An integrated and statistical approach using R to assess the economic importance of coastal fisheries in France.

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Coastal fisheries are highly represented in France and in all European Union EU Member States; vessels less than 12 meters represent almost 75% of the total European fleet. Nevertheless, due to the lack of information available on them, their importance are often underestimated. In 1995, the Code of Conduct for Responsible Fisheries was adopted by the Food and Agriculture Organization. The Code emphasizes that the development of fisheries management plans requires appropriate reliable data on all aspects of a fishery. In particular, the Code stressed that "in order to insure the sustainable management of fisheries and to enable social and economic objectives to be achieved, sufficient knowledge of social, economic and institutional factors should be developed through data gathering, analysis and research" (article 7.4.5). Based on these considerations and in order to provide the scientific basis for the implementation of the Common Fisheries Policy, the Fisheries Council of the European Union decided in 2000 to establish a Community program for the collection of data needed to evaluate the situation of all the fisheries sector.

This paper presents the statistical approach ongoing in France to collect economic data in order to satisfy EU requirements and to characterize the economic status of French coastal fleets.

The methodology includes both an optimized sampling plan and a model used to re-assess the contribution of small-scale fisheries to national production. The optimized sampling plan provides a sample of about 15% of the total French fleet collected from a direct survey of fishermen. The sampling scheme is optimized to represent the economic indicators variability by category of vessels and geographic distribution and to insure that the levels of precision required are satisfied. The modelling combines both official landings and data collected from directs surveys.

The role of small scale fisheries in the French professional fishing sector is re-evaluated and its key role is demonstrated.

References

- Ardilly P. 1994. Les Techniques de Sondage, Paris, Technip, 393pp.
- Berthou, P., O. Guyader, E. Leblond, S. Demanèche, F. Daures, C. Merrien, P. Lespagnol, 2008. From fleet census to sampling schemes: an original collection of data on fishing activity for the assessment of the French fisheries, ICES ASC 2008/K12.
- Cochran, W.G. (1977), Sampling Techniques, third edition. John Wiley & Sons, Inc., New York, 428pp.
- Daurès, F., S. Demanèche, et al. (2003). Methodology for the assessment of aggregated economic indicators in the fishing sector: estimation of a revenue function. XVth EAFE Annual Conference, Brest (France).
- Guyader, O., P. Berthou, C. Koustikopoulos, F. Alban, S. Demanèche, M. Gaspar, R. Eschbaum, E. Fahy, O. Tully, L. Reynal, A. Albert. 2007. Small-Scale Coastal Fisheries in Europe. Final report of the contract No FISH/2005/10, 447pp. http://ec.europa.eu/fisheries/publications/studies_reports_en.htm.
- Leblond, E., F. Daurès, P. Berthou, Ch. Dintheer, C. Merrien, A. Tétard, J. Vigneau, P. Lespagnol, 2008. The Fisheries Information System of Ifremer - a multidisciplinary monitoring network and an integrated approach for the assessment of French fisheries, including small-scale fisheries, ICES ASC 2008/K11.
- Leblond, E., F. Daurès, et al. (2007). La Synthèse des Flottilles de pêche 2005 - Flotte Mer du Nord - Manche –Atlantique. IFREMER, SIH: 58 p. (http://www.ifremer.fr/sih).
- Tillé Y. 2001. Théorie des sondages, Paris, Dunod, 284pp.
- Van Iseghem, S., S. Demanèche, et al. (2004). Optimization of a Sampling Plan for Economic Data Collection: Application to the Atlantic French Fleet. XVIth EAFE Annual Conference, Rome (Italy).