

Jennifer Stock:

Hello everybody, and welcome! You're listening to Ocean Currents, I'm Jennifer Stock, and on Ocean Currents we delve into the blue watery part of our planet and highlight ocean related topics. We talk with scientists, educators, explorers, policy makers, ocean enthusiasts, ocean adventurers, ocean archaeologists, and more, all trying to learn more about that mysterious and vital part of our planet. I bring this show to you from NOAA's Cordell Bank National Marine Sanctuary. Cordell Bank is located just off of the KWMR listening radius, off the Marin/Sonoma Coast. So Happy New Year everyone! This is my first show of 2012, I know it's February already but its great to be back in the studio here, and I would like to send a shout out to some listeners I've heard from over email over the last year, from Kentucky, Ohio, Florida and new York. I love hearing from listeners so feel free to send me an email at Jennifer.stock@noaa.gov. I love to hear people are listening, and what you like and what you want to hear more of. This is going to be an interesting show today, my guest is going to be calling in a little bit.

The rough and treacherous California Coastline has a storied past that created what we know today in our communities. Each little town and feature on the coast has as story to tell from land as well as below the surface of the ocean. But looking at a more global level, the stories of our maritime heritage encompass the recent centuries greatest mass migrations for human populations in history. A world connected that created global commerce and drove industrialization that changed the face of human cultures everywhere. This planets ocean has been exploited to fuel the explosion of human populations, with a changing climate causing all of us to ponder our planets future. The forces of change that allowed for this progress still drive our world today, still at an ever-increasing rate. My guest today, Dr. Jim Delgado, he's the director of NOAOAS maritime heritage program, this is a program in the National Marine Sanctuaries, he's going to talk about our local maritime history here and put it in perspective of the past and what we have to look forward to, how do we learn from these past stories. So stay with us, tuned in to Ocean Currents, and we will be back in a little bit.

And I'm back, this is Jennifer Stock, you're listening to ocean currents. I'm going to give my guest just a few more moments, but I have a couple of announcements to share with you, which I'm really glad to do at the beginning of the show because I always run out of time that the end. We'll get back with our interview with Jim in just a few moments. I want to start with an exciting even that is happening on the California coast over the next few days, which is

the California King Tides event, and tomorrow, Tuesday and Wednesday, are two of the highest tides of the year, and interestingly enough, coinciding with a storm moving into the area. An event that is happening is people are going out with their cameras to low-line areas at the peak of the high tide over the next two days and taking pictures and then sharing these pictures online on the special website. These pictures are to give us a picture of what the future is going to look like with sea level rise in the next how many so years that are projected to have water levels coming up. It's an interesting peek into the future at these vulnerable areas. I wanted to give you the website to learn about this event, Californiakingtides.org and if you get online you can find the local tides here and in the west Marin area, there in the morning, Bolinas bay is at about 1030 am tomorrow, and then the day after is an hour later, so get online and check those tides, you want to look for the peak high tide event, and take out your camera and we can see what is in store for us in the future, very interesting, and the pictures are online, and you can submit the online and share them. Take a look at that, californiakingtides.org. I have a book recommendation of the month, while I was preparing for this show, thinking about maritime history, my favorite book for years that just has an incredible diversity of things, is called the ocean almanac. The author is Robert Hendrickson. Being a copious compendium of sea creatures, nautical lore, and legend, master mariners naval disasters, and myriad mysteries of the deep. Really a great book that has so many little short snippets of stories associated with the ocean, some are natural science some of them are human and history, really cool book called the ocean almanac by Robert Hendrickson. So check it out!

We also have two events coming up in march, and the annual san Francisco ocean film festival is coming up march 8-11th, at the bay theatre, pier 39, and the wonderful series of films that will be on display over the weekend and their always really neat and creative and there's really no other way to view these films because many of them are premiered at this festival, some are online, but check it out. Oceanfilmfest.org and the films that will be at the festival are all online now so you can take a look at the schedule and see when things are playing and make your plans for the San Francisco ocean film festival, oceanfilmfest.org. We are also supporting a lecture, the Cordell bank NMS foundation is working with the Cordell bank NMS to put on a local lecture, actually north in Sebastopol, just north of Point Reyes, but march 3rd, at the Sebastopol veterans hall, 7-9 o'clock, it's a free event, Superintendent Dan Howard will talk about the migratory journeys of several animals that come from all around the pacific southern

hemisphere to northern hemisphere to feed here. Were also going to have an interesting event, I'm going to be doing a live albatross bolus dissection, the bolus is the stuff that the chick regurgitates before they fledge the nest, and unfortunately these boluses are plagued with evidence of evidence of what these birds are feeding on at sea, and its not all natural stuff, and that will be at the end of the lecture, so were going to try out something interesting there, and it would be great to see some folks come out for that. Again its march 3rd, Saturday night, 7-9 pm, at the Sebastopol veterans hall, and learn about that incredible place offshore here and what are some stories it has to tell. You can learn a little more about that at the Cordell bank website Cordellbank.noaa.gov, if you want to remember that information. Were going to go back to some music for a little bit, then well have Jim on the line and go back to the beginning of what we introduced and talking about some maritime heritage along our coast. Thanks for staying with us, we are on KWMR, this is Ocean Currents.

