

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

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Welcome to another edition of Ocean Currents. I'm your host, Jennifer Stock. On this show, we talk with scientists, educators, fishermen, explorers, policymakers, ocean enthusiasts, kids, authors, 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 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. Just offshore of the KWMR listening area on the West Marin coast are the Greater Farallones and Cordell Bank National Marine Sanctuaries, which together protect 4,581 square miles of rocky shorelines, sandy sea floors, rocky banks, deep sea canyons, and maritime artifacts.

Fall is definitely here, and our at sea monitoring collaboration with the two sanctuaries along with Point Blue Conservation Science. We're out at sea this past week completing the third monitoring effort of the year including documenting mammals and seabirds along with prey items like krill. There's some whales around still as well as krill, large and small, as well as lots of seabirds around. This data is so important to keep a pulse on the marine life that is out in the marine sanctuaries, and it generates really important information for the management, which is so important for the long term conservation of these incredibly rich habitats and species that utilize or live in these national marine sanctuaries. If you want to catch up to highlights of photos and what's been happening most recently with the Access Program, you can keep an eye on it by visiting the Access Oceans Facebook page, which is Access Oceans on Facebook as well as their website accessoceans.org.

I have two guests calling in today, and we're focusing on marine debris again. The International Coastal Cleanup day just recently passed where thousands of folks took to waterways and beaches to pick up debris and remove it from watersheds and shorelines. Thank you to all of you that participated in helping to collect and document litter on the coastline. One thing I've seen over time is the locations for cleanups have increased inland. This is really good news as awareness increases that the majority of debris that

ends up on the shores originates inland. Marine debris continues to be a growing global problem for ocean life, food webs, and humans with more and more science revealing the types, sources, and solutions.

Just a few weeks ago, another massive effort launched out of San Francisco to attempt to remove large amounts of plastic from the accumulation zone in the Pacific known as the Great Pacific Garbage Patch between California and Hawaii. The project known as the Ocean Cleanup originated in 2013 when a 16 year old boy named Boyan Slat was inspired to find a solution to cleaning trash out of the ocean. Over the last five years of planning, engineering, and prototyping that took place, recently, the first effort left San Francisco Bay and headed out to the gyre region between California and Hawaii. The project claims it can clean up 50% of the concentrated debris in the gyre in five years.

My guest today is going to help talk about this as well as a lot of the other solutions that are in the works with the research and science that's happening globally. I have with me on the air Dr. Denise Hardesty, the principal research scientist team leader with Commonwealth Scientific Industrial Research Organization - Oceans and Atmosphere division, also known as CSIRO. They are out of Australia.

Then, later on in the show, an environmental attorney Lisa Kaas Boyle will be calling in to talk about the recent straw law that California passed. We're talking all marine debris today. Dr. Denise Hardesty, I want to welcome you to Ocean Currents! You're live on the air.

Denise Hardesty: Thank you. It's great to be here.

Jennifer Stock: I wanted to hear what your thoughts are about the merits of this Ocean Cleanup.

Denise Hardesty: I think one of the great things that the Ocean Cleanup project has done is really to help increase the awareness of this issue. I think that's a really important thing. I do think, however, that you really couldn't get any further down the end of pipe in terms of looking at solutions or helping to resolve the issue. I mean literally, you couldn't get further than saying, "Okay, we're going to go out into the garbage patches," which is where the trash is going to be oldest, smallest, most broken up, most diffuse or dispersed throughout the ocean than to go out into the middle of the ocean. If we really want to resolve this issue, I think we need to be doing

things that are frankly a lot less sexy. We need to be doing things closer to the source, stopping it from getting out there in the first place, putting rubbish traps or trash traps at river mouth, and those sorts of things rather than going out as far away as possible to try to clean it up where it's going to have a lot more biological contamination. It's going to be a lot smaller. It's just a much bigger issue to try to clean it up out there. It's more expensive, and it has a lot. It really has the biggest carbon footprint, you could possibly get.

Jennifer Stock: One of the plans from the project was to bring the extracted plastic back to shore to recycle, and boy, I think we're having quite an issue with recycling in the United States these days. On top of that is the persistent organic pollutants that attach to these plastics. How does that go through a recycling process?

