Cephalopod Stocks in European Waters: Review, Analysis, Assessment and Sustainable Management

CEPHSTOCK, Contract number Q5CA-2002-00962

This project aimed to review current knowledge and issues in cephalopod fisheries science, to assemble, organise, analyse and synthesise data from ongoing national projects, previous and new EC-funded R&D projects, and to recommend future actions for scientists and cephalopod fishery managers in European waters. This will be achieved through (a) co-ordinated reviews and (b) development of common databases and associated GIS analysis capability, leading to (c) a series of co-ordination meetings and workshops at which the status of fished European cephalopod stocks will be reviewed, stock assessments carried out and management recommendations proposed. The project ran from October 2002 to October 2005 and involved 21 partner institutions from 7 European countries, contributing to work in 13 workpackages. The project's final report was accepted in April 2006.

Contents

Workpackage list

1. Co-ordination	2. Fisheries database and GIS for cephalopod stocks
3. Review and new analysis of fisheries-environment interactions	4. Review of cephalopod stock genetics
5. Review of life-history, ecology and movements	6. Review of cephalopod immunology and physiology
7. Review of cephalopod culture and capture fisheries	8. Socieoeconomic review of cephalopod fisheries
9. Data collection requirements for stock assessment	10. Stock status reviews
11. Stock assessment workshops	12. Fishery management recommendations
13. New research priorities	

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PROJECT SUMMARY

Objectives: This project aimed to review current knowledge and issues in cephalopod fisheries science, to assemble, organise, analyse and synthesise data from ongoing national projects, previous and new EC-funded R&D projects, and to recommend future actions for scientists and cephalopod fishery managers in European waters. This was achieved through (a) co-ordinated reviews and (b) development of common databases and associated GIS analysis capability, leading to (c) a series of co-ordination meetings and workshops at which the status of fished European cephalopod stocks was reviewed, stock assessments carried out and management recommendations proposed.

Specific objectives were: (1) To review the current state of knowledge on exploited cephalopods in European waters; (2) To review current data collection, stock assessment and management practices for cephalopod capture fisheries world-wide; (3) To review the current status of

cephalopod culture and the prospects for commercial aquaculture; (4) To review socio-economic issues related to cephalopod fisheries; (5) To review current knowledge of cephalopod biology and ecology; (6) To review management options for currently unregulated cephalopod fisheries; (7) To design appropriate data collection protocols for each stock; (8) To hold workshops on assessment and management; (9) To develop a common database and GIS of biological, fishery and bibliographic data; (10) To develop models of interactions between cephalopods and the environment; (11) To disseminate the information synthesised and results generated; (12) To develop new research proposals to address perceived gaps in the information required for sustainable management of fished cephalopod stocks.

Results and Milestones: Results have been presented in approximately 50 deliverables and the main findings from each of the main workpackages are summarised here.

WP2 - Fisheries databases and GIS for cephalopod stocks The present project has compiled existing datasets on cephalopod distribution, abundance (and, with WP5, life history), developed GIS displays and analyses and reviewed prospects for commercial GIS applications in cephalopod fisheries.

WP3 - Review and analysis of fisheries-environment interactions: Population processes (e.g. paralarval survival, recruitment, migration, spawning success) in European cephalopods are influenced by oceanographic features such as current flows (Gulf Stream, Iberian poleward current, Algerian current), the North Atlantic Oscillation, upwelling, ocean gyres and thermal fronts

WP4 - Review of cephalopod stock genetics: Genetic studies on European cephalopods have been reviewed, recommendations for protocols and future studies have been produced.

WP5 - Review of life-cycle, ecology and movements. The major contribution has been a set of comprehensive but easy to read species reviews.

WP6 - Review of cephalopod immunology and physiology: ·Climate change, pollutants and harmful algal blooms will affect cephalopod populations and fisheries. Cephalopods represent an ideal model for biomonitoring studies. Research is needed into physiology and immune responses, prevalence of disease and effects of environmental perturbations on natural mortality in cephalopods.

WP7 - Review of cephalopod culture and capture fisheries: Status and trends in fisheries and aquaculture for European cephalopods are summarised; gaps in knowledge that limit commercial culture are noted.

WP8 - Socieoeconomic review of cephalopod fisheries: Cephalopods have increased in importance as other fisheries have declined but there is also increased targeted fishing especially in the north, and in culture of cephalopods.

WP9 - Data collection requirements for stock assessment: While current fishery data collection for cephalopods could be improved there is scope for wider use of existing data for assessment purposes.

WP10 - Stock status reviews: Stock status and abundance trends are summarised for the main fished cephalopod species.

WP11 - Stock assessment workshops: Workshops with invited experts have delivered a series of papers on assessment and data collection methodologies.

WP12 - Fishery management recommendations: A review highlighted the diversity of cephalopod fisheries. Management must therefore necessarily be adaptive and practices different from case to case.

WP13 - New research priorities: The project partnership identifies a series of priority areas for future research.

Benefits and Beneficiaries: Fisheries for these species are currently not managed in the framework of the CFP but their substantial economic importance indicates the likelihood that management may be necessary in the future. For example, during 2005, there was a substantial increase in interest in directed fishing for squid in UK waters. The results will have a natural outlet in the scientific fisheries literature (including special issues of Aquatic Living Resources in 2005 and Fisheries Research in 2006, also papers from a special issue of Vie et Milieau in 2006, on cuttlefish), and will be reported to the ICES Working Group on Cephalopod Fisheries and Life History.

Project results will contribute to future cephalopod fishery assessment and sustainable management in all partner countries. The project provides information directly relevant to the prospect for bringing cephalopod fisheries within the framework of the Common Fisheries Policy. This project also assembled available information on the social and economic value of the cephalopod fishery sector and its future prospects. The project explicitly recognised the need for fishery management to address the goals of biological, economic, social and institutional sustainability.

Future Actions (if applicable): The project has now terminated but maintenance of project databases and dissemination of project results will continue and it is expected that new research proposals on cephalopod biology and fisheries will follow.

PUBLICATIONS

Journal Special Issues

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