Scientists chart more sustainable future for UK fisheries

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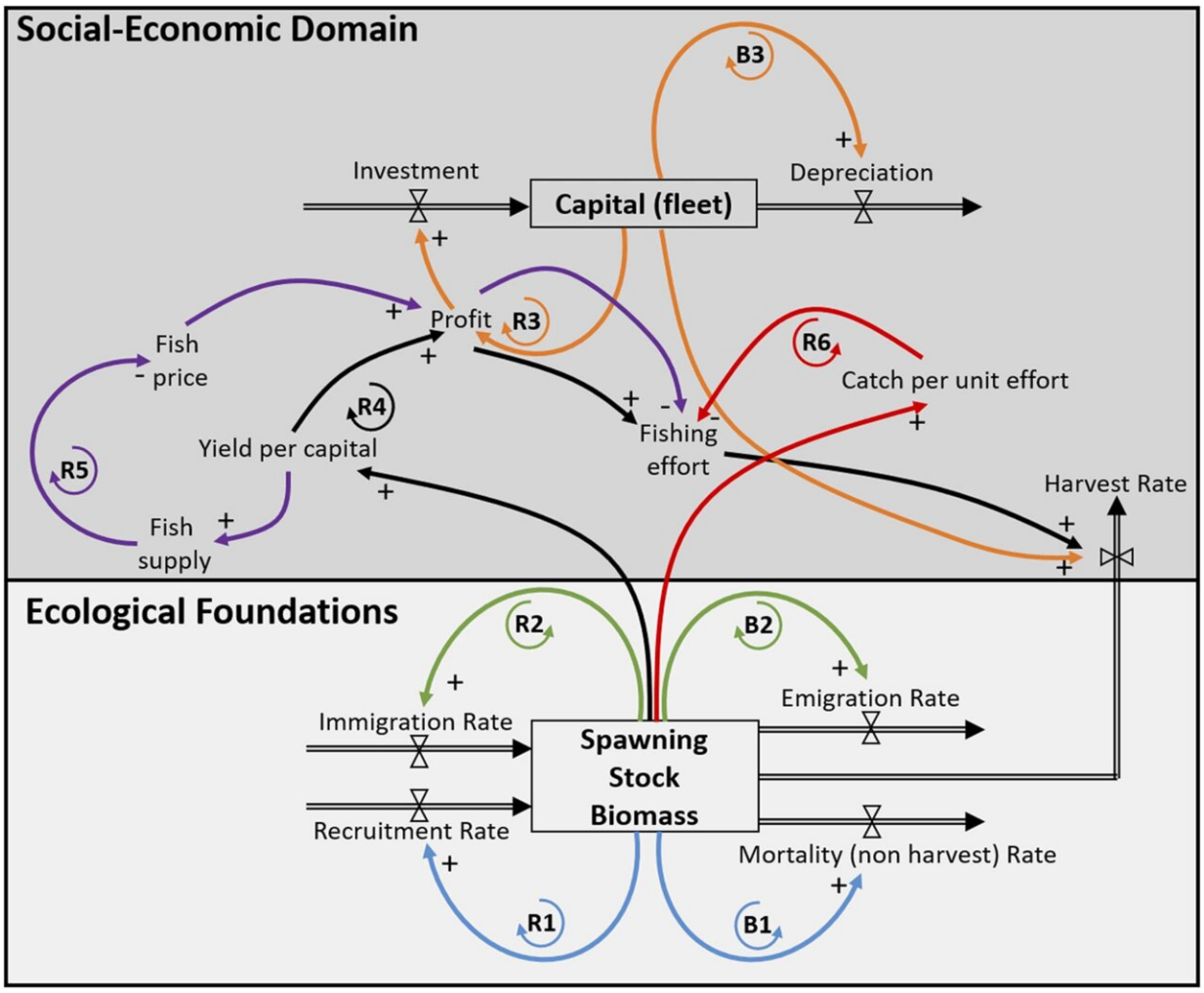