Today were diving in to some maritime history, and today's guest is a world renowned marine archaeologist with accomplishments too long to list here, he has participated in shipwreck expeditions around the world including exploration of the titanic, and its rescue ship the Carpathia, several historic military wrecks, and locally, excavations of ships and collapsed buildings along the now buried waterfront of SF from the gold rush era. He's the author of several publications including a local assessment of shipwrecks and submerged cultural resources in the gulf of the Farallones and Point Reyes National Seashore. He ahs held several chief titles at leading maritime and archaeological organizations around the US and I'm very honored to welcome Jim Delgado to Ocean Currents. Jim, You're live on the air!

Jim Delgado: Thank you!

Jennifer Stock: Thanks so much for joining me today, its such an honor to have you on the air when I saw you speak a couple months ago I was mind blown by the depth of information you have, so thank you for sharing it with our listeners.

Jim Delgado: My pleasure, thanks for having me on.

Jennifer Stock: So you're actually from the west coast, so you have quite a bit of local knowledge here.

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- Jim Delgado:* Well, I don't know how in-depth it is, but at least it's as deep as a shipwreck at the bottom of the sea
- Jennifer Stock:* So when did it strike you to the importance of the ocean as a shaping feature of our world as we know it today?
- Jim Delgado:* Well I have to say it started with growing up in the SF bay area, SF being this great port with such tremendous history, which was inspiration to me as a young person. And archaeology, something else that fascinated me, it wasn't too long before those two things merged together. Through that, particularly the study of lost ships and ships that were important in building the economy in the area particularly after the CA gold rush, that was what really hooked me and demonstrated the importance. I joined the National Park Service at an early age and was participating in digs on the San Francisco waterfront that showed not only the buried ships that were there but also the importance of the port, lots of cargo had been dumped in the bay, ultimately inspired me to write a few books about it but also to get my doctorate in the study of California gold rush and the maritime growth of California in the west.
- Jennifer Stock:* Amazing. You kind of coined the term maritime cultural landscape and this is something you've been working on with the NMS program, can you tell us a little but about this and the current work surrounding it?
- Jim Delgado:* Maritime Cultural Landscape is the idea that came out of Scandinavia more than a few decades ago, a researcher who had been working quite a bit on various (?) looked and said look, there's more than shipwrecks, people lived in these areas, they used these areas, particularly in Viking times, they hauled the boats out, built the boats, had villages and communities, they navigated with this point of land and that, in other words they knew the area. It was more than just a ship, there's an entire landscape on the water and on the coast that these people knew and lived in and so I'm going to call that a maritime cultural landscape and today archaeologists around the world use the MCL as a means by which they can really grapple with the bigger issue of how we relate to the ocean and how the ocean helps shape us. So with NMS its the concept that's just beginning to be used, the idea being that culture is the story of us, it's the story of us and our relationships, the story of the environment and us, how we relate to that environment, how that environment relates to us and how it shapes us, so in particular looking at MCL and Marin county and Sonoma coast area, wed be looking not only at shipwrecks but at lighthouses, live saving
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stations, those spots on the coasts where people lived and farmed, hauled goods down to the water, loaded them on a small schooner and sent them in to San Francisco. We'd be looking at areas in the dog hole ports where schooners would used to back up and with a long high wire would load their lumber to then send to San Francisco for processing at a mill. Wed be looking at fishing camps, also at fishing grounds where people worked and lived, and even names on the land, from the earliest names be they Pomo, or post-Miwok, to the Spanish names, to names of various other groups given to a spot of land or a piece of the water.

Jennifer Stock:

Going back to history, there's an exercise I have done with students before, looking with their first relationship with the ocean that we know of, it goes back to 4000 BCE with Egyptians building the first sailing ships, and I'm wondering from your knowledge maybe you know something maybe theirs even earlier experience and knowledge of this first contact with the sea. How did they decide to conquer this in such an incredibly environment? I'm curious what your thoughts are on that in terms of the early early contact with the ocean.

