

Boat traffic at South Beach in Studland Bay, Dorset

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Introduction

The number of boating events, anchoring and mooring at South Beach in Studland Bay, Dorset has been the subject of much contention in recent years, especially since the area (Studland Bay as a whole) has been nominated as a proposed Marine Conservation Zone (pMCZ) in 2014.

There have been a number of guesses at boats numbers on the site and with the exception of a limited study by the ecological survey company Seastar (**The Seastar Report**) nothing else has been actually been recorded, except by The Seahorse Trust and NOC at Southampton University. However there are two very good reports by Drs Jackson and Collins listed below that can be relied upon for accurate information about the seagrass meadows of Studland Bay.

The Seahorse Trust did not set out to collect boat event data as this is not its prime objective at South Beach, which was to study the seahorses on the site, however we have made some observations during our time studying the site and this report represents these limited observations. Although limited they are a true representation of boating events and show clearly that the Dr Simons report **Estimating the Degree of Exposure to Leisure Vessel Anchoring** (BORG website, May 2014) has through not observing the boats directly severely underestimated the actual number of boats that visit South Beach. We are sure this is not intentional but with limited actual data and anecdotal local observations from a biased group it would give Dr Simons limited and inaccurate data to work with and so it is not a surprise he has come to the conclusions he has, through no fault of his own.

Seastars report (**reference below**) on the seagrass and boat numbers has often been quoted as the definitive boat count in the area but a number of observations by Seahorse Trust staff and volunteers and members of Natural England (and many others) have cast doubt on the accuracy of the observations by a team of students who only occasionally turned up, and when they were there, they only started at 10 am or 11 am and usually left to 2 pm or 3pm, giving only the briefest glimpse of what actually occurs in the bay.

A number of boats turn up late in the evening and overnight before going off early morning to sail up or down the coastline. They also turn up in the late afternoon to either spend the evening eating and drinking in the area (on board, in the local pub or having a barbeque on the beach), some stay for a few hours before leaving and some stay overnight. The Seastar Report fails to take any of this into account and as such should be dismissed as an incomplete report or at best a snapshot of the middle of the day; it is certainly not safe to rely on it as the definitive report of boating events in the bay,

The purpose of this report is to give another viewpoint to the boating events in the bay as put forward by Dr Simons (BORG) based on actual data collected by The Seahorse Trust as opposed to an underestimate based on anecdotal biased evidence. In his report Dr Simons through no fault of his own has an over-estimate of seagrass coverage (in the seagrass meadow) and an underestimate of actual boat numbers and he also extends the area included in his report to be much larger northwards, including a large area of sand bed rather than the seagrass meadow which is subject to the seahorse study. By including an extra area into the report Dr Simons gives greater exaggeration to the habitats that make up the study area, especially a sandy bed bias.

By using a lower number of boats than actually use the site it also dissipates the boat numbers over a much large area, (see figures below) diluting the data to give each boat more area than actually occurs in reality.

We need to make it clear we do not hold Dr Simons responsible for this because he has been given data by a biased group of observers and so only has that data to work with, whereas we have actually counted boats on the site and so can make an informed judgement based on actual data.

Background to data

It is worth noting this report is only a snapshot of events in the bay for a number of reasons; however where data is quoted it is come to by the simple process of having a number of persons present count the boats and an average is derived from the total number put forward by each person and then divided by the number of people counting to give a mean average.

The data and information contained in this report is from the 11th of April 2010 until the 7th of September 2013. Data prior to this was recorded in the diaries of the author but these have since been accidentally discarded, unfortunately without recording the data in them; data for 2014 to date has not been included to allow for whole years not partial ones.

The dates contained in this report do not represent only diving days; there are a number of days where diving was not possible for a wide variety of reasons and so observations were made on land; we estimate there are about 68 to 83 dive days during this period where no boat data was recorded (counting boats was not our prime objective) but the exact number

of dive days with no boat data cannot be confirmed, this is a best guess for the period of 11/4/2010 to 7/9/2013.

It is very important to note that most Sundays and Bank Holidays throughout the whole of the survey have been avoided in the interest of safety to the volunteer divers involved in the survey work at South Beach. With the sheer number of boats on the site, there is a strong possibility of an accident between boats and divers and it is a conscious decision to not dive on these days (there have also been several deliberate attempts to run divers over); however it is Sundays and Bank Holidays, especially when the weather is fine that the most number of boats are around and so this needs to be borne in mind when considering this report. If the numbers for these days were added to the overall figures it would not only show very high numbers of boats for these days, it would also put the overall total up considerably and it would increase the daily average by a very large margin.

