2014 to 2015

(Final report November 2015)

Sue Sayer and Kate Williams

Hello to all our Ghost Gear Recording Volunteers

Thank you so much for all your hard work recording the ghost gear washed up around the coast of Cornwall (and parts of Devon too). We finalised the totals and prepared a report for World Animal Protection and now it is time to share the results with you.

During the period 1<sup>st</sup> November 2014 to 31<sup>st</sup> October 2015:

You carried out 360 surveys and sent in 1445 records from 147 sites.

This amounted to 2828 items totalling 30352 litres (or 30 tonnes)  
WOW!

You removed 1855 items of gear: 14009 litres (about 14 tonnes). This reduced the risk to wildlife by ensuring the gear didn't re-enter the sea.  
WELL DONE EVERYONE

In addition, the 26 boat based surveys run by the Cornwall Seal Group, which many of you took part in, recorded a further 1398 items of gear: 19560 litres (about 20 tonnes). We estimate this is about 1.1 items per kilometre covered by the boat routes.

A GREAT EFFORT

# Ghost gear in Cornwall

This map shows the number of visits made to sites with positive ghost gear records and shows that you managed to cover more or less the entire coastline of Cornwall and the Isles of Scilly, as well as across the borders into north and south Devon.

As many of the sites were very close together, records were combined into standard sites ( $n = 46$ ), effectively grouping nearby locations into one. This provided a more meaningful overview of results and added clarity to otherwise considerably cluttered maps.

The majority of these sites were surveyed more than once and some many times, up to a maximum of 46 visits. All the sites surveyed over 20 times have been labelled with their locations.

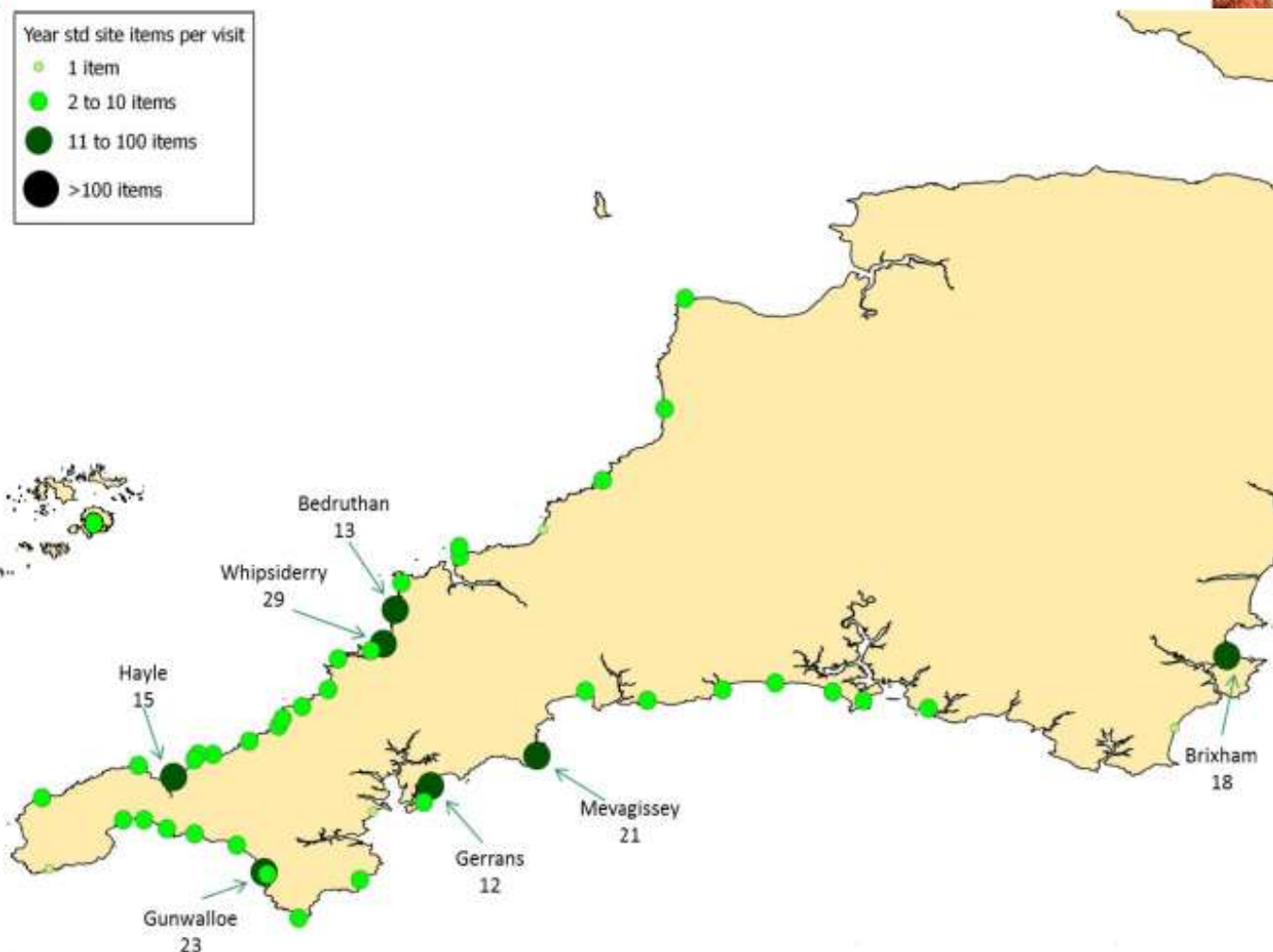




# Ghost gear in Cornwall

As land based records were collected opportunistically with a variable number of visits to each site, the resulting data is shown as an average per visit to correct for variations in effort and to enable comparisons to be made across sites. The Isles of Scilly are inset to maximize the map size. Sites with the largest average number of items per visit have been named on the map.

