Chapter 11 – Competing with predators: multispecies and stakeholder interactions in fluctuating environments*

QUESTIONS ASKED

- How does the climate influence a fishery?
- How to conciliate the interests of predators?
- How to conciliate the interests of different industries?

BACKGROUND INFORMATION

- Minnesota Sea Grant: Food web in Lake Superior
- USGS: Climate Change Effects on Fisheries in the Great Lakes
- UWASC: How Many Sport Fish Can Lake Michigan Support?
- A fishery: InDepthOutdoorsTV – Sports fishing trout in Lake Superior

COVERAGE

- A bottom-up controlled fishery in the absence of information on predators
- Seasonal cycles and control of predators
- Application of technical measures and closed seasons in complex settings

INFORMATION AND SOFTWARE

The Chapter 11 of FISH IT deals with environmental forcing and multispecies interactions in a relatively simple three-species fishery. As in the earlier chapter, the first workbook depicts a situation where management is performed in absence of full information. In the second workbook the information about predators is explicit and the players have to develop fishery strategies that reconcile the interests of different stakeholders. Environmental forcing can be modulated by the user to remove complexity. These examples and this game were suggested by the fishers of Corrumane dam who had themselves very sophisticated suggestions about the best population management strategies. The last example is a cruise + lab practical on the utilization of network analysis (Ecopath, Christensen et al. 2005) to describe the food web of a fjord.

* Santos, J. 2015. FISH IT 1.0 – Student Manual: A Training System for Aquatic Resource Managers. *Septentrio Educational 2015(3).* DOI: http://dx.doi.org/10.7557/se.2015.3 .

- Ch11a Corrumane dam ecosystem Mono JdS
- Ch11b Corrumane dam ecosystem Multi JdS
- Ch11c Balsfjord ecosystem with Ecopath (practicals Tromsø)

SNAPSHOTS

Ecological regime

Flow cycl	1	1=constant; 2=seasonal; 3=seasonal + annual

Food preference matrix

Prey	Tilapia	Clarias	Tiger
1ary prod	0.8	0.2	
2ary prod	0.2	0.6	0.2
Fish		0.2	0.8