

Jennifer Stock: You're listening to Ocean Currents, a podcast brought to you by NOAA's Cordell Bank National Marine Sanctuary. This radio program was originally broadcast on KWMR in Point Reyes Station, California. Thanks for listening!

(Musical Intro)

Jennifer Stock: Welcome to another addition of Ocean Currents, I'm your host, Jennifer Stock. On this show we talk with scientists, educators, explorers, policy makers, ocean enthusiasts, adventurers, and more, all uncovering and learning about the mysterious and vital part of our planet, the blue ocean.

I bring this show to you monthly on KWMR from NOAA's Cordell Bank National Marine Sanctuary, one of four National Marine Sanctuaries in California, all working to protect unique and biologically diverse ecosystems. Cordell Bank is located just offshore of the KWMR listening radius, off the Marin-Sonoma coast, and has a thriving ocean life both above and below the surface.

So we have a pretty full show today, we're going to spend the first half hour or so speaking with scientists about monitoring for radiation, which we've heard a lot about on the news, we're going to talk about that. We'll also be having a lot of announcements in the show, as well as some exciting sighting along the coast, some amazing mammals, some orcas, have been sighted, so we'll talk with some folks that are posted on the coast.

Now, on April 11th, will be the three-year anniversary of the massive earthquake and tsunami that led to radioactivity from the Fukushima Daiichi power plant in Japan. Many people have expressed concern regarding the trace amounts of radioactivity in our air and ocean pacific currents. The research clearly shows that there was a substantial amount of radioactive material released into the ocean, which is dispersing throughout the ocean and air, and may be detectible some time this year.

So this has raised a lot of questions, I've received a lot of questions on the street from friends, family and just people I run into, and so

I am really excited to talk about the topic today with my two guests. On the telephone with me I have two experts in California—Dr. Kai Vetter, a professor in residence with the Department of Nuclear Engineering at UC Berkeley and Lawrence-Berkeley National Library, who specializes in applied nuclear physics, and we also have Dr. Steven Manley, a professor in biological sciences at Cal State University Long Beach, specializing in marine algal-physiology, and biochemistry.

So Kai and Steven, welcome to KWMR, you're live on the air.

Dr. Kai Vetter: Hi

Dr. Steven Manley: Hi, thank you very much.

Jennifer Stock: All right, I can hear both of you loud and clear, thank you very much for joining me today.

I want to start with some very basic questions, because I think the basics of radioactivity have been hard for people to understand. Can you just briefly describe what radioactivity is, and the difference between radioactivity and radiation? Kai, why don't we start with you?

Dr. Kai Vetter: Sure, I'd be happy to. So radioactivity is kind of a natural phenomenon that kind of describes the decay of an atomic nucleus. So you have atoms, with electrons going around a nucleus, which makes up the world we are living in. And the nucleus in many cases is not stable, and we call the instability and decay process "radioactivity." So that means we have a nucleus that is radioactive, it decays, and in the process it emits radiation. So radiation is caused by the radioactive decay of a nucleus.

Jennifer Stock: OK. Who monitors for radiation in the environment, I know there's been a lot of confusion across California, in terms of "Who's monitoring this accident?" Can you give us an idea of the agencies and organization that are monitoring for radiation?

Dr. Kai Vetter: So there are several institutions, both in the US and worldwide, which are responsible for monitoring radiation, both globally and

nationally. He in the United States, certainly the Environmental Protection Agency, the EPA, who is responsible for monitoring radiation in this country. The Department of Energy has responsibilities to measurements in response to accidents or events. For example, the people from North Energy went right over to Fukushima following the tsunami and the release of radiation, and did the first aerial measurement in Fukushima, so the Department of Energy is responsible for that part. And then we have Homeland Security, and FEMA also has capabilities to monitor radiation. So after Fukushima there were many measurements being taken by these agencies, which measured to see if the effects would be strong enough to cause health effects, specifically in the United States.

Jennifer Stock: So do you know why we didn't hear much from these agencies during this part of the monitoring? It seems that they were rather quiet, which left folks concerned.