Denise Hardesty: Some of the chemicals that are on the surface of the plastics actually stored into the ocean itself. If you think about osmosis back to when you were in primary school and thinking about things, it's reaching that equilibrium point. What you're going to have happen is some of the chemicals that are absorbed onto the plastics in the production phase. Those are going to become at equilibrium with the seawater around them. At the same time, some of the plastics will absorb different environmental contaminants onto the surface of them.

If they're in an area of heavy metal, you may see increased heavy metal concentration on the surface of those plastics, and then, that needs to be cleaned off in the recycling because the other thing and perhaps even a bigger issue is by the time the plastics get out there into the middle of the ocean, they're actually not new. They don't look like plastic drink bottles, bleach containers, beach chairs, or mattress protectors, or toothbrushes that made their way out there broken into little pieces. That also means that there may be "hitchhikers," we call them. There may be biofilms, there may be invasive species that have attached onto the surface of these plastics, and all those things make it a bit trickier. It makes recycling more expensive and more difficult. You say, "Hey wait, recycling is also becoming a big issue in the United States." Has it really become a bigger issue, or is it that China has closed the door and we're not going to take all the stuff from the United States anymore, which is forcing us to have to deal with those issues a bit closer to home than how we had to do it before.

Jennifer Stock: Lots of things to think about there. In terms of the amount that the Ocean Cleanup was attempting or claiming they would catch up.

Evan Schwartz from the California Coastal Commission shared with me the recent statistics of the recent California Coastal Cleanup, which is a one day event. Actually, it's half a day. This year, 60,200 volunteers across 55 counties out of 58, cleaned up about 575,000 pounds of trash in three hours. That's about six times the amount of trash this project was hoping to clean up in the next six months. That puts in perspective to me about how much they're attempting to get out there. I think it'll be very interesting to see what happens. I think that there'll be more attention on it, which is good, but I'm hoping that we can bring more efforts back to the sources of all this debris because you can't treat a problem unless you treat the symptoms first.

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Denise Hardesty: I absolutely agree. The thing that Evan hasn't had going for him in quite the same way is the same sort of media house behind him generating awareness about the fantastic efforts that he was leading with his volunteers. The other important thing about stopping that trash from getting out there into the ocean is it in the ocean is where it's impacting the wildlife, and that's one of the things that many people here really care about. We don't want to have our sea lions with fishing nets tangled around them. We don't want to have our seabirds eating beverage container lids. We don't want to find plastic toys in the stomachs of animals. A way to stop that impact on the animals is to stop the plastic getting out there in the ocean in the first place rather than waiting for it to have moved through the area where that wildlife diversity is, where that wildlife diversity happens along our continental shelves off the coast of California in our marine sanctuaries and beyond. You know, we want to actually stop the trash before it gets there rather than when it's out there in the middle of the ocean. These incredible efforts that volunteers around the world put into spending a few hours to be custodians at their local beach is really important. That's a great way to stop it from getting out there in the first place.

Jennifer Stock: Yeah, I should mention the numbers he gave me were actually just for California even though that was the International Coastal Cleanup. 575,000 just in California, which is amazing.

Denise Hardesty: California alone, and it shows you what the public can do in terms of reducing the issue.

Jennifer Stock: I want to go to some of the other work that you have done. You were part of a study contracted by the National Oceanic and Atmospheric Administration, NOAA, and the Ocean Conservancy to better understand the issue in the United States in terms of our source of marine debris. This problem that we have... I just wanted

you to talk a little bit about what did you specifically look at for the United States and quantifying the problem, and what recommendations did you have?

Denise Hardesty:

What we did is we actually, as everybody wants to do, we go drive down the west coast of the United States from Seattle down to San Diego. Myself and a colleague did. We surveyed along the beaches and along the coastline about every hundred kilometers so about every 62 miles or so. We actually went out and collected data in surveys. We actually worked with the NOAA teams and Ocean Conservancy as well, and we went out and did some surveys with them so that we could say, "Hey, what can we learn from the various types of surveys that we do?" From clean up data from NOAA's design surveys and then from the types of quick and rapid assessments that we do at CSIRO.