Jim Delgado:

I think that we related to the ocean from the very beginning. I don't think that our ancestors were necessarily afraid of the ocean, I think they were respectful of the ocean, if you're a seagoing person, you'd begin to appreciate that the ocean is not a barrier, it's a means by which we can move, a highway, and there's evidence, now, very indirect evidence now, that people were taking to the water long before the first ships were supposedly built. Human beings were crossing bodies of water to populate Australia for example, tens of thousands of years ago. We know that thousands of years ago, long before Egyptians were taking to water, people spread out from Southeast Asia to what today is Polynesia. As to whether or not those ships were big, fancy vessels, probably not but if you consider the most successful vessels and the most successful voyagers, the Polynesians, those canoes were not huge some could be large but they were not huge, they are not massive wooden ships, like the gigantic five masted sailing schooner on the east coast along Maine in the 1890's. Still, the sophisticated craft required innate knowledge by those early seafarers of how to work with wind and tides and weather. In that, those Polynesians covered the biggest body of water in the world and settled it, carrying not only themselves as explorers but women, children, animals and plants some of which were not very resistant to salt spray, like taro, so in that, we begin to realize that we don't have direct archaeological evidence, we do have this sense from the way people were spread out and the archaeological evidence on land

that human beings for a very long time have taken to the water and have built craft of some sort to get there and to get back. In the Mediterranean off the coast of Greece there is a cave called () and it shows that at least in terms of people having come there and having harvested the obsidian that it had and taking it back to the mainland, people were voyaging there 9000 years ago.

Jennifer Stock:

Wow. How about here in California? What is the earliest evidence we have of people living on the coast here in CA or discovering it?

Jim Delgado:

The earliest evidence of people in California goes back and it gets debated quite a bit but it goes back several thousand years. Bear in mind that much of California as we know it is not California that these people know. Increasingly we're gaining new evidence not just of the fact that people were coming here early, but that they were following the coast, there's some provocative signs at archaeological sites, at the Channel Islands for example has levels that go down well below sea level, and of course that would be the case because during the last ice age and during the last glacial maximum, the coast of California extended much further out. In areas off Marin, say Cordell bank, Gulf of the Faralones, that was dry land 18000 years ago, and it was only with the end of the ice age and rise of the oceans that the areas began to flood. If you look at some of the models of the flooding say for san Francisco bay, you would see that its not more than say 15000 years ago that San Francisco bay begins to take its shape, that this progression of flooding has not only marched up the coast past the coastal mountains, the Faralones, but it flooded the central valley, flooded the bay, has retreated a bit, then finally about 2000 years ago things begin to look the way they are. So what would follow that archaeological evidence of the first Californians might not be all the way up and at some of these other sites might be underwater, a couple hundred feet down. And that is another area we are very interested in looking at, because just as if the case on the east coast, where they are beginning to find evidence of people going back that far, I think we are going to find evidence of early people on the coast of California, but of course in the water.

Jennifer Stock:

It must be a really tough place to study just because this is such an energetically active part of the pacific, and you were saying a couple hundred feet deep, do you mean under the surface of the sand or under the surface of the water?

Jim Delgado:

I mean under the surface of the water, and where we're looking at in the case in some of these sites on the east coast, that the progression of flooding is gradual enough that some of the

archaeological evidence can survive. That doesn't mean that they survive everywhere, because of course this is an active coast, just as its active on the east coast, but what were seeing elsewhere around the world, particularly on the coast of Europe, is that things are surviving inundation. Half of Europe that once was is underwater, and archaeologists are finding evidence of survival in those areas as well. So, how do we find prehistoric sites underwater off the coast of California? By mapping and carefully doing the survey work that we do, we begin to see what that landscape might have looked like, then using predictive modeling that is, where would people have gone, where would they have settled, where would they have sited a place that they would have returned to again and again, prehistoric archaeologists do that in California all the time, now we need to take those models and start looking at the bottom of the sea at those areas that one, would have been ideal for people to use and live in 10000 years ago, but also that might have survived ocean currents and of course the ongoing activities that we continue to do like dredging and dumping.

Jennifer Stock:

For those of you tuning in, I'm talking with Dr Jim Delgado, Jim is the director of maritime heritage of the national marine sanctuaries, part of NOAA, and is a marine archaeologist. I'm curious, are there specific areas in our region here off of point Reyes, Marin and Sonoma that are target areas where you really think there might be something there?