Dr. Kai Vetter: Yes, we were aware of that too. The government itself was not too outspoken about the measurements they did, and we certainly tried to step in and do the measurements and provide the necessary information to the public. So that's one reason we really started with the measurements, because we felt that there was a lack of information being provided to the public.

I cannot really speak for the responsible entities at these agencies but they felt that levels of Fukushima's radiation were small enough that they didn't need to raise the level of concern.

Jennifer Stock: Mm-hm. So you started help start a local radiation watch, Berkeley RAD watch, can you tell us a little bit about this, it sounds like a unique system for monitoring airborne radioactivity.

Dr. Kai Vetter: So right after it became clear that there were major releases from Fukushima, three years ago, as you pointed out, we started to set up instruments here, in Berkeley, to monitor the arrival of the released radiation, for two reasons; one, to document and analysis what there is to observe with the arrival of Fukushima's radiation, as well as the dispersion and disappearance of that radiation within our environment, not just by rain water, but all the different

samples, it was hands on and started about three years ago. But the other mission, beyond understanding the science through observation, was to provide that data to the public. So that ended up in an initiative we now call RAD Watch, and you find that on radwatchberkeley.edu, and you'll find lots of information there, which we obtained over the last three years. And more recently we've focused on marine data because, as you pointed out, scientific models can help predict how radiation from certain seas around Fukushima transports to other place like the west coast, and to be ready to measure the potential increase in radiation here. So we focused on marine biology, and that's expanded scope for RAD Watch, and then we're also documenting the kelp watch, which professor Manley can tell you about in greater detail. So, in summery, we've been capturing data and providing it to the public.

Jennifer Stock: What exactly was released into the environment during the Fukushima accident and what is being released continually, what is that?

Dr. Kai Vetter: So initially, due to the hydrogen explosion, a lot of products that were contained in the reactor were released into the atmosphere, and the product we were able to see were products that allow fission to occur. So, that occurred initially and then kind of disappeared in our environment. And what also happened at that time was a major release into the water system, and that still continues, mainly due to groundwater around the plant, which seeps into the ocean, as well as the water being used to cool down the exposed reactor. And even though there are efforts to stop that, there is still a portion that seeps out. It's ongoing.

Jennifer Stock: Right, it's causing a lot of concern here in California.

Dr. Kai Vetter: However, what I want to point out, and I was just in Fukushima three weeks ago, where I got the latest numbers on these measurements, so even though there are still releases into the ocean, the amount that goes out into the ocean and then are transported to here (California) are very small.

Jennifer Stock: Mm-hm

Dr. Kai Vetter: So that even if you went hundreds of years out into the ocean you'd see that the concentrated amounts of radiation are quite small. So that's important to remember that the initial releases were quite large but they're not significant anymore. And because of the dispersion in the ocean, and because much of the material settles both quickly and locally, it does not necessarily mean there's a health hazard.

Jennifer Stock: How about the local people in Japan, as far as their health hazard?

Dr. Kai Vetter: SO you might remember that there was a larger evacuation because of Fukushima, and a large effort to bring people to safety, and they are now slowly being brought back into their homes. So though the levels are slightly increased to do to the background radiation, it doesn't really pose a health risk.

Now closer to the sight, within the restricted area, that's an different story, there are still levels of radiation that are back normal background levels, however no one is going back to live there

Jennifer Stock: OK! Well, Kai Vetter, thanks so much for giving us an update about this. I know you have to get off the phone rather quickly, so let's transition into the kelp. How did you get hooked up with the Kelp Watch that Steven Manley set up?

Dr. Steven Manley: Well I was familiar with his work, as listed on his aforementioned website, not only did he measure the radioactivity that came over in the rainwater; I believe he also measured it in some plants. So I was already familiar with his work, and I thought he'd be a perfect person to collaborate with in Kelp Watch 2014, and the collaboration has proved fruitful so far.

Jennifer Stock: Wonderful. Kai, I know you're short on time—would you like to say anything before you sign off?

Dr. Kai Vetter: I think we are really excited to continue these measurement within a large range of samples, but kelp specifically, and as Professor Manley will tell you, it's a great way to see what's actually on our coast. So I'm really excited to help out and continue that work.

