Thoughts from Kansas

You will notice that it lacks definiteness; that it lacks purpose; that it lacks coherence; that it lacks a subject to talk about; that it is loose and wabbly; that it wanders around; that it loses itself early and does not find itself any more. --Mark Twain

Ocean pollution series wins Pulitzer, muddles biology

Category: **Biology**

Posted on: April 17, 2007 12:25 PM, by **Josh Rosenau**

The LA Times won the explanatory reporting prize for a 5 part series on ocean pollution:

> The five-part "Altered Oceans" project, headed by environmental reporter Kenneth R. Weiss, revealed how mankind has choked the oceans with trash, nitrogen, carbon and other pollutants — killing sea life, making some coastal residents sick and effectively turning evolution back to a primeval epoch when primitive organisms reigned.
>
> Reporter Usha Lee McFarling and photographer Rick Loomis teamed with Weiss to create the stories, photo galleries, animated graphics and videos (posted at latimes.com/oceans) that evoked a broad and emotional response from citizens and political leaders.
>
> "We cling to this notion that the oceans are too big to change. But it turns out they are not. The oceans are suffering from an accumulation of assaults," said Weiss, who grew up surfing and scuba diving in his native California. "We need to be much more careful what we are pulling out of the ocean and what we are dumping into the ocean."

Yes, they really did write "effectively turning evolution back to a primeval epoch when primitive organisms reigned." No, that doesn't make any sense. Staff writer James Rainey is unlikely to pick up a Pulitzer for this report on the Pulitzers.

The passage refers to a discussion from the first article in the series. A scientist is trying to identify what is causing fishermen to break out in rashes when they touch their nets and fishing lines:

Joshua Rosenau is a graduate student at the University of Kansas, in the department of Ecology and Evolutionary Biology. When not modeling species distributions, I also keep abreast of developments in progressive politics and the rest of the sciences.

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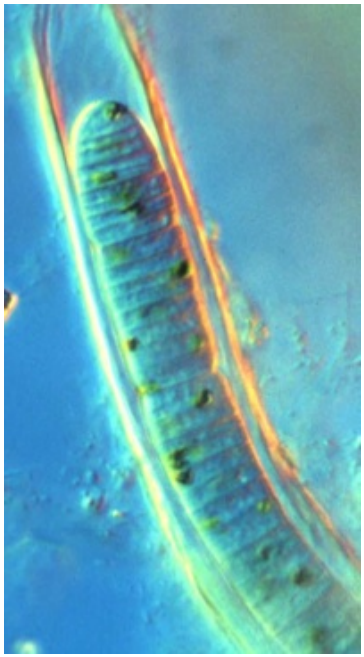
Consulting a botanical reference, she identified the weed as a strain of cyanobacteria, an ancestor of modern-day bacteria and algae that flourished 2.7 billion years ago....

Organisms such as the fireweed that torments the fishermen of Moreton Bay have been around for eons. They emerged from the primordial ooze and came to dominate ancient oceans that were mostly lifeless. Over time, higher forms of life gained supremacy. Now they are under siege.

Cyanobacteria are not an ancestor of bacteria, they are a type of bacteria, and a fairly derived form of bacteria to boot. Chloroplasts, the organelles in plants which convert sunlight to useable energy, are descendants of cyanobacteria engulfed and incorporated into ancient bacteria. They are ancestors of algae only in the sense that they are ancestors of all plants, then.



Scientists do not talk about "higher" and "lower" life, nor do we refer to modern species as ancestors of other modern species, for the same reason that your brother is not your ancestor. *Lyngbya majuscula* has a common ancestor with all other cyanobacteria, even the remnants of cyanobacteria in the leaves of plants. Like all of life, it is a result of billions of years of evolution.

According to some sources, there are as many as 7,500 species of cyanobacteria, meaning they are more diverse than mammals, and I'd wager that the biomass of cyanobacteria outweighs the biomass of all mammals combined. The idea that unicellular life ever lost its supremacy is a fallacy.

Kenneth Weiss's point is not invalid, though. Overfishing has destroyed populations of the largest and most commercially valuable fish, and we are now, as fisheries biologist Daniel Pauly explained "eating bait and moving on to jellyfish and plankton." Where tuna, sardines and shrimp once dominated boat holds, the major commodities in California waters are now squid, crabs and sea urchins, with jellyfish becoming a more economical target off the Georgia coast.

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At the mouth of the Mississippi and elsewhere, agricultural runoff has overfertilized waters upstream. This process, called eutrophication, caused excess growth, depleting oxygen concentrations downstream. By the time the Mississippi enters the Gulf of Mexico, the water cannot sustain most life, except for the bacteria which dominated the world before cyanobacteria started pumping out oxygen.

Don't mistake those organisms for anything primitive though. They've been around for a long time. Tricks they evolved have helped us produce the PCR technique we use for DNA fingerprinting, and there are other lessons they have yet to teach us. One lesson I hope we learn is the danger of making dramatic changes to the planet's atmosphere.

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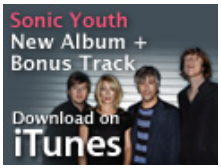

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