Average number of items per visit

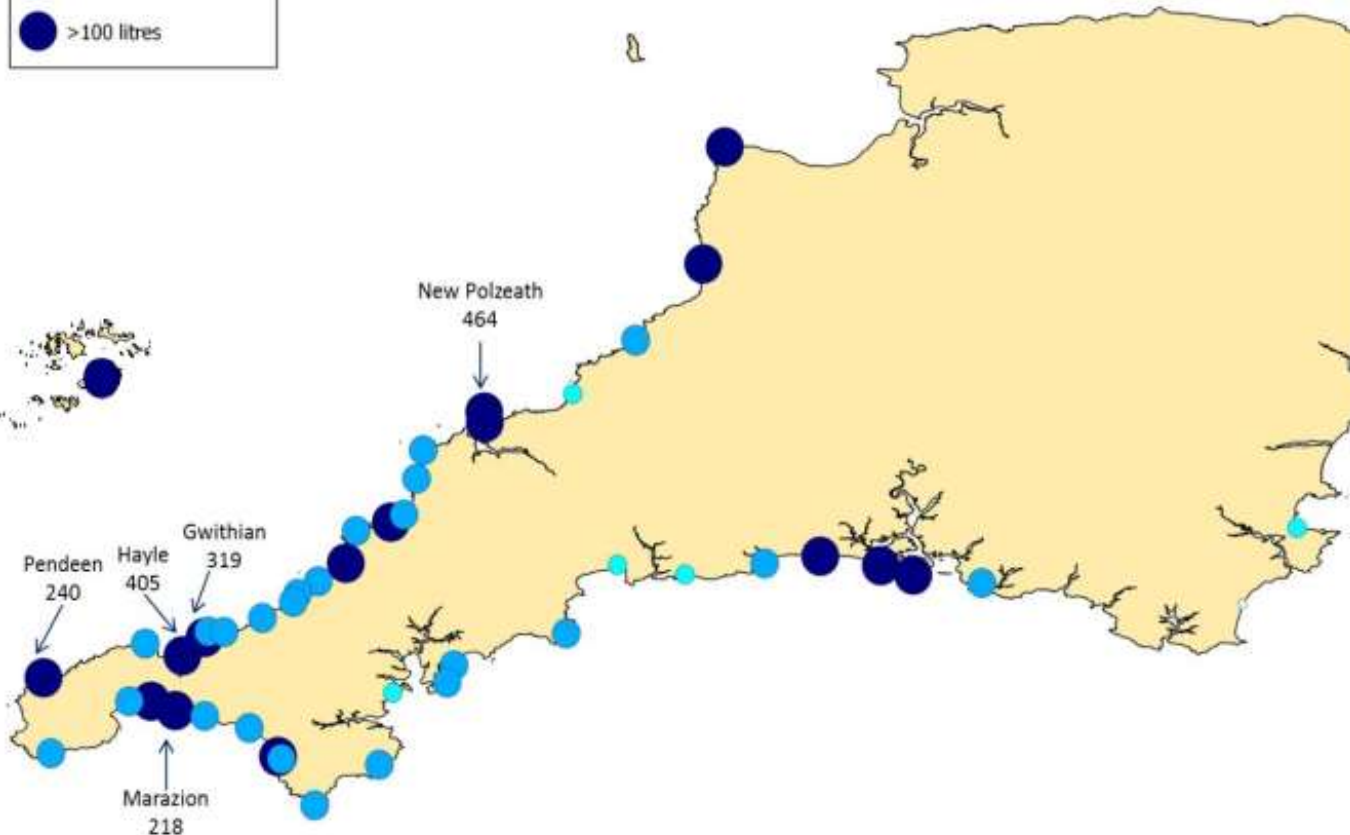
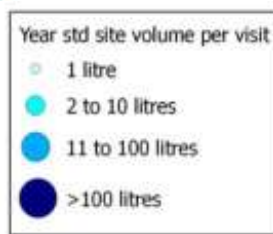


# Ghost gear in Cornwall

The average number of items recorded per visit only gave half the picture, this map shows the average volume in litres of gear found each visit. Sites with the largest average volume of gear per visit have been named on the map.

All of the sites with the greatest volume of gear were west facing suggesting that perhaps wind has more to do with the incidence of large volumes of ghost gear, which perhaps are caught more by surface air flows.

Average volume in litres per visit



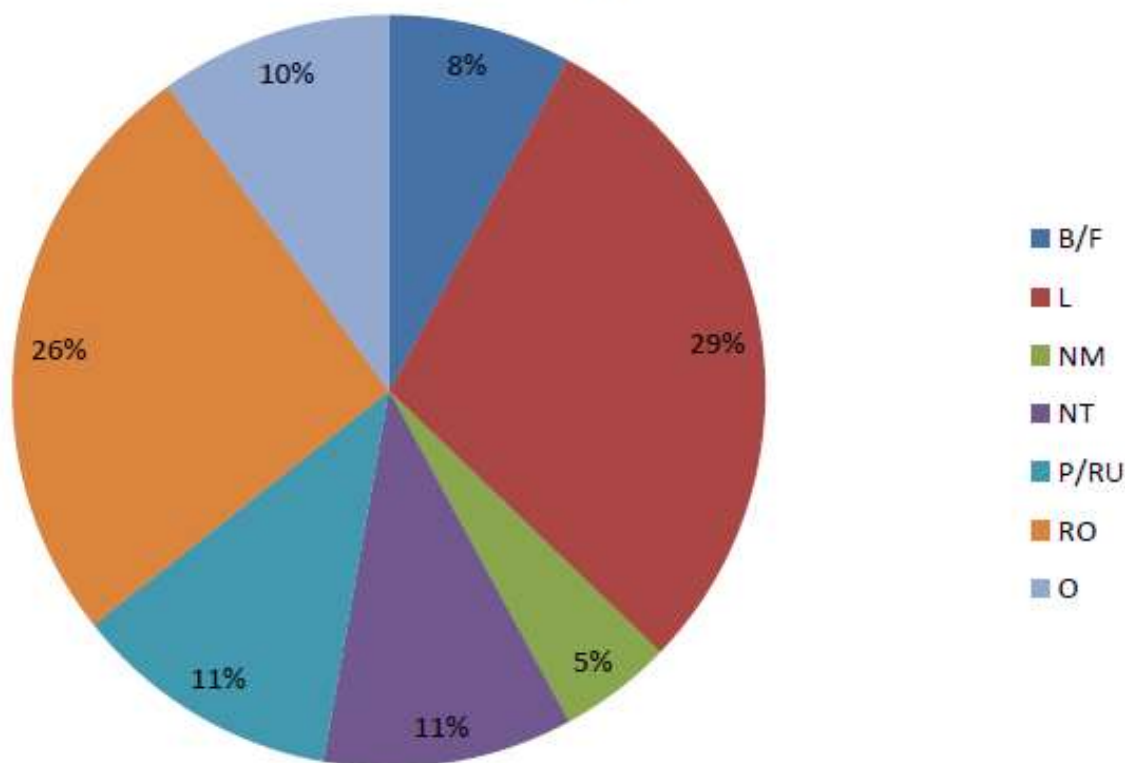
# Ghost gear in Cornwall

## Type of ghost gear items.

Ghost gear items were classified according to type into the categories: Buoys and floats (B/F), Monofilament line (L), Monofilament net (NM), Trawl net (NT), Pots and associated gear such as rubber strips (P/RU), Rope (RO) and Other (O). Mixed material items were classified according to the majority item.