Some of the things that we've found are that there's between 20 million and then basically almost 2 billion pieces of trash likely along the coastline of the United States alone. Almost 2 billion pieces of plastic, most likely, and we make that estimate based upon the data that NOAA has collected, our data, and then the kind of volunteer collected data that you were just speaking about from around the state here. The thing that we do that's a little bit different is we actually include a bit of other information. We ask how many people live in this area because there's trash in the same way without considering how many people actually live within the area. We need to actually consider how populous an area is and what's the infrastructure that's available there because that really affects how much trash ends up there. How accessible is it to people? Is it a remote beach? Is it a really common public beach where lots of people tend to go because we find that different survey methods estimate different kinds of things. That gives us different information, and we really want to start to put things together, to say, "Okay, what are the items that affect wildlife the most? What are the abundance items? What kind of trash do we find out there on our beaches along the west coast of the United States?" Then, what's the risk that some of those items actually pose to various wildlife species?

For example, we know that we don't find a lot of balloons, and we know at the same time that balloons are very harmful to wildlife. We do find a lot of hard plastic fragments, and we know that hard plastic pieces are something that we find in the stomachs of lots of seabirds and turtles and other marine mammals. We basically wanted to say, "Okay, how much do we find out there, what are some of the big ticket items that we find?" What can we do to help

reduce those issues? What are some of those recommendations that we can make here within the United States? We say okay let's put together a national synoptic picture, let's put together a survey that incorporates a few specific recommendations so that we can make sure that we're comparing apples with apples and oranges with oranges.

We also suggest to keep doing some of the cleanup because it can really tell us how effective different policies are. One of the things we were able to do with the data that had been collected for so many years was to say does cash for containers really work? I don't think it's a huge surprise, but yes, incentives do work. We find fewer beverage containers within the United States where people get five or 10 cents back for their beverage containers. Those sorts of things are really effective.

Jennifer Stock: What are some of the other recommendations for helping address those items, especially near urban centers?

Denise Hardesty: Some of the other recommendations are to really consider the socioeconomics of a place, how many people live in that area, and really try to understand what is driving the amount and types of trash that we find on our beaches. We also encourage people to just record a few extra little bits of information when they do a cleanup like don't forget to record how many people are there and how big of an area did you survey. What we find is that in areas where you have more people doing surveys, you find more trash. That does not mean that the area is dirtier. Not necessarily. It may really mean that people start to have an association for what you're aiming for. The first person goes and finds six tires, and it's like wait a minute, I can't find six tires, but that's what success looks like. I found 20 milk jugs and water bottles, so I brought those back. The next person's like, "I found six water bottles, but I found a whole bunch of polystyrene, foam from coolers." I bring that back.

We think that the more people survey an area, the more there's kind of a social goal of trying to find as much as the next person and that kind of good natured competitiveness means that we cleaned up more stuff, but that in some ways it also biases our sampling or results. We want to encourage people to please record how big an area, did you survey, how long did you spend there, and how many people helped out of this. Those sorts of things really make a big difference for us being able to make comparisons for surveys carried out in different places.

Jennifer Stock: Denise, these surveys that you're talking about, are they associated with the NOAA Marine Debris Monitoring and Assessment project? It is somewhat of a citizen science effort for monitoring the marine debris.

Denise Hardesty: We actually analyzed data from the NOAA Marine Debris Program, and NOAA actually has two different types of survey methods. One is called an accumulation survey, and one is called a standing stock survey. The difference between those two is that at one, you go and you pick stuff up, and at the other one, you actually record what's there and you leave it there so that then you can see if it is just being replaced or is it accumulating there through time. Yes, some of the work that we did actually involved us helping to analyze that important NOAA Marine Debris Program data that has been collected.

At the same time, we were making some recommendations for how you might make that survey method a bit more consistent with some of the other methods that are out there. One of the things that people can do is they can actually go to the NOAA Marine Debris website, and they can download an eight page brochure that talks about the high points of the findings from the work, recommendations, the beverage container analysis that we did. It talks about what items are most threatening to wildlife.

Jennifer Stock: Fantastic! That's marinedebris.noaa.gov. It's a very well organized website with great information on research, education, and things happening regionally regarding marine debris. Do you find that the concentrations of debris near urban centers is something consistent globally in terms of the causes and the amounts of debris found on shorelines?