Marine fisheries are social-ecological systems in which the social-economic domain (dark gray background) is dependent on the ecological foundations (light gray). Stocks and flows and causal loops illustrate potential interactions associated with overfishing of a hypothetical fish population. The spawning

stock biomass is influenced by recruitment and mortality via a reinforcing (R) and balancing (B) loop, respectively (R1 and B1), and potentially through immigration (R2) and emigration (B2) if there is connectivity between populations (e.g. [6] and [7] for plaice). Likewise, the capital of a fishing fleet is influenced by flows of investment (R3) and depreciation (B3). Spawning stock biomass is positively (+) correlated with yield per capital and profits. Increasing yields and profits may result in increased fishing efforts (R4) and investments in the fleet. Alternatively, yield per capital may be positively related to fish supply and negatively (-) correlated with price, driving increased fishing effort if profit ratios decline (R5). As stocks become depleted and the catch per unit effort declines (+ correlation) fishing effort increases (- correlation) as vessel travel greater distances to reach their quota, resulting in increased fuel use as a result (R6). Credit: *Marine Policy* (2022). DOI: 10.1016/j.marpol.2022.105335

An international team of scientists has produced new recommendations to help ensure a more sustainable future for U.K. fisheries in the post-Brexit era.

Despite many representatives of the U.K. fishing industry being disappointed with the Brexit deal on fisheries, new U.K. fisheries legislation provides the opportunity to dramatically improve its future sustainability.

A research team, including the Universities of York, Southampton, Lincoln, Exeter, Dalhousie, and the New Economics Foundation, provided international perspectives in natural resource management, fisheries, marine conservation, law and economics, and made a series of recommendations to the government for more sustainable management of marine fisheries.

The scientists hope their advice will help policy makers achieve the objectives of the Fisheries Act—domestic legislation that replaced the

Common Fisheries Policy when the U.K. exited the EU.

Resilience

They argue that fishing pressure should allow stocks to reach levels that are 120% of that needed to maintain maximum sustainable yields, providing resilience in the face of climate change. Prey fish, on which commercial and other species depend for food, should also be better protected.

Their report also states that exploitation of fisheries should be considered more holistically within the wider context of marine resource management, considering, for example, the effects of fishing on stocks of marine carbon, and development of a diverse, low emission and modern fishing fleet. Overall fishing capacity should be reduced to allow overexploited populations to recover.

Ownership

Dr. Bryce Stewart, from the University of York's Department of Environment and Geography, said, "Recent research has shown that the U.K. fishing industry generally has limited trust in management and scientific bodies. This will have been further eroded by disappointment over the Brexit fisheries deal.

"When there is strong collaboration across different sectors in fisheries, however, it improves both our knowledge of fish stocks and the effectiveness of management measures.

"This gives the fishing industry a sense of ownership and trust in management and reduces the need and cost of enforcing regulations."

Protection

The researchers say that existing and future Marine Protected Areas should be adequately protected to promote the regeneration of degraded habitats and restoration of fish stocks by setting clearer targets for enforcement. The fleet should be supported by the use of best available technologies, including remote electronic monitoring.

In addition to the fishing industry, the government should work in close partnership with the fisheries and the marine conservation science community and seek to regenerate degraded marine ecosystems, on which sustainable fisheries depend. This may mean people reconsidering the amount and kind of fish they eat and how they are caught.

Despite some recent recovery of some stocks on which U.K. fishers depend, several remain in a precarious state according to the European Environment Agency.

Industry viability

Professor Paul Kemp, lead researcher from the University of Southampton, said, "In total, we provide eight recommendations that, if acted on, could enhance the viability of the industry while simultaneously protecting fish stocks that have suffered a long historic legacy of overfishing.

"This would require strong leadership and collaboration between England and the devolved nations, and for the public to better support U.K. fishermen and the wider marine resource by reviewing their purchasing habits and selecting more sustainable products, with shorter supply chains, caught by the least damaging methods."

One of the key recommendations of the report is to improve collaboration and partnership working between the fishing industry, scientists, the government, conservationists and businesses.

The results of the study, published in two papers in the journal, *Marine Policy*, have been shared with DEFRA and members of the All Party Parliamentary Group on Fisheries to help guide the implementation of the Joint Fisheries Statement, which was published by the government last week.

More information: Paul S. Kemp et al, The future of marine fisheries management and conservation in the United Kingdom: Lessons learnt from over 100 years of biased policy, *Marine Policy* (2022). DOI: 10.1016/j.marpol.2022.105075

Paul S. Kemp et al, Future advances in UK marine fisheries policy: Integrated nexus management, technological advance, and shifting public opinion, *Marine Policy* (2022). DOI: 10.1016/j.marpol.2022.105335

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