ID: W2070579968

TITLE: Technological Development and Fisheries Management

AUTHOR: ['Ole Ritzau Eigaard', 'Paul Marchal', 'Henrik Gislason', 'A.D. Rijnsdorp']

ABSTRACT:

AbstractMany marine fish stocks are overexploited and considerable overcapacity exists in fishing fleets worldwide. One of the reasons for the imbalance between resource availability and fishing capacity is technological development, which continuously increases the efficiency of the vessels?a mechanism referred to as "technological creep." We review how the introduction of new and more efficient electronic equipment, gear design, engines, deck equipment, and catch-handling procedures influences the capture efficiency (catchability) of commercial fishing vessels. On average, we estimate that catchability increases by 3.2% per year due to technological developments, an increase often ignored in fisheries management. The documentation and quantification of technological creep improves the basis for successfully integrating the effects of technological development (and catchability changes) in fisheries management regulations and policies. Ways of counteracting the undesired effects of technological creep are discussed as are the potential management benefits from improved fishing technology. Specific suggestions are given on the selection, application, and tuning of fisheries management tools that can be used to improve the balance between harvesting capacity and resource availability.Keywords: catchabilityfishing mortalityfishing powerfisheries managementfleet capacitytechnological development ACKNOWLEDGMENTSMany thanks to Holger Hovgaard for having pointed out the need to specifically address the role of technological development in fisheries management and for having inspired us to write this paper. The thorough and constructive criticism from the anonymous reviewers is also greatly appreciated.FUNDINGThis work was partly funded by the EU-DG Fisheries through the FP7 projects MYFISH (Maximising yield of fisheries while balancing ecosystem, economic and social concerns) and SOCIOEC (Socio economic effects of management measures of the future CFP) and partly by the EU-Interreg IVA?152207 project: "Bärekraftig rekefiske i Skagerrak". This support is gratefully acknowledged.

SOURCE: Reviews in fisheries science & aquaculture

PDF URL: None

CITED BY COUNT: 95

PUBLICATION YEAR: 2014

TYPE: article

CONCEPTS: ['Fishing', 'Fisheries management', 'Business', 'Technological change', 'Resource (disambiguation)', 'Documentation', 'Fishery', 'Resource management (computing)', 'Natural resource economics', 'Environmental science', 'Environmental resource management', 'Computer science', 'Economics', 'Biology', 'Computer network', 'Artificial intelligence', 'Programming language']