

Zooplankton Safari

Geoff Adelsberg lives the (tiny) Life Aquatic

Deep under the Sargasso Sea, news of the net had begun to spread. The everyday nets were never much of a problem for the zooplankton; they could easily float through the knots while their larger, tastier predators were imprisoned. But if the rumours were true, this new net could catch the most microscopic of the zooplankton. Bad news, indeed.

These *Zooplankton* are difficult to define: they include everything from gelatinous jellyfish and shrimp-like copepods to microscopic radiolarians and single-celled protozoa. Given such diversity you'd think they'd not have much to say to one another. But in the face of this predatory net, the zooplankton remembered the ties that bind: their inability to swim against currents; the self-importance that stems from being necessary to the marine ecosystem; and more recently a common threat: the shadowy Census for Marine Zooplankton, or (more ominously) "CmarZ."

Under the veiled language of a "taxonomically comprehensive assessment of biodiversity of animal plankton throughout the world ocean" lies a more sinister plan. CmarZ scours the world's oceans with its state-of-the-art nets, nets with holes smaller than a pinprick ($10 \times 2 \text{ mm}$): the aim is to collect and identify a member of every species of zooplankton that thinks itself safe in its cool, wet normalcy.

Without access to the Internet and a full mission statement from the CmarZ website, the zooplankton can hardly be blamed for their frenzy. Rumours of judgement day spread and the populous panicked. Were those taken in the fancy nets going to a better place? Would the others be left floating, lost, never knowing which way the tide would push them?

Meanwhile, above the waves, scientists are giddy with excitement as the black mesh climbs the 5,000 metres from the depths. The crew pulls it onto the stern of the ship and hoses it down. They feel what Brian Ortman, a Ph.D. candidate working with gelatinous zooplankton, describes as the "anticipation of knowing what you are doing is completely new and unique. No one had ever sampled from these depths before. No one knew what to expect".

A March 2006 expedition aboard the research vessel *Ronald H. Brown* took a group of scientists and their unlucky zooplankton cargo through the Bermuda triangle and deep into the Sargasso Sea. The scientists were experts: students and engineers from four continents with a million diverging and converging marine biological interests.

The zooplankton soon find themselves in a white bucket, digital camera overhead. They have little time to pose. The competition to

see a new sample "has a bit of a mad rush element to it, but we try to control it", Bucklin explains. "We know that some of the scientists, if you let them go first, are only going to look for their own particular plankton and throw everyone else's over the side to get at them." Taxonomic experts whose life's work has focused on the identification

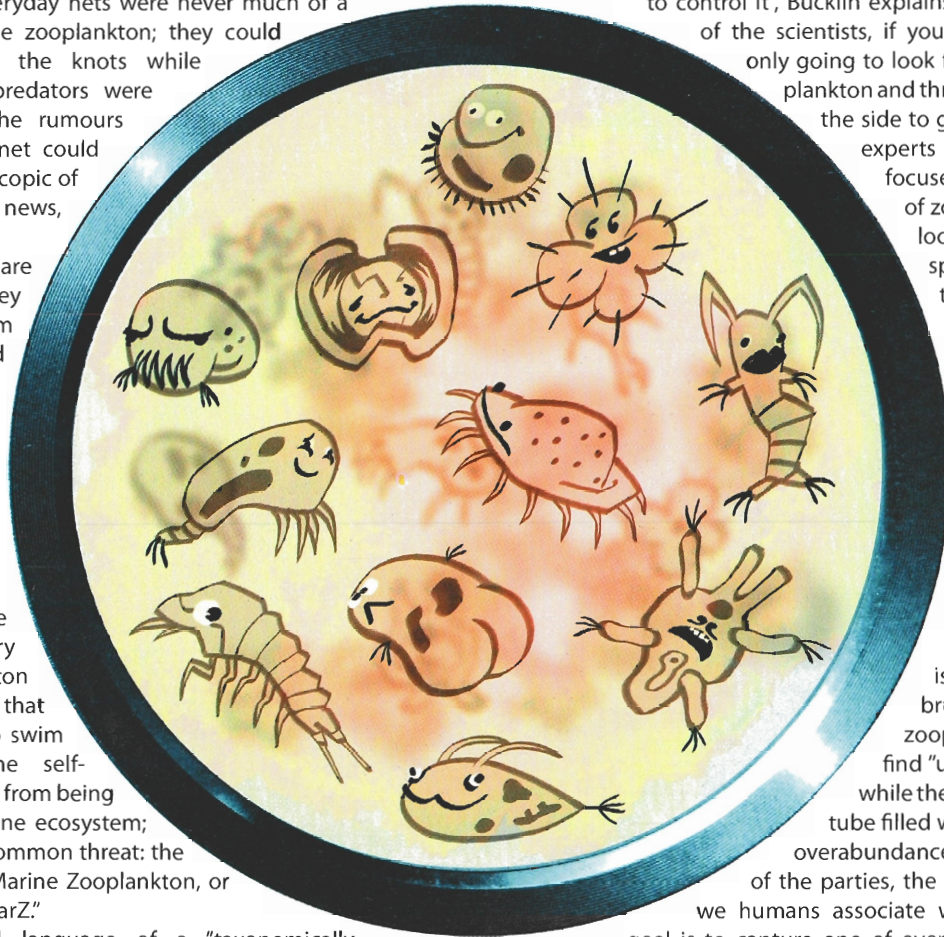
of zooplankton get the first look. "When an ostracod specialist who knows all the ostracodes there are to know looks at an animal and says, "I can't classify this" – that's pretty exciting," enthuses Peter Wiebe, the *Ron Brown* expedition's head scientist. Just for a moment, the rounded crustacean that looks more like a seed than a shrimp is a celebrity. But it is a brutal meritocracy. The zooplankton that scientists find "unique" keep their lives, while the others are placed into a tube filled with alcohol. They die of overabundance – without even a hint

of the parties, the lights or the hedonism we humans associate with the lifestyle. "The goal is to capture one of every species described as zooplankton: every species that is known to science. There are only 7,000 species, so we can. The problem is, we think there are another 7,000 that haven't been described," says Bucklin.

Even with her lifelong commitment to zooplankton, Bucklin recognizes that "they're not the sexiest animals to study." It's disappointing, but the zooplankton themselves cannot be blamed: they are simply translators. They eat what Bucklin calls "the little stuff", which contains the nutrients that larger creatures need. When a fish eats a copepod, this vital biomass is

transferred and the food chain continues. Zooplankton are neither the proletariat nor the bourgeoisie: they're more the means of production. Without them, the marine ecosystem cannot function.

But we needn't love zooplankton only for utility's sake. The struggle to remain between the ocean floor and ceiling has endowed zooplankton with eerily wonderful bumps, fins, feather-like appendages and shells. Evolution has made them pretty bastards. It is this love for body and function that keeps the *Ron Brown* afloat. By going into the deepest, darkest, coldest places in the ocean and looking for the obscure, small and sometimes dangerous middlemen of the marine ecosystem, CmarZ is spreading the zooplankton gospel. As Ortman says, "We need to make a roadmap of the ocean. After all these years we still don't know what's out there." Mankind must answer these basic questions, and it allows us to justify the mistreatment and confusion that the nets of CmarZ cause the zooplankton community. Armed with this knowledge, science can lead the way towards healthier, more zooplankton-friendly oceans.



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