Denise Hardesty: It absolutely is, Jennifer. It's one of the things that we find. If you want to look for a hotspot, go to a city. If you want to find the hotspot within that city, go to a beach that has this soft sandy beach that's concave. At the end of a little cove, in those edges, around the edges of that cove, is where you're going to find that debris. One of the other things that's really interesting that we find is everybody that you go to says, "It's not us." "It's not from us." The trash in the United States... we have really good recycling, we don't litter here in California, we're so good about it. That stuff is coming from everywhere else coming from Mexico from the south. It's coming from Oregon, Washington, although they of course take exception with that as well from the north.

What we find with our analysis, it's actually most of its really domestic and origin. Most of it is coming from us, and most of it is coming from local sources, which means that it's coming from... When there's a big rain and a flash, it's coming down stormwater drains, it's coming from people littering, it's coming from along the highways, and those sorts of areas as well. We know from other work that we've done that we find more trash in places where people are transient. We actually find more trash along the sides of highways. We find more trash in industrial areas. We find more trash...

Jennifer Stock: Where there's more people.

Denise Hardesty: Where there's more people, absolutely. Importantly, it's not just where there's more people. It's in places where people are transitioning, where they're transitory, where they're driving through, where they're doing their shopping, but it's not where they live. We find that neighborhoods, parks, and beaches are actually cleaner than industrial areas, sides of highways, and areas kind of at the back and around shopping centers. Yeah, I think that people move through those areas, the latter ones, but that they go to beaches. They go to parks, and they look after their own communities, backyards, or neighborhoods because that's where they spend time. Those are places that they go for aesthetic value. They go to places that are nice that are clean, in general, and we also know that people will drive farther to go to clean beaches, right? Nobody wants to go to a beach that's full of trash, which means that there's economic costs to communities, to cities, and to counties of having high trash loads on our beaches.

Jennifer Stock: Right. I just wanted to ask you, you were part of a study where we looked at the success of awareness campaigns versus government policies and legislation at reducing plastic waste into the marine environment. Is it an either or?

Denise Hardesty: Well, really the smartest thing to do is to spend a bit of money on coastal waste management and have awareness raising activities and campaigns in your community. It's not one or the other. It's both together, and you don't have to spend a ton of money on the legislation or on the activity side. You need to have a really nice balance where you are implementing some policies, and you are engaging with your local community to raise that local awareness of the issue.

Jennifer Stock: Excellent. So a little bit of both. The more that we are all engaged in cleanups like the California Coastal Cleanup and hearing about

local legislation, either from the cities, towns, or even our state, it helps. It's kind of a magnifying effect by working together.

Denise Hardesty: Absolutely.

Jennifer Stock: Are there any other projects you really want to share about this movement for learning about marine debris and reducing it locally and globally about what's happening?

Denise Hardesty: We're actually engaged in a large scale global project right now where we're going out and surveying and trying to put some hard numbers behind how much waste really is being mismanaged and making it out there into the marine environment. We're working in Korea, the Philippines, Bangladesh, China, South Africa, Peru, in the United States, and other places that are listed as some of those having the most significant waste mismanagement that makes its way out there into the ocean. It's a really exciting project in part because we're getting to go and work in these countries and to help train people that have already been doing really good work in these countries to collect the data. Then, we're going to be able to be building these networks of people across Southeast Asia, Africa, North America, and South America, to really be building this global community or network of people that are collecting data in the same way. It's amplifying what we're doing in the various countries. We can actually compare and learn what works well in different contexts. It's important to think about the cultural components and the waste management infrastructure of the various places that you're working. It's quite a privilege that we have here in the United States where we have clean drinking water out of our taps, at least in most places, and not everywhere in the world has that. We need to consider things in context and with what we know about the various places. It's a really exciting project.

Jennifer Stock: That's fantastic. It seems that one of the biggest issues we have with all ocean conservation projects is that international collaboration. How do we come together, and what you're describing sounds extremely helpful to bring everybody to the same page to move forward together. How did that come to be?

Denise Hardesty: There was a paper that came out that talked about 6 to 12 million metric tons of plastic going out into the ocean each year, and that was based upon some older data and was really a desktop study. We're like, okay, so we think is that right? It is about correct, we hope. We think, let's actually go out there and test that. Some of

the countries that are listed on basically like the top 20 "naughty polluters list," which the United States is on.

