

Female Speaker 1: [0:00:00] We've been doing some work – we sort of been doing some work last year in Pine Island in Madeira Beach working with fishermen. And we realized that there's a lot about red tide that we don't know and we don't understand. And there's a lot that hasn't been documented...

Kevin Bellington: There's a lot of misinformation out there about red tide, I know that.

Female Speaker 1: Yeah. So essentially, this effort is red tide interviews spun off of that stakeholder work with fishermen, we're doing last year. We realized this is really, you know, high priority issue and there's a lot we don't know and it's, you know, we're hearing, it's having really devastating impact on the future. So, one of the issue is that, we don't have, you know, it takes – collects a lot data, that's mostly onshore in the red tide [overlapping conversation] [0:00:57] and there's really a lot we don't know about the offshore dynamics and inshore dynamic even with the sampling. So, we're trying to fill in on the lacks of data by interviewing fishermen at work.

Male Speaker: Okay. Well like I said, I know there's a ton of misinformation out there as far as where red tide originates, even just as to what red tide is. I mean in general, public had a real bad perception of red tide. I studied it for 20 years now. And I hope I've got a grasp on it, I mean as far as what it is, where it starts or how it grows. I don't know some of the contributing factors into what makes one bloom so much more devastating than another. And that's where – what I think I would like to [0:02:00] find out.

Female Speaker 1: Okay.

Male Speaker: Now – and you're with who?

Female Speaker 1: We're at the NOAA Fisheries. We're with the Southeast...

Male Speaker: Both of you?

Female Speaker 1: Yeah.

Female Speaker 2: Yeah, I'm a contractor for NOAA under University of Miami ...

Female Speaker 1: So, we work at the Southeast Fishery Science Center in Miami. And so, Susanne is a social scientist and I'm a fishery biologist. So, we're trying to document, you know, the biology of the bloom, kind of things you're just talking about, how they form, where they come from, why are they bad in some years, not in others. And then also the social impact and how are fishermen adapting and kind of adapting, what have been the impacts on the fishing industry so all that kind of information we're trying to get so...

Kevin Bellington: Okay.

Female Speaker 1: So, it's informal and unstructured but Susanne is going to lead you through sort of a series of question.

Kevin Bellington: Ask away, I will try to do my best to answer them.

Female Speaker 2: All right. Are you recording already?

Female Speaker 1: Yeah, I've started recording.

Female Speaker 2: Okay, all right.

Female Speaker 1: So it's working?

Female Speaker 2: Yes, it's working.

Female Speaker 1: So first just for organization, for purposes, your name is Kevin?

Kevin Bellington: Kevin Bellington.

Female Speaker 1: ...Bellington and today is April, I forget what, April?

Kevin Bellington: April 11<sup>th</sup>.

Female Speaker 1: Eleven? April 11, 2019. And we're here in Goodland. So, the first thing I just want to ask you to give us kind of like, a little bit of information about your background, when you started fishing? Where did you start fishing? Have you always been a charter captain? Just tell us a little bit about your work?

Kevin Bellington: Okay. Been in Florida almost 20 years. Been fishing this area for close to 40 years. I used to come down here on vacation before I moved here. Been a charter captain for say 18 years now, mostly offshore but I do also backwater charter as well. Probably now, the percentage has gone up [0:04:00] 70% backwater, 30% offshore and largely impart to the red tide and some of the water quality issues we've had.

Female Speaker 1: So when you say now, what do you mean, in the last few months?

Kevin Bellington: Last two years.

Female Speaker 2: Last two years?

Kevin Bellington: Yeah.

Female Speaker 1: Okay.

Female Speaker 1: And what were the percentages prior to...

Kevin Bellington: They were about 50/50 prior to that.

Female Speaker 1: And now it's 80/20 so?

Kevin Bellington: Yeah.

Female Speaker 1: Okay. So when you fish, what kind of species do you target usually?

Kevin Bellington: Offshore, I primarily target group red grouper, snapper, yellowtail snapper, mangrove snapper, lane snapper, mutton snapper. I don't target red snapper because it's just too far to go from here to get them. But, you know, mostly grouper and snapper are my two primary targets offshore. In the last 20 months, my grouper catch has gone down probably over 95% in between 10 and 30 miles offshore. There's just no grouper out there. There are none. And I say none, we catch one every once in a while but they're all – most of them were all short, small, undersize and very few of those. They're just not the amount of grouper. Just three years ago, we could go – I had spots just 10 miles out here, so, you could go on any given day and catch a limit of keeper size red grouper. There are no red grouper. There are not at all.