Jim Delgado:

Well the coast was, of course, right around Cordell Bank, and right around the Faralones, and I think on that coast in particular at the mouths of rivers, might be a spot where we might find it. So directly off the Farallones yeah for sure, and there's also something as big and as prominent as Cordell Bank as a huge bluff, with all the boulders at the base of it, might have been an ideal spot as well, particularly if people in the early years were mammoth hunting. One of the things we know from sites in Europe is that there were areas like Cordell bank where people were hunting mammoth or mastodons, and they would hunt these animals, herd them and drive them off the cliff. It would be fascinating to go down there and see, do a little excavation at the bottom of the base of Cordell bank, and start finding mammoth or mastodon bones or perhaps a stone point or two. That's the type of thing we need to start thinking about, its not that fantastic if you begin to consider that people were here, hunting, and moving across this landscape, and they definitely were moving by water along the coast, so why not, in one of these places, why not find direct evidence of people having been here.

Jennifer Stock: Its amazing, it really gets your imagination stirring, I know there's a place along the Sonoma coast where they believe there's rock that has rubbings where mammoths have rubbed the rock a certain way just from you know, how a dog rubs themselves against a couch, that the mammoths did this same things against the rocks, I wanted to see these rocks, its amazing, and my mind just started stirring, like, really?

Jim Delgado: Well absolutely, so who's to say that with that site, which is a well known and rather exciting site, who's to say there aren't other rocks like that or other areas that are now underwater. If there's been more ice melting, there's whole sections of the coast that would be underwater now, so what's the difference? You know? Whether it's dry now, wet now, dry then, people, animals, they're all going to be interacting there, and that evidence is not going to go away just because its been submerged.

Jennifer Stock: Interesting. Lets talk about some of the wrecks that are in our area, excuse me, you wrote a extensive report some years ago that shows this coastline dotted with different wrecks, what's one that stands out in your mind as an interesting story?

Jim Delgado: Well there's a number, I mean first off lets just start out with the fact that all of these wrecks and there are more than 50 wrecks just off the Marin coast in the waters of say Point Reyes National Seashore, Point Reyes of course has a number of those, Gulf of the Faralones National Marine Sanctuary, Cordell Bank, I think has the potential for some, then of course in state waters, those wrecks really reflect a couple things, one that everybody was lining up to get into the golden gate because San Francisco was this great port, and like any spot on the road, just consider golden gate as a bad intersection that you still have to use to get off the freeway. The big ocean is the freeway but now you have to thread this narrow little spot to get on to the off ramp. Where do an awful lot of wrecks happen when you're driving in a car? On the on-ramps and on the off ramps. Well that's what the golden gate is, and that's why you have these wrecks happening. Factor in fog, storms, human error, and you begin to see ships starting to pile up. You also have an active coastal trade, and people forget that in the early days, and all through the early part of the 20th century, well practically up to the depression, people used this coast actively going up and down at first in sailing ships and then in steamers that carried folks far and wide. The train was one way to go but a lot of folks used steam schooners that were actively and heavily involved in carrying not only people but primarily in the lumber trade. So some of the favorite wrecks, well, some of them for me are those

work a day boats. One that I worked on years ago that was an interesting one was a steam schooner "Pomo" and the "Pomo", well, had a long career built for this coastal trade, she ended up wrecking on the beach just off of drakes beach and close to the Limantour spit in 1913, and the Pomo wouldn't have been famous, its really not famous, but for me what made it important was the fact that this ship was so representative of these schooners that went back and forth, Pomo ended up spreading her bones over 2 miles of the beach, and every now and then occasionally those bones emerge from the sand, as well so too does the steam engine of the Pomo, and depending on how the spit migrates and shifts with the winter, sometimes you can walk out and practically stand on the engine of the Pomo, and at other times like we did when we first started working on it in the 1980s, you can dive on it. So Pomo's one of my favorites, because it is such a work a day regular ship. Another one of my favorites is a little farther south, and it is the wreck of the Tennessee and its wrecked at Tennessee cove, actually in the waters of the golden gate national recreation area. Tennessee was a gold rush steam ship that carried passengers between Panama and San Francisco from 1850-1853, and in March 1853 while trying to go into the golden gate, the captain missed in thick fog and ended up grounding on the rocks and then pushed the ship further into the tiny little sand beach there at Tennessee cove. The ship rocked back and forth, people thought for sure that they would all be killed, but the crew managed to beach her steady, and then everybody with lines and boats got off and left Tennessee to disintegrate in the surf while they camped out in huge tents made from the ships sails while folks came over land from San Francisco and took everybody back to Sausalito and then by ship to the mainland. You can take a look at another wreck, like the clipper ship Sea Nymph, which was involved in early trade; these clippers were fast, sleek ships. In 1861 the Sea Nymph missed the coast, she was lining up and she crashed ashore not at san Francisco but right at 10-mile beach in Point Reyes, grounded and remained there and gradually sanded in and disappeared. An interesting thing, a few weeks back we were going through the early records of the US coast survey, and there on the map that they had charted 10-mile beach, you could actually see the outline of this ship, and there in pencil, and then covering it with pen, the Coast Survey had written "Sea Nymph". So we know exactly where, accurately surveyed and measured by this coast surveyor, where the Sea Nymph was. Many wrecks like that going all the way from the gold rush on to more modern periods, the wreck "the oxford" in 1852 actually is wrecked at the mouth of Tomales Bay, the captain having not been here before and trying to come to California during the gold rush, thought that Tomales Bay was San Francisco