We conducted an experiment recently with 6 volunteers to see how accurate a guess of numbers of boats in the area compared to the exact number of boats present was. The results of this informal (non-scientific) experiment were quite a surprise. On the day there were 64 boats present (concluded by actual boat counts and an average gained by dividing counters by the numbers each person counted). Prior to the actual count each person was asked to guess (without counting) the number of boats on the site and an average was derived from each person guess; the average came out at approximately 40; roughly two thirds of the actual number of boats present.

Although this experiment was not scientific and is accepted as such, it illustrates a point that on average a guess of numbers is a lot lower than actual figures.

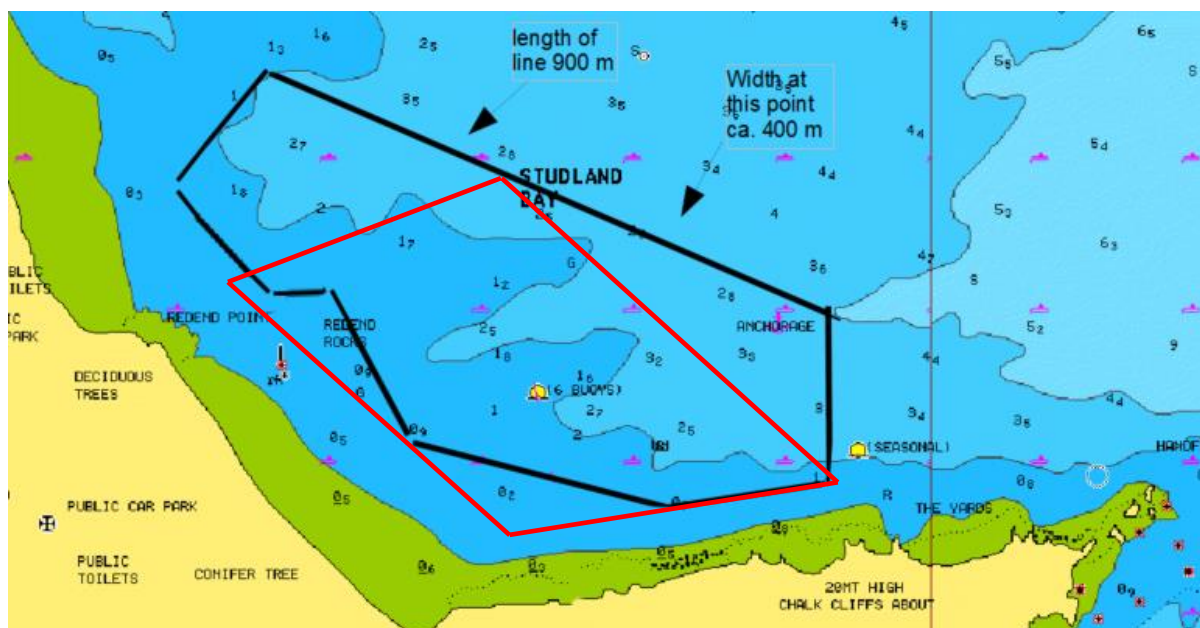


Figure 1. Image taken from Dr Simons report showing his study area in black as opposed to the actual seahorse study area (in red), represented in figure 2.



Figure 2. The Seahorse Trust, seahorse study area. (Courtesy of Google Earth, image 2009)

Although this report is primarily concerned with boat numbers for the South Beach area, the reasons behind all of the studies and research at South Beach is the state of the habitat of the Spiny Seahorses (*Hippocampus guttulatus*), the seagrass. Figure three shows the study area with red circles on it. Each of these red circles represents damage to the seagrass through anchor or mooring damage and the whole site has been ground truthed by divers. This fragmentation has been illustrated by Dr Collins in his paper The impacts of anchoring and mooring in seagrass, Studland Bay, Dorset, UK and in Drs Jackson and Collins paper, the MAIA report: A Guide to assessing and managing anthropogenic impact on marine angiosperm habitat (**full references below**), both of which clearly show the effect of the damage which has led to fragmentation of the seagrass meadow.

It is worth noting the Spiny Seahorses (*Hippocampus guttulatus*) are a fully protected species under the Wildlife and Countryside Act (1981 as amended) under schedule 5, section 9 in which the place of shelter of the protected seahorses is also afforded protection. It is also an offence under this act to disturb a species with this level of protection in its place of shelter.