And in general I would recommend people check out the available data on our website, we are really proud to provide real data that address some of the unfounded claims in the media and on the web. So I just encourage everyone to be critical and just look for reliable sources of data, such as our institution, and others who do research and provide real data.

Jennifer Stock: Thank you so much! That's www.radwatch.berkeley.edu and we've been talking with Dr. Kai Vetter of Berkeley. Thank you so much for talking, I know you have to go.

Dr. Kai Vetter: Yeah, I have class in 10 minutes. (Laughs)

Jennifer Stock: OK, well thank you so much.

(Dr. Kai Vetter hangs up)

Jennifer Stock: And we still have Dr. Steven Manley, and who's with Cal State University Long Beach, and I'd love to talk more about Kelp Watch. So, why kelp?

Dr. Steven Manley: Well, Kelp Watch is a scientific campaign, I used the kelp, which runs up and down our coastline, as a sentinel organism to detect the potential arrival of these radio isotopes, from Fukushima, that are arriving in the sea water.

But why kelp? Well, to me and to many, kelp is a perfect organism to use. First of all, we find it up and down California's coastline, in fact, we find it all the way from Kodiak Island down to Baja Mexico, and so it's a perfect sentinel lining our coastline, and so it will be the first to come into contact with whatever material comes to our coastline. Second of all, the two kelp types we're using, bull kelp and giant kelp. Out most of their mass in canopies, so they put most of their biomass up I surface water, and were interested in seeing how much bioactivity comes into that area. So, most of the biomass of thee kelps come into contact with, or potentially come into contact with that water. Thirdly, we know that kelp is a very good filter in terms of absorbing the type of radio isotopes that are

known to be in water, albeit their present in seawater in very low concentrations, but kelp has the ability to suck these up like a sponge into their tissues. So though the radioactivity is in seawater, it can be better detected in mass, which can be found in the kelp, so the major radioisotopes in the seawater that's been slowly making its way from Japan to our shoreline, are the isotopes of cesium, and we know that kelps concentrate cesium 20 fold over what we find in sea water. Another reason to use kelp? It's very easy to collect and it's very easy to process. So for this study each sample that's collected is about 14 pounds of wet kelp. It can be collected by boat, it can be collected by snorkeling, it can be collected by scuba. And the 14 pounds? It gets dried and ground to a uniform particle size, and ends up filling about a 1 liter bottle, so 14 pounds of kelp is in one liter, and that one liter can be easily analyzed by Dr. Vetter's group.

You know, you don't have to wrap the detector with 14 pounds of wet kelp, you can have this dry kelp powder, you can think of it like concentrated kelp. And then the most important reason to use kelp—even though the projected amount of radioactivity in seawater is very small, and has yet to be detected in seawater along our coastline, I think it's important to know if any gets into our kelp, because these two kelps are the basis of what we call the kelp forest ecosystem, which is one of the most complex ecosystems on earth supporting thousands of different species, and numerous individuals of course, of different organisms—and so even though a very small amount may get into the kelp, I think it's important to know how much is there. We need to know if it gets into our kelp forest ecosystems, because then we know we are not immune to these large events that happen across the Pacific.

Jennifer Stock:

It's amazing how this situation has provided the public with an illustration of how interconnected we all are, interconnected. The marine debris, as well as the radioactivity has been in the news has allowed people to see how the ocean connects us.

In terms of the kelp forest ecosystem, it's a fascinating study, and to know how many species are supported in the kelp; is there a human concern in terms of bioaccumulation? If there are species eating a

lot of the kelp, and are then eaten by fish, and then eventually by humans... is that a concern?

Dr. Steven Manley: Well let me first say that no local fish populations have been shown to contain the major isotopes, those being cesium 137 and cesium 134. I think recently there has been some confirmation that these radioisotopes have been found in salmon, I think primarily from the pacific northwest, and I don't know the amounts, but I'm not an expert on the effects of radiation on humans, for example, but those who are say that it's not a human health risk, or hazard at this time, and wont be.

