

# Seahorses in Poole Harbour in Dorset.

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The territories and seasonal movement of British Seahorses are little understood and all work so far, has been conducted by The Seahorse Trust through the British Seahorse Survey and its sub project the Studland Seahorse Tagging Project in conjunction with its partners at Southampton University and others. Adjacent to the study site, in Poole Harbour there is a population of both species of native seahorse and because of the enclosed nature of this natural harbour their behaviour is different to Studland on a year around basis.

For a number of years sightings and recordings within the harbour have led to some interesting observations and comparisons with the Studland population, with the possibility that some of the seahorses in Poole harbour aid the recruitment of new genetic material into the Studland site

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## Introduction

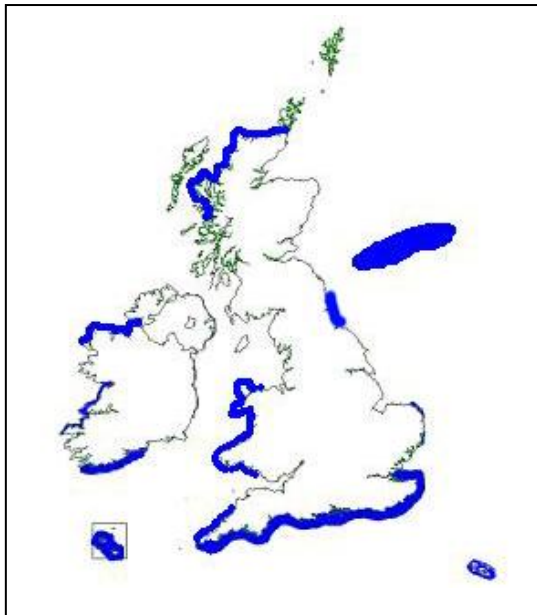
The British Isles are home to two species of seahorse, the Spiny (*Hippocampus guttulatus*) and the Short Snouted (*Hippocampus hippocampus*) which both range from the northern most Shetland Isles down (predominantly) the western coastline; including around the Irish coastline down to and along the south coast, across to the eastern seaboard, and up into southern Norfolk. They have also been found down the east coast of Scotland, in many of the firths and out into the North Sea, onto the Dogger Bank. It is possible their range continues all the way down the east coast but a lack of confirmed data (although there is a lot of anecdotal evidence) stops us completing this picture, further study is needed.

The main reason for the population to be mainly in the western region is the influence of the Gulf Stream providing plankton rich waters, ideal for the plankton and small crustacea they feed on.

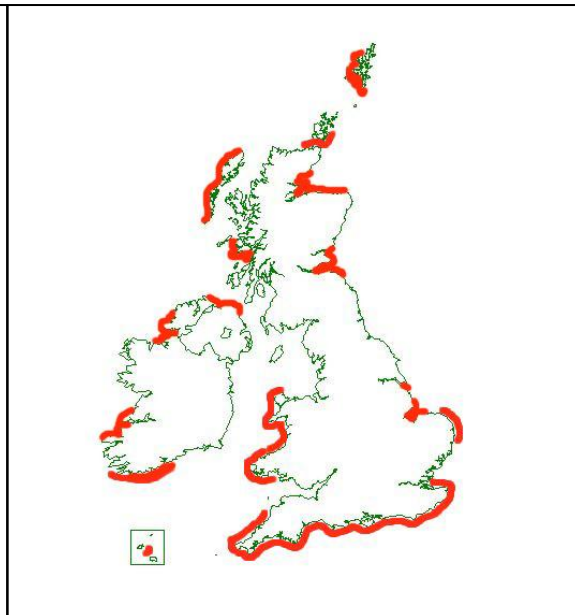
The British Seahorse Survey set up in 1994, run by The Seahorse Trust is the longest running continuous survey of its kind here in the UK and has well over 650 sightings in its database; the National Seahorse Database. This comprehensive database and the knowledge gained from it has led to both species being fully protected under the Wildlife and Countryside Act in 2008 (schedule 5, section 9), a ban on the use of flash photography in the wild and contributed to a number of proposed Marine Conservation

Zones (MCZ's); we are also advising on rules and regulations for diving with seahorses here in the UK and further afield.