bay, and the entrance to Tomales was the golden gate, boy was he surprised.

Jennifer Stock:

That's amazing. Folks, listening, this is KWMR, you're listening to Ocean Currents, I have guest Dr Jim Delgado on the air here talking about some maritime heritage on our coasts. We also had a very active whaling station here in San Francisco, that really surprises folks, all the way up to the 70's, and tell me a little bit about the whaling station, was this a prominent whaling station in terms of the trade of whale oil, what they were after from the blubber?

Jim Delgado:

Whaling is Americas first major industry; it's an industry that defined us as the United States, going back from colonial times and on through the 19th century. Of course, if you think about it, that industry was important because it was whale oil that lit lamps and illuminated not only houses but also was responsible for oiling machinery, that whaling oil spawned fleets that sailed out at first on the east coast of the Atlantic to the shores of Africa, and then into the pacific in the early 19th century, it was whaling that introduced us to Hawaii, it was whaling that brought us to the arctic, and it was whaling that defined us as a great sea-going nation up to the civil war. The civil war was a time when whaling began to take a big hit, not only were confederate raiders on the high seas burning and destroying American whaling ships including a number on the pacific, but we were beginning to see the rise of a new industry, an industry that had begun in the late 1850's, and that of course was the petroleum industry. Ultimately petroleum would become king, but whaling would persist up until the early 20th century. As a result of the importance of the pacific though, after the civil war San Francisco became the great whaling port of America, no longer would it be New Bedford or Nantucket, no it would be San Francisco. And San Francisco whalers not only worked in the pacific but a number worked in the arctic. Ultimately what happed was that the industry began to die out sending large ships out really didn't work anymore, and so shore whaling became a big activity, and shore whaling meant you just had small boats that would go out, you would hunt hales off the coast, bring them down, and haul the whale carcass to the beach and process them. So one of the last spots where this happened on the California coast is pretty close to San Pablo bay on the San Francisco bay is the Richmond whaling station. It closed down decades ago, remained standing until it burned in the early 90's, and that station which is right at point San Pablo, is a real landmark and reminder of just what we did as a nation and

interestingly enough, that San Pablo point whaling station was the last operable shore whaling station in the United States.

Jennifer Stock: Really went to the latest time. Was that the marine mammal protection act that really ended whaling or was it just that they over harvest?

Jim Delgado: I think that what really did it was of course the laws, everything that started saying wait a minute, you can't be doing that, and of course as a nation we have stepped away from whaling

Jennifer Stock: But it still happens, unfortunately, in some other countries. I think whaling is one of those stories, really, that is something to learn from, you know we talk a lot about learning form the past to present and looking at our future in terms of managing out natural resources, and whaling and seals we really kind of went overboard really quickly and decimated these populations to extinction,

Jim Delgado: Absolutely, and then that is one of the reasons why we study this, is there are many resources that were extracted early on in our history, and by the better understanding the history of how we extracted resources, sometimes very detrimentally, I think that helps inform us as we look to the future.

Jennifer Stock: So thinking about that concept, because I think it's a wonderful one where we can look at the past, how do the decision makers of today and the different agencies presented the information in terms of making relative decisions today based on the past?

