



AS WE SEE IT

Parallels in economic and ecosystem crises

Athanasios C. Tsikliras^{1,*}, U. Rashid Sumaila², Konstantinos I. Stergiou¹

¹Laboratory of Ichthyology, Department of Zoology, School of Biology, Aristotle University of Thessaloniki, UP Box 134, 541 24 Thessaloniki, Greece

²Fisheries Economics Research Unit, Sea Around Us, Fisheries Centre, University of British Columbia, 2202 Main Mall, Vancouver, British Columbia V6T 1Z4, Canada

ABSTRACT: We describe the analogy between the state of the economic crisis and the state of global fisheries, both of which are timely and important issues. We believe that there are some lessons from the economic crisis that may benefit global fisheries, if viewed and addressed properly. In a wide ethical framework, the crisis in the global fisheries sector should be taken as seriously as the economic crisis and confronted with similarly drastic measures. Failure to do so will be followed by multiple ecosystem/resource crises, which may lead to ecosystem bankruptcy, either locally or globally, which in turn will have severe side effects on the global economy.

KEY WORDS: Economy · Ecosystems · Resources · Overfishing

— Resale or republication not permitted without written consent of the publisher —

INTRODUCTION

It is well documented that many fisheries of the world are on the verge of collapse (e.g. Beddington et al. 2007), notwithstanding the fact that, locally, some fisheries are managed successfully and are thus becoming sustainable (e.g. Hilborn 2007). Similarly, it is also known that several national economies (e.g. Greece, Portugal, Spain, Ireland, Iceland) have entered a phase of recession and are on the verge of default, a fact that has received worldwide attention from all types of media. In fact, most economies, including those of the USA and European Union, are facing financial problems (Schneider & Kirchgässner 2009).

What is not apparent is the resemblance of the course and current state of national economies with that of world fisheries. Although there are qualitative and conceptual differences between the mechanisms that drive these 2 states of affairs, there are also striking similarities, which allow us to draw an analogy, with ethical implications. To identify the similarities,

simply replace the italicised words with those in brackets in the text below.

PARALLELS

Many economies (world fisheries) are no longer self-sustainable, as they largely rely on *loaning* (subsidies) for their survival because of *spending beyond their means* (overexploitation). *Economic crisis* (ecosystem unsustainability) was exacerbated because of a *negative economic growth* (decline in fish abundance), corruption at various levels of the *public sector* (fishery management/port authorities), incapability of scientists to provide timely information, lack of political will of politicians (Cardinale & Svedäng 2008) and the willingness of the *private sector* (fishing industry) to *avoid taxes* (not to 'legally' overfish; Österblom et al. 2011).

The rush for quick and easy *money* (fish), emerging from the greed and opportunism of the *citizens* (fishers), explains the short-sighted idiosyncrasy of

*Email: atsik@bio.auth.gr

the *economies* (fisheries: Sumaila & Walters 2005) that has contributed to the tragedy of the commons (Hardin 1968, Hawkshaw et al. 2012). The 'revolving door' principle (i.e. the interchanging roles of personnel between legislation/regulation bodies and the industry affected by such legislation/regulation bodies: Burger 2006), under which the regulating bodies for *banks and stock markets* (fishing industry) operate, can lead to regulatory capture when *measures* (regulations) issued by the *public sector* (fishery management/port authorities) detract from the public good. Most of this behaviour, which the public may see as criminal, is actually legal; this is a failure of the legal system. In addition, scientists have often been either implicitly or explicitly working on the behalf of *banks and stock markets* (fishing industry).

As the *deficit* (negative cost of overfishing) is growing, the *statistical services* (national fisheries statistics) are trying to mask it by reporting false data, allegedly unknown to the agencies to which these data were reported, e.g. *EUROSTAT and thus EU* (United Nations Food and Agriculture Organization and management bodies; e.g. Watson & Pauly 2001). *Economic data misreporting* (illegal, unreported and unregulated catches) is catastrophic because misconception may well lead to *overconsumption* (overfishing).

Inevitably, as was the case of Greece (Katsimi & Moutos 2010), this practice was publicly uncovered and consequently *the country was excluded from international markets* (fishing regulations become stricter and fisheries data are being revised, officially or not). Meanwhile, *banks and stock markets* (fishing industry) have been selling their 'artificially' profitable products at higher prices, thereby contributing to the overall instability (as did gourmet restaurants, especially sushi bars: Longo 2011; for example, in January 2013, a sushi chain owner paid about US\$1.8 million for a single individual of bluefin tuna at an auction in Tokyo: see http://www.nytimes.com/2013/01/06/world/asia/new-high-for-tuna-at-tokyo-fish-sale.html?_r=0). As a result, *minor investors and people with small trading capital* (small-scale and artisanal fisheries) are those suffering the most from the crisis, even though they contributed disproportionately less to its build up.