The development of the database is ongoing and it now contains photographs and maps, as well as reports and sighting information, and is now the recognised national database for seahorses in the UK.



**Fig 1** Distribution of the Short Snouted Seahorse. (*Hippocampus hippocampus*)



**Fig 2** Distribution of the Spiny Seahorse (*Hippocampus guttulatus*)



**Fig 3** Short Snouted Seahorse (*Hippocampus hippocampus*)



**Fig 4** Spiny Seahorse (*Hippocampus guttulatus*)

Initially the survey concentrated its work throughout the UK and still receives a large number of sightings per annum; its longevity is vital to the ongoing knowledge of native seahorses and in recent years we have noticed a concentration of sightings from several sites around the UK, especially South Beach, in Studland Bay, Dorset where we set up the Studland Bay Seahorse Tagging project.

As a consequence of working in Studland Bay we have tried to understand the immediate surroundings on either side of the bay, in Swanage but especially Poole Harbour which lies immediately east of the site. We receive a number of sightings from Poole harbour per annum, from fishermen, divers and walkers; who find dead seahorses washed up onto the shoreline.

The sightings have given us an oversight of distribution of both species and a greater knowledge of their movements throughout the year.

As a result of our research we know that in exposed coastlines such as at Studland Bay, seahorses will migrate into deeper waters in the autumn with the onset of wintery, stormy weather, decreased temperatures, and shorter day length and then migrate back into the shallows for breeding in the spring. This spring migration is triggered by increased temperatures, longer day lengths and increased food levels caused by the change in the temperature/light cycle.

In enclosed areas such as estuaries and natural harbours like Plymouth and Poole there is no need to migrate because the environment is relatively steady and the shelter reduces the risk of loss of life or severe damage and injury through stormy weather. This lack of migration suggests that seahorses would prefer to remain in their territorial areas but environmental pressures force them into migratory patterns.

## **Studland Bay**

We are now into our third year of tagging, although we have been on the site for many more years, and it is the aim of the project to keep running for at least 6 years, hopefully many more.

During the summers of 2009, 2010 and 2011 The Seahorse Trust as part of its Studland Seahorse Tagging Project tagged a large number of individual seahorses in the seagrass meadow at South Beach, Studland Bay in Dorset and observed many more. This tagging of individuals allows for better understanding about the ecology of the animals and their interaction with others, other species and their placement within the environment, and the habitats they occupy.

The individuals that were not tagged were below the trusts (adopted by the government's Marine Management Organisation) recommended size of 13 cm's which has now been adopted as the national size limit for this type of work.

## **Poole Harbour**

Sightings within Poole Harbour are important to the overall knowledge of seahorses in the wild, and we have, over the years acquired quite a number of sightings from a variety of sources both dead and alive. These sightings have come from fishermen, walkers and divers and they have allowed us to build a picture of seahorses and their distribution within the harbour.