Jim Delgado: Well, I think that for somebody like NMS, where we go is we actively study the history, and we looked at that, and with maritime landscapes in particular, we look at various aspects of history, and were not looking at the history like hmm, that's bad history and that's good history, we take a very level look at it, record every aspect of it, and make sure that that's there for people to see and to tap into as decisions are made. I think what's important is one persons history is not another persons history. In that, you will have say as simple as names on a landscape. We often times put names on landscapes to possess them or own them. Certainly early explorers did, that's why you would have someone like Sir Francis Drake coming into the Marin coast, nailing up a piece of brass, and claiming this entire area of Nova Albion for Queen Elizabeth. That's why you have Spanish explorers coming here, leaving their names on the land and mapping and charting it, and that's why the US comes along and we also put our own names on spots, so that the Punta de Cantil Blanco at the entrance to San Francisco bay

will ultimately become fort point, whereas other older names sometimes do survive, so that the Punta de los Tres Reyes becomes Point Reyes. But, more often than not, old names disappear. So what we do in reflecting that past, particularly in maritime landscape, is record all of them. And they're all equal so people can look at them, see them and say okay, as names have changed over time, I get why those names have changed, but yet when picking or referring to something with all of those names, were not letting one overpower or stamp out another. And that's really important, particularly if those are the original names that the first people gave them, or if they are the names that early explorers gave them, or if they are the names that people of an area get to know something by, and relate to it because its important to them. In the case of studying something like whaling, I think its important to look at the records, look at how those populations were accessed, how many whales were being killed, what we were doing, and with that I think we being to get real demonstrable facts that show you just how when you look at the detailed records how you can be hunting whales beyond the point of sustainability. Bear in mind that some of this history is very recent, that Richmond shore whaling station opened in 1956 and lasted until 1971, and what they were doing is going out there every year and harvesting about 175 whales, usually finbacks, humpbacks and sperm whales by going off the coast and going into the migrational routes, shooting these whales, and towing them in, pulling them up on a ramp and then butchering them. We don't do that anymore, but at the time these guys were doing something that was part of their job, something that brought food to the family table, and so while we know differently know, that we shouldn't be saying "no, that's bad history" no. Its history, important history, something we do need to remember, and that history directly relates to those waters off the Marin coast because that where these guys were headed. Its something we look at and say okay, its an important part of their history and this is what they did, but I don't think now knowing what we know, that we would be going out and doing this in the migratory routes for humpbacks.

Jennifer Stock:

Yeah I think the best sardine fishery in Monterey is another example of that, you know it was a boom and bust fishery, heavily harvested, really boomed, the area down there and then disappeared, and now it's a well managed fishery and they know more about how the fishery works in terms of there's good years and not so good years and how do you sustainable harvest the species now, and I'm thinking that's another good story that's relevant to how we manage today.

Jim Delgado: Exactly.

Jennifer Stock: So one of the things I think about a lot is that some of this history is incredible because its only known because its written down in logbooks, or articles in the paper, and I'm imagining mining this information is incredibly difficult, and today our communication is incredibly different, digital, electronic, and I imagine at some point, how are we going to have this information that we have in our current age of day, how is that going to be preserved in the future? How are people going to be able to look back on our current day?

Jim Delgado: Well one thing I guess is that were always thinking that at some level now that the internet is with us, its going to be with us, and one of the ways we access that older history now, is that so much of it has been digitized and so much of it is on the internet. From old newspapers, to records, to photographs, it's amazing each year as I go and log in and start searching for things that people put on the web, how much of that early history is accessible. So on the premise that the Internet in some way shape or form is going to be with us. Not only are we taking the earlier records and the research were doing and putting it online, but we are also mining the Internet for the work that has been done. A fair amount of what were looking at now and bringing together as we do maritime cultural landscape study off of California coast is going to be accessible on the Internet. And just log in and watch, as more of it comes online.

Jennifer Stock: You're pretty confident that the Internet will be around for a long time, huh?

Jim Delgado: Well, if the Internet, there'll be some version of the Internet, consider how much it has become part of our lives, how ubiquitous it is.

Jennifer Stock: Its just interesting, when I've been on ships, they still do paper logs here and there you know to mark down the date and time of certain events happening, and I always reflect back on why we still do paper logs on boats,

Jim Delgado: Well I don't know, I do love paper, obviously I'm a historian as well as an archaeologist, paper does last, and I've certainly seen it last, even on shipwrecks. So absolutely do love it, but I understand and appreciate the power of the Internet.

Jennifer Stock: Yeah it's really great for sharing. Tell me a little bit about an excavation you did in San Francisco under an area that had been built up and you went and did an excavation for a shipwreck that was from way before the area had been developed, and where is this exact area? Its downtown San Francisco somewhere, but you were involved in the excavation of this ship?