Of all the items recorded most were monofilament line, followed by rope. Interestingly these ghost gear types were two of the bottom four items recorded during the boat surveys. It seems likely that line could easily be missed during a boat survey being generally small items coloured for minimal visibility. The greater prominence of rope is harder to explain.

## Year items per type





# Ghost gear in Cornwall

The type of ghost gear recorded varied by location:

**L Line** The south central area was the only area where the ghost gear was mostly made up of monofilament line.

**B/F Buoys and floats** and

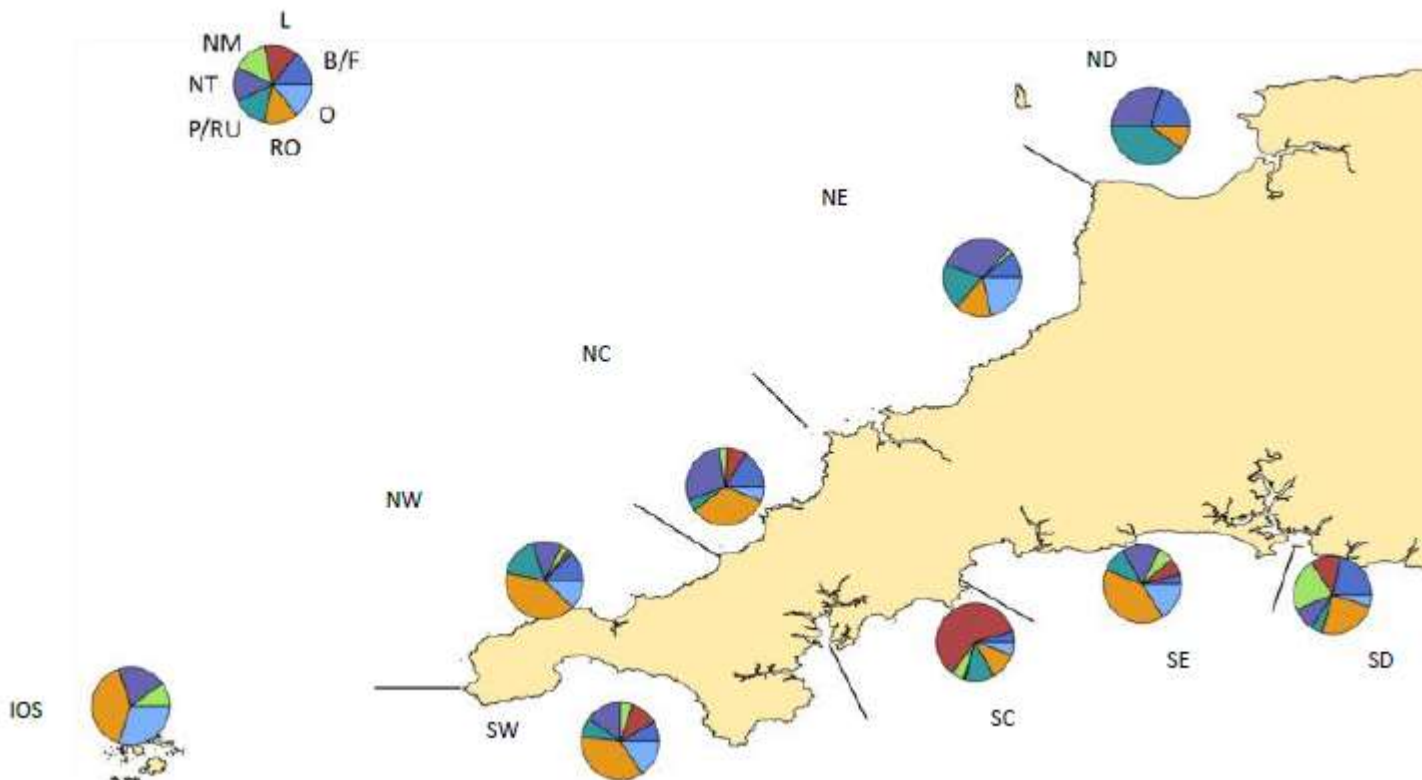
**NT Trawl net** were found in all standardised areas apart from the Isles of Scilly and in proportionally greater quantities on the north Cornish coast and in south Devon.