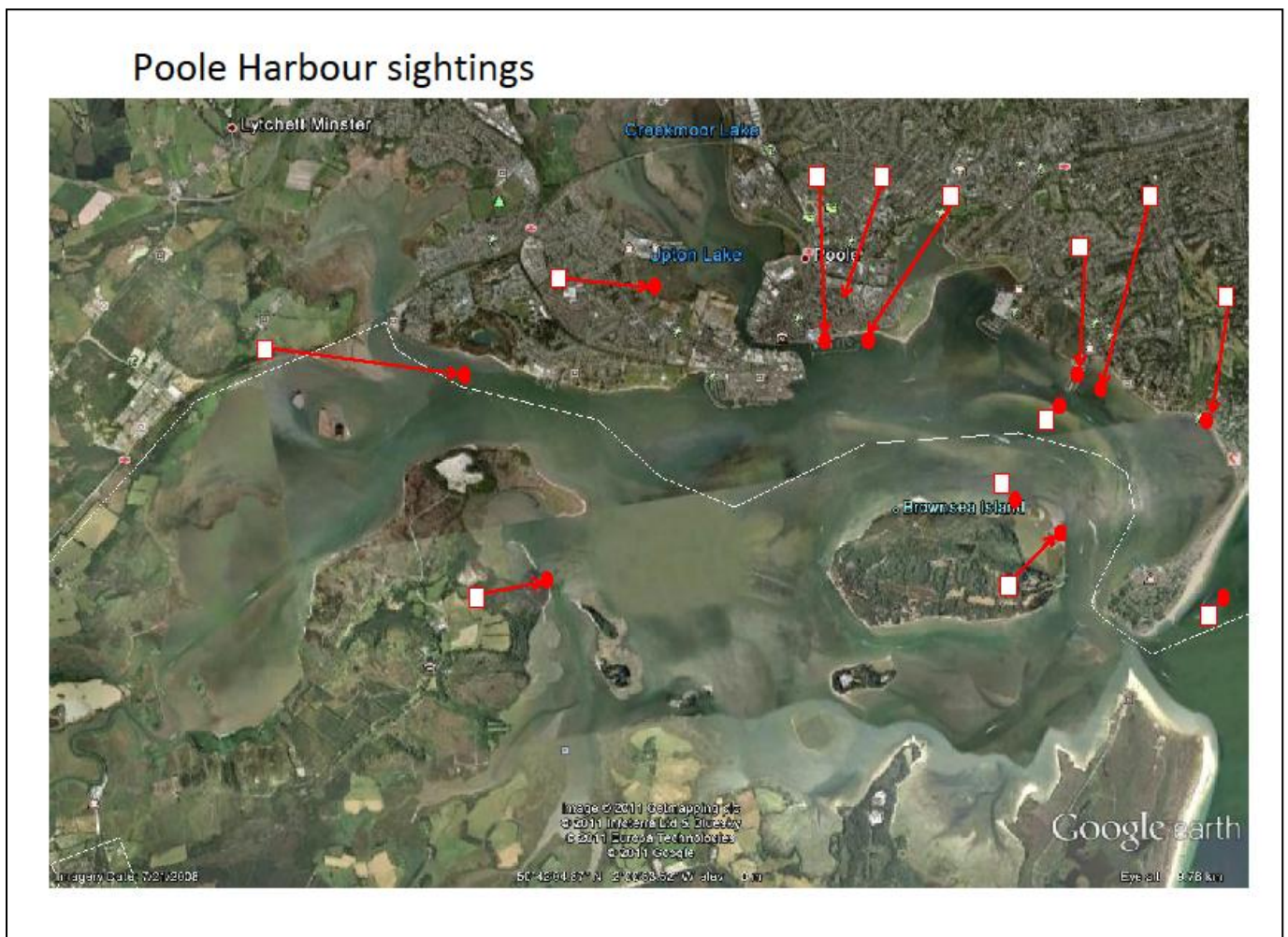
We have found both species of British seahorse, the Spiny (*Hippocampus guttulatus*) and the Short Snouted (*Hippocampus hippocampus*); with the Spiny appearing to be found more often. This could be misleading though; the cryptic nature of both species makes it likely they are found in even numbers throughout a wide variety of habitats; from seagrass through to sand and silt. Seahorses are often thought to just dwell just in seagrass but this is not correct for the Short Snouted Seahorses that are found in a wide variety of habitats.

Poole Harbour has a diverse range of habitats and is a very rich, complex environment for a wide variety of species and it is this diversity that allows it to have both species of seahorse. Only by having a diverse range of food items can the different needs be catered for within the harbour.

We have a rough idea of the distribution of the seahorses in the harbour based on the current reports and sightings, but we have to assume that this is much wider than is being shown at the moment due to lack of human access. Most sightings come from fishermen and walkers around the edge of the harbour, particularly on the northern and north eastern side and this highlights areas where these types of activity take place. However there are areas within the harbour where these activities do not take place and these areas are revealing a lack of information and will need to be explored over time.