Female Speaker 1: Any shore – oh sorry, continue, go on.

Kevin Bellington: Well – and during this last red tide event, we saw a group of floating red grouper in those areas as well as snapper. I mean, as far as you could [0:06:00] see in any direction, just nothing but fish. I don't know what percentage have got killed but it had been a significant amount.

Female Speaker 1: So we'll come back to this last two years events but can you think back, what was the first time you've encountered a red tide and what year, do you remember?

Kevin Bellington: Oh, I've encountered red tide ever since I've been fishing here 25 years ago...

Female Speaker 1: Every year?

Kevin Bellington: Not every year and some years more than once. Some years, it would – we would have a bloom. We would get an east wind, they would blow off. The wind would shift. It would come back in two weeks later, that kind of thing. But no, I've encountered red tide ever since I've been fishing here. Nothing to this magnitude of this last one.

Female Speaker 1: What was one of the first events that kind of left an impression on you that was like a little bit unusual in terms of magnitude?

Kevin Bellington: Probably 2002.

Female Speaker 1: 2002?

Kevin Bellington: Yeah.

Female Speaker 1: Can you tell us a little bit about that event? Where did you notice it? What...

Kevin Bellington: That one was – I was in fishing out at Fort Myers at the time and fishing anywhere from probably 8 to 20 miles offshore.

Female Speaker 1: Can you show us on the map?

Kevin Bellington: Yeah.

Female Speaker 2: Oh we have – I think Fort Myers is not in here.

Female Speaker 1: It's not on this one?

Female Speaker 2: No.

Kevin Bellington: Oh there's Marco. Oh actually, it's going to be on here. I can show you. We would probably be in this area here right around this first break.

Female Speaker 1: Here, can you mark it down? Feel free to write down [overlapping conversation] [0:07:42]

Kevin Bellington: Yeah, let's – okay, let's get this straighten out. Gordon Pass, straight out. So, it's going to be from about here to as far as your chart, about there and all of this in [0:08:00] between.

Female Speaker 1: So, you would say all of this?

Kevin Bellington: Yes, yeah.

Female Speaker 1: So, let's mark all of it.

Kevin Bellington: And that's one of the areas that we fished out of Gordon Pass and that's where we noticed. This is in 2002. We had a significant event out here that killed a number of our offshore species.

Female Speaker 1: Let's write 2002, killed a number of offshore species. Do you remember what exactly? What species?

Kevin Bellington: Well, it's mostly red fish and snapper back then. But there were a lot of goliath groupers killed that year and I even noticed quite a few bait fish, pinfish, threadfin herring, greenback, those kinds of fish, there were a lot of those floating as

well. That seemed to be – that event seem to be centered mostly on the surface more than down deep as this last one was. The last one hit the bottom.

Female Speaker 1: Okay. So do you remember how many months it lasted and kind of like what year? You know the year?

Kevin Bellington: Probably not more than 30 days. It was relatively short span. It started dissipating probably within about two to three weeks. And we stopped seeing any traces of it within 30 days.

Female Speaker 1: Okay.

Kevin Bellington: But it lasted a solid three weeks.

Female Speaker 1: Okay. So, how did you know it was a red tide?

Kevin Bellington: Couple reasons. One, I'm very sensitive to the *Karenia brevis*, spores. If I drive my boat through it, I started instantly coughing. My throat is very sensitive to it and we would – we're driving out into the gulf and all of a sudden all of our bait would die. And that's generally because we're pulling water in, out of the gulf into your bait wells and it's contaminated with the *Karenia brevis* and it just kills them [0:10:00]. They just start floating to the surface dead and that's usually how you first notice it is most of your bait starts to die and then like I said with me and then like I said with me I – if I'm out and in, I can feel it. I started coughing real bad. I'm pretty sensitive to it.

Female Speaker 1: So what about the color of the water? Is that – that...