Jennifer Stock: That's good. I know that on Dr. Kai Vetter's website they did have questions about the pacific northwest's red salmon, and it was very low levels, and I think people are jus concerned that we have low levels of everything. Low levels of everything is not good for humans, or for wildlife.

Dr. Steven Manley: I mean, it would be best if we didn't have any of these man made radioisotopes circulating in our environment, but you have to remember that there are lots of natural radioactive materials that primate our foods and environments. For example, potassium 40 is a naturally occurring radioisotope that's found in most of the foods we eat in concentrations much higher than we anticipate seeing in kelp or much higher than we see in the tuna that was captured off San Diego for example, or the salmon. Now, again, I'm not a health physicist, so I can't comment on how damaging these natural radioisotopes are, but you know, life has evolved in the presence of these natural radioisotopes since its inception, so apparently life does OK in the presence of these natural radio-nuclides. Now the human made ones? We know that the readings of cesium is 1000 times lower than the natural ones, we don't expect them to be a human health risk, but again, it's good to document how much is there. The reason we initiated Kelp Watch 2014 was to provide info on how much there was in the kelp, and was it a harmful amount. And so, on our Kelp Watch page, we will be posting our results along with commentary.

Again, this is for the public edification, because as you mentioned earlier, Jennifer, there's not a lot of data out there, or comment out

there about the possible arrival of these radioisotopes after Fukushima, so one of the reasons for having Kelp Watch is to get the information out there so that the public can see it and analyze it next to naturally occurring radioactivity.

Jennifer Stock: That's great. It's taken me a long time to cover this topic on the show because of the lack of information, I was really happy to learn about your work, and also RAD Watch, and see there's work going on throughout the west coast, and you have a whole lot of collaborators taking samples... how many years are you going to be taking samples for?

Dr. Steven Manley: Well Kelp Watch 2014 primarily got its name because one of the scientific models projected the arrival of this radioactive seawater some time around mid-April this month, and so we decided to have three sampling periods over this year to see if we could detect this material.

So our first sampling period just ended at the beginning of the month, and we're in the process of analyzing the material right now. But other models say it won't really pique until 2015, and we'll have Kelp Watch 2015, or 2016 if we need to do so.

But in terms of Kelp Watch 2014, we're collecting Kelp from 42 different populations, from Kodiak Island, to Baja, and we're also getting samples from Chile, sort of our far removed reference site, and we're also getting related seaweed, not a kelp, from two places in the subtropical regions, one's Guam and one's Hawaii. And so this couldn't happen without the involvement of numerous people willing to absorb the costs and collect the material. So we have over 40 marine scientist and assistants, scattered throughout the west coast, most of them being academicians from universities, but we also have educators from private organizations, scientists from NOAA and certain state parks, and also two seaweed harvesters, and at least one I sup your way.

All these people, when I first contacted them, I said, "Hey, we need to do something." And they all volunteered to come on board, basically pro-bono, absorbing all the costs themselves, costs associated with going out and gathering the kelp, and then costs

associated with processing the kelp. So we have three process sites, one is at Moth Landing Marine Lab, another at San Diego State University, and the other at my university, Cal Sate Long Beach. Each site receives the wet kelp, dries it, mills it to a uniform size, and then sends it for analysis. And although this project started without any funding, I can say we've got some modest funding from a USCC grant, which is one of the seed grant institutions in California, whose help has allowed us to get through this first sampling period, and through the California State University system which has given us funding to get through at least the second sampling period, and there's other funding that I'm pursuing. But this couldn't have happened without the marine scientists on the west coast, volunteering and collecting pro-bono.

And of course it's really great that Dr. Vetter and I got together, because he has a state of the art counting facility at the Laurence Berkeley National Labs, which will allow us to detect very small amounts.

Jennifer Stock: That's great. I want to let local listeners know that we're talking with Dr. Steven Manley, of Cal State University Long Beach, and we're talking about Kelp Watch 2014. And also, I know that samples were gathered locally, from here, in the Point Reyes region and up the Sonoma coast. So, will you have the results based on each unique location?