The lack of seahorse sightings in these areas does not mean there are not seahorses there, just a lack of observations.

**Fig 5 Distribution of proven seahorse sightings in Poole Harbour, some squares represents multiple sightings.**





## Breeding seahorses in Poole Harbour

Although we have had one or two pregnant seahorses found within the Poole Harbour area, there is not the sort of numbers of pregnant animals expected or compared with the nearby site of Studland, which is internationally recognised for its breeding colony of Spiny Seahorses.

There is not enough evidence to ascertain why this is, and more long term research is needed to look into this.

However, the breeding that does occur could be locally distributed, and more widely, very important, any fry bred in the harbour would become distributed throughout the harbour and any pushed out of the harbour by the strong currents would be distributed out into the channel (The Swash) and into Studland Bay, and wider afield by the long shore drift which works predominantly from East to West (although there are localised currents that go counter to this), giving in turn, good recruitment into other areas which in turn would add to the genetic diversity of those areas.

## Illegal activities

Within England and Wales, seahorses are protected under the Wildlife and Countryside Act 1981 (schedule 5, section 9), which means it is illegal to kill, disturb or take seahorses from and in the wild. Their place of shelter is also fully protected from disturbance, wherever that occurs, and it needs to be borne in mind the seasonal movement of seahorses, so this place of shelter, can and does change depending where the seahorses are based throughout their seasonal migrations.

This legislation came into effect on the 6<sup>th</sup> of April 2008 and so far very little has been done to protect seahorses in the wild.

In Studland Bay with the multitude of human activities, which has been proven to be destroying the seagrass, the legally protected place of shelter of the seahorses, next to nothing has been done to ensure the protection of them, with the exception of a ban on the use of flash photography by divers, in the wild.

Studland Bay has been put forward as a proposed Marine Protected Zone (MPZ) based on the research work done by The Seahorse Trust and the National Oceanography Centre at Southampton University, led by Dr K Collins; so it is hoped that in the long term at least, this small area will receive protection, a small, but valuable start.

Seahorse numbers and consequently breeding are most likely affected by illegal and legal activity in Poole harbour, such as the Clam fishermen, who use hoover types of equipment to suck the clams from the seabed and in turn suck everything else into their boats. This highly destructive form of fishing is illegal and is carried out by unlicensed people, who are often not even fishermen, but at present no action is being taken against them.

There are a lot of boating activities taking place within the harbour as is expected, most of this is being done responsibly, however there are some actions such as dropping and dragging anchors through seagrass beds which we know are causing damage and ultimately long term destruction of these valuable meadows.

Pollution is a long term problem within the harbour partially because of its very enclosed nature and lack of currents to move the pollution into other areas; however it is not thought that this pollution directly affects the seahorses, although long term research is needed to get a better idea of this.

## Observations

- Sightings are in areas of human activity, mainly in the northern part of the harbour
- Both species have been observed in the harbour
- The distribution is most likely wider than is observed at present, but cannot be confirmed due to lack of human access and reports
- The seahorses could aid the genetic diversity of other areas through long shore drift and other tidal and current patterns
- There has been low numbers of pregnant seahorses than would be expected, this could be due to a relatively low population, per possible area of habitat; however there could be a number of reasons including disturbance by illegal clam fishermen who siphon up the harbour seabed, or even a lack of suitable food types.
- We have observed dead animals that could easily be attributed to this illegal activity and until the authorities take charge of the situation this will continue to occur

## Conclusion

Both native species of seahorse are found within Poole Harbour and they appear to be widely distributed, although their distribution could possibly be wider than is observed at present, if and when access is available to other areas.

The habitat within Poole Harbour is under threat from a variety of effects such as pollution, illegal activities and loss of habitat and long term guidelines and plans need to be put into place to stop the degradation of this site

The population appears to be relatively low in the harbour and it would be expected that more pregnant animals should be seen than there is at present. There is a lack of data but initial observations seem to show that the site should support many more seahorses and especially many more pregnant animals.

