

Cefas Solent Bass Survey 1983-2014 Quality Assurance

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Introduction

Bass (*Dicentrarchus labrax* L.) is an important commercial and recreational fishing target in Europe, and the fisheries have high economic and social value. It also currently has very high policy profile in developing new European and national management measures. Cefas has carried out trawl surveys in the Solent since 1984, up to three times per year, with a primary aim to monitor the abundance of young bass at one of the most important bass nursery areas in the English Channel. The distribution, relative abundance and size/age composition of bass is recorded across a representative selection of habitats where these fish are present, and information on other fish species is also recorded. The young-fish indices for bass from this survey are a key source of information on recruitment patterns of bass used in the International Council for the Exploration of the Sea (ICES)¹ assessment of the bass stock around the UK, indicating very poor recruitment since 2008. The surveys are now funded as a private-public partnership, and additional requests for access to data are being received. The data are also seen as an important resource for investigating effects of environmental changes on bass productivity, alongside other smaller-scale and shorter-term surveys carried out by Inshore Fisheries and Conservation Authorities (which are now a partner in the Solent survey) and the Environment Agency to meet Water Framework Directive and MSFD targets.

The Cefas Solent survey data are archived in the Cefas Fishing Survey System (FSS) database, but there is evidence for numerous transcription errors and missing data, and there is no consolidated set of descriptions and methodology including changes in gear. This currently limits our ability to provide quality-assured data and to use these data in further scientific studies.

<http://www.cefas.defra.gov.uk/publications/techrep/tech118.pdf>

QA process and findings

For each of the 52 surveys prime station, station, catch, length and gear data were checked against the original logbooks.

¹ <http://www.ices.dk/community/groups/Pages/WGCSE.aspx>

Station positions were checked using ArcGIS. The survey tows were plotted. Each prime station code was selected and erroneous positions were checked against the original logbooks. No coordinate information was recorded in the log books for any of the surveys before 1995. A list of the prime stations with their position coordinates had been created manually from Admiralty charts, so there are no accurate “distanced towed” data. Stations have now been correctly assigned validity flags. A detailed list will be included in the metadata. Use of an additional tow (A) has been used to indicate tows that were not part of the core survey, such as tows specifically targeting bass to tag, exploratory tows and gear comparison trials. Prime station codes and tow durations were also checked and amended where necessary.

Missing data (e.g. the entire 2/02 survey) were entered, as well as numerous missing station data from other surveys (in particular, Prime Station with the code “PP” had not been entered in the original dataset).

Catch records for each tow and each survey (approximately 34,000 catch records for different species and 2085 tows) were checked. Species codes were changed where they had been entered incorrectly (e.g. sand smelts had often been recorded as smelts (*Osmerus eperlanus*) and Baillon’s wrasse recorded generically as wrasses (WRA)). Missing catch records were entered. No species have ever been weighed on these surveys, but incorrect sampling process codes (e.g. weighed and counted (WC)) had been used in the original dataset. These have not been changed, but all weight values from this dataset should be ignored and a warning is included in the metadata record.

The quality of sampling has improved progressively over the time series. Prior to 1995 only bass, and sometimes bream, mullet and plaice, were measured; since then most commercial species have been sampled for length.

Bass numbers and lengths for each station were checked to see whether they matched the survey reports. (Errors sometimes occurred in the reports, but not in the database). These were updated where necessary using data from the original measuring books. Lengths of other species were generally checked for outliers by using pivot tables within Excel.

All benthos data have now been entered onto the Fishing Survey System (FFS) database, although data recorded for benthos pre-1995 are sparse, and for some surveys (e.g. 2/2007) the benthos has

been recorded in great detail due to the presence of a benthos expert from Southampton University on board.

Missing bass age data have been entered onto the FSS (four surveys). There are no age data available prior to 1994, although aggregated age length keys for some of the surveys exist in paper format. Some of the ages are missing from the samples. In these cases not all of the scale samples were analysed as it was deemed that five samples per centimetre group were sufficient.

The metadata have been updated to reflect these findings and will be published on the MEDIN portal. A final copy of the corrected data will be stored in Excel format on the Cefas Data Repository for external use.

Acknowledgements

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