Kevin Bellington: You didn't – didn't really noticed change in the color of the water much in that event. If there were some pictures taken at the time from aerial photographs, it showed a little bit of discoloration in, you know, lot of that area but at water surface level, you don't notice it. You don't notice it in the areas we bait. I mean, I've never seen even in this last one, I've never seen red tide. I don't know what it looks like.

Female Speaker 1: Hmm, really?

Female Speaker 2: Interesting.

Kevin Bellington: Yeah. I don't notice a change. I don't notice change in the water color at all. Maybe a little darker than normal but not a definitive color change. I can just tell that spores were there, by the way it kills the bait, the way I started coughing, that's what I've noticed.

Female Speaker 1: Interesting. So when – in 2002, when you the red tide event, what did you do in terms of your – how did you change your fishing?

Kevin Bellington: Well we fish either north or south. That was – it was fairly narrow band. If you went north out of red fish passed, it seemed to be a little bit better. And if we came south down here off of Marco or Goodland, it wasn't bad at all. So, it was – it was a fairly localized bloom.

Female Speaker 1: So this is the – so extend of the bloom, not just where you're fishing?

Kevin Bellington: Yeah, that's where we noticed it. From those two points and it's kind of hard to see. That's probably 15 or 20 miles wide and probably 45 miles deep out into the gulf. Ran out into almost 70 feet of water.

Female Speaker 1: Okay. [0:12:00] But the species you were fishing were the same. You just kind of move north or south?

Kevin Bellington: Yeah, move north and south and didn't notice a large change in the appetite of the fish or anything. They still seemed to be healthy and eating, so we didn't notice a big change in them.

Female Speaker 1: So, you said that the red tide event lasted for about 30 days here...

Kevin Bellington: Yeah.

Female Speaker 1: As soon as the red tide dissipated, the fish came back, everything was back to normal.

Kevin Bellington: Yeah, within a month or two, those areas were full of fish again.

Female Speaker 1: So basically, you were sort of like displace – displace your fishing for about two months total?

Kevin Bellington: Yes.

Female Speaker 1: Okay. All right, so after the 2002 event, what's the next red tide event that's kind of was unusual?

Kevin Bellington: Oh my gosh, there were several in between probably 2005 and 2009.

Female Speaker 1: Can you – we've heard about the 2005 one. Do you remember where it was and...

Kevin Bellington: It's hard to remember. The only reason I remember that 2002 one is because I was running in that specific location at the time. 2005 as I recall, that one was closer in the shore. That was probably inside of 20 miles and all the way into the beach. And it – we'd covered a pretty long – pretty long distance down the beach, you know, from probably Port Charlotte or Punta Gorda.

Female Speaker 1: It's kind of even it's approximate so...

Female Speaker 1: Yeah.

Kevin Bellington: Did it show Punta Gorda or did you say this doesn't show...

Female Speaker 1: This doesn't go up to [indiscernible] [13:51]

Kevin Bellington: Yeah. So, it would be...

Female Speaker 1: We can draw, I mean like [overlapping conversation] [0:13:56]

Kevin Bellington: Yeah, it was up here.

Female Speaker 1: Okay.

Kevin Bellington: And it came [0:14:00] mostly out inside this first break, most of the red tide that we saw came all the way down here, passed the Marco Pass and it was a longer event, but it didn't go as deep.

Female Speaker 1: Okay. And how far north did you see it?

Kevin Bellington: Oh, it was all the way to Punta Gorda.

Female Speaker 2: Punta Gorda, okay, we'll write down. And this is the 2005?

Kevin Belling: Yeah 2005. But these are all just guesses on what I can remember. I mean, I can't be 100% certain.

Female Speaker 2: Right.

Female Speaker 1: That's okay. You know, so we're doing this with hundreds, you know, ideally at least a 100 fishermen. So, we know, [overlapping conversation] [0:14:38] we know you guys can't recall perfectly in the past but – and we have repetitive patterns and it will tell us something so...

Female Speaker 2: So do you remember about this event, what kind of species or fish were affected?

Kevin Bellington: That one as I recall affected not only the pelagic species and the reef species, but we lost crabs and crustaceans in that one. That was the first time I can recall a red tide event that actually affected crustaceans. Normally, it doesn't seem to affect them. Like that