**RO Rope** was reported in all standardised areas.

**P/RU Pots and rubber** were recorded in all areas except for the Isles of Scilly.

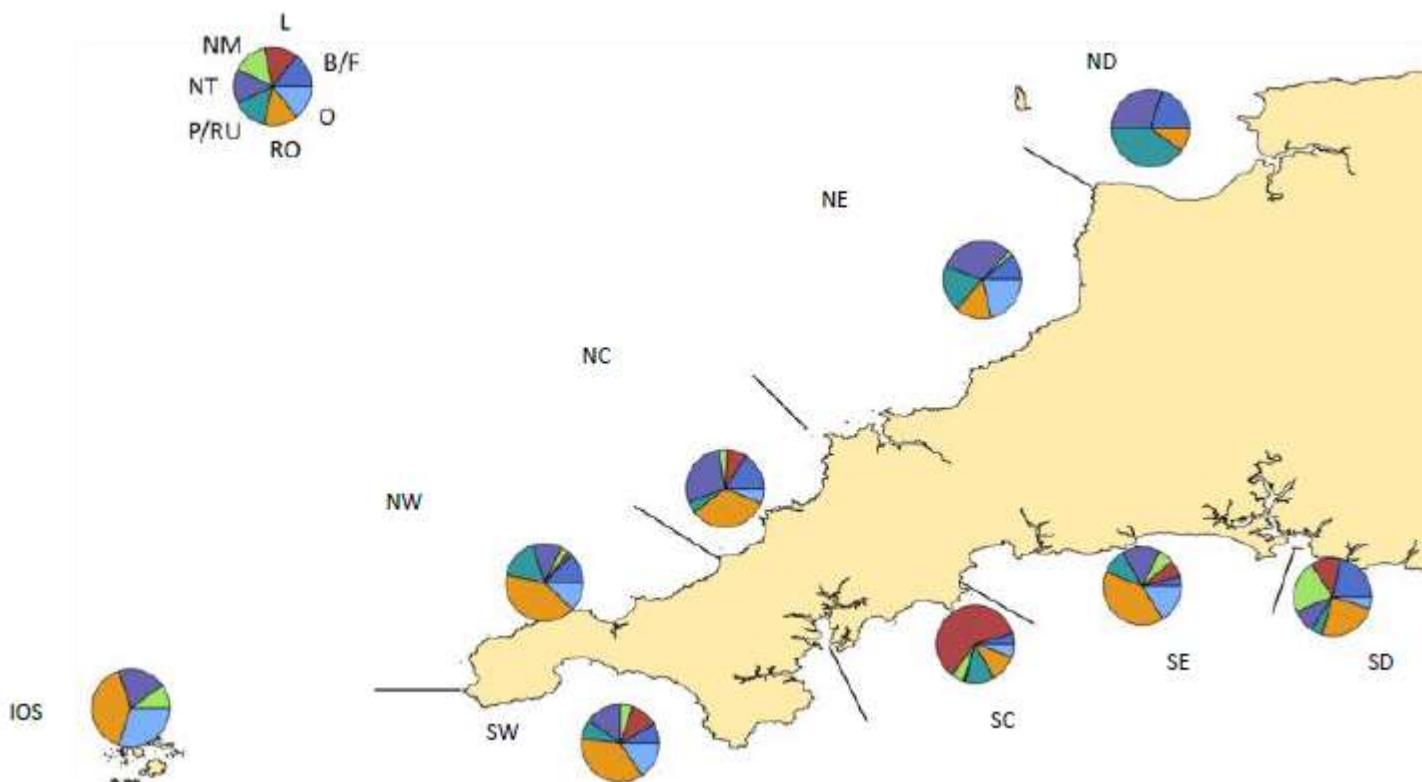
**NM Monofilament net** was only seen in small proportions with the exception of in south Devon

**O Other ghost gear** items related to fishing.



# Ghost gear in Cornwall

**L Line** The south central area was the only area where the ghost gear was mostly made up of monofilament line. This accounts for the large number of small items found in this area. The main recorder in this area was Rob Wells who seemed to have made it his mission to clean the beaches of line bundles picking up and removing up to 49 bundles in one visit. But remember, he was removing it and yet there was more on his next visit. Monofilament line was only recorded on accessible beaches which may have accounted for there being less recorded on the north coast.

