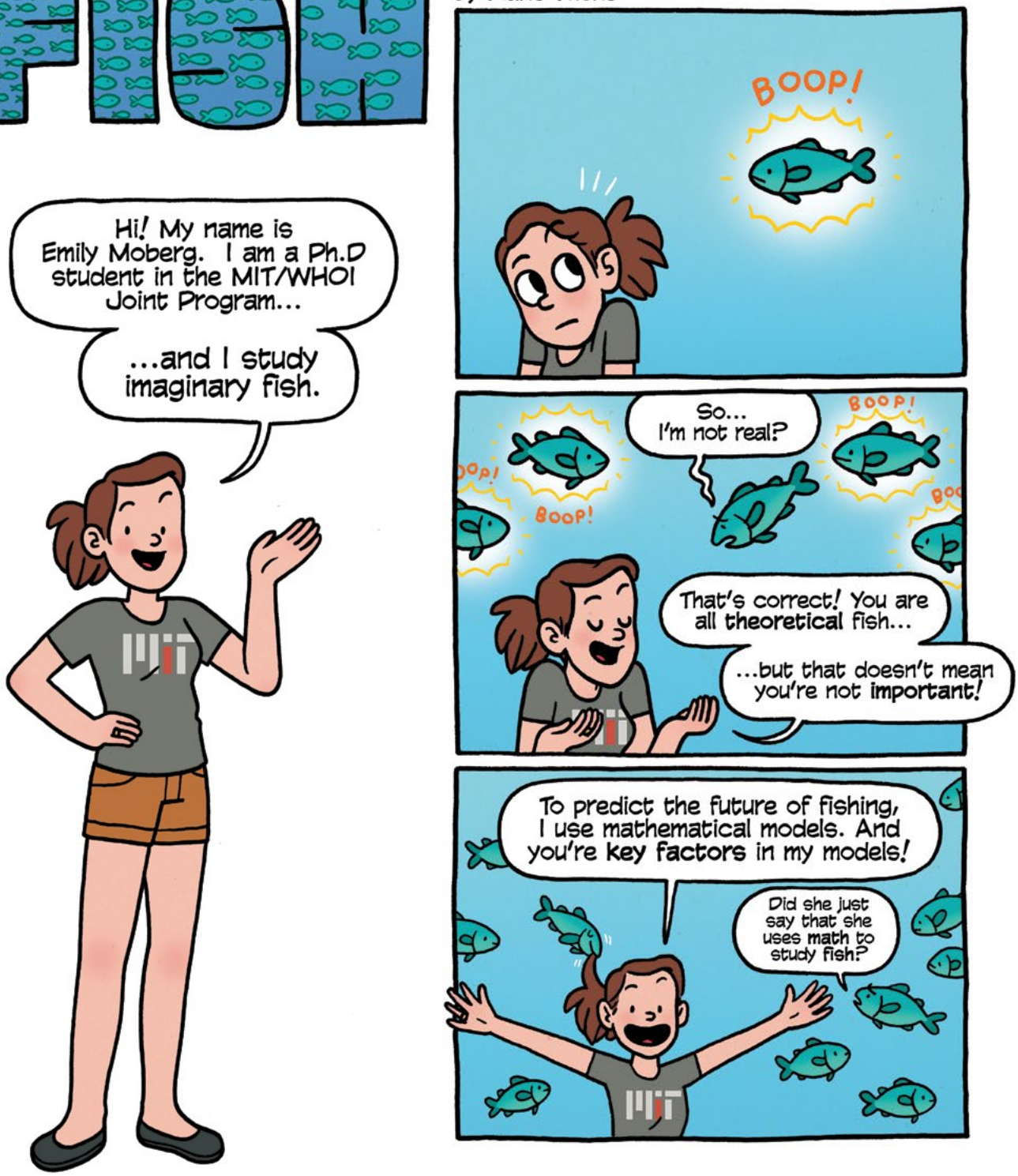
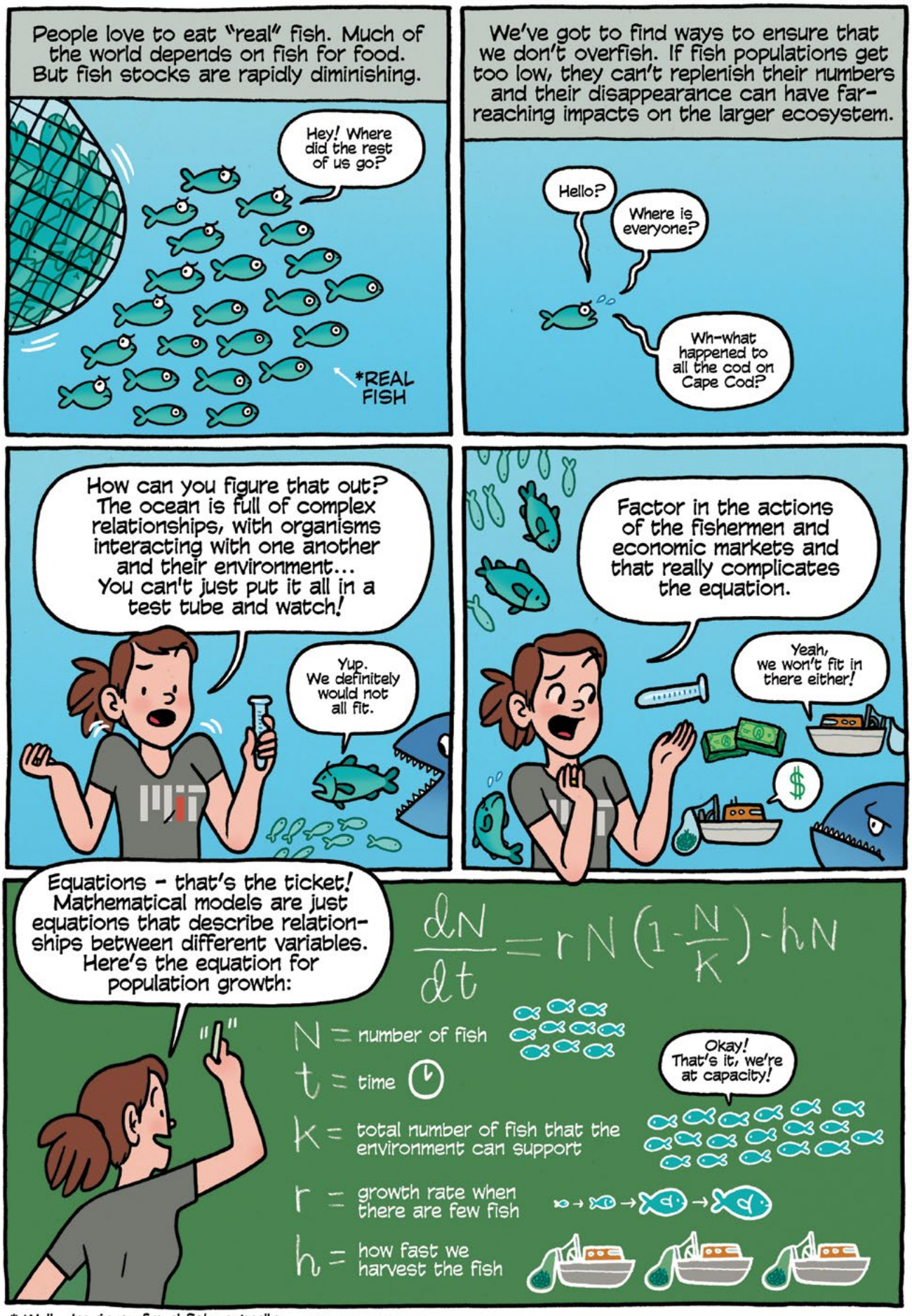
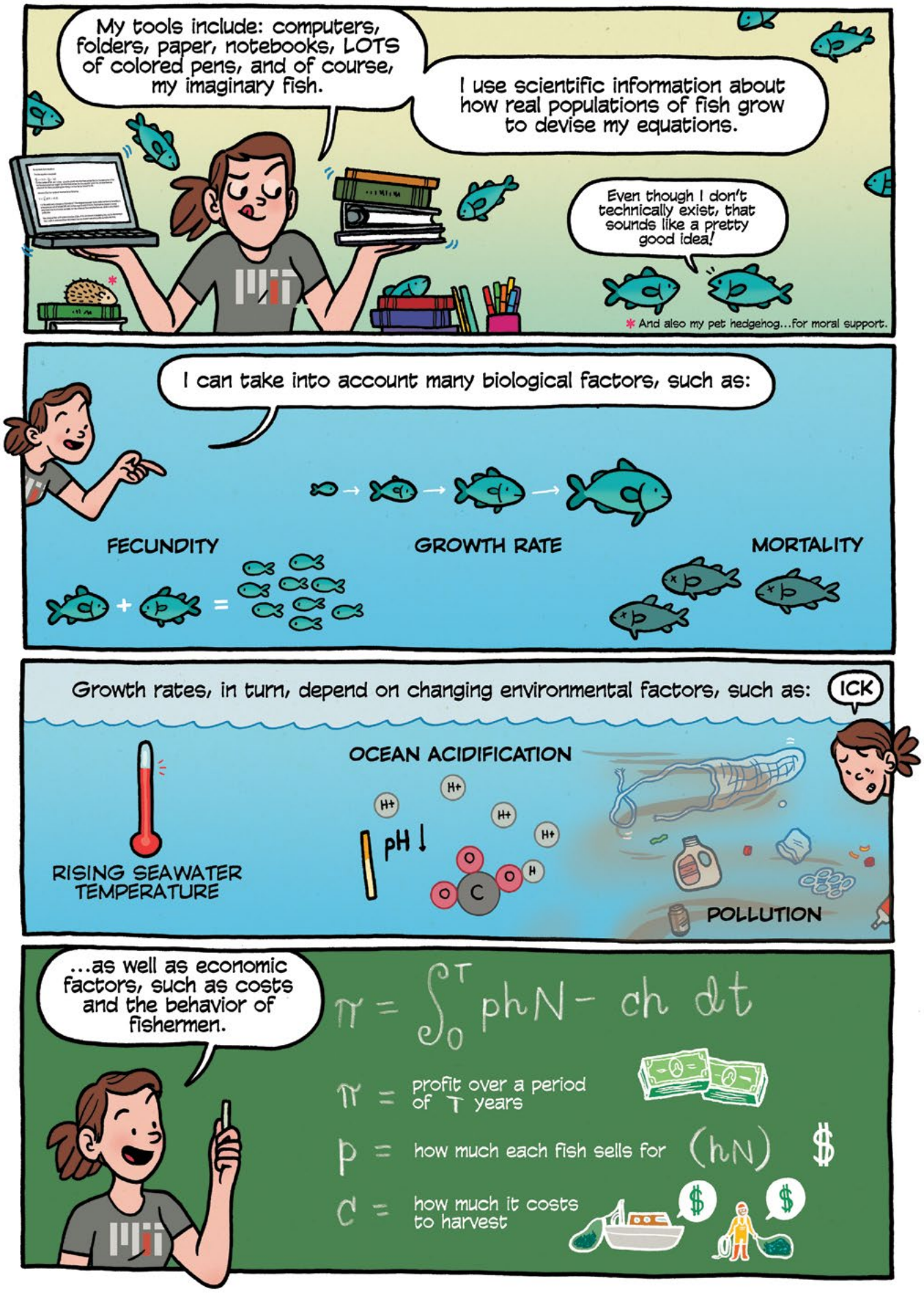
FORECASTING THE FUTURE OF FISH

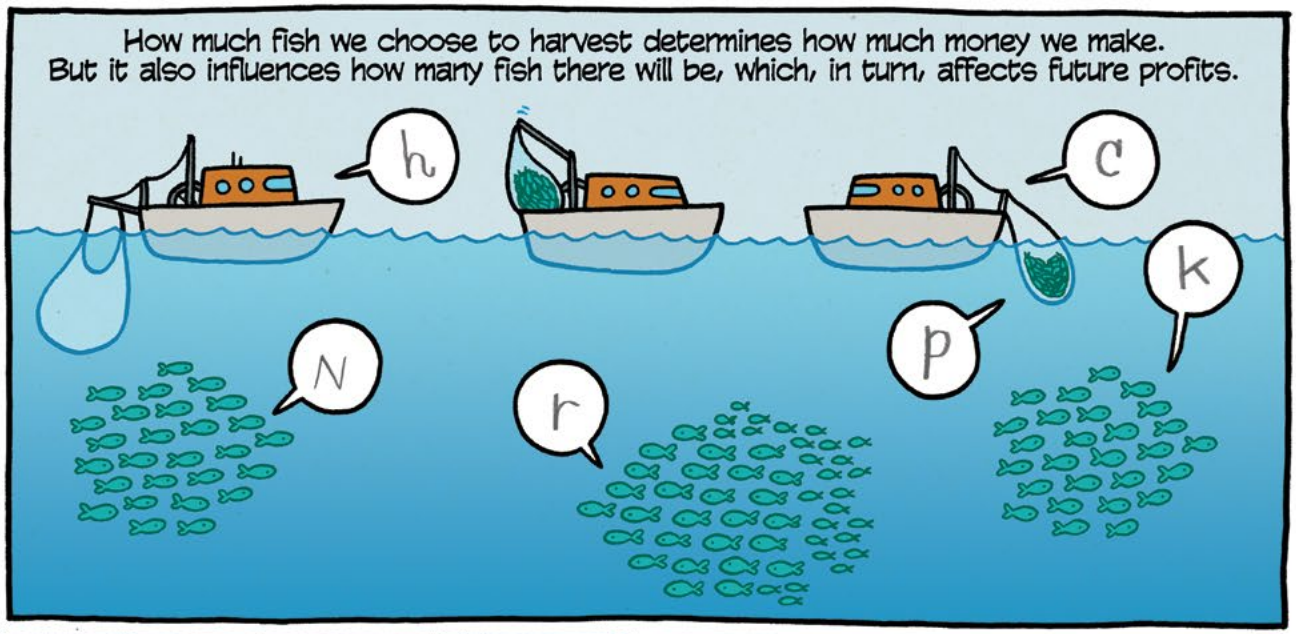
by Maris Wicks

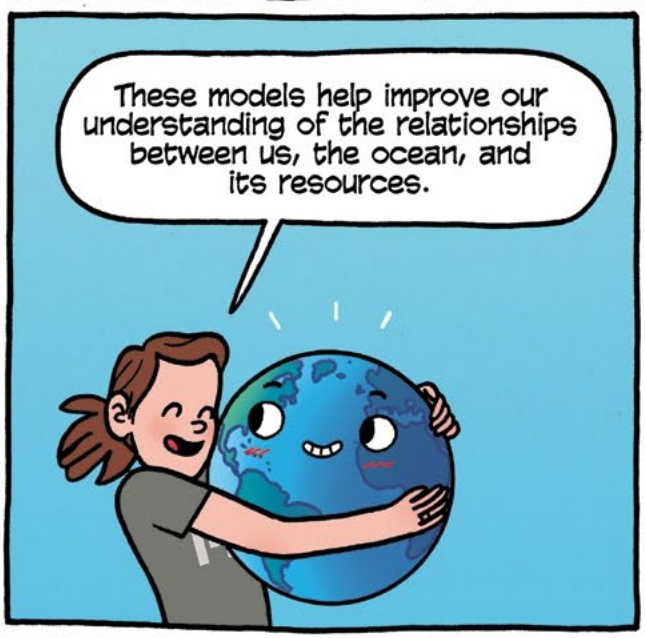


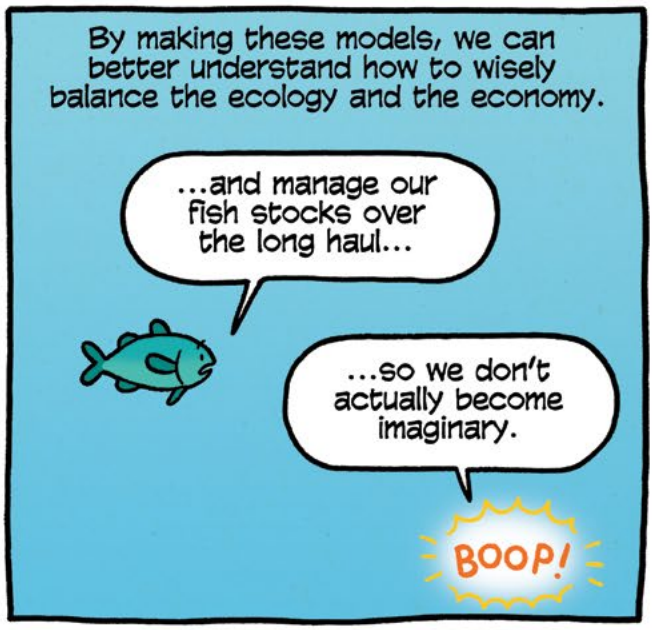


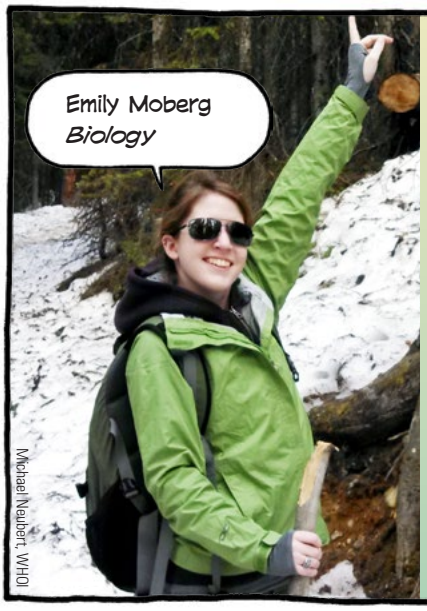
* Well, *drawings* of real fish, actually.


