Why study water waves?

a) Woods Hole Oceanographic Institute

b) For the Program on Nonlinear Waves:

Water waves provide a concrete physical example of a dynamical system rich enough to exhibit many of the mathematical concepts that have been developed in recent years:

linear stability, nonlinear stability

solitons, complete integrability

chaos, sensitive dependence on initial data

singularities, blow-up in finite time

deterministic vs. probabilistic models

c) Water waves evolve on a “human” time-scale, so we can observe many of these concepts in physical experiments