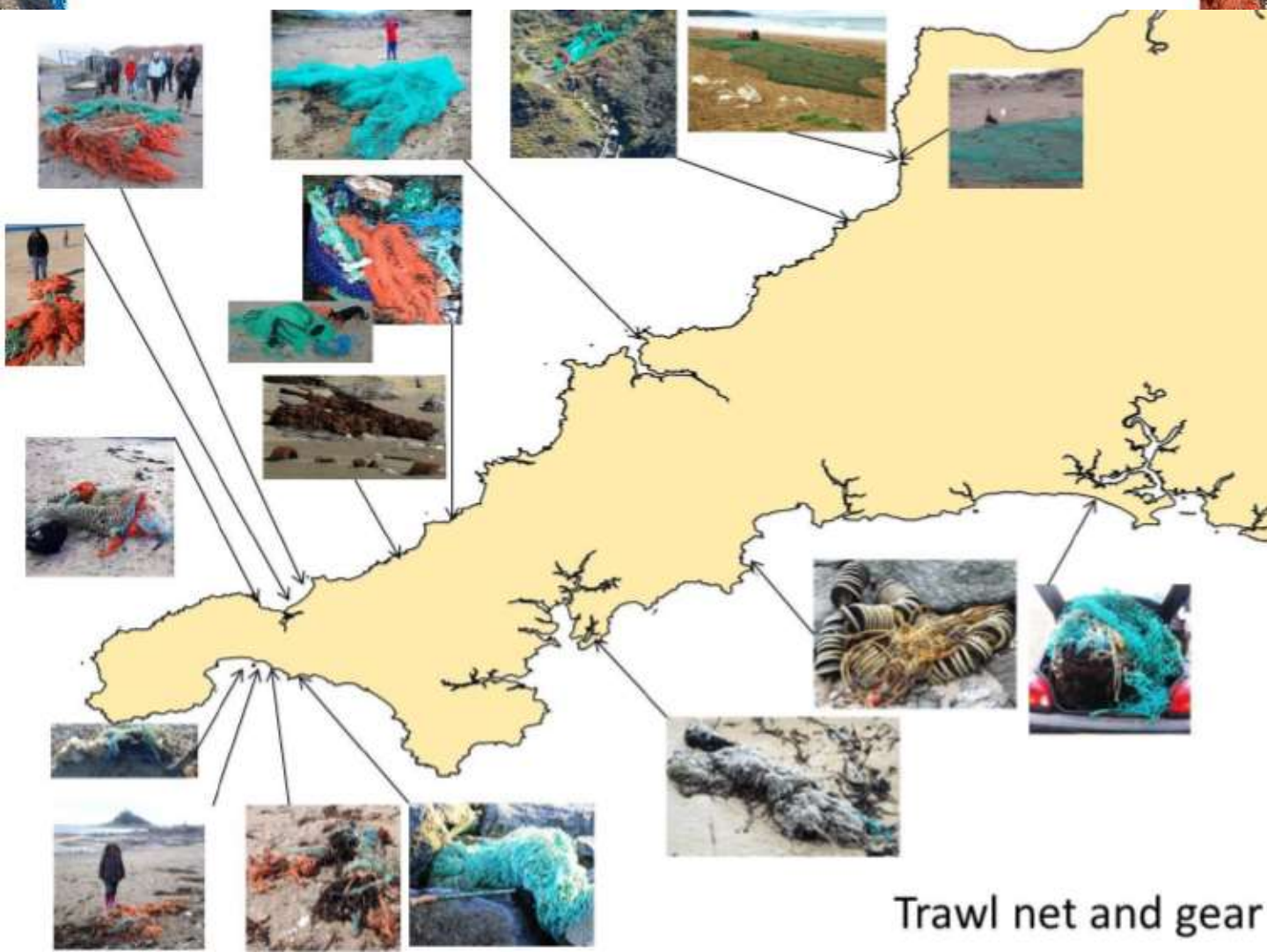




# Ghost gear in Cornwall

**B/F Buoy and floats** Accessibility must play a part in the number of items of this gear type being reported. Buoys and floats are routinely recycled by fisheries and are collectable items with the general public. As a result buoys and floats are often removed from accessible beaches and so only the others from inaccessible coves and cliff backed shore lines remained to be reported by our volunteers.

**NT Trawl net** was found in all standardised areas apart from the Isles of Scilly and in proportionally greater quantities on the north Cornish coast and in south Devon.



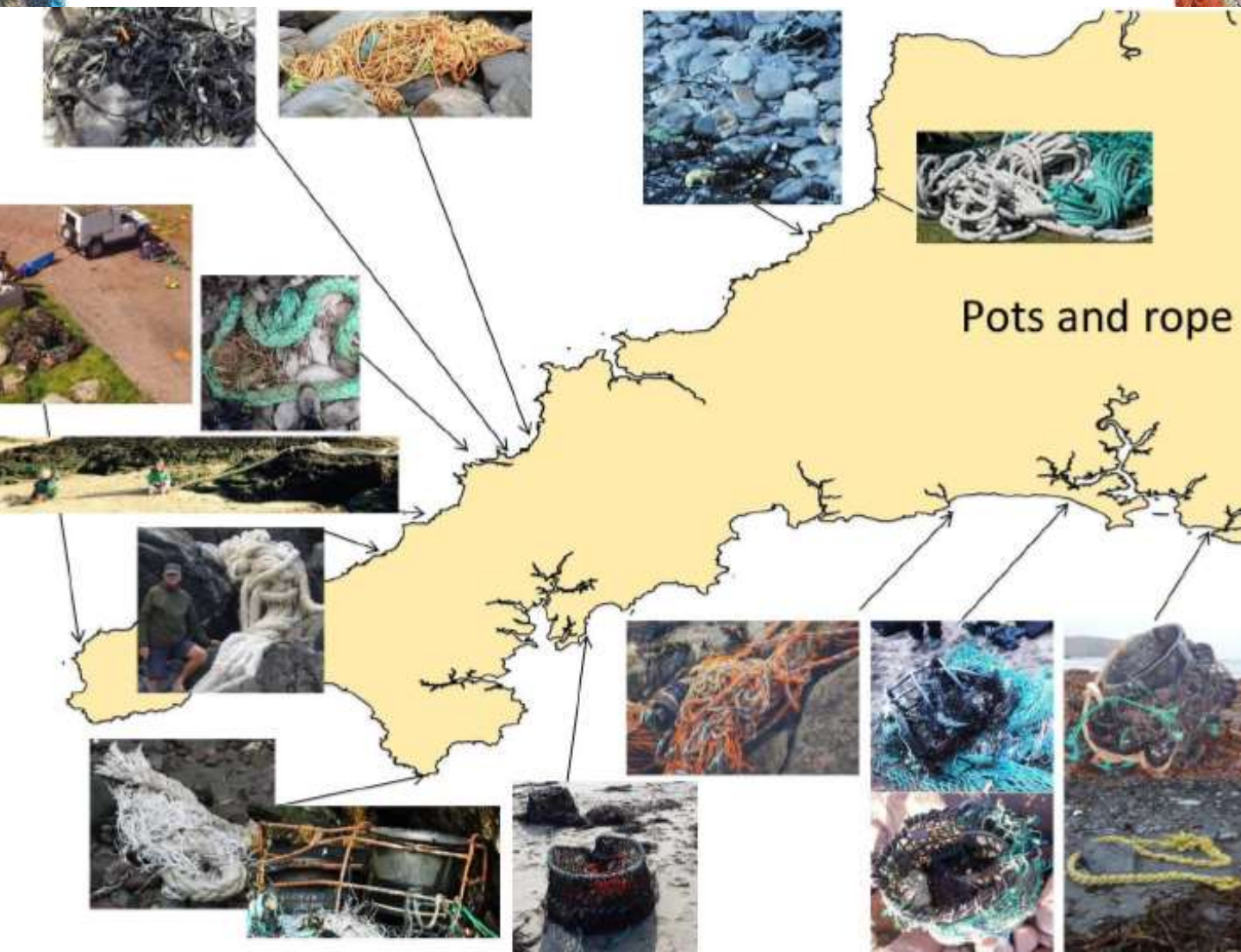
Trawl net and gear



# Ghost gear in Cornwall

**RO Rope** was reported in all standardised areas and was the greatest ghost gear type in terms of the number of items reported in six of these areas.

**P/RU Pots and rubber** were recorded in all areas except for the Isles of Scilly with proportionally more being found along the north coast.

