

Advanced Course

TECHNOLOGICAL SOLUTIONS FOR REDUCTION OF DISCARDS IN FISHERIES

Zaragoza (Spain), 20-24 February 2017

1. Objective of the course

The capture of undesirable species and sizes is a recognized problem in world fisheries. Globally, 30% of catches are discarded at sea, resulting in a waste of resources affecting the marine ecosystem and the economic and social dimensions of fisheries. Technological research can help to incentivize the adoption of low impact fishing gears and best practices that reduce discards, contributing to positive outcomes for management, ecological objectives and the long term prosperity of the fishing industry.

The course is jointly organized with the MINOUW project, a Research and Innovation Action (RIA) of Europe's Horizon 2020 Framework Programme, addressing the topic "Towards a gradual elimination of discards in European fisheries". The general approach is based on technological and socioeconomic solutions through a case-by-case analysis of the main types of European fisheries.

The course aims to increase the participants' experience with the design of fishing gears and innovations to increase selectivity and reduce discards. While it focuses on the Mediterranean region, examples and experts will be drawn from across the world to demonstrate the diversity of available techniques.

By the end of the course the participants will:

- Be aware of the current issues concerning discard management and the regulatory framework.
- Have an up-to-date overview of innovative fishing gears and practices to mitigate the problem of discards, including specific examples of successful developments in different fisheries.
- Understand the effect of technological change on selectivity and the benefits of using more selective gear to enhance fisheries productivity.
- Be familiar with available tools to analyse, simulate and evaluate the effect of gear modifications on selectivity and gear performance.
- Appreciate how more selective technologies and practices positively affect economic results of fisheries.
- Gain insights about monitoring and control procedures for compliance with discards regulations.

2. Organization

The course is jointly organized by the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), through the Mediterranean Agronomic Institute of Zaragoza

(IAMZ), and the EU H2020 RIA project MINOUW (Science, Technology and Society Initiative to Minimize Unwanted Catches in European Fisheries).

The course will be held at the Mediterranean Agronomic Institute of Zaragoza, taught by well qualified lecturers participating in the MINOUW Project, as well as invited experts from international institutions and from universities, research centres and administration bodies in different countries.

The course will be held over a period of 1 week, from 20 to 24 February 2017, in morning and afternoon sessions.

3. Admission

The course is designed for 25 professionals with a university degree, and is addressed to fisheries managers, fisheries inspectors, gear technologists, fishing industry representatives, technical advisors and other professionals involved in fisheries sustainability.

Given the diverse nationalities of the lecturers, knowledge of English, French or Spanish will be valued in the selection of candidates, since they will be the working languages of the course. IAMZ will provide simultaneous interpretation of the lectures in these three languages.

A second MINOUW course "Science, technology and society solutions for Mediterranean fisheries", targeted to fisheries managers, technical advisors and researchers, will be held in April 2018.

4. Registration

Application forms may be obtained from:

Instituto Agronómico Mediterráneo de Zaragoza
Avenida de Montañana 1005, 50059 Zaragoza (Spain)
Tel.: +34 976 716000 - Fax: +34 976 716001
e-mail: iamz@iamz.ciheam.org
Web: www.iamz.ciheam.org

Candidates should send the completed application form to the above address, accompanied by a detailed *curriculum vitae*, stating degree, diplomas, experience, professional activities, language knowledge and reasons for applying to the course. Copies of certificates should be enclosed with the application.

The deadline for the submission of applications is 2 December 2016.



Applications from those candidates who cannot present their complete records when applying, or those requiring authorization to attend the course, may be accepted provisionally.

Registration fees for the course amount to 500 euro. This sum covers tuition fees only.

5. Scholarships

Candidates from CIHEAM member countries (Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Turkey) may apply for scholarships covering registration fees, and for scholarships covering the cost of travel and full board accommodation in the Hall of Residence on the Aula Dei Campus. Candidates from institutions participating in the MINOUW Project may apply for scholarships covering registration fees.