Dr. Steven Manley: We think this material will arrive in British Columbia first, and move its way south and north. We hope within the next few weeks to present, on our webpage, samples taken from Alaska and British Columbia, Washington, and northern California. So we had Humboldt state collecting material, Bodega Marine Lab, NOAA, as well as California Department of Fish and Wildlife. So the northern California Pacific Northwest will probably be forthcoming in the next few weeks,

Jennifer Stock: Fantastic, and why don't you give us the website for folks to learn a little bit more about Kelp Watch 2014 as the results get posted.

Dr. Steven Manley: Sure. It's www.kelpwatch.berkeley.edu

Jennifer Stock: Excellent.

Dr. Steven Manley: And if you go there you'll see a lot of different questions answered, like, "Why do we use kelp?" "Why are we concentrating on cesium?" A list of participating scientists, and just a little bit of history about the history of Kelp Watch 2014. As Dr. Vetter spoke about, the initial release was in the atmosphere, and so about a month out after that initial release, back in 2011, a colleague and I got a few people together to collect kelp from the area, with the idea that we might be able to detect the airborne material, I the canopy of the kelp, specifically iodine 131. And so low and behold we did detect low levels of iodine 131, in kelp from Santa Cruz down to Orange County, California. So what happened was this initial material that was released in the atmosphere blew over in the jet stream, and then got incorporated in the clouds, and then fell out onto the kelp canopy in the rain fall that occurred 10 days later, so that's sort of what got me into using kelp as a detector of radioactivity to begin with. And then having read late last year that this material was coming over in the sea water, that's sort of what prompted me to get Kelp Watch 2014 up and running.

Jennifer Stock: Fantastic. For folks tuning in, you're listening to KWMR, Point Reyes station in Bolinas, and I just have one more question, it kind of goes back a little bit. I know with my experience with Kelp, and the lifecycle, and temperature changes, that during warm waters, the El Niño years, the upper canopy kind of melts away a little bit, thinning out the kelp forest—how does that effect your study?

Dr. Steven Manley: Well you're absolutely right, kelps do not like warm water, and at least down here in southern California when the summer comes, usually the canopy starts to disappear, or looks pretty tattered. It doesn't tolerate warm water very well, and also warm water is also usually an indicator of low nutrients, so the two do slow does the growth of the kelp quite a bit, but some of the biomass remains below and can survive the summers and of course comes back in the spring. But the last several years have been unusually cold, in terms of the oceans temperatures along our coastlines, and I don't know if you can see it up there, but south of Point Conception the kelp beds have just been flourishing, because the summer water

temperatures have been very, very cool. So we have a huge amount of kelp in southern California, and I think the same is true in central and northern California. We haven't had very warm temperatures, so the kelp is thriving. So at least for Kelp Watch 2014 I don't anticipate having any lack of kelp.

(Jennifer and Steven laugh)

Dr. Steven Manley: I think the worst thing that happened was the storms that have come through and ripped some of it out.

Jennifer Stock: Well we hope that kelp holds on, it's vital to so many, so many species, and its beautiful in itself, and it's interesting to learn about this study. I really appreciate you time Dr. Manley, and we look forward to seeing the results as they get posted.

Dr. Steven Manley: Again, in the next few weeks we should have the northern California results posted on the website. And again, we're not just going to post the data, we're going to post the data with commentary, because we think it's important that the public hear from experts in the field and are able to look at this data in the context of a variety of factors, like naturally occurring radio activity and the like.

Jennifer Stock: Well thank you again for sharing this, it's very informative, I'm really happy to share this information with the broader public.

Dr. Steven Manley: Hey, can I make a plug?

Jennifer Stock: Sure.

Dr. Steven Manley: There's a contributor who'd been there with me since day one, up in your region, and his name is Andrew Daunis, and his little company is [Pacific Wildcraft Inc](#), he's a seaweed harvester, and he's stuck with Kelp Watch 2014 through thick and thin, and was one of the very first people to sign on to this, and he's sampling the Mendocino coast. And so I just want to say, not only are there scientists doing this, but there are lay people doing this also.

Jennifer Stock: Are you looking for other volunteers?

Dr. Steven Manley: I think we're pretty much maxed out right now! (Laughs)

Jennifer Stock: I'd volunteer.