My tools include: computers, folders, paper, notebooks, LOTS of colored pens, and of course, my imaginary fish.
I use scientific information about how real populations of fish grow to devise my equations.
Even though I don't technically exist, that sounds like a pretty good idea!
* And also my pet hedgehog...for moral support.
I can take into account many biological factors, such as:
FECUNDITY
GROWTH RATE
MORTALITY
Growth rates, in turn, depend on changing environmental factors, such as:
ICK
RISING SEAWATER TEMPERATURE
OCEAN ACIDIFICATION
pH ↓
POLLUTION
...as well as economic factors, such as costs and the behavior of fishermen.
$\pi = \int_0^T phN - ch\,dt$
π = profit over a period of T years
p = how much each fish sells for (hN)
c = how much it costs to harvest









Early in life, Emily Moberg's love of nature was nurtured by frequent run-ins with salamanders in her backyard, unsanctioned late-night PBS documentaries, and healthy dosage of *The Lorax* and *The Great Kapok Tree*. Her later fixation on math and science led to her pursue environmental engineering at MIT for her undergraduate studies, before the biology world sucked her back in. When she isn't squishing math and fish together, she dances, sews, reads, sings, and hangs out with her super-powered hedgehog.

Emily Moberg's research is supported by a National Science Foundation Graduate Research Fellowship. Her Ph.D. advisor is Michael Neubert.