

Covid-19: a wake-up call for a new deal for fishery: ecosystem, social and economic restoration

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Throughout the world, the fisheries and aquaculture sectors are facing the consequences of the coronavirus COVID-19 pandemic and the resulting lockdown. It is increasingly emerging, from various preliminary analysis worldwide performed, that the pandemic crisis has had an effect on fisheries and aquaculture production as well as on markets for fisheries and aquaculture products, even if the extent of the impacts was heterogeneous within the sector and the measures taken have varied from country to country. Various lockdown restrictions and the difficulties to comply with social distancing measures have furtherly impacted fishing activity of EU fleets, mostly in the Mediterranean (EUMOFA, 2020). The lockdown of food-related services (in particular, hotels and restaurants services), changes in consumer preferences towards canned products as well as the disruption of exports, triggered the fall in demand of fresh products and in prices (FAO, 2020a). In some countries, i.e. Italy, the strong dependence of supply on distribution channels highlighted limits and risks related to long supply chains accelerating, in some areas, a shift toward direct sales or door-to-door distribution of products (NISEA, 2020).

Looking at the other side of the coin, the lockdown of economic activities has highlighted some first positive environmental effects. Quick reactions of marine species (e.g. sighting of wild species on harbours and highly urbanised coastal areas) and marine ecosystems due to the reduction of marine and maritime human activities (e.g. improvement of the quality of waters) have been observed in many areas (GFCM, 2020; Braga et al. 2020).

But if “disruption in seafood supply chains has brought temporary relief to wild fish populations, this should not be celebrated” (cit. Carpenter, 2020), the real effects will depend, in fact, both on the duration of the limitation of human activities, that, since the begin of April are gradually restarting again, and on how the recovery measures adopted to overcome the COVID-19 effects will not be in contrast with the overall Common Fisheries Policy (CFP) tending towards the protection of marine environment. It is, indeed, well-known that past policies based on subsidies intervention have resulted, somewhere, to be in contrast with the conservation objectives, favouring, in contrast, technological creep (Munro and Sumaila, 2002; Villasante and Sumaila, 2010). COVID-19 should be, indeed, a good chance to put an end to “harmful subsidies” (Sumaila, 2020).

If the health crisis driven by COVID-19 is putting the world in a crisis never seen before, it will also offer the starting point for a deepening of increasingly globalized relationship between man and nature, **for an overall economic and environmental restoration** which is indispensable and necessary to ensure human well-being from today to the future, and implies the development of new more comprehensive and integrated approaches and related models and approaches.

What is clear is that the logic of infinite economic growth has strongly impacted the relationships between humans and ecosystems giving the way to a gradual erosion of the natural capital crucial for his survival on the planet (Econopoly, 2020). The **impact of human activities on marine ecosystems no longer needs to be demonstrated**, as testified by the status of stocks and indicators on **depletion for most species** driven by the harvesting sector. Although the number of stocks fished according to the MSY (Maximum Sustainable Yield) objective is slightly increasing in North East Atlantic waters (EU, 2018), there is still a lot to do in other areas, e.g. Mediterranean (FAO, 2018a). The pressure on marine ecosystem of human activities is driven by commercial (legal) fisheries but an important role is also played by **Illegal, Unreported and Unregulated (IUU)** fishing, demonstrated to be a threat for the ability of aquatic systems to continue providing vital ecosystem services and essential food resources. The limitation of Monitoring, Control and Surveillance (MCS) activities due to COVID-19, is expected to determine an increase of IUU, in some areas already experienced (FAO, 2020b). From an economic point view, IUU fishing has reached such a substantial scale that the total harm or loss caused is estimated to be greater than the total abatement costs required (Ma, 2020). It is also generally recognised the role played by **recreational fishing** both as a component of fishing mortality worldwide and as an income source for coastal communities (Hyder et al., 2017). Despite recent efforts made to spread the coverage of fisheries data to recreational activities (e.g. EU data collection), the lack of reliable and complete estimates influences the goodness of stock assessment and, thus, the provision of an appropriate advice for fisheries management (FAO, 2018a; ICES, 2020). Sometime, recreational fishing assumes the contours of a legal violation as catches are not destined to self-consumption but are sold on the black market (Gambino et al., 2016).

Many human coastal communities are dependent on fishing activity, especially on catching activities (Natale *et al.*, 2013). **Dependence** of communities on economic activities based on natural resources means that if ecosystems are not able to provide the human requested services, the well-being of those humans is negatively affected (both directly and indirectly), without a concrete possibility to intervene and revert it, at least in the short-term. In addition to this, even if highly dependent (in terms of employment), in some cases fisheries are **not able to guarantee an acceptable economic well-being** for the community (Himes-Cornell and Kaspersky, 2016) or even for workers: remuneration per full-time equivalent jobs, in the Mediterranean countries, is valued to be less than 10,000 USD (a half for passive and polyvalent vessels; FAO, 2018a). Without stock recovery and radical changes in fisheries policy, no social nor economic improvement can be expected for fisheries dependent communities.

The pandemic caused by COVID-19 has stressed all these underlying problems (i.e. overcapacity, poor profitability, high vulnerability of fishing communities, etc...) and gives the opportunity to reflect on possible changes toward a healthier and environmentally friendly fishing sector. It is necessary, now more than ever, that to address the problems of well-being and work in the fishery sector, **new models and approaches are required** in line with the UN Sustainable Development Goals (SDGs), to be reached by 2030. With a focus on the fishery economic activities as source of food (Costello et al., 2019) and in a context of increasing demand for fishery products (according to FAO 2018b, the world food fish consumption in 2030 is projected to be 20% higher than in 2016) and decreasing available resources, it is essential to act in time for the conjoint achievement of, at least, the goals **no. 14 (i.e. Life below water)** and **no. 12 (i.e. Responsible production and consumption)**.

The research plays a key role in acting as driver of change in conservation and development policies. In order to contribute to this change, **fishery research should aspire to** become more transversal (i.e. transdisciplinary, trans-sectorial) than ever, by promoting the development of new approaches and models able **to give concrete answers** and support for a sustainable use of marine resources and allowing policy makers to avoid taking extreme decisions, i.e. closing a fishery to preserve a fish stocks from depletion or allowing unsustainable practices to avoid an economic collapse of a fleet segment or an increase of indirect subsidies. In few words, **avoid the occurrence of unbalanced trade-offs among different dimensions of sustainability - environmental, social and economic** (Malvarosa et al., 2018) or at least better understand where the synergies but also the tensions between these dimensions play out.

In the light of this, it is crucial that future researches applied to the fishery context should, from a **more holistic perspective**, contribute and support policy makers in pursuing policies able to slacken the use and pressure on ecosystem by investigating on:

- ✓ new approaches able to quantify the *reconversion of fishery activities toward more sustainable ones*, taking into account the new economic opportunities created by the development of the Blue Economy (World Economic Forum, 2020);
- ✓ more *sustainable production through demand driven processes* (eco-labels) able to reward (human) fishery activities compliant with conservation's (including energy) and health policies;
- ✓ *more cost-effective measures in the fight against IUU*;
- ✓ the *ecosystem impact and economic dimension of recreational fisheries*;
- ✓ the *role of subsidies* in contrasting/favouring the path toward sustainability;

- ✓ *circular economy process* in the context of fishery supply and demand, with a focus on direct (by-products) and indirect consumption (raw materials from fisheries' discards; STECF, 2019);
- ✓ *existing interactions between ecology, society and economics* (developing new models, including the economic and social resilience to ecosystem shocks - driven by environmental and anthropogenic impacts; improving the assessment of ecosystem services and the related human perception; fostering multi-criteria decision analysis and approaches);
- ✓ the use of wider sources of information by implementing the integration of *citizen science* activities on specific research topics;
- ✓ wider integration of the *social sciences into the analysis of ecological and economic dimensions*, in particular to understand and characterize the levers of action favourable to *resilience* and to the resolution of tensions between the different dimensions of sustainability, whether they relate to the behaviours of the actors, the ways of innovation (e.g. change technical, circular economy among others), or public policies.

On the other hand, from a **mere economic perspective** and bearing in mind the direct effects on the fishery sector evidenced by the crisis induced by the pandemic, future research should focus on:

- ✓ the global trends in *seafood consumption* particularly how consumer's motivations on environmental and health attributes evolve in the short and long term following the COVID-19 pandemic and considering food from the ocean in the context of global food system transition;
- ✓ the development of *new products* able to reply to the consumers' needs and facilitate consumption at home (easy-to-eat products);
- ✓ new approach on the *marketing side*, with a focus on:
 - new channels, i.e. direct selling, buying groups and Business to Consumers (B2C) sales models, able to shorten the commercial chain and preserve the supply side from the distortion created, sometime, from the distribution's channels (in addition, shortening the supply chain would likely and indirectly reduce the carbon footprint of fish products' sales);
 - link between *Large-scale Organised Distribution* and *fishing operators* on a more local level, in most cases influenced negatively by traceability and contract requirements (difficulty in ensuring the cold chain after production and stability in the supply).

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