

## Chapter 7 – Size and reproduction: yield per recruit model\*

### QUESTIONS ASKED

- What are the bases of the traditional regulations of effort and gear in fisheries?
- What are the trade-offs between fishing early or late on the reproductive potential of the stocks?
- How certain is the advice, and what are the risks?

### BACKGROUND INFORMATION

- Compendium: Fishery Biology – Yield per recruit model
- tweedfoundation: [Reading fish scales](#)
- The Guardian: [Who should have the right to catch fish?](#)
- A fishery: UNESCO - [Shrimp fishing on horseback](#)

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### COVERAGE

- Yield per recruit and biomass per recruit
- Management advice in fisheries and aquaculture
- Study the uncertainty in the advice with Monte-Carlo methods

### INFORMATION AND SOFTWARE

The Chapter 7 of FISH IT deals with the classical yield per recruit model developed by Beverton and Holt, which is described in many textbooks. Equipped with this model the students are expected to provide sound management advice. Although we tend to start this session with an Excel-based model, here only the R-based applications are given. They allow a quicker and more advanced treatment of the model (e.g. calculating isopleths automatically) as well as a study of risk. This requires only a preliminary introduction to the R software by the instructor.

- [Ch7a Yield pr recruit R-based JdS.xlsx](#)
- [Ch7a R-script YR I PR by projection contour F tc JdS.R](#)
- [Ch7a R-script YR II PR by projection single tc \(F and f based\) JdS.R](#)



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\* 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> . This work is licensed under a [Creative Commons Attribution 4.0 International License](#).

# FISH IT 1.0 – student manual

- [Ch7a R-script YR III PR by projection Monte Carlo Risk single F tc JdS.R](#)
- Ch7b Yield pr recruit Excel JdS.xlsx

## SNAPSHOTS

