2.1.1 Introduction and Learning Goals for Section

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Recall the biological puzzle that the biologist D'Ancona was working on after World War I. Fisherman used nets in the Adriatic to catch fish for food (like sardines). These nets also caught the predator fish of these prey (like marlin). D'Ancona observed there was a large increase in the percentage of predator fish in the total catches from 1914 to 1918, roughly the period of World War I.

This was puzzling to him: he expected that *less fishing* during the war would increase the *number* of predator fish, but his data showed that less fishing was benefitting the predators more than the prey. Why was this? He consulted with Volterra which led to the creation of the famous Lotka-Volterra predator-prey models. Now that we've analyzed that model without fishing, we can solve the biological puzzle.

In Part II, you will

- modify the **Lotka-Volterra predator-prey model** to include the effect of fishing;
- use **average values** of predator and prey populations over time to understand the effect of human interventions (in this case, fishing) on the populations;
- learn about **implications of this model on modern fishing regulations** and other complicated biological systems;
- learn about **issues and limitations in making models**.

English

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