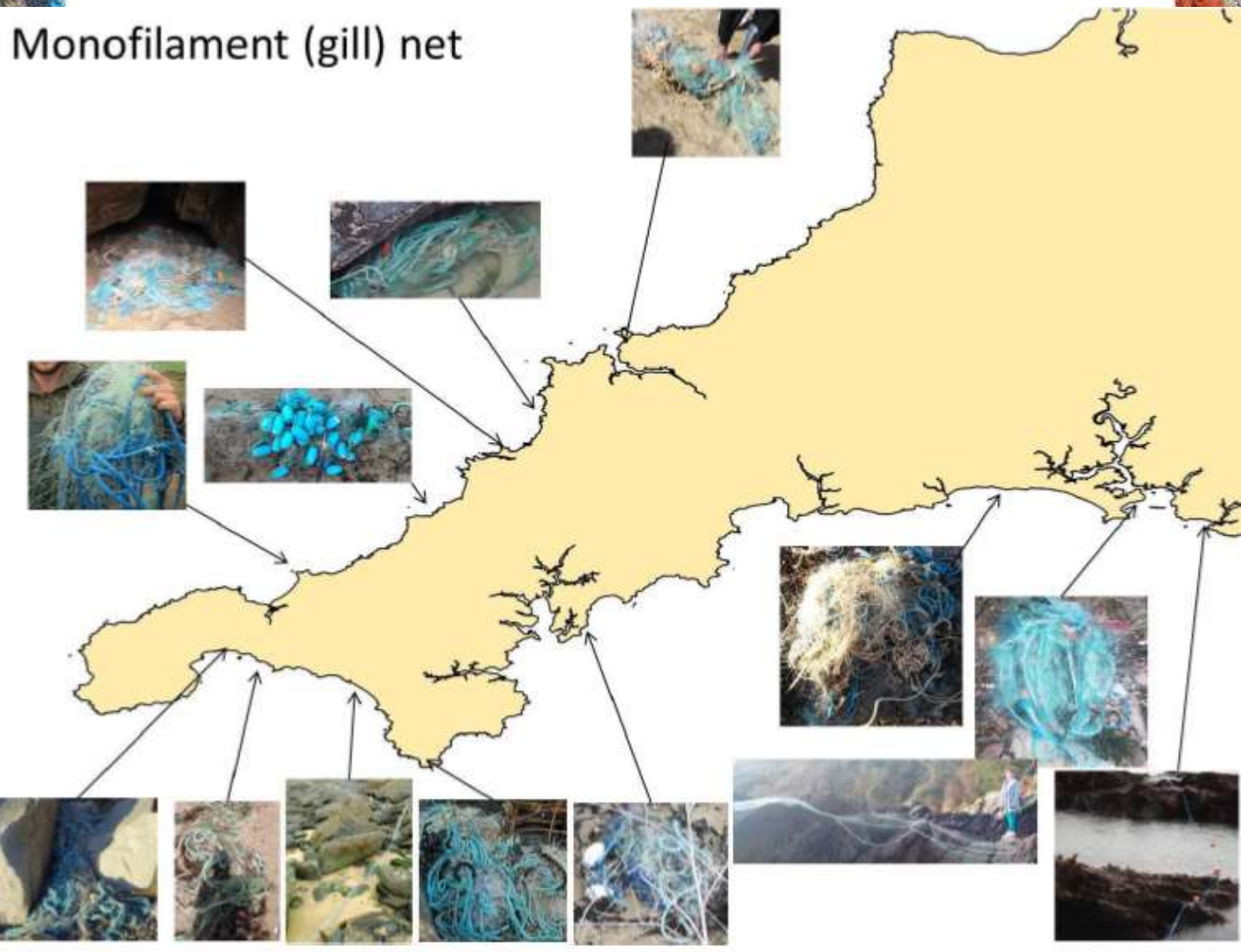


# Ghost gear in Cornwall

**NM Monofilament net** Despite being found in all standardised areas (apart from north Devon) and in proportionally greater quantities in the north coast boat survey results, monofilament net was only seen in small proportions with the exception of in south Devon where 22% of reported items fell into this category.

It is interesting that monofilament line and net were both apparently dominant items along the south coast of Cornwall, whilst trawl net and pots were more dominant along the north coast.

## Monofilament (gill) net





# Ghost gear in Cornwall

**O Other ghost gear** Items related to fishing (for example fish boxes, fish buckets, beam trawl rollers, gloves and wellies) were recorded in all areas (apart from north Devon).



# Ghost gear in Cornwall

## Risks posed to marine life by ghost gear

As marine species had been observed entangled in ghost gear prior to the start of the survey year, all the ghost gear observed was risk assessed according to the likelihood of marine life interacting with it, as well as the likelihood of marine life becoming entangled in it.

## Interaction risks

Of all new ghost gear observed at all sites, 40% (by items) and 15% (by volume) was assessed to pose a possible or greater interaction risk to marine life with monofilament line, net and pots posing a greater proportional risk. At established seals sites this increased to 82% (by items) and 50% (by volume) of ghost gear posing an interaction risk.

All sites	No of items	B/F	L	NM	NT	P/RU	RO	O	Volume
Grand total	4226	793	835	333	539	408	893	425	49917.5
Interaction P> (PU, LU, WU, PP> + W)	1688	206	604	215	126	190	231	116	7268.25
Percentage risk of interaction	40%	26%	72%	65%	23%	47%	26%	27%	15%
Entanglement P> (UP, PP> + W)	2454	125	714	296	494	179	559	87	36653.25
Percentage risk of entanglement	58%	16%	86%	89%	92%	44%	63%	20%	73%
Interaction & Entanglement PP> + W	1096	55	537	190	111	58	119	26	5379.5
Serious risk of interaction and entanglement	26%	7%	64%	57%	21%	14%	13%	6%	11%

Ghost gear risks across all sites and all species



# Ghost gear in Cornwall

## Risks posed to marine life by ghost gear

### Entanglement risks

Of all new ghost gear observed at all sites, 58% (by items) and 73% (by volume) was assessed to pose a possible or greater entanglement risk to marine life with trawl net, monofilament net and line, rope and pots posing a greater proportional risk.

At seal sites these assessed entanglement risks decreased to 54% (by items) and 49% (by volume) presumably because a lot of the items were buoys and floats (which were not meshed, looped or balled) or because seals stayed more than 5m away from the ghost gear. The former explanation seems most likely as buoys and floats were relatively benign in terms of the entanglement risk they posed to marine life, but the 11% serious risk for buoys and floats arose because football floats were encased in trawl net. Pots presented a considerably higher risk prior to data being combined with their associated and more benign rubber strips (87% for pots alone and 29% for pots when combined rubber).