Jim Delgado: well, going back to the 1970's, I've been lucky enough to participate in a series of digs with a group of friends who do archaeological work in downtown san Francisco. A great deal of that work is done by Allen Pastron who has a private firm called Archeo-Tec, and Allen for decades has been the guy you call, and as well as another fellow Jim Allen, who also works for another company William-self associates, and any time you downtown construction in san Francisco, under California law and sometimes federal law, is to go in and make sure you're not going to go in and disturb something that's archaeologically significant. We aren't talking about someone's rusty old bicycle they left 100 years ago, more often then not were talking about some very early things, early traces of the first people that lived here, sites that are thousands of years old, a burial ground, habitation sites from several thousand years ago that lay beneath the Moscone center, for example, is one of those sites, or a tent building that had been knocked down and buried where miners had lived in San Francisco until 1851, next to a pre-fabricated house that had been shipped out in the gold rush, that the excavation revealed, had probably been used not necessarily by a family, but by a large group of women who seemed to have a lot of male visitors. There was another place that was excavated, this is what you're specifically talking about, which was not a ship that had been wrecked but rather a ship that had been pulled in and turned into a building because San Francisco during the gold rush had a shortage of houses and warehouses with all these ships arriving, all these cargoes, you needed a place to store it, so with more than 500 vessels that lay idle on the waterfront because the crews had gone off to the gold fields, it was simple enough to take a ship, pull the masts out, pull it up onto the mud flats, and turn it into a floating, or sometimes a hulk in the mud, and use it as a warehouse, or a hotel, or the town jail. And so with Allen Pastron I've been able to work on a few digs, but most recently was in 2001 where I joined Allen's crew and we helped excavate the ship General Harrison, ship built in Newbury port Massachusetts in 1840 which had arrived in san Francisco in February 1850, and by may of 1850 had been converted to a huge warehouse by Edward and Etting Mickle, two young guys from Baltimore who had settled in Valparaiso Chile, who had come to San Francisco to make their fortune as

commission merchants, what that means is ships would arrive, they would step on board, they would buy part of the cargo, and they would offload it into the General Harrison. The General Harrison was not only a warehouse, but also an auction house. And various merchants would come in, and Mickle would hold the cargo in the ship for a while because certainly if you have a large number of shovels, shall we say, and ten other ships arrived with shovels, well the price was not going to be very high. So you would wait until shovels were needed, and there were none other in town, and then Mickle would have an auction and say what is my bid here for these fine shovels? Sold, and off they go. That's the kind of market San Francisco was, and the General Harrison was an important part of it, but it only lasted for a year, because on May 4th 1851 the entire waterfront burned in one of San Francisco's frequent gold rush fires. And yet the fire went out, as the ship burned to the waterline. So what we did with that dig was not only uncover the entire bottom of the hull, but also the cargo that had been hauled out half-burned and thrown into the bay as the local Chinese had worked, tried to salvage the ship's copper and other metal fittings. That cargo included well preserved things, like clothing, boots, bags of beans, barley, wine that was certainly intact, though certainly not drinkable, as well as stout porter ale, building supplies, in short everything that Mickle had put into that ship we found some trace of, and that reflected not only its use as a warehouse, but the broad range of where things came from. We were able to ultimately reconstruct a global network of supply that Mickle had relied on, not only to help make his business go, but that type of network was responsible for making San Francisco this port, a port that would long survive the vagaries of the gold rush and the bust and boom economy, to become the modern city that it ultimately is.

Jennifer Stock:

Wow, that's incredible. Is there a place to observe these artifacts? Are they saved, or on display?

Jim Delgado:

There's a number of places where you can see some of them, still processing those finds but just now, just this week, I believe, San Francisco maritime national historic park in downtown San Francisco is opening up a new part of their visitor center which includes an area where you can see some of the artifacts and things from the buried ships. That is right at Fisherman's Wharf, next to Hyde Street Pier, their visitor center is a beautiful spot and you can walk through and actually see various stages of San Francisco's history including that section, with lots of pictures of the excavations.

Jennifer Stock: Excellent, that's actually an incredible treasure we have here as the national park goes and it's a great location, I love going down there, I hope lots of people will go down there and walk the ships getting the perspective of the bay, and the changes over time, its really exciting. But that's great, those things are on display and people can see them. What's involved? We have about five minutes left, what's involved with preserving artifacts that are found like that in an excavation?

Jim Delgado: Well everything that comes out of the ground that's been wet and particularly things that have come out of the ocean require what we call conservation. That means, if you take it home, it's going to fall apart. So what we have to do is we have to treat them. We have to take salt from water and extract it from the artifacts or it begins to splinter and fall apart, if something's completely waterlogged we have to drive the water out, but because the wood has changed chemically, that wood will ultimately collapse unless we fill the partially collapsed cells of the wood with something that holds it together, in that circumstance we generally use a water-soluble wax called polyethylene glycol. Were also cleaning things, sorting them out, analyzing them in a laboratory, see a scientific approach to everything we find because sometimes a charred bag of beans can tell you a great deal, and in the case with General Harrison, the chili beans that we found, guess where they came from? Chile itself.

