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Dinoflagellates Podcast and Scientist Interview

Dinophyta

Science contributor Josh Kurz, tells the story of dinoflagellates through "music from the bottom of the food chain." There are "billions of these microscopic creatures in every bucket of the salty sea," Kurz reveals. Learn which dinoflagellate has a special glow, and which one is responsible for killing more people every year than sharks.

Transcript

Ari: This is the One Species at a Time, the story of Earth's biodiversity, one organism at a time. I'm Ari Daniel Shapiro. This time we'll be talking about dinoflagellates, small microscopic organisms that live in the ocean. And here to introduce these creatures: fellow science contributor Josh Kurz.

Kurz: Hi Ari.

Ari: So Josh, you have something a little different for us this time, tell us a little bit about what we're gonna hear.

Kurz: Well, I had the pleasure of attending an aquatic musical performance about the very organsims we're talking about. We're outside the concert hall and I and a lot of other seafood lovers like me are making their way inside to see Dinoflagella. I should mention that I've got my ticket and on it, it says "Music from the bottom of the food chain."

Ari: Wait, what do you mean?

Kurz: Dinoflagellates are at or near the bottom of the food chain. Pretty much anything you eat that comes out of the ocean either eats them or eats something that eats them. So while they're really important because they are food for life in the ocean, since they're microscopic, they're usually under appreciated. So, a musical group of humans called Higher Mammals have dedicated an entire 2hour show to dinoflagellates. And there's a little bit of that that I wanted to share with you guys.

Ari: Excellent. Start us off.

Kurz: Alright, so the whole event was divided into five acts with the first one starting like this:

Narrator: Dinoflagella, Act 1: Introduction. The ocean is big and wet. But beneath this vast sheet of uniformity is a teeming, seething, celebration of living, breathing, munching organisms.
There are whales and water jellies, eels and seals, giant clams, tiny shrimp, sea horses, sea snakes, sea lions, and sea cucumbers.

But smaller than the whales, smaller than the sardines or the anchovy, smaller than shrimp, smaller than krill, smaller than the smallest barnacle and copepod there is a special group of organisms known as the dinoflagellates. And there are so many dinoflagellates. There are million and billions of them, whirling and whipping and floating and eating in every watery bucket of the salty sea. They are overlooked, under appreciated, and often underestimated. But not tonight. Tonight, we celebrate the dinoflagellate.

Ari: I'm trying to imagine what these guys look like.

Kurz: Well, that's hard because there are so many different types. Plus they have long Latin-sounding names like Protoceratium areolatum and Protoperidinium oceanicum, and that doesn't really help describe them at all.

Ari: As opposed to, say, catfish.

Kurz: Yes, exactly, so to help visualize these guys, Act 2 involved a chorus in costumes.

Ari: Costumes?

Kurz: Most dinoflagellates are surrounded by hard cellulose plates called theca. So in Act 2, each chorus member came shuffling out on stage inside their own theca made of papier-mâché or something. They were all different. Imagine, like, spheres with holes or domes with spikes.

Ari: And what were they singing?

Chorus: Protoceratium reticulatum, Protoceratium areolatum, Protoceratium…

Ari: Basically just the names?

Kurz: Yeah, basically just the names.

Chorus: Protoperidinium ovatum, Proto–

Kurz: Yeah, this went on for about 45 minutes.

Ari: Wow.

Kurz: Yeah, there are a lot of different species.

Ari: So they look like weird Christmas tree ornaments and they have long names.

Kurz: Right.

Ari: Would a nonscientist recognize any of them?

Kurz: I don't know if we'd recognize them but we certainly would recognize their effects.

Ari: Like what?

Kurz: Like…

Narrator: Act 3, Sea Sparkle.

Kurz: Sea sparkle is a dinoflagellate named Noctiluca scintillans. And these guys become bioluminescent or give off light when they become agitated. So if you've ever been at the ocean at night and you've seen glowing waves, that's them, just thousands of them.

Ari: So when you get enough of these guys together, they can really put on a show.

Kurz: Yeah, not always in a good way.

Narrator: Act 4, Toxic Tide.

Ari: What's that?

Kurz: Well, there are some dinoflagellates that when they get together, they just produce toxins and cause problems. They kill fish and can even be harmful to people. Although each organism secretes only a tiny amount of toxin, since there are so many of them, the effects can be lethal.

Ari: Isn't it true that dinoflagellates kill or harm ten times more people every year than sharks?

Kurz: Yup... During the performance, the music got so loud by the end of that act that a few people fainted and needed medical attention. And then the whole thing ended like this:

Narrator: It's easy to forget the dinoflagellates. Wafting in the water unseen most of the time as they eat and get eaten. Here today, gone today. Small in size, large in number. So hard to forget, yet so hard to remember. So insignificant, yet so significant. That is what it means to be a dinoflagellate.

Ari: Thanks, Josh!

Kurz: You bet!

Ari: Remember those students describing the mystery organisms?

Student 1: It looks squishy.

Student 2: Circular.

Student 3: It's spongy.

Ari: Well, they were describing dinoflagellates.

Student 4: Spaceship.

Student 5: Kinda looks like a crumpet, a crumpet! With the holes in it.

Ari: Thanks again to fellow science contributor Josh Kurz and to Shane Winter who composed the music for this episode.

Meet the Scientist

Meet Josh Kurz, who you heard featured in the Dinoflagellates podcast:

Where do you work?
My work location alternates between sitting in front of my computer and roaming around out in the field (sometimes literally).

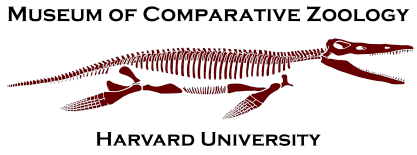
What do you study?
I am an independent radio producer and filmmaker. I spend a lot of time asking scientists to repeatedly explain to me what they do so I can then explain it to other people.

What are three titles you would give yourself?
Mediocre singer, want to-be scientist, cilantro disliker

What do you like to do when you are not working?
I trawl the internet looking for interesting things. That or I think about how I should be working.

What do you like most about science?
Asking questions. Why does cilantro taste like soap? How big can lobsters get? Who can change color better chameleons or cuttlefish? My job allows me to ask the people that actually know the answers to these questions. Usually I find out I'm wrong about all sorts of things - which is exciting to me.

About the Higher Mammals Music Troupe
Higher Mammals is a music troupe whose specialty is in the music of science often times manifested as a science musical. Masters of Stercus-taurology they use their opposable thumbs and large neo-cortexes to sing about everything from crustaceans to bio-engineers. The troupe is lead by musical director and composer, Shane Winter, who is also an accomplished biped. More about Higher Mammals can be found at highermammals.com.



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