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Green  
Energy, the Environment and the Bottom Line

## Evidence for Jellyfish Invasion Is Lacking, Study Says

By JOANNA M. FOSTER

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In 2009, a Japanese fishing boat capsized when its crew tried to haul in a net full of the gigantic Nomura jellyfish. That was just one of the grabber headlines from that year, when the 450-pound jellyfish species was clogging Japanese waters.

Over the last decade, reports of proliferating jellyfish have multiplied, as have fears that they are overrunning the world's oceans. Fisheries in Tunisia and Ireland have been disrupted, and power plants in Florida, Scotland, Japan and Israel have had to temporarily shut down when jellyfish clogged their cooling-water intake systems.

There has been plenty of finger-pointing, with many arguing that human activity is degrading the oceans and throwing off the delicate marine balance. Overfishing is feared to have carved out far more ecological space for jellyfish, and some have linked climate change and warming oceans to sudden explosions or blooms of jellyfish populations that once lay dormant.

Writing this week in *Bioscience*, however, scientists including Robert H. Condon, a researcher at the Dauphin

Island Sea Lab, argue that there simply isn't enough long-term data to conclude that global jellyfish numbers are on the rise.

This finding that previous conclusions were premature is the result of an international effort begun in 2010 by the Global Jellyfish Group to compile all of the available data on jellyfish populations. The new and growing database is known as the Jellyfish Database Initiative, or JEDI.

Dr. Condon said the story line that jellyfish were taking over the oceans started with a paper published in the journal *Science* in 2001 predicting a series of human-induced scourges on the world's oceans. The paper lacked hard evidence but was widely cited and quoted, he said.

A lack of information on jellyfish populations and the perceived novelty of the phenomenon contributed to making a jellyfish explosion seem like common wisdom in the years that followed.

Dr. Condon describes it as a classic case of shifting baselines: a lack of older data leads us to conclude that there is a new problem.

But studying trends in jellyfish numbers and the natural or human-induced drivers behind them is vital. Jellyfish have broad ecological and economic impacts. Growth in the numbers of venomous species in areas dependent on tourism can have devastating effects, for example, and high jellyfish biomass can be highly detrimental to certain fish stocks.

On the other hand, some jellyfish species like hydromedusa produce valuable products like fluorescent proteins used in medicine, and other species play crucial roles in sustaining healthy populations of sea turtles.

Unfortunately, studying jellyfish is notoriously difficult. Some small species are so delicate that they explode when touched, making netting them for population surveys more or less futile. They also have complicated and

poorly understood life cycles, and some are quite dangerous to humans.

The good news is that data has been flooding into JEDI from around the world, and Dr. Condon is optimistic that useful analysis will soon be available. What is more, there is a new Web site, JellyWatch, where citizen scientists can report jellyfish sightings to help fill in the research gaps.

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