In order to avert a *default of national economies* (fisheries collapse), the *EU, Central Banks and International Monetary Fund* (part of the scientific community) suggested a rescue package to *suffering economies* (world declining fisheries), accompanied by a number of *measures* (regulations),

such as *lowering salaries and pensions, reduction of public sector and tax increases* (decrease of subsidies, establishment of marine protected areas, drastic declines in fishing effort; Cullis-Suzuki & Pauly 2010, Sumaila et al. 2010, Stergiou & Tsikliras 2011).

Naturally, for the reversal of the course of *many economies* (world fisheries), additional *measures* (regulations) should burden *wealthy people* (large-scale fisheries) and not those of *low and medium income* (small-scale fisheries) just because the latter are numerous and lobby-less (Jacquet & Pauly 2008).

SCEPTICISM

Ethically, crises should be confronted with actions and measures, which must be of the same magnitude of severity and immediacy. Thus, in parallel with economic policy, the global fleets and subsidies should be strictly confined immediately before they enter a long period of recession, which, unlike the economy, could be irreversible because of the complexity of marine ecosystems and fishing-induced evolutionary changes (Palkovacs 2011). We believe that there is an ethical issue when the crises of countries/banks (economic crises) are 'favoured' over ecosystems/resources (ecosystem crises) by governing bodies. This occurs because the consequences of economic crises are short-term and are considered of immediate interest to the entire society. In contrast, the consequences of ecosystem crises are longer-term and are, erroneously, considered relevant to a narrower range of people. Since both crises have global dimensions, ecosystem crises may lead to ecosystem bankruptcies if they do not receive the proper attention.

Acknowledgements. We thank 3 anonymous reviewers whose comments greatly improved our manuscript.

LITERATURE CITED

- Beddington JR, Agnew DJ, Clark CW (2007) Current problems in the management of marine fisheries. *Science* 316:1713–1716
- Burger TJ (2006) The lobbying game: Why the revolving door won't close. *Time* (February 16, 2006). Available at www.time.com/time/nation/article/0,8599,1160453,00.html (accessed 12 February 2013)
- Cardinale M, Svedäng H (2008) Mismanagement of fisheries: policy or science? *Fish Res* 93:244–247

- Cullis-Suzuki S, Pauly D (2010) Marine protected area costs as 'beneficial' fisheries subsidies: a global evaluation. *Coast Manag* 38:113–121
- Hardin G (1968) The tragedy of the commons. *Science* 162: 1243–1248
- Hawkshaw RS, Hawkshaw S, Sumaila UR (2012) The tragedy of the 'tragedy of the commons': Why coining too good a phrase can be dangerous. *Sustainability* 4: 3141–3150
- Hilborn R (2007) Reinterpreting the state of fisheries and their management. *Ecosystems* 10:1362–1369
- Jacquet J, Pauly D (2008) Funding priorities: big barriers to small-scale fisheries. *Conserv Biol* 22:832–835
- Katsimi M, Moutos T (2010) EMU and the Greek crisis: the political-economy perspective. *Eur J Polit Econ* 26: 568–576
- Longo SB (2011) Global sushi: the political economy of the Mediterranean bluefin tuna fishery in the modern era. *J World Sys Res* 17:403–427
- Österblom H, Constable A, Fukumi S (2011) Illegal fishing and the organized crime analogy. *Trends Ecol Evol* 26: 261–262
- Palkovacs EP (2011) The overfishing debate: an eco-evolutionary perspective. *Trends Ecol Evol* 26:616–617
- Schneider F, Kirchgässner G (2009) Financial and world economic crisis: What did economists contribute? *Public Choice* 140:319–327
- Stergiou KI, Tsikliras AC (2011) Fishing down, fishing through and fishing up: fundamental process versus technical details. *Mar Ecol Prog Ser* 441:295–301
- Sumaila UR, Walters C (2005) Intergenerational discounting: a new intuitive approach. *Ecol Econ* 52:135–142
- Sumaila UR, Khan A, Teh L, Watson R, Tyedmers P, Pauly D (2010) Subsidies to high seas bottom trawl fleets and the sustainability of demersal fish stocks. *Mar Policy* 34: 495–497
- Watson R, Pauly D (2001) Systematic distortions in world fisheries catch trends. *Nature* 414:534–536

*Editorial responsibility: Darryl Macer,
Bangkok, Thailand*

*Submitted: December 10, 2012; Accepted: February 21, 2013
Proofs received from author(s): April 16, 2013*