

Artisanal and Industrial Fishing of Anchoveta in Peru

1 Peru is one of the world's top producers of ground fishmeal, which is used as animal feed around the
2 world. Fish oil is a by-product of the production of fishmeal, and is used for animal feed and as a
3 supplementary source of Omega3 oils for human consumption. The fishmeal and fish oil is made from
4 anchoveta (anchovy), a fast-growing species of fish found in the cold waters off the coast of Peru.
5 These fish thrive on the multitudes of plankton found in this ecosystem, nourished by the upwelling of
6 nutrients from the Humboldt Current. In addition to being a main fisheries target, anchoveta are also
7 eaten by larger fish, marine mammals, and seabirds. Anchoveta are a main food source for sea lions
8 and off the coast of Peru, you will find one of the world's largest sea lion colonies. Anchoveta and
9 other small pelagic species like them are also suitable for human consumption; however, more than
10 95% of the pelagic fish landed in Peru are ground into fishmeal for export.

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12 In Peru, there are a wide variety of fisheries, but for the purposes of this article, we will focus on two:
13 the industrial anchoveta fishery and the artisanal or small-scale anchoveta fishery. The industrial
14 anchoveta fleet is highly regulated and enforced with three main management measures including:
15 total allowable catch, minimum harvesting size, and closed seasons during anchoveta reproduction.
16 Additionally, the industrial fleet is not permitted to fish within 10 nautical miles from the coast. The
17 industrial fleet sells 100% of their catch for fishmeal production.

18 The artisanal sector has one major regulation and it is that they are only allowed to fish for direct
19 human consumption (DHC) and not for fishmeal production. With 30% of malnutrition in the country,
20 this regulation was aimed at improving the protein supply for poor communities and promoting the
21 consolidation of the DHC industry for Anchoveta products. The reader should note that fish sold for
22 fishmeal garners higher market prices than fish sold for direct human consumption, as the overall
23 profits of fishmeal are significantly higher due to the large international demand. Additionally, local
24 demand for anchoveta products for human consumption has remains low.

25 The artisanal fishermen have exclusive fishing rights to the area from the coast to 10 nautical miles
26 out, as the industrial fleet is excluded from this zone; however, the artisanal fishermen are not limited
27 to this area and can fish beyond 10 nautical miles. Otherwise, unless self-imposed, there are no
28 quotas or other regulations on this sector.

29 To give a sense of scale between the two fisheries, approximately 5 million tons of anchoveta per
30 year are landed by the artisanal sector fishing within 10 nautical miles for direct human consumption.
31 In contrast, the industrial fleet fishing beyond 10 nautical miles catches/lands anywhere between 10-
32 200 million tons of anchoveta per year.

33 As mentioned previously, the artisanal sector also has unregulated access to the same area as the
34 industrial fleet (beyond 10 nautical miles) and from this area, they report up to 200,000 anchoveta
35 caught/landed per year, however, in some years, they have caught up to 1 million tons per year
36 from this area.

37 The anchoveta (*Engraulis ringens*) is a mostly coastal, pelagic species. They are generally found within
38 50 nautical miles of the coast and occasionally, especially during the winter, they can be found
39 beyond 100 nautical miles. The fish are sexually mature upon reaching a length of 9-10 cm, which

40 happens around one year in age. The minimum allowable catch size (for the industrial fleet) is 12 cm.
41 This ensures that young fish are not caught and removed from the population.

42 Anchoveta spawn two times per year. The primary spawning season is in spring between August-
43 October and the secondary season is in summer between February-March. During spawning, the
44 anchoveta move closer to the coast and can get as close as to half of a nautical mile from the coast.
45 Anchoveta fishing seasons for the industrial fleet happen twice a year, the first season happens in the
46 months of April through the end of July, while the second season (the shorter one) runs from November
47 to January – and thus the industrial fleet is not allowed to fish anchoveta when they are spawning.
48 For the most part, the artisanal fleet does not have seasonal restrictions and can fish for anchoveta all
49 year long, with the exception of short “temporary bans” due to a high presence of juveniles in the
50 stock.

51 Anchoveta populations can be affected by temperature changes in the water like when ocean water
52 warms due to El Niño. During the first phase of an El Niño, the anchoveta might move closer to the
53 coast where some colder water remains, later on the event they might also go southward toward
54 Chile or into waters deeper than 70 meters where they are not accessible to fishermen.

55 The success of the anchoveta fishery in general is heavily linked to these climactic changes. During El
56 Niño years the amount of anchoveta landings can decrease significantly for both the artisanal and
57 industrial sectors, which can have staggering effects on Peru’s economy and the livelihoods of the
58 fishermen. To deal with fluctuations in the anchoveta stock and to create a buffer to ensure that
59 anchoveta supply will not be exhausted or overfished, the Marine Institute of Peru (IMARPE) assesses
60 the stock before each fishing season and sets catch limits. Remember, however, that these limits only
61 apply to the industrial fleets.