From the website futurity.org on January 3, 2013
http://www.futurity.org/science-technology/jellyfish-bloom-may-be-a-bust/

Jellyfish 'bloom' may be a bust

Rather than being signs of an increasing trend, recent high numbers of jellyfish in global waters appears to be part of a natural cycle that fluctuates over 20-year periods. **U. SOUTHAMPTON (UK) —** The current global increase in jellyfish may be nothing more than a consequence of a normal 20-year fluctuation cycle.

Blooms, or proliferations, of jellyfish can show a substantial, visible impact on coastal populations—clogged nets for fishermen, stinging waters for tourists, even choked cooling intake pipes for power plants—and recent media reports have created a perception that the world's oceans are experiencing trending increases in jellyfish.

A new multinational collaborative study suggests these trends may be overstated, finding that there is no robust evidence for a global increase in jellyfish over the past two centuries.

The key finding of the study, published in ***Proceedings of the National Academy of Sciences***, shows global jellyfish populations undergo concurrent fluctuations with successive periods of rise and fall, including a rising phase in the 1990s and early 2000s that has contributed to the current perception of a global increase in jellyfish abundance.

The previous period of high jellyfish numbers during the 1970s went unnoticed due to limited research on jellyfish at the time, less awareness of global-scale problems and a lower capacity for information sharing—for example, no Internet.

While researchers found no increase over the long-term, they did detect a hint of an increase since 1970, although this trend was countered by the observation that there was no difference in the proportion of increasing vs. decreasing jellyfish populations over time.

"Sustained monitoring is now required over the next decade to shed light with statistical confidence whether the weak increasing linear trend in jellyfish populations after 1970 is an actual shift in the baseline or part of a

larger oscillation," says Cathy Lucas, who is based at the National Oceanography Centre at the University of Southampton.

To date, media and scientific opinion for the current perception of a global increase in jellyfish was evidenced by a few local and regional case studies. Although there are areas where jellyfish have increased—the Giant Jellyfish in Japan and parts of the Mediterranean are classic examples—there are also areas where jellyfish numbers have remained stable, fluctuated over decadal periods, or actually decreased over time.

Increased speculation and discrepancies about current and future jellyfish blooms by the media and in climate and science reports formed the motivation for the study.

"There are major consequences for getting the answer correct for tourism, fisheries, and management decisions as they relate to climate change and changing ocean environments," Lucas says.

"The important aspect about our work is that we have provided the long-term baseline backed with all data available to science, which will enable scientists to build on and eventually repeat these analyses in a decade or two from now to determine whether there has been a real increase in jellyfish."

"The realization that jellyfish synchronously rise and fall around the world should now lead researchers to search for the long-term natural and climate drivers of jellyfish populations, in addition to begin monitoring jellyfish in open ocean and Southern Hemisphere regions that are underrepresented in our analyses," says lead author Rob Condon, a marine scientist at the Dauphin Island Sea Lab in Alabama.

Source: ***University of Southampton***

Here's the Abstract from the PNAS published on 12/26/2012...

Recurrent jellyfish blooms are a consequence of global oscillations

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Abstract

A perceived recent increase in global jellyfish abundance has been portrayed as a symptom of degraded oceans. This perception is based primarily on a few case studies and anecdotal evidence, but a formal analysis of global temporal trends in jellyfish populations has been missing. Here, we analyze all available long-term datasets on changes in jellyfish abundance across multiple coastal stations, using linear and logistic mixed models and effect-size analysis to show that there is no robust evidence for a global increase in jellyfish. Although there has been a small linear increase in jellyfish since the 1970s, this trend was unsubstantiated by effect-size analysis that showed no difference in the proportion of increasing vs. decreasing jellyfish populations over all time periods examined. Rather, the strongest nonrandom trend indicated jellyfish populations undergo larger, worldwide oscillations with an approximate 20-y periodicity, including a rising phase during the 1990s that contributed to the perception of a global increase in jellyfish abundance. Sustained

monitoring is required over the next decade to elucidate with statistical confidence whether the weak increasing linear trend in jellyfish after 1970 is an actual shift in the baseline or part of an oscillation. Irrespective of the nature of increase, given the potential damage posed by jellyfish blooms to fisheries, tourism, and other human industries, our findings foretell recurrent phases of rise and fall in jellyfish populations that society should be prepared to face.