

## CFA2.5 Course title: The Ecosystem Approach to small-scale Fisheries: concepts and application

**Modality:** Advance Training Course

**Dates:** 16, 18, 21 y 22 May 2018

**Duration:** 30 hours (20h in-person lectures and 10h of work at home).

**Schedule:** 10-15h

**Location:** DOMAR videoconference room, Torre CACTI Building, Campus de Vigo, Universidade de Vigo

### Academic coordinators:

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### Lecturers:

Name	Institution	e-mail
Omar Defeo (main lecturer)	Universidad de Uruguay	odefeo@dinara.gub.uy
Gonzalo Macho	Universidade de Vigo	gmacho@uvigo.es

### General description:

Aquatic ecosystems continue to degrade as a result of anthropogenic activities, affecting their ability to provide key services for humans, including food. This has had repercussions, among other aspects, on the marine resources of commercial importance, which have decreased in several regions of the world.

An important explanation for this trend is that fishery resources constitute complex Social-Ecological Systems (SES) in which management gets complicated by the inherent complexity to each subsystem and the numerous sources of uncertainty that affect them. In a fisheries SES, the ecosystem, the resource, the users and the mode of governance interact with each other, affecting the system as a whole. In this context, the development of management schemes by sectors focused on particular activities and services have not been entirely successful, generating a decrease in resources and the emergence of conflicts between different extractive activities. In response to this, in the last decades a more holistic vision to fisheries management has been emphasized, based on an ecosystem approach. This course summarizes fundamental concepts of the Ecosystem Approach to Fisheries (EAF), highlights the role of user participation in this scheme, focusing on co-management as a mode of governance, and summarizes some practical applications and lessons learned from the EAF in small-scale fisheries (SSF) Latin America.

### Contents:

1. Fisheries as social-ecological systems (SES)
  - 1.1 Definition and basic concepts
  - 1.2. The case of fishery resources
  - 1.3 Governance of a fishing SES under the ecosystem approach: the role of users
2. Ecosystem Approach to Fisheries (EAF)
  - 2.1 Definition, concepts and theoretical aspects
  - 2.2 Implementation of the EAF in fishing systems
  - 2.3 Evaluation of the performance of a management plan under an EAF
  - 2.4 EAF and decision-making: challenges and perspectives
3. Co-management in small-scale fisheries (SSF) and its importance in the EAF
  - 3.1 Definitions and types of co-management
  - 3.2 Co-management: structure, objectives, phases
  - 3.3 Adaptive co-management
  - 3.4 Conditions and indicators of co-management success under an EAF
4. Ecosystem approach to fisheries in SSF in Latin America
  - 4.1 EAF and co-management in Latin America: a comparative analysis
  - 4.2 Lessons learned and perspectives of the EAF in Latin America
5. Ecosystem approach to small scale fisheries in Galicia
6. Assignment: case study

### Teaching methodologies:

The 20 hours in-person lectures will be devoted to the delivery of the contents, the realization of practical exercises, and the resolution of doubts. In each of the five morning sessions there will be a 30-minute break. In addition, it is estimated that the student must devote another 10 hours to personal study (consultation of the teaching material supplied) and writing about a case study of your choice for the assignment (4 pages report). The deadline to submit the assignment is June 4<sup>th</sup>, if you deliver the report after the deadline, this will only count for 60% of the total 10 hours stipulated (i.e. 6h).

The course will be taught in English.

### Evaluation system:

The students will be graded by a pass/fail criteria based on his/her presence and participation in class and the assignment. In order to pass the course, the student must take, between in-person lectures and the assignment, a minimum of 80% of the total hours (i.e. 24h).

### **CV Omar Defeo (U. Uruguay)**

Omar is a Full Professor of the Faculty of Sciences of Uruguay and has worked in fisheries management, especially in SSF, for more than 30 years. He has focused on the development of co-management practices, involving fishermen in the development of this mode of governance, and in obtaining traditional ecological knowledge to strengthen management strategies. He has

participated in the recent implementation of an EAF in SSF in Uruguay, including fishermen in that initiative. He has developed long-term research aimed at evaluating the effects of different human activities in the intertidal invertebrate communities on the coasts of Uruguay, Mexico mainly, but also in Chile and Ecuador. He has published more than 200 articles, 130 of them in primary peer-reviewed journals, as well as 20 book chapters and 3 FAO Fisheries Technical Documents, including the recent "Ecosystem Approach to Fisheries: Fundamental Concepts and their Application in Small-Scale Fisheries in Latin America ". He has served as a reviewer for more than 50 scientific journals and as a member of the Editorial Committee in 6 of them. He has directed or co-directed more than 80 students, 55 of them master's and doctoral students. He has received the Pew Awards (Pew Fellows Program in Marine Conservation, 2010), SCOPUS (Elsevier, 2010) and the 2009 Morosoli National Award in Fundamental Research (Uruguay).

### Relevant references:

- Defeo, O. 2015. Enfoque ecosistémico pesquero: Conceptos fundamentales y su aplicación en pesquerías de pequeña escala de América Latina. FAO Documento Técnico de Pesca y Acuicultura No. 592. Roma, Italia.
- Gutiérrez, N.L., Hilborn, R. y Defeo, O. 2011. Leadership, social capital and incentives promote successful fisheries. *Nature* 470: 386-389.
- Gianelli, I., Martínez, G. y Defeo, O. 2015. An ecosystem approach to small-scale comanaged fisheries: the yellow clam fishery in Uruguay. *Marine Policy* 62: 196-202.
- Defeo, O., Castrejón, M., Pérez-Castañeda, R., Castilla J.C., Gutiérrez, N.L., Essington, T.E. y Folke, C. 2014. Co-management in Latin American small-scale shellfisheries: assessment from long-term case studies. *Fish and Fisheries*: DOI: 10.1111/faf.12101.
- Castrejón, M. y Defeo, O. 2015. Co-governance of small-scale shellfisheries in Latin America: Institutional adaptability to cope with external drivers of change. En S. Jentoft y R. Chuenpagdee, eds. *Interactive Governance for Small-Scale Fisheries: Global Reflections*. MARE Publication Series 13: 605-625.
- Defeo, O. y Castilla, J.C. 2012. Governance and governability of coastal shellfisheries in Latin America and the Caribbean: multi-scale emerging models and effects of globalization and climate change. *Current Opinion in Environmental Sustainability* 4:344-350.
- Defeo, O. y Castilla, J.C. 2005. More than one bag for the world fishery crisis and keys for co-management successes in selected artisanal Latin American shellfisheries. *Reviews in Fish Biology and Fisheries* 15: 265-283.
- Castilla, J.C. y Defeo, O. 2005. Paradigm shifts needed for world fisheries. *Science* 309:1324-1325.
- Defeo, O., McClanahan, T. y Castilla, J.C. 2007. A brief history of fisheries management and societal roles. En T. McClanahan y J.C. Castilla, eds. *Fisheries Management: Progress Towards Sustainability*, pp 3-21. Blackwell Publishing.
- McClanahan, T., Castilla, J.C., White, A. y Defeo, O. 2009. Healing small-scale fisheries by facilitating complex socio-ecological systems. *Reviews in Fish Biology and Fisheries* 19: 3347.
- Seiyo, J.C., Defeo, O. y Salas, S. 1998. Fisheries bioeconomics. Theory, modelling and management. FAO Fisheries Technical Paper No. 368. Roma, FAO. 108 pp.