Seal sites	No of items	B/F	L	NM	NT	P/RU	RO	O	Volume
Seal site total	1594	304	625	76	66	199	185	139	8528.75
Interaction P> (PU, LU, WU, PP> + W)	1307	176	572	68	50	183	156	102	4249.75
Percentage risk of interaction	82%	58%	92%	89%	76%	92%	84%	73%	50%
Entanglement P> (UP, PP> + W)	853	42	555	51	48	58	74	25	4184
Percentage risk of entanglement	54%	14%	89%	67%	73%	29%	40%	18%	49%
Interaction & Entanglement PP> + W	747	33	505	43	35	53	56	22	2564
Serious risk of interaction and entanglement	47%	11%	81%	57%	53%	27%	30%	16%	30%

Ghost gear risks at seal sites for seals

# Ghost gear in Cornwall

## Risks posed to marine life by ghost gear Combined interaction and entanglement risks

Risks assessed as possible or greater for both interaction and entanglement (PP>) were deemed serious.

At all sites, 26% (by items) and 11% (by volume) of all the new ghost gear recorded was considered to pose a serious threat to marine life, seals and birds in particular.

At established seal sites these figures increased with 47% (by items) and 30% (by volume) of ghost gear being assessed as posing a serious risk to marine life seals in particular.

Overall, a third to a half of all ghost gear that was washed into the vicinity of seal haul sites posed a serious combined risk of interaction and entanglement.

## REMOVAL OF GHOST GEAR

Ghost gear removal lowered the levels of risk posed by ghost gear to all marine life.

At all sites the levels of serious risk of interaction and entanglement **fell** from 26% to 18% (by items).

At seal sites, the levels of serious risk of interaction and entanglement **fell** from 47% to 24% (by items).

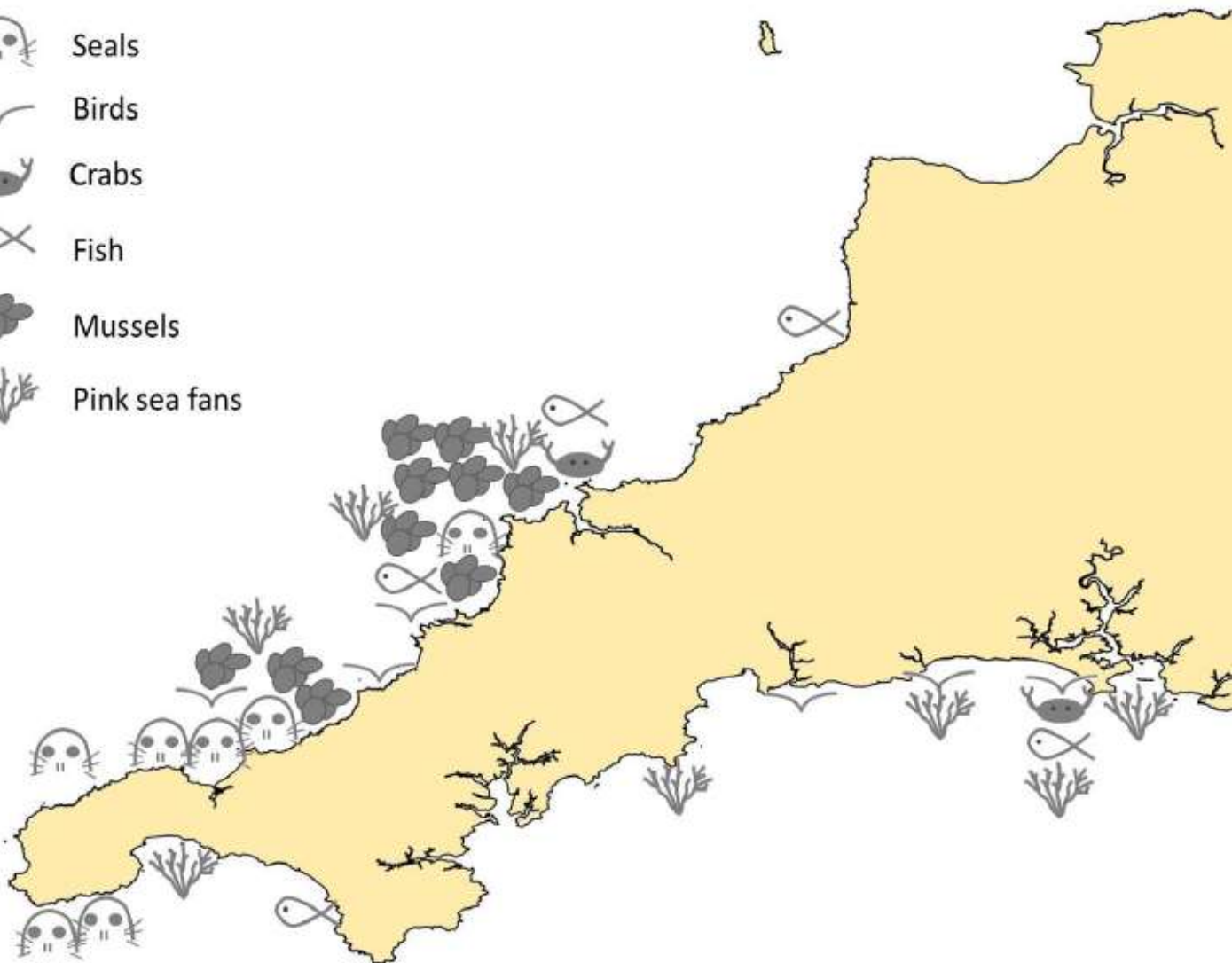
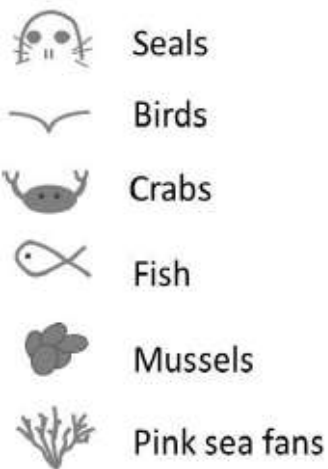
This data demonstrates that volunteers efforts to remove ghost gear made a **very positive difference** to the levels of risk ghost gear posed to all marine life and particularly seals.



# Ghost gear in Cornwall

## Witnessed entanglement

12 different species of six different types of marine creature were witnessed entangled in ghost gear including seals, birds, crabs, fish, mussels and pink sea fans:



# Ghost gear in Cornwall

## Seals

During the survey period, 15 different live individuals were photo identified with visible ghost gear entanglement at seven different locations on the north and south coasts.

Most were observed with monofilament net and the rest were entangled in trawl net.