Even though seahorses are protected under the Wildlife and Countryside Act, to date little has been done to implement this protection, even though it has the same level as Otters, Bats and Dormice Etc. This lack of enforcement is having and will have long term effects to the national seahorse population, particularly because the areas where they tend to come into conflict with humans are being developed and destroyed at an alarming rate.

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## Figures

**Fig 1** Short Snouted Seahorse (*Hippocampus hippocampus*)

**Fig 2** Spiny Seahorse (*Hippocampus guttulatus*)

**Fig 3** Distribution of the Short Snouted Seahorse (*Hippocampus hippocampus*)

**Fig 4** Distribution of the Spiny Seahorse (*Hippocampus guttulatus*)

**Fig 5** Distribution of proven seahorse sightings in Poole Harbour, some squares represents multiple sightings

## References

**I. R. Caldwell, M. Correia, J. Palma and A. C. J. Vincent** ., Advances in tagging syngnathids, with the effects of dummy tags on behaviour of *Hippocampus guttulatus*. *Journal of Fish Biology* (2011) **78**, 1769–1785 doi:10.1111/j.1095-8649.2011.02983.x, available online at wileyonlinelibrary.com

**John K. Pinnegar (1), Vanessa Stelzenmüller (1), Jeroen Van Der Kooij (1), Georg H. Engelhard (1), Neil Garrick-Maidment (2) & David A. Righton (1)**  
2008. Occurrence of the short-snouted seahorse *Hippocampus hippocampus* in the central North Sea. *Cybium* 2008, 32(4) : 343-346.

**KJ Collins, AM Suonpää and JJ Mallinson.** School of Ocean and Earth Science, University of Southampton, National Oceanography Centre, Southampton, UK  
The impacts of anchoring and mooring in seagrass, Studland Bay, Dorset, UK  
doi:10.3723/ut.29.117 International Journal of the Society for Underwater Technology, Vol 29, No 3, pp 117\_123, 2010

**Neil Garrick-Maidment (1), S Trehwella( 2), J Hatcher (2), K.J. Collins (3) and J.J Mallinson (3)**  
2010. Seahorse Tagging Project, Studland Bay, Dorset, UK Marine Biodiversity Records, page 1 of 4. # Marine Biological Association of the United Kingdom. doi:10.1017/S175526721000062X; Vol. 3; e73; 2010 Published online

**Neil Garrick-Maidment.**, 2011. British Seahorse Survey Report 2011. The Seahorse Trust published online.

**Neil Garrick-Maidment.**, 2007. British Seahorse Survey Report 2007. The Seahorse Trust published online.

**Neil Garrick-Maidment.**, 2004. British Seahorse Survey Report 2004. 82 p. Topsham, Devon: The Seahorse Trust.

**Neil Garrick-Maidment.**, 2011. The Spiny Seahorse Tagging Project. Country-Side, British Naturalists Association. 28p (19 – 25) 2011.

**Neil Garrick-Maidment.**, 2010. The Seahorse Tagging Project at Studland Bay, Dorset. Marine biological Association News19p (4 – 5) MBA News 44 Autumn 2010.

**Neil Garrick-Maidment.**, 2010. Seahorses around Devon. JMBA Global. Spring 2010 issue 11.35p (30 – 31)

**Neil Garrick-Maidment.**, 1998. A note on the status of indigenous species of seahorse. JMBA, 78(2), 691-692

**Neil Garrick-Maidment.**, 2010. Seahorse Tagging project at Studland Bay in Dorset. The Seahorse Trust. Published Online.

**Paul A. Anderson, Ilze K. Berzins, Frank Fogarty, Heather J. Hamlin, Louis J. Guillette Jr** Sound, stress, and seahorses: The consequences of a noisy environment to animal health. Aquaculture 311 (2011) 129-138.

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