

EARTHWATCH INSTITUTE FIELD REPORT 2004

Principal Investigator: Colin Speedie

Position/Affiliation: Project Director and Principal Investigator

Project title: Britain's Basking Sharks

Research site: West Cornwall, Firth of Clyde and the Hebrides

Project Dates: Team 1: 22nd –27th May, Team II: 29th May – 3rd June, Team III: 12th-17th June, Team IV: 19th - 24th June, Team V: 26th June – 1st July, Team VI 24th – 29th July, Team VII 31st July – 5th August, Team VIII 14th – 19th August, Team IX 21st – 26th August, Team X 28th August – 2nd September

1. Results

A total of 327 transects were carried out during the season, an increase over 311 in 2003, and a significant increase over 188 in 2002. Similarly, the total distance travelled on transect increased to 3,892km compared with 3,695km in 2003 and 3,145km in 2002. However, the number of hours spent on transect decreased slightly to 385 in 2004, compared with 394 in 2003, but still considerably up from 336 in 2002. This variation is not due to any change in the spatial or temporal scale of the survey, but is simply due to variable weather.

The total number of sharks sighted (on/off transect) increased yet again, to 113/124, compared with 84/108 in 2003, and 26/33 in 2002.

The values per unit effort (sharks per hour observed) come out at:

| Year | Sharks/Transect | Hours | Factor |
|------|-----------------|-------|----------------------|
| 2002 | 26 | 336 | 0.08 h ⁻¹ |
| 2003 | 84 | 394 | 0.21 h ⁻¹ |
| 2004 | 113 | 385 | 0.29 h ⁻¹ |

Our average value per unit effort prior to the addition of this year's data came out at 0.25 h⁻¹, boosted by higher values in earlier years, during the upswing in numbers around 1999-2001. So it may be seen that our effort –corrected sighting value is rising back towards the peak values of earlier years.

Most interesting has been the change in spatial distribution over the three-year study. In 2002, of 33 sharks 27 were sighted in the South West, with only one sighted in Scotland. In 2003, of 108 sharks 53 were sighted in the South West, with 55 sighted in Scotland. In 2004, of 124 sharks sighted, 15 were in the South West, with 109 in Scotland, a remarkable change over such a short period. Cyclical changes in abundance with the species are not unknown, but further study is required, and it has been fascinating to be involved in a period of such dynamic change.

2. Future research plan

For all areas the standard methodology will consist of line transect surveys, effort corrected for perception bias (height of eye, sea state etc), using appropriately trained volunteer crews to minimise variability of observer effort. The project has successfully used this platform for six years now, and has considerable experience of conducting this type of survey.

We plan to continue with in-depth coverage of our two small-scale sites in Cornwall over the next two years, coupled with regular transects through the rest of the area to assess whether there will be any change in spatial or temporal distribution.

Northern Ireland and the Firth of Clyde will only be visited en route to the Hebrides, allowing the season in the North to be extended.

The sites in the Hebrides already established as being likely “hot spots” will be assessed in finer scale, rather in the manner of the two sites in Cornwall, and the study area expanded (another benefit of the longer period allocated) to encompass an area bounded in the North West by Harris, and the North East by Skye. Initial line transect surveys will be carried out in this new area, and the original area will also continue to be covered to record any change in spatial and temporal distribution.

In both areas more systematic plankton sampling will be carried out, to examine density and species of plankton in some of the key sites. Partnerships are currently being established to carry out laboratory based analysis of the samples collected, and the project plans to make more use of satellite remote sensing data to predict shark abundance, and to later correlate this information with the plankton data.

The project will continue to use the benign research tool that is photo-identification as a cornerstone of the research programme, particularly in light of the successful results from the last three years.

3. Other accomplishments

The knowledge accrued over the years has led to the successful establishment of the UK's first ever marine ecotourism training and accreditation programme, the WiSe Scheme (www.wisescheme.org), that continues to expand its regional development.

The project has continued to attract media interest, with two pieces on the popular BBC series “Countryfile” over the last two years, as well as numerous other smaller items on national and regional TV. Film footage taken from the survey vessel continues to be in demand, and has been widely used over the last year.

The project continues to offer places and support to students, with one member of the boat's staff on course to complete her PhD this year, and two MSc students taking part in work connected with the project.

The project continues to contribute to research into other marine creatures such as turtles and cetaceans, sharing line transect data and photographic images with associated groups such as the Marine Conservation Society and the Sea Watch Foundation.

4. Research targets

The project has fulfilled all of its objectives in so far as the fieldwork programme is concerned. The task at hand now is to review all of the data gathered, and to organise into publishable sections, and this is already underway with a number of papers in preparation.

The study in Cornwall will be the subject of a report in preparation for English Nature, that will present the case for more formal protection of the key sites in the South West, and make recommendations for greater public awareness of the importance of these sites.

A report is being prepared for Environment and Heritage Service (Northern Ireland) detailing the three years of surveys in their waters, the first ever surveys of their type in the province.

The greatest satisfaction so far has come from the expansion of the surveys into the waters of Scotland. Whilst the Firth of Clyde has continued to frustrate, the waters further north have yielded some remarkable results, and we are eager to continue our work in that area.

Expansion of the photo-identification project continues to yield results, and we are currently sorting through this year's work, and are optimistic that it will yield dividends.

5. Publications

Speedie, C.D. (2003). The value of public sightings schemes in relation to the basking shark in the United Kingdom: *Cybiurn* 2003,27 (4): 255-259

Kelly, C. Glegg, G.A. Speedie, C.D. (2004). Management of marine wildlife disturbance. *Ocean and Coastal Management* 47: 1-19

Ashley, M. Speedie, C.D. In prep for 2005. Basking shark occurrence in relation to water mass movements and frontal distribution in the shelf waters of southwest UK

How, M.J. Speedie, C.D. Sims, D.W. Southall, E.J. Fairbairns, B.R. Gill A. and IFAW. In prep. for 2005. Evidence for regional philopatry of basking sharks over multiple years

Goodwin, L. Speedie C.D. In prep for 2005. Density and Distribution of the Harbour Porpoise (*Phocoena phocoena*) along the west coast of the UK

Goodwin, L. Speedie C.D., Tregenza N. In prep for 2005. Acoustic detection of the Harbour Porpoise (*Phocoena phocoena*) – Towing the T-POD

Speedie, C.D. In prep for 2005. Training and Accreditation of commercial marine ecotourism operators in the UK – the WiSe Scheme.