Candidates from other countries who require financial support should apply directly to other national or international institutions.

6. Insurance

It is compulsory for participants to have medical insurance valid for Spain. Proof of insurance cover must be given at the beginning of the course. Those who so wish may participate in a collective insurance policy taken out by the IAMZ, upon payment of the stipulated sum.

7. Teaching organization

The course requires personal work and interaction among participants and with lecturers. The international characteristics of the course favour the exchange of experiences and points of view.

Lecture contents are based on background information combined with debates, case study analysis and simulation software demonstrations. Some lectures are illustrated with audiovisual material showing fish and fishing gear in action.

Participants are asked to prepare, before the beginning of the course, a brief summary on discard problems and reduction initiatives in their countries/regions. These documents will be shared with lecturers and participants and will constitute the base of an open discussion at the beginning of the course.

8. Programme

1. Introduction (4 hours)

- 1.1. Mediterranean fisheries: specificities and current issues
- 1.2. Fishing technology and fisheries sustainability
- 1.3. Ecosystem impacts of (un)selective gear

- 1.4. Fishing strategies to minimize discards
- 1.5. Regulatory framework: International agreements and European legislation (Landings Obligation)
- 1.6. Open discussion

2. MINOUW and DiscardLess Projects. First results of European initiatives to minimize unwanted catches (1 hour)

3. Technical specifications of static and mobile fishing gears (5 hours)

- 3.1. Fishing gear design and properties
- 3.2. Gear evolution and recent developments
- 3.3. Catchability. Technological “creep”
- 3.4. Software demonstration of gear design tools and interpretation of results (e.g. CADTRAWL, MYGEARS)

4. Underlying principles of selectivity for static and mobile gears (6 hours)

- 4.1. Size and species selectivity
- 4.2. Methods for measuring selectivity in the field
- 4.3. Gear parameters influencing selectivity
- 4.4. Software demonstration of tools to analyse selectivity and catch data and interpretation of results (e.g. SELNET, FISHSELECT)
- 4.5. Fish behaviour related to fishing gears
- 4.6. The capture process: exploitation pattern (selectivity) vs exploitation rate (effort)
- 4.7. Assessment and enhancement of fish survival (escapes and discards)

5. Reduction of unwanted catches (10 hours)

- 5.1. Modifications to trawls and other gears
 - 5.1.1. Mesh size, mesh type and mesh material
 - 5.1.2. Bycatch Reduction Devices (BRDs)
 - 5.1.3. Alternative rigging and operation
 - 5.1.4. Use of visual stimuli to increase selectivity
- 5.2. Modifications to fishing practices
 - 5.2.1. Low Impact Fuel Efficient fishing (LIFE)
 - 5.2.2. Best practices in fisheries
 - 5.2.3. Pre-catch monitoring: acoustic and imaging methods for fish targeting
- 5.3. Open discussion
- 5.4. Economic costs and benefits of reducing unwanted catches
- 5.5. Promotion of more selective fisheries through traceability and certification schemes
- 5.6. Software demonstration and interpretation of results using bioeconomic models to assess solutions for discard reduction

6. Monitoring and inspection to control compliance with legislation (2 hours)

7. Concluding remarks (1 hour)

GUEST LECTURERS

J.M. BELLIDO, IEO Murcia (Spain)
M. BREEN, IMR, Bergen (Norway)
J. BRČIĆ, University of Split (Croatia)
N. FERRI, GFCM, Rome (Italy)
F. MAYNOU, CSIC-ICM, Barcelona (Spain)
E. NOTTI, CNR-ISMAR, Ancona (Italy)

R. PRELLEZO, AZTI, Sukarrieta (Spain)
C. RALPH, Marine Scotland, Edinburgh (United Kingdom)
S. ROSEN, IMR, Bergen (Norway)
A. SALA, CNR-ISMAR, Ancona (Italy)
P. SUURONEN, FAO, Rome (Italy)