We're like hey wait a minute, I don't think these numbers are right. Well, let's go figure it out. Let's get out there. Let's work together to find out the answers to these questions, and then we are better able to understand not only what is our baseline level of trash going out there. The other important thing about that is then we're actually able to say, okay, as these policies are put into place, as there's change in behavior in these areas, how quickly can we see that change reflected in the amounts and types of trash that we find not only on our coastline, but along our rivers and in the inland or upland areas, away from the beaches as well. All that stuff ultimately can flow down into the sea.

We were approached by some philanthropic groups that said, "Hey, we want to work on this. We think this is a really important issue." As you pointed out Jennifer, it's a transboundary issue. It doesn't follow nation states, it doesn't follow political boundaries, it's really a problem that needs to be addressed locally. To address this global problem of plastic pollution, we have that opportunity. We've been working with these various NGOs, non government volunteer groups, university groups now in countries around the world, which is just a fabulous outcome.

Jennifer Stock: Denise, one last question for you. What about preventing the production of these single use plastics?

Denise Hardesty: There's a lot of work being done in that space around really reducing, in particular, single use plastics. One of the things is to actually look at having a levy or a fee associated with optics, such that we're incorporating the true cost and the true value of the plastics that we use into the economics of the plastics. That would start quite high up the chain at the manufacturing level, so that as we are making and using products that we're actually thinking about what's the cost. What's the cost of recycling? What's the true cost of recycling? How much does it cost to turn that virgin or that single use material into something else, and are we going to turn it into something that's upcycled? Is it going to become something that's downsized, or is it going to become a park bench? Is it going to become plastic decking boards, and what are some of the challenges around some of that stuff?

We're really trying to work with industry, not just me personally, but there are many groups out there to look at what are the end of life solutions, and as or more importantly, what are the

opportunities and approaches that we're going to take to reduce the reliance on so much single use plastic? Not just in the United States but in other countries, although in the United States, we use a lot more plastic on a per person basis than is used in many other countries because we're such a wealthy country.

Jennifer Stock: Well said! Thank you so much! I'm going to be continuing to follow your work to learn more about that as time goes by. It's great to hear there's so much collaboration happening. Thank you, Denise! Is there a website that you might want to refer people to for your organization?

Denise Hardesty: Sure. csiro.au/research/marinedebris, or if you just Google "CSIRO Hardesty marine debris" or just the "CSIRO marine debris," lots will come up. Thank you so much for the opportunity. It's great to talk with you and your listeners.

Jennifer Stock: Thank you so much. Enjoy the rest of your time here.

Denise Hardesty: Bye bye.

Jennifer Stock: Alright, that was Dr. Denise Hardesty of Commonwealth Scientific and Industrial Research Organization, CSIRO, out of Australia, talking about the efforts that they are engaged in with addressing marine debris on this global scale. We talked earlier a bit about the ocean cleanup that's happening and some of the challenges with that of it being effective, but we will be waiting to see how that goes and how that might bring more attention to going further upstream to stop the inflow of plastic into the ocean. We're going to take a quick break and when I come back, I'm going to have Lisa Kaas Boyle come on, who was really behind the recent straw law that was passed in California, so please stay tuned for that we'll be right back with Lisa.

(Music)

We're back! You're listening to Ocean Currents here on KWMR, and we're talking about the marine debris problem that just won't go away. Earlier, we were talking about some of the broad scale solutions and research that is happening. I am excited to bring on Lisa Kaas Boyle, who is the author behind the recent straw law in California. California became the first state to adopt plastic straw regulations. Lisa, thank you so much for joining us! You're live on the air!