Dr. Steven Manley: I can't take any more samples; we're pretty much saturated right now. However, depending on any trends that we see, or if we need to have any more fine scale resolution in various regions then we might need more participants. But right now I think everything is under control.

Jennifer Stock: Wow, fantastic. Thank you, it's nice to hear of the seaward harvesters, I actually had a show in December on sea weed harvesting here on the Sonoma coast, which was really, really informative. Seaweed is so interesting, and it's great to hear they're involved as well. So, it spans all of academia to commercial industry to every-day interested folk. So, thanks again.

Dr. Steven Manley: You're more than welcome. Thank you for having me.

Jennifer Stock: Have a great afternoon.

Dr. Steven Manley: Bye-bye.

Jennifer Stock: We've just been speaking with Dr. Steven Manley from Cal State Long Beach, who specializes in marine algal-physiology and biochemistry, and combined with Dr, Kai Vetter, at UC Berkeley they've formed Kelp Watch 2014, as we just heard, monitoring kelp up and down the west coast, monitoring for radioactive elements that have traveled across (the earth) from the earthquake (in Japan) at the Fukushima Daiichi. And we will keep posted on these results as they become available and share them with you on Ocean Currents.

We're going to take a quick break; I have another short interview, along with some announcements. And we'll be back in just a little bit. Thanks for tuning into Ocean Currents.

(Musical interlude fades in...and out)

Jennifer Stock: ...and we're going to switch gears here a little bit. Earlier in the show we were talking about radiation and monitoring on the coast, and now we're going to focus on some of the mega fauna that visit our shores, and on the phone with me I have Norms Jellison, who is a volunteer with Stewards of Coast and Redwoods, out of Sonoma county, and Norma has been on several of my wildlife watching trips to Cordell bank and alerted me to some exciting sighting at bodega head this last week.

So Norma, welcome to KWMR, Ocean Currents, you're live on the air!

Norma Jellison: Well it's good to be talking with you and the folks listening in.

Jennifer Stock: So Norma, how long have you been volunteering at Stewards of Coast and Redwoods?

Norma Jellison: For about 18 years.

Jennifer Stock: 18 years! And you've been out at Bodega head helping to monitor or educate people about grey whales that are easily seen from Bodega head,

Norma Jellison: Actually we're docents. So Stewards of the Redwoods has a number of docent programs, like at the Russian River and various sites in the redwoods. But out at Bodega Head we do whale watch, and the docents are there every weekend, from noon to four, except for Fisherman's Festival weekend, the last weekend of April, to just help visitors see the pacific coast grey whales as they migrate past, and this time of year, the grey whales are headed to Alaska, to eat their favorite and primary food source, anthropoids.

And then later this month, and into May, we'll be seeing larger pod of mothers and calves. Many are south in the mating and calving lagoons in Baja, and the mothers and calves travel very close to shore, because the moth is still nursing the calf, and starts to do that quite often, and also because it is a calf, it needs to rest. So this time, when the mothers and calves are there, is a great time for visiting. And Bodega Bay is a great location to get access to see the incredible parade of animals that go by.

Jennifer Stock: So I take it this time of year is a little bit of a lull and animals are starting to move north.

Norma Jellison: Yes. Yes, we've consistently seen solitary grey whales going by every weekend when the conditions are right. Yesterday we saw four the prior weekend when we had good conditions, we saw 11 but we don't normally really count, because we're only there for a short period of time during the day.

Jennifer Stock: Excellent. So, tell us what you saw last weekend.

Norma Jellison: Well the last Sunday of March, when the wind and the ocean calm down, late in the afternoon, we had this exceptional sighting of a large pod of orcas off the head. It was really quite an event, they were about two miles off shore, and they were breaching and milling around, and just lulling around for about 45 minutes before they continued south. And at that same time we were having grey whales passing by close in, going north. So it was really a spectacular sighting, and very unusual to see the orca off of the Bodega Head.

Jennifer Stock: So you said about two miles off; did you have scopes set up?