Jennifer Stock: Appropriately named I guess.

Jim Delgado: Indeed. And in the case of the wine, there were no labels left, but an analysis done by folks in Sonoma, thank goodness, we found wine in California with all those great folks in the wine industry, were able to identify it as a variety of very nice white wine, potentially a chardonnay, the style of the bottles and some of the surviving DNA suggested that it came from France, so what we like to think is that perhaps what we had there was a very nice burgundy styled chardonnay, perhaps a merlot, or a (?), something nice and buttery to delight the pallet of somebody in gold rush san Francisco. Interestingly enough, the taste of the times was generally for sweeter wines, Rieslings and (?) were very popular, we saw a lot of that stuff generally in our digs, but usually as empties, so perhaps these cases of these chardonnay suggested that while a very nice wine and one that we'd like today, well, maybe it wasn't selling that well and that why it was still in storage in the ship.

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- Jennifer Stock:* Interesting, wow. We just have a couple minutes left, and I'm just curious if there's any books you'd recommend for people to learn more about some of this history of our area, the gold rush era, and the Marin and Sonoma area.
- Jim Delgado:* There are a number of books, some of my favorites, and I hope their still in print, are books by the late Jack Mason of point Reyes, that documented the history of the Marin coast and the Marin communities. Jack Mason's book particularly point Reyes and his book on the Olema valley, wonderful wonderful books. I'd be remiss of course if I didn't plug a few of my own, a book that's still in print if you can get it, is Shipwrecks of the Golden Gate, that we were able to work on with Steve Haller, now the park is storing for the Golden Gate National Recreation Area, and there's also a few books that we did including a very detailed and scholarly one while digging downtown San Francisco called Gold Rush Port, Maritime archaeology of the San Francisco waterfront, that University of California press published. And also my favorite book about a shipwreck from the California coast, Tom Layton's book on the voyage of the frolic, opium clipper turned California trader from china, that wrecked on the coast near Mendocino, Tom Layton found the remains of that wreck and the remains of the Shia- Pomo camp, people had salvaged the wreck in the 1850, and that became an incredible journey in which ultimately Layton went back to the wreck itself and learned a lot about not only the vessel but how in time this ship had influenced many many people, many many cultures. So the Voyage of the Frolic is another book I'd recommend.
- Jennifer Stock:* Wonderful, thank you so much! Jim Delgado, this has been a very fast interview, there's so much to discover about our past here, thank you for joining us today on Ocean Currents and sharing some of this history, I think its something to think about is that these are non-renewable resources, and we think about managing our natural resources, these are not renewable, these stories. And I really appreciate you working so hard to keep these things alive, to help us forecast for the future.
- Jim Delgado:* Thank you for sharing them.
- Jennifer Stock:* Thank you so much. Well, Thanks again, were going to sign off here and well hopefully talk to you again!
- Jim Delgado:* I look forward to it.
- Jennifer Stock:* Well thanks again.
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Jim Delgado: Bye Bye

Jennifer Stock: We've just been talking with Dr. Jim Delgado who's the director of the maritime and heritage program of our national marine sanctuaries, part of our NOAA, and a wealth of knowledge of maritime history with lots of detail, Jim recommended three books, Shipwrecks of the Golden Gate, Gold Rush Port, and Tom Layton's Voyage of the Frolic. I bet that Jack Mason museum in Inverness would have the books written by the late Jack Mason, Point Reyes and Olema Valley so you can check those out here locally. It's very interesting to think about the maritime heritage here on our coast. I'm going to take a quick break before we wrap up the show, so we'll be back in just a minute.

Thank you for tuning into Ocean Currents, Ocean Currents is the first Monday of every month, its part of the West Marin Matters series, and each of my shows that I've done over the last 5 years are all saved as a podcast on the Cordell Bank National Marine Sanctuary webpage, you'll be able to click on the KWMR webpage too to get an archive of this for a while, but to catch up on shows for the last 5 years you can go to cordellbank.noaa@gov, and here are the past shows we've done on Ocean Currents. You can also subscribe to the podcast there, and next month I'll be back and I'm still working on scheduling up some interviews, I'm trying to get somebody to talk about this path of tsunami debris, so I'm hoping to bring that to us on Ocean Currents next month or in April so stay tuned for that and stay posted on what's happening. Check out those King Tides the next few days, and if you can upload those pictures the CaliforniaKingtides.org. Thanks for tuning in again to Ocean Currents, this is Jennifer Stock on KWMR, I'm going to sign off, have a great afternoon.