- Lisa Kaas Boyle:* Oh, thank you so much Jennifer! It's wonderful to talk to you again.
- Jennifer Stock:* Yes, you were on a couple years ago! We were talking about microbeads, and you were also behind that legislation in banning the bead.
- Lisa Kaas Boyle:* Yes.
- Jennifer Stock:* You're an environmental attorney, you've been a former prosecutor, and you also now direct wetap.org, which I'd love to talk about at some point during our time here about focusing on public access to safe tap water for drinking.
- Lisa Kaas Boyle:* That's another way that I am tackling plastic pollution. Having an easily accessible public source of drinking water is the only sustainable way to stay hydrated. We all know that plastic water bottles are at the top of the polluting items of single use plastic that we have. With WeTap, we're trying to get the public back into refilling reusable bottles at hydration stations in the public venue. We're working with water agencies with the City of Los Angeles to make sure that these hydration stations are in schools, in public transport hubs, in parks, and in all public venues so that if people do need water on the go that they have a clean, non-polluting readily accessible way to get water.
- Jennifer Stock:* Fantastic! That is so important, and I'm going to check that out a bit more. I'm one of those water bottle carriers, and sometimes, I wonder, "Oh, will I be able to refill? Which bottle should I bring?"
- Lisa Kaas Boyle:* One of the great things about WeTap is we have a free app, the WeTap app that you can get on your smartphone, be able to find a fountain wherever you go, and to add to geotag new fountains when you find one.
- Jennifer Stock:* Wonderful! Tell us a bit about the straw law. This just recently passed. The governor signed it, and you, I believe, are the author of the legislation. Tell us how it came to be.
- Lisa Kaas Boyle:* Yeah, it's so exciting. Just like working with five gyres, I knew about how plastic microbeads were a major source of ocean plastic pollution and entering our food chain. I knew from my extensive work in plastic that straws are up consistently in the top 10, usually around five, six, or seven of the items most commonly found on the beach during International Coastal Cleanup Day.

I like to look to things that can be reduced or eliminated that we really don't need, where there are obvious alternatives that are more sustainable. With straws, the majority of adults don't need a straw. My husband and I go out for margaritas a lot, and we always ask for salt on the rim and no straw. Half of the time, the straw comes anyway, which is kind of a crazy thing because you want salt on your rim. You don't want a straw with salt on the rim.

I started to think this is just habitual behavior on the part of the restaurant and the servers that these straws come whether you want them or not. We have a water upon request law in California, I started thinking about that in order to conserve water. We've made it so that water doesn't automatically appear on your table. To me, it made sense to have a similar restriction with straws. You can have it, but you just have to ask for it, which isn't really an imposition on anyone. It will hopefully significantly reduce plastic straw use.

In addition, the whole educational campaign with this law has been amazing. I split my time between Nashville, my hometown, and Pacific Palisades, California for the past 30 years. It's a small coastal community, and Nashville is a landlocked much larger community. When I heard that Governor Brown signed the straw law that I proposed, I was so excited. I was sitting at a taco restaurant in Nashville. I was so excited, and I said, "Can I have a margarita, no straw?" and the waiter said, "We're no straws here, no plastic straws. We're for the turtles too." And here I'm sitting in Nashville, Tennessee, so far from the ocean. It was so wonderful. Then, the restaurant owner tells me, "Oh and by the way, we're getting paper straws printed up with our logo. It's just taking a while because they're in such demand."

Jennifer Stock: It's amazing. Do you think a lot of awareness about the plastic straws have originated around that video that was circulating with the turtle? That was amazing to me the connection there between that video and what has happened since then, as well as that great movie "Straws" that was produced actually again in California. It just seems like this video and the media is what drew people to this issue.

Lisa Kaas Boyle: I totally agree. A picture's worth a million words. I also have to give credit to Chris Jordan with his work with the albatross and his film "Albatross." Being an albatross bird, regurgitating plastic pollution into the mouths of they're young. They're trying to feed them fish, and they're feeding them plastic from the gyre is just such a shocking and profound image. In many ways, we are just

like those albatrosses. We don't realize it because we're not eating the plastic fragments directly, but our use of plastic has put these microplastics into our food chain. We're consuming them just like the birds and the fish. Yeah, I agree with you that those images are just so powerful.

Jennifer Stock: Well it is nice to see... There seems to be a wave of change happening, especially with so many alternative solutions that people that need a straw can still have a straw, especially they can have a straw that's not going to be destructive later on. It is nice to see this happening. Is there any pushback from industry for legislation like this?