Norma Jellison: We had binoculars, and I believe there was somebody there who was a birder who had a scope, and they shared it with some of the visitors. But we were using binoculars, and there were only three of us left from whale watch because we had shut down because conditions were so poor, with such high winds and white caps, and you couldn't really see anything, and then all of a sudden it just calmed down—and there they were.

Jennifer Stock: That's so exciting. How many animals did you see?

Norma Jellison: well, there were 15-20.

Jennifer Stock: WOW!

Norma Jellison: Yeah, it was quite a phenomenal amount. So the speculation is that they might have been one of the northwest resident population that

came down a couple of years ago, and I understand, from you, I believe, and I called the lighthouse and they'd seen some orca off of the lighthouse on Friday.

Jennifer Stock: Yeah, so Friday I got emails. This is, I feel like an armchair naturalist, because I haven't seen any of these whales myself...

Norma Jellison: (giggles)

Jennifer Stock: ...but I really appreciate people telling me about them, it's very exciting. Yeah, so Point Reyes lighthouse folks called me to tell me they saw six orcas right off the Point Reyes lighthouse, acting in a similar nature to your observation, kind of milling around, turning upside down, showing their bellies for a bit, but just hanging out, moving around, they didn't stick around too long. But it just made me start wondering, "I wonder if these are the same animals?!"

Norma Jellison: Yeah, that's quite possible, and we're not hearing about seeing them out at the Farallones Islands. But you know, they like their salmon, so the tom toms might have gone out to tell them that the salmon wasn't great.

Jennifer Stock: Well I don't know if anyone's seen it, but the latest Bay Nature Magazine features an article written by Sarah Allen and Mo Flannery from the Cal Academy. Great article all about orcas, and I also think it's wonderful to share because there's been a lot in the news about orcas in captivity. I think it's such an amazing thing that we can see these right here on our coast! Not very common, but still, this is an interesting time of year where we might be able to see them.

Norma Jellison: Right.

Jennifer Stock: So, come on out there.

Norma Jellison: Yeah, and the great thing is that reliably you can see the grey whale, the Pacific grey whale. And that's a real treat and a real gift because you don't have to get out in a boat. For those people who have some considerations or get sea sick, you can actually stand on

the land on there promontories, like Bodega Head and Point Reyes and other promontories up and down the coast, and see them with your naked eye, you really don't need binoculars, although they're helpful to zero in on them. But it's just so great to be able to see them from land.

Jennifer Stock: That's just wonderful. Well Norma, thank you for alerting me to the sighting and chatting for a few minutes here on Ocean Currents, and let me know if you see some more whales, OK?

Norma Jellison: I will, and maybe come on out and watch for the whales with us!

Jennifer Stock: I sure will soon. Take care.

Orcas seen off of Bodega Head and Point Reyes lighthouse, and this is a great time of year to get out to the northbound grey whales and cow calve in pairs. I've seen them right outside the surf line, coming down the coast of Pacifica once, they were hanging right outside the surfers it was really, really cool.

And Point Reyes is a great spot because the peninsula really sticks out there; it's a pinch point. Those whales have to make it around that bend so it's a great place to see them as well.

I wanted to point out that the Gulf of the Farallones National Marine Sanctuary, along with Aquarium of the Bay, will be hosting talk with Eric Hoyt, who is an author of several ocean science books, many related to orcas with his research on orca whales, and that's on May 13th.

Aquarium of the Bay has been doing a lot of really good lectures, great speakers coming in, definitely check them out for what's going on monthly, but that talk is May 13th at Aquarium of the Bay in the evening.

And another marine mammal alert is it's harbor seal pupping season here, and we really need to keep an eye when we're walking on beaches to not stumble upon a seal or scare the mom off. This happened to me once, I was out at Limantour Beach, I was just walking and not really paying the closest of attention and

next thing I know I saw this little harbor seal pup in front of me, and I just turned and left right away, because they're very vulnerable to being disturbed, and the mom seal, who's near by, is watching, and if she feels her pup might be in danger, she might take off and leave that pup alone. So please keep your eyes open when your anywhere out there or on the San Francisco coast at some Key Harbor seal points.

