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## Quantitative Analysis of the Fishing Activity in the Gulf of Manfredonia (Gargano, South-Italy)

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### ABSTRACT

The Manfredonia City Marine is the third in Italy both for its size and for its nation-wide importance, in the last decade a considerable crisis has been registered in this economic sector as shown by the always decreasing number of fishing boats registered in the Harbour-Office. As a result of such a reduction in the number of fishing boats, a remarkable fall-off in the production occurs. The fishing activity registers a deep legislative, organizational and operational transformation. The European Community, in order to face the indiscriminate impoverishment of the ichthyic inheritance, has provided incentives for the fishing boats' casting off, by mean of an adequate reward. This paper aims to quantitatively analyze the fishing activity in the Gulf of Manfredonia in order to present a significant picture of the forthcoming situation on the basis of real data. To this end, we adopt a Prey-Predator model in discrete time that is suitable to describe properly the dynamics of an ecosystem in which just two species interact: predator and prey. The results show worrying forecasts. The fishing boats' number presents a decreasing dynamic and, above all, we record a remarkable reduction in the stock of fishes in the Gulf of Manfredonia. The quantity of fishes, in twenty years, will be reduced of 28%. The Gulf sea, once rich in codfishes, mullets, cuttlefishes, octopus etc., runs the risk (on the basis of the results obtained in this paper) of making such species rare. The situation should be much more critical if the fishing activity in the Gulf runs at the rhythms of one decade ago. We apply the model at data from 1995, and we obtain catastrophic results; the number of fishing boats in the sector in 2015 should be 107 units (77% less) and the ichthyic inheritance about 16345 tons (45% less).

### KEYWORDS

Renewable Resources, Dynamical Systems, Sustainable Development

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### References

- [1] L. Grilli, "Resource Extraction Activity: An Intergenerational Approach," *Game Theory and Applications*, Vol. 13, 2008, pp. 45-55.
- [2] L. Grilli, "A Stackelberg Differential Game with Overlapping Generations for the Management of a Renewable Resource," *Statistical Science and Interdisciplinary Research*, Vol. 6, Modeling, Computation and Optimization, 2009, pp. 221-235.
- [3] H. S. Gordon, "The Economic Theory of a Common Property Resource," *Journal of Political Economy*, Vol. 62, No. 2, 1954, pp. 124-142.
- [4] H. Hotelling, "The Economics of Exhaustible Resource," *Journal of Political Economy*, Vol. 39, No. 2, 1931, pp. 137-175.
- [5] A. C. Pigou, "The Economics of Welfare," Macmillan, London, 1932.
- [6] J. Rawls, "A Theory of Justice," Harvard University Press, Cambridge, 1971.

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- [7] R. M. Solow, " On the Intergenerational Allocation of Natural Resource," *Scandinavian Journal of Economics*, Vol. 88, No. 1, 1986, pp. 141-149.
- [8] P. Burton, " Intertemporal Preferences and Intergenerational Equity Considerations in Optimal Resource Harvesting," *Journal of Environmental Economics and Management*, Vol. 24, No. 2, 1993, pp. 119-132.
- [9] C. Chiarella, M. C. Kemp, N. V. Long and K. Okuguchi, " On the Economics of International Fisheries," *International Economic Review*, Vol. 25, No. 1, 1984, pp. 85-92.
- [10] C. W. Clark, " *Mathematical Bioeconomics: The Optimal Management of Renewable Resources*," Wiley, New York, 1976.
- [11] S. Clemhout and H. Wan, Jr., " Dynamic Common Property Resources and Environmental Problems," *Journal of Optimization Theory and Applications*, Vol. 46, No. 4, 1985, pp. 471-481.
- [12] R. Fischer and L. Mirman, " Strategic Dynamic Interactions: Fish Wars," *Journal of Economic*