Lisa Kaas Boyle: Usually there is. We didn't face much pushback with microbeads or with the straw law from industry, surprisingly. I think because there's really no defense for arguing against these laws because they're so reasonable. In the case of microbeads, these beads go directly into our water. They can't be eliminated, so sewage treatment can't keep them out of the oceans. There really wasn't any good argument for keeping them. Any step reducing plastic pollution will save some wildlife, and it's a step in the right direction to keeping plastic pollution out of our food chain.

The main players in plastic, like the American Chemistry Council, they even endorsed straws upon request as a reasonable measure because I think when it comes right down to it, even the plastics industry realizes where public opinion is going. We can all agree that plastics are good and important for some use like bike helmets, artificial limbs, cars, but when you are talking about single use items that are used for a second, then last forever, and are not recycled. They're just a one way trip to the waste dump or into our environment. It's really kind of easy to argue that there are not necessary when there are alternatives.

Jennifer Stock: This is just California where this passed. Do you have thoughts about going national with this type of legislation proposal?

Lisa Kaas Boyle: Great question! I think about that all the time. I look to create regulations that can help our more sustainable industries. Single use plastics are so destructive. We can see that from the last International Coastal Cleanup Day, for the first time, the top 10 items were all single use plastic. Glass got displaced by foam food packaging. I think it is really important to go down the list of the top polluting single use plastics and figure out sensible regulations, whether it's a reversal of the presumption of how they're provided, or in some cases, a ban of things that truly are not needed. I'm

working on coming up with good legislative solutions. I have a bunch of ideas.

Jennifer Stock: Fantastic! Well, Lisa, I want to thank you for your hard work. Can you share the name of your app again about finding top sources of water that people can refill at these stations? And also, is there a website where people can follow your work more or your social media?

Lisa Kaas Boyle: Absolutely. I would love for our listeners to check out wetap.org, and the WeTap app is available on your phone. If you want to read about my work and my articles about plastics, it's on my personal website as an attorney, which is www.lisakaasboyle.com.

Jennifer Stock: Fantastic! Well, thank you for coming on again to Ocean Currents, and congratulations on this recent law change! I'm really excited to be monitoring this as a Californian.

Lisa Kaas Boyle: Thank you so much. I can't wait to talk next year about the next law we get passed!

Jennifer Stock: Fantastic! Have a great week!

Lisa Kaas Boyle: Bye.

Jennifer Stock: We were just talking with Lisa Kaas Boyle who's the author behind the legislation in California to have straws on request only in California. Plastic straws, they're ubiquitous as we've seen them everywhere. I guarantee you walk out in the street, you will see a plastic straw somewhere or a plastic bottle cap. People like Lisa and also like Denise, are working hard to figure out how to change this, and we're involved in that too.

Check out a few of these websites: marinedebris.noaa.gov, a fantastic NOAA website about how the US is tackling marine debris, csiro.au, that is Dr. Denise Hardesty's organization, and lisakaasboyle.com and check out wetap.org, learning all about how to find areas where you can refill your water bottle with healthy tap water. We're really lucky in the United States. Actually, I think this is an international resource where you can find healthy tap water elsewhere.

I want to share also that my family got to witness the Hikianalia. The Polynesian voyaging canoe arrived in California. Actually, we didn't see it arrive in California. We got to see it coming to San Francisco. It came to Halfmoon Bay all the way across from

Hawaii 2,800 miles from the shores of Hawaii across the North Pacific to the state of California carrying a message of “malama honua,” caring for island earth. The Hikianalia is now sailing down the coast of California stopping at all the major ports. They just landed in Monterey yesterday, and you can go visit them, have a dockside tour, and learn all about the work that they're doing using traditional navigation practices and communicating about the vital need to help protect the ocean. Check them out! Their website is hokulea.com.

Ocean Currents is the first Monday of every month at the new time 11 o'clock to 12, and did you know that today is international podcast day? Who knew there was such a thing? I'm thrilled to share that this radio show Ocean Currents, which is also a podcast, was selected as 12 of the best ocean podcasts by azula.com. I love hearing from listeners so if you have topics, questions, or comments, please email me at cordellbank@noaa.gov. Thanks so much for listening! Enjoy the ocean, bay, or whatever body of water you can get into safely. This has been Ocean Currents here on community radio for West Marin KWMR. Thanks for tuning in!

(Music)

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