The majority of the 15 seals had only small amounts of monofilament net but five were trapped in large amounts of ghost gear (all five were successfully rescued). The biggest net, which was trawl net, measured 9m by 1.2m.

Most of the entangled seals were juveniles and on most of the 15 seals (60%) the entangling material had cut deeply through their skin, blubber and flesh causing a wound that was assessed to be serious.

Right: Juvenile grey seal entangled in ghost fishing gear, rescued by BDMLR.

Below: Example of trawl net removed from another seal rescued by BDMLR on the same day. *Photos: S Sayer*





# Ghost gear in Cornwall



## **Pink Sea Fan**

The pink sea fan is a nationally important species and has a species action plan which guides its conservation.

You kept reporting finding bits of pink sea fan tangled in the lost gear you were picking up. This led us to wonder whether ghost gear pulls pink sea fans off the sea bed effectively killing them, or whether already dead pink sea fan fragments get caught up in drifting ghost gear.

Sorry to say the answer is that nobody knows but recent anecdotal evidence from divers suggests that when they see line and net caught in pink sea fan beds it does seem to have a detrimental effect on the fan; observations suggest that it may actually kill the pink sea fan in the bed. More research required.

Whilst it is impossible to establish the exact number of pink sea fans found in nets, recorders reported at least 179 different pink sea fan fragments at eight different locations on both the south and north coasts.

# Ghost gear in Cornwall

Cornwall Seal Group are continuing to survey and record ghost gear until the end of October 2016 in the hope that a second year of data may help to confirm and expand on the findings in this report. So please keep sending your records in.

## **Sending In Records**

Please let us know when and where the gear was found and send a photo if you can.

email to [sue@cornwallsealgroup.co.uk](mailto:sue@cornwallsealgroup.co.uk)

Extra information which is helpful:

- a description of what you have found
- an estimate of the quantity by comparing it to something of a known size (e.g. as big as my head, a bucket full, the size of a person, enough to fill a bath) .
- an estimate of mesh size of any nets
- if you were you able to remove the gear

We will complete a recording sheet from the details and photo and ask you to just check that we have recorded everything you have seen.



# Ghost gear in Cornwall

## Removing the gear

Please remember our aim is to estimate the amount of ghost gear floating around in the sea by recording the amount of the gear that has washed ashore.

It is a bonus if you can remove it but PLEASE send in your records whether you remove the gear or not.

DON'T let it spoil your walk.

DO look closely for the unexpected.

- Goose Barnacles can be found on plastic that has been washed up from deep water.
- Light blue tubes that look like water pipes could have come from crab/lobster pots.

Photo: John Hepburn

- Buoys from fisheries in Maine, USA have been washed up on the beaches in Cornwall. These have a registration number allowing them to be traced.



Credits: Sue Sayer and Google maps. Traced by Kate Williams and Cathy Fetterman

DON'T touch anything if you have any doubts as to what it is!  
Wear gloves and wash your hands afterwards.



# Ghost gear in Cornwall

Huge thanks to everyone who contributed to this project whether listed below or not. You have helped to make our coastline cleaner and safer for marine life. Thank you

Rebecca Allen, Annie, Rob Arnold, Kelly Astley, Louise Austin, Tim Bain, Catherine Barry, Eliane Bastos, Gemma Beckett, Lynda Bolding, Ian Boreham, Mike Boyse, Steve Brodewel, Danielle Bussell, Lindsey Butterfield, Pippa Burrows, Caitlin, Michaela Channings, Chrissie, Christine, Claire, Liz Clark, Niki Clear, Sandie Coombes, Amy Copping, Chrissie Corbett, Zoe Courchene, Abby Crosby, Ann Davies, Sarah Deere-Jones, Lauren Delacy, Christina Dixon, Simon Dolphin, Katie Drake, Paula Evans, Alec Farr, Enid Farr, Mike Fletcher, Geoff Gamble, Margaret Gardner, Gabi Gilkes, Jasmina Goodair, Mark Grantham, Tony Greenbank, Laura Guy, Elliot Hall, Earnest Hall, Vic Hall, Mary Hallett, Joanne Harris, Paul Harry, Julie Hatcher, Neil Hembrow, Jes Hirons, Kate Hockley, John Hepburn, Charles Hood, Gus Horsley, Rebecca Hughes, Edd Hurst, Ian Illingworth, Nigel Ingram, Elise Neve, Dan Jarvis, Dave Jarvis, Lesley Jarvis, Annie Jenkin, Amy Jones, Julie, Lyn Kent, Jonathan Kersley, Kyle, Adrian Langdon, Cat Lee, Claire Lewis, Annabelle Lowe, Ben Lowe, Chris Lowe, Jan Loveridge, Jeff Loveridge, Abigail Maiden, Anne Matthews, Pat May, John Meakin, Dave McBride, Libby McBride, Malcolm McKenzie, Kev Metcalfe, Matt Mitchell, Taliesyn Mitchell, Richard Morton, Sue Morton, Jocelyn Murgatroyd, Mark Nason, Bob Nicholls, Ellie Nuthall, Nigel, Andrea O'Shaughnessy, Annette Petersson, Nick Pickles, Jane Pickles, Sarah Pilgrim, Pippa, Paul Pocock, Emma Porter, Zillah Robertson, Rory, Ross, Anne Rundle, Becky Sandelson, Lynda Small, Wendy Sargeant, Christine Spooner, Mike Stephens, Terry Thirlaway, Dave Thomas, Steve Trehwella, Alice Treveil, Jen Tyler, Shan Uglow, Nick Upton, Mo Usher, Caz Waddell, Claire Wallerstein, Rob Wells, Peter Welsh, Heidi Westbrook, Kath Wherry, Justin Whitehouse, Faye Whitman, Tracey Williams, Joanne Wilson, Kyle Wingfield, Jane Wiltshire, Steve Woods, Laura Workman and Inge Wusterhausen.

Atlantic Diving / Newquay Sea Safaris – for providing boats at a heavily subsidised rate and at short notice to make the most of short weather and sea condition windows!

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Martin Gregory and Derek Spooner – LISPIP coordinators

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Cornwall College for subsidizing some of the STAPIP surveys

Wave Hub for funding most of the CASPIP surveys

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