Here at Point Reyes National Seashore there's a seasonal closure, at the tip of Limantour. You can walk all the way west to the channel Drakes Estero, but you can't walk into the Estero because that's where the pups are, and the moms. So do be aware of that.

And if you do see a seal alone, and you're not so sure, you can call the Marine Mammal Center, at (415) 289-SEAL Pretty easy to remember, or also alert the park service if you happen to be here at Point Reyes National Seashore. But make sure to stay away a minimum of 300 feet, more is definitely better, and keep pets secured and away as much as you can.

So lots of marine mammal activity in this region we're really lucky to have these animals to see out here on the coast.

I have a couple other announcements to share. May 1st is joint advisory sanctuary council meeting for the Gulf of the Farallones and the Cordell Bank National Marine Sanctuaries, and this is in Bodega Bay, there isn't an agenda or meeting time yet but likely this will be a very interesting meeting, probably focused on the proposed sanctuary expansion and what's happening with that. So this is public meeting and everyone is invited to come, and there is a public comment period, so if your interested in keeping up, that date is May 1st. Come to our site, www.cordellbank.noaa.gov or www.farrallons.noaa.gov, as well get closer to the date for much information about that.

And also, I will be hosting a photo reception, as well as a little 25th anniversary event for Cordell Bank National Marine Sanctuary at the Red Barn Classroom, at the Point Reyes Seashore, and that is on May 10th, and they'll be a bit of an open house from 1-5PM, we'll have some light food and beverage you can take a tour of

photo exhibit, that's going to be moving on from the Point Reyes region after this, this is the last showing here in west Marin. And we'll also have some really exciting things to see, we'll be bringing our remotely operated vehicle, and ROV, and we're going to be bringing that to the classroom so people can see that up close and personal, and talk to the folks that operate it, and see some video footage when we operate that down on Cordell Bank, and we'll have some kids activities and it'll be a really nice event. May 10th, 1-5PM, it's free, you don't need to register, just drop in anytime, and I'd love to see some of you. So come on down. Red Barn Classroom.

And we have a couple more minutes. I will also let you know that Reef Check is an organization, which I hope to have on the show at some point. They are a group of scuba divers that become trained in rocky reef monitoring and collecting data, and they have over 1000 recreational scuba divers that have been trained to scientifically underwater rocky reef ecosystem including kelp forests. And their data is instrumental in helping to monitor the effectiveness of marine protected areas that have been put in. So they're going to be recruiting volunteers and are looking for divers to help get involved, get trained so you can get involved and make your scuba dives count, for data. SO you can get more information at www.reefcheck.org I know some scuba divers around here, so check them out, it's actually all up and down the coast of California, their trainings are coming up this summer, www.reefcheck.org, it's a really interesting way to kind of learn more about the underwater environment and some of the science behind monitoring for it and how they do monitor for it.

We've had a discussion about radiation and the movement of the radiation from the Fukushima Daiichi power plant three years ago, we had Dr. Kai Vetter, and Dr Steven Manley, and I wanted to give you those websites again, to keep up on the latest information, www.kelpwatch.berkeley.edu, as well as www.radwatch.berkeley.edu, both of those are great sites to keep up, with a lot of great stuff is posted there frequently, you can ask questions, there's background on the projects, and the Kelp Watch results of the study will be posted soon.

That's about it. We are at the end of our time here for Ocean Currents; I'll be back next month. And this show is always saved as a podcast, both on the archives on KWMR's website, but on, www.cordellbank.noaa.gov you can go and catch all the sows from the last six or seven years now of Ocean Currents. And I'd love to hear from you, so if you have ideas for topics, questions, comments, please email me, Jennifer.stock@noaa.gov Thanks for tuning in today to KWMR.

(Exit music)

Jennifer Stock:

Thank you for listening to Ocean Currents. This show is brought to you by NOAA's Cordell Bank National Marine Sanctuary, on West Marin community radio, KWMR. Views expressed by guests on this program may or may not be that of the national Oceanic and Atmospheric Administration, and are meant to be educational in nature. To learn more about Cordell Bank National Marine Sanctuary go to www.cordellbank.noaa.gov