

## COSEE NOW Podcast

### Episode 1: John Delaney

< opening music >

**Ari:** Welcome to the first episode of Ocean Gazing, a podcast where we look at, listen to and touch the ocean to unpack its secrets. My name's Ari Daniel Shapiro. On this week's program, we'll hear from oceanographer John Delaney.

**Delaney:** Few realize that the Internet is in the process of spreading into the ocean in a form that allows interaction between humans and the most fundamental processes that operate in the ocean which basically drive our climate.

**Ari:** Delaney will describe how he and his team are planning to use the Internet to share observations of everything underwater from earthquakes to whales.

We'll also hear a sonic stumper, a chance for you to listen to something from the world of ocean observing, and to guess what it is. Stay tuned.

< fade up music for 5s, then fade out >

**Ari:** John Delaney is an oceanography professor in Seattle, at the University of Washington.

**Delaney:** My specialty is underwater volcanoes, I'm trained as a geologist.

**Ari:** About 180 miles off the coast of British Columbia, Washington and Oregon is one of Delaney's field sites. It's called the Juan de Fuca ridge and it's an area of underwater volcanic activity.

**Delaney:** We know that it's erupted at least 3 times in the last 15 years, so we expect that to happen and we want to plan for it.

**Ari:** But they haven't been able to catch these eruptions in action. And it's actually rather difficult to observe most ocean events as they take place.

**Delaney:** So far.

**Ari:** So far. A little more than 15 years ago –

**Delaney:** About 16 or 17 years ago...

**Ari:** – Delaney met up with geophysicist Alan Chave. Over a beer in San Francisco, they dreamed up the idea of installing instruments along a cable on the sea floor that would constantly monitor the Juan de Fuca ridge. And when the next eruption happened, they'd already have their data recorders switched on, ready and in position.

**Delaney:** It caught the imagination of many, many people. The more people that I talked to about the idea, the more said, “Oh, if you’re going to study volcanoes, then somewhere on the cable I could measure the movement of fish stock.”

**Ari:** And...

**Delaney:** And I talked to somebody else and they said, “Well, oh, we’re really interested in the California Current.”

**Ari:** And...

**Delaney:** Others were saying, “Gosh, marine mammals are something I’m interested in. Couldn’t we do something with that?” And the next thing you know, within 3 or 4 years, we had quite a large group of people that were quite excited about laying a real cabled system which we began calling NEPTUNE: NorthEast Pacific Time-series Undersea Networked Experiments. < laughs >

**Ari:** The idea is that the deep sea is unfriendly to humans: it’s hostile and remote. So the cables will gather data from hundreds of instruments beneath the seafloor, on the seafloor, within the overlying ocean, and at the air-sea interface. They’ll report a steady stream of continuous information – and not just the volcanic activity, < faint volcanic rumbling > but also things like blue whale migrations < blue whales > or gigantic storms coming ashore < storm winds surge, then quickly fade out >.

But before Delaney and his team could lay the cables, they had to figure out where on the seafloor to put them. The primary cables had to pass by many important but dangerous features, like volcanoes. Caution was important.

**Delaney:** We want to make sure that we don’t put them right on the edge of a fault, we want to make sure we don’t put them into some sort of a crater.

**Ari:** So they used an autonomous underwater vehicle to map the shape of the seafloor in great detail.

**Delaney:** So that if there had been a half of a Volkswagen on the seafloor, we would have known it was there.

**Ari:** In addition, Delaney and his colleagues used a high-definition camera to demonstrate the kind of opportunities their cabled system would eventually deliver. The camera filmed the seafloor, and the high-resolution video flowed along an optical fiber cable back to the ship. But it didn’t just get stored to a computer. Delaney’s team beamed the video back to shore via satellite and transmitted it over the Internet. It was the first-ever live transmission of high-definition video from the seafloor.

**Delaney:** Folks across the world were seeing exquisitely high definition images within 1 second of those images being taken as if they were looking through a window directly at the seafloor.

**Ari:** NEPTUNE, now known as the Regional Scale Nodes ocean observatory, will be up and running by 2012 or 13. The data will be used both for science research and for educational purposes using an Internet portal. The information will be available to anyone interested in accessing it, including the general public.

**Delaney:** It's the kind of thing that we would like to bring to our children where they could actually run experiments themselves functioning as actual scientists, helping us to digest the vast amount of data that will come flowing ashore.

**Ari:** And the Juan de Fuca region is only the beginning. Many countries around the world are planning to install similar systems. Such cabled networks will be successful, says Delaney, when they can help predict the events in the ocean that currently take scientists by surprise.

And it's something Delaney has been thinking about for a long time.

**Delaney:** Yes, this is a dream and it's about to come to fruition.

**Ari:** A dream nothing short of simultaneously monitoring the biology, chemistry, physics and geology of the ocean. Of being ready for many of the underwater surprises that until now have remained hidden. And of allowing everyone from scientists to children to dive headlong into this virtual sea.

< short music clip >

**Ari:** And now, our sonic stumper. Try to identify this sound from the realm of ocean observing.

< Sosik/Olson sound >

Any ideas of what this might be? If you think you know, contact us! Also, John Delaney is willing to answer a few of your questions so please: be in touch. You can leave us a voice mail by calling 508.289.3926. Or you can use Skype to leave us a voice mail by finding and calling username cosee.now. That's c-o-s-e-e dot n-o-w. Or you can send email to [podcast@coseenow.net](mailto:podcast@coseenow.net).

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My name's Ari Daniel Shapiro and I'll talk to you in 2 weeks!

< closing music >