



ICES Training programme

The International Council for the Exploration of the Sea (ICES) offers courses led by high-profile scientists and instructors. Visit the [ICES Training Webpage](#)

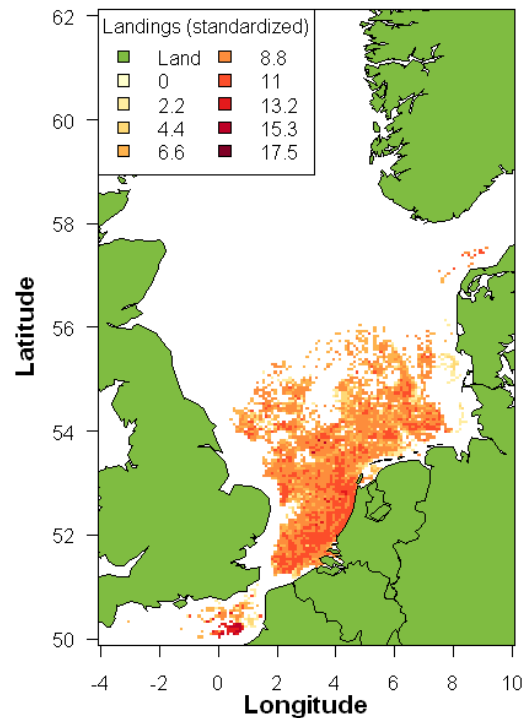
Analysing and visualization of VMS and EU logbook data using the VMStools R package

Context, objective and level

Context: Growing pressures by various human activities on the marine environment and international commitments to the conservation of biodiversity or seafloor integrity have led to increased interest in marine spatial planning and in the tools required for an assessment of the impact of these pressures. Fishing is considered, given its widespread occurrence, to be the main human activity impacting the seafloor. Vessel Monitoring by Satellite (VMS) system data have been collected from 2000 onwards and cover the majority of EU fishing fleet capacity. These data have proven to be a valuable source of information on the spatial distribution of fishing effort: especially when combined with logbook data. The combined analyses, therefore, of VMS and logbook data allows researchers to investigate the fine details of fishing behaviour, and estimate the distribution of landings (and their cash values) at far higher precision than has been possible in the past. Furthermore the overall impact of fishing on the marine environment can be assessed. The aim of this course is to introduce participants to best practice in the combined analysis of VMS and logbook data. Students will be guided through the entire process starting with the initial handling and processing of the raw data to the final estimation of appropriate indicators.

Objective: The objective of the course is to provide instruction in the use of the VMStools software package for the simultaneous analysis of VMS and logbook data. Emphasis will be placed on exploring the spatial distribution of fisheries, and the behaviour of fishers at sea. Students will be guided through the entire process of obtaining and cleaning VMS and logbook data, making simple plots and combining the datasets to enable more advanced analyses such as dispatching the landings at higher spatio-temporal resolutions (than is available in the logbook data) and calculating indicators (e.g. area of seabed fished). Instruction will also be given in how to use VMStools to convert logbook and VMS data to standard formats such as ICES FishFrame

enabling pan-European datasets to be constructed in the future.



Level: The course will be targeted at those with already some experience of VMS and logbook data, their analysis and mapping. Computer programming experience will be helpful and some knowledge of R is essential. We believe that the course would also benefit those currently analysing VMS data using GIS, since the combination of VMStools and GIS can improve standardisation of analytical protocols.

Course dates

25-29 June 2012. The five-day course will run in morning and afternoon sessions.

Programme

The morning sessions will consist of lectures on background and theory and introduction to the 'practicals'. The afternoons will be arranged as computer practicals where VMS and logbook data analysis will be demonstrated using the VMStools software. During these afternoon sessions interaction among the course participants will be encouraged.

Course lectures will cover:

1. A brief introduction to the use of R, functions, scripting and installing libraries.
2. VMS data – advantages, limitations, data confidentiality issues.
3. EU logbook data – advantages, limitations, data confidentiality issues.
4. EU logbook data métier analyses based on species composition of landings.
5. Combining VMS and logbook data – why it is important?
6. Standardising VMS and logbook analyses for populating pan European databases, e.g. FishFrame.
7. Indicators – what do they tell us?
8. Introduction to spatial statistics – shapefiles, points, lines, polygons, map projections, and data-storage.
9. Exploring the connection between fishing effort and other possibly explanatory variables (e.g. depth, primary production, temperature, wind speed).

Course practicals will cover:

1. Getting the VMS and logbook data into R
2. Cleaning and processing the VMS and logbook data, and accounting for potential problems.
3. Linking VMS and logbook data and exploring the benefits.
4. How to link VMS, logbook data to 'spatial' grids.
5. Interpolation methods for VMS tracks.
6. Calculating indicators (eg. Percentage area trawled) at different spatial scales.
7. Plotting, exporting to GIS and FishFrame.
8. How to link VMS data with other spatial datasets.

Organization

Doug Beare and Niels Hintzen have extensive experience in analyzing VMS and logbook data, and are among the core developers of the VMStools software developed with the support of the EU funded project, 'Development of tools for logbook and VMS data analysis' (No MARE/2008/10 Lot 2). They will lead the course and provide course material. Guest lecturers will be invited to provide expertise on (among other aspects) métier analyses and the FishFrame database.

The course includes both lectures and hands-on exercises on the computer. If time allows, there will be

a possibility to explore and analyze data brought by participants too.

Participants are required to bring their own laptops (Windows, Linux) to connect to the ICES network, and also have a recent version of R installed prior to arrival. R2.11.x or higher, freely downloadable from <http://www.r-project.org>.

Venue

International Council for the Exploration of the Sea
H. C. Andersens Boulevard 44-46
DK-1553 Copenhagen V
Denmark

Tel: +45 3338 6700

Fax: +45 3393 4215

info@ices.dk

You can find more information about:

ICES HQ [here](#)

Hotels close to ICES [here](#)

The hostel adjacent to ICES [here](#)

Fee

The fee for the course is €500. This covers only tuition.

Admission and registration

The course is designed for a maximum of 25 participants. The working language is English.

Please register online:

www.ices.dk/iceswork/training/registration/

You will receive a message acknowledging receipt of your application within one week.

The deadline for the submission of applications is 27 April 2012.

Instructors

Doug Beare – Researcher

The WorldFish Center, Penang, Malaysia

Tel : +31 317 487233

Email: doug.beare@gmail.com

Niels Hintzen – Researcher

IMARES, part of Wageningen UR, Haringkade 1,
1976 CP IJmuiden, The Netherlands

Tel: +31 317 487090

Email: niels.hintzen@wur.nl

Contact ICES Secretariat for more information

Coordinator for Training

Tel: (+45) 33 38 67 52

training@ices.dk