Not only are there protected seahorses on the site; the Short Snouted Seahorse (*Hippocampus hippocampus*) has also been recorded on the site but other species which have full protection such as Undulate Rays, English Oysters and truncated Anemones and possibly one count of a Fan Mussel Shell (**Neil Garrick-Maidment; 2014**)



Figure 3. All red circles represent holes created by anchor damage or mooring chains in the seagrass, as ground truthed by Seahorse Trust divers and others such as National Oceanography Centre (NOC) divers under the supervision of Dr Ken Collins. (Courtesy of Google Earth, image 2009)

It is worth noting that The Seahorse Trust volunteers (well in excess of 1,020 hours) and divers from NOC have spent a great deal of time underwater ground truthing surveying the site at South Beach in Studland Bay, whereas Dr Simons and his colleagues have spent no or very little time under the water on site and so have little idea as to what truly is happening under the water. Most observations they have made have been from over the side of the boat, which can and is confusing as the anchor and mooring holes are often filled in with drifting algae and weed and so from a boat at the surface it looks as though it is one continuous seagrass meadow which it is not.

Data

Again it is worth noting in the data collected there are very few Sundays or Bank Holidays which have the highest level of boat traffic and so the figures below offer a very low average for the total period of time. If Sundays and Bank holidays had been included then it is reasonably expected that the daily average would be considerably higher, possibly up to 100 or more per day during the season.

It has been observed that numbers of boats at South Beach can be confusing because boats are coming and going all the time and so the total numbers of anchoring or mooring events

are very difficult to ascertain, however observations by Seahorse Trust volunteers (and others) regularly note boats coming and going all day long and a turnover of total boat numbers 3 or 4 times in a day is very feasible and highly likely.

The data collected in this report is only a very small part of the total number of boats that have actually visited South Beach but even using this very small amount of available data it works out to 75.67 boats per day of observations.

The averages number of boats work out at 75.67 per day as opposed to Dr Simons' estimate of 50 but it is worth noting that Sundays and Bank holidays are missing due to safety concerns for diving amongst so many boats and these days would have a very high level of boat traffic

This snapshot only represents one or two days a week, so one sixth or one seventh of the total number of boats on site in a week. It also needs to be taken in consideration that there are approximately 200 boating days on South Beach per annum, which if you take the average per day based on the figures presented would account for 15,134 boats per annum (or 20,000 if the estimate of numbers includes Sundays and Bank Holidays) since 2008 this would amount to 90,804 mooring or anchoring events (or 120,000 if the estimate of numbers includes Sundays and Bank Holidays) in 6 years in an area that is two thirds the size quoted by Dr Simons, or more if the 100 per day average is used.

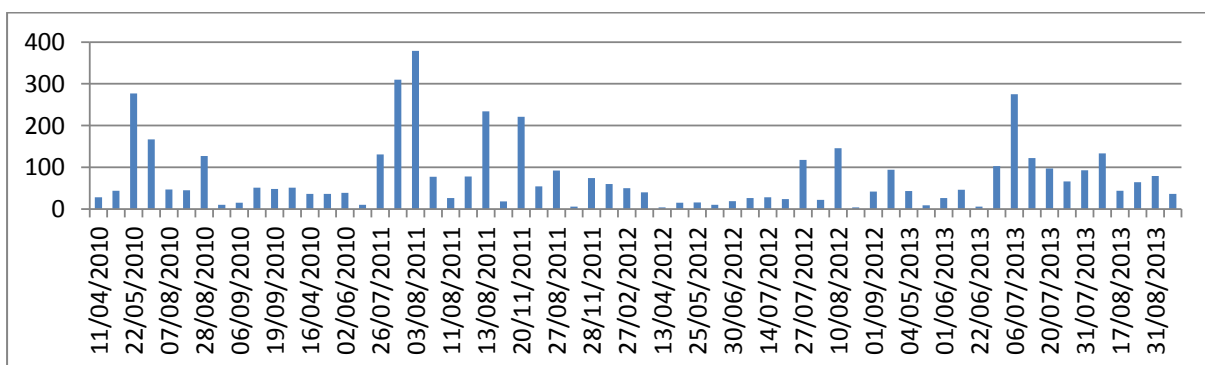
Dr Simons estimates the main anchoring area at 245,000 sq m which in our opinion it is much smaller, however even if it was the 245,000 sq m, then 90,000 to 120,000 anchoring or mooring events in 6 years is a very heavy usage of the site and it is no wonder there is severe damage to the seagrass meadow with a strong risk the fragmentation as reported by Drs Jackson and Collins could lead to a collapse of the whole eco-system. All of this bearing in mind that the seagrass, seahorses and a host of other creatures are protected and the positive benefits of a seagrass meadow as stated by Ben Jones of the Seagrass Project (<http://www.project-seagrass.co.uk/>). Positive benefits such as a CO2 sink, a diffuser of strong weather, protection against coastal erosion, a nursery for commercially sensitive species and a home to many species such as the seahorses which are legally protected (WCA 2008).

The data collected and estimated relate to an absolute minimum of boat numbers for the reasons stated above and we estimate numbers to be greatly higher than stated.

The highest number of boats counted in one day was in 2011 where 379 were counted with the lowest number being in 4 in 2012

No	Date	TOTAL	No	Date	TOTAL	No	Date	TOTAL
1	11/04/2010	28	22	12/08/2011	78	43	10/08/2012	146
2	23/04/2010	44	23	13/08/2011	234	44	25/08/2012	4
3	22/05/2010	277	24	17/08/2011	18	45	01/09/2012	42
4	06/06/2010	167	25	20/08/2011	221	46	08/09/2012	94
5	07/08/2010	47	26	25/08/2011	54	47	04/05/2013	43
6	10/08/2010	45	27	27/08/2011	92	48	21/05/2013	9
7	28/08/2010	127	28	10/09/2011	6	49	01/06/2013	26
8	01/09/2010	10	29	28/09/2011	74	50	19/06/2013	46
9	06/09/2010	15	30	30/09/2011	60	51	22/06/2013	6
10	18/09/2010	51	31	27/02/2012	50	52	29/06/2013	103
11	19/09/2010	48	32	30/2/2012	40	53	06/07/2013	275
12	28/09/2010	51	33	13/04/2012	4	54	18/07/2013	122
13	16/04/2010	36	34	19/05/2012	15	55	20/07/2013	97
14	20/04/2010	36	35	25/05/2012	16	56	27/07/2013	66
15	02/06/2010	39	36	31/05/2012	10	57	31/07/2013	93
16	21/06/2010	10	37	30/06/2012	19	58	10/08/2013	133
17	26/07/2011	131	38	06/07/2012	26	59	17/08/2013	44
18	10/11/2011	310	39	14/07/2012	28	60	24/08/2013	64
19	03/08/2011	379	40	20/07/2012	24	61	31/08/2013	79
20	05/08/2011	77	41	27/07/2012	118	62	07/09/2013	36
21	11/08/2011	26	42	03/08/2012	22			
						TOTALS		
						Dates	4691	

Chart 1 Dates with boat numbers (source, The Seahorse Trust)



Graph 1 Dates with boat numbers (source, The Seahorse Trust)

Conclusion

South Beach at Studland Bay in Dorset has been put forward as a proposed Marine Conservation Zone for a variety of reasons but mainly due to the presence of seagrass and more importantly the Spiny Seahorses (*Hippocampus guttulatus*) which have been shown to be declining on the site from 40 known individuals in 2008 down to 4 in 2013. During this same period of time the seagrass meadow has been recorded as fragmenting and is at risk of degrading beyond repair.

Seagrass meadows are an important site for so many reasons such as CO2 sinks, diffusers of wave action and they help to protect against coastal erosion, nurseries for commercially sensitive fish species such as bass and a home to a wide variety of protected species, such as Undulate Ray, truncated Anemone, English Oyster and in the case of South Beach the Spiny Seahorses.

It was never The Seahorse Trust's intention to collect boat traffic data and so our data set is small but importantly it is an accurate observation of boat numbers as opposed to the supposition of boats numbers as stated in Dr Simons report 'Estimating the Degree of Exposure to Leisure Vessel Anchoring' published in May 2014 on the BORG website and presented to a number of authorities.

We have noted in Dr Simons report that the area included in the report is larger than the study area that has been used by The Seahorse Trust and contains a great deal more sand, he has also severely underestimated this guess when considering boats numbers on the site, especially when it comes to the movement of boats in and out all day, which from our observations could be a turnover of 3 or 4 times on a busy day.

In our calculations we have quite reasonably allowed for 200 boat days per annum as boats are in attendance on the site in good and bad weather, so our estimate is probably on the low side but in the interests of fairness it has been kept at this.

Studland Bay has quite rightly been put forward as a proposed Marine Conservation Zone for a wide variety of reasons and reports such as Drs Simons, Jackson and Collins and work by The Seahorse Trust are vital in understanding this site so management protocols can be put into place even if it does not attain its MCZ status. This does not mean no more boating activity but what it does mean is that measures such as Environmentally Friendly Moorings should be put in to stop the pressure on the protected seagrass meadow and to allow for regeneration of the seagrass and in turn an increase in seahorse and other protected and non-protected species numbers.

Studland Bay can become a model of marine conservation and human usage with the correct management protocols in place and we hope this report goes some way to helping others understand the pressures on this very sensitive site.

Illustrations

Figure 1 Image taken from Dr Simons report showing his study area in black as opposed to the actual study area (in red), represented in figure 3.

Figure 2 The Seahorse Trust study area. (Courtesy of Google Earth, image 2009)

Figure 3 All red circles represent holes created by anchor damage or mooring chains in the seagrass as ground truthed by Seahorse Trust divers. (Courtesy of Google Earth, image 2009)

Chart 1 Dates with boat numbers (source, The Seahorse Trust)

Graph 1 Dates with boat numbers (source, The Seahorse Trust)

References

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