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Where small can have a large impact: Structure and characterization of small-scale fisheries in Peru

Joanna Alfaro-Shigueto[a,b,*], Jeffrey C. Mangel[a,b], Mariela Pajuelo[b], Peter H. Dutton[c], Jeffrey A. Seminoff[c], Brendan J. Godley[a]

[a] Marine Turtle Research Group, Cornwall Campus, Center for Ecology and Conservation, School of Biosciences, University of Exeter Cornwall Campus, Penryn, Cornwall TR10 9EZ, United Kingdom
[b] Pro Delphinus, Octavio Bernal 572-5, Lima 11, Peru
[c] NOAA-National Marine Fisheries Service, Southwest Fisheries Science Center, 8604, La Jolla Shores Drive, La Jolla, CA 92037, USA

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ABSTRACT

Small-scale fisheries in Peru constitute an important source of food and employment for coastal communities where fish is the single most important natural resource. Utilizing official statistics and extensive survey data from 30 fishing ports and by onboard observers operating from 11 ports, we review how these fisheries grew from 1995 to 2005, and provide insights into the relative importance of different fishing gears and their modes of operation. Small-scale fisheries operate along the entire Peruvian coast and have continued expanding in number of vessels and fishers in all geopolitical regions except one. Nationwide, the number of fishers grew by 34% from 28 098 to 37 727 and the number of vessels increased by 54% from 6268 to 9667. At 30 harbors, the number of vessels increased for purse seiners (17.8%) and longliners (357.4%), while gillnets decreased (−14.5%). These dramatic changes could jeopardize the sustainability of these fisheries and the livelihoods of those who depend upon them, especially considering the limited capacity for management. Despite increase in effort, catch and catch per vessel have decreased, especially in some of the sub-regions that previously constituted the majority of effort and landings, raising concerns regarding their sustainability. Of the fishing gears monitored, gillnets were shown to have the most frequent interactions with threatened taxa such as marine mammals, seabirds and sea turtles. The total length of gillnets set in Peru was estimated at >100 000 km of net per year, about 14 times the length used by the Taiwanese high seas driftnet fleet in the Pacific before it was banned. Longlines, although shown to be a more efficient fishing method (economically and in terms of selectivity), still had bycatch of turtles and seabirds, and marine mammals are targeted to be used as bait. We conservatively estimate that longline vessels operating in Peru set an average of 80 million hooks per year; equivalent to one-third of the annual effort of the global industrial swordfish longline fishery. We conclude that, despite their definition as small-scale, the magnitude of these fleets and their fishing effort are vast and are of concern with regard to their long term sustainability and their impacts and interactions with large marine vertebrates. We highlight the need for increased research and management measures to ensure the long term viability of these fisheries.

1. Introduction

Studies of large-scale and industrialized fisheries are more numerous than those addressing small-scale fisheries (SSF; Panayotou, 1982; Berkes et al., 2001; Chuenpagdee et al., 2006; Zeller et al., 2007). In many developing countries, however, SSF are often the mainstay of the fisheries sector (Béné, 2006). This arises not only from their role in food security, with fisheries acting as a source of animal protein for more than 1 billion people (Béné, 2006), but also as a generator of employment and as a potential route to poverty alleviation (FAO, 2005). Approximately 35 million people worldwide are involved in fishing and fish processing and 80% of those are associated with SSF (Béné, 2006). When family units are considered, this number rises to 200 million people (McGoodwin, 2001). Landings by SSF are thought to constitute between 25 and 33% of the worldwide catch (Chuenpagdee et al., 2006) but the contribution often remains unclear since it is reported to FAO combined with industrialized fisheries (Chuenpagdee et al., 2006; Salas et al., 2007). In some countries, the SSF fleet size and the number of people that depend upon it are unknown (Béné, 2006; Salas et al., 2007). This paucity of information, together with the com-

* Corresponding author at: Pro Delphinus, Octavio Bernal 572-5, Lima 11, Peru. Tel.: +51 1 2413081; fax: +51 1 2413081.
E-mail addresses: jas_26@yahoo.com, joga201@exeter.ac.uk (J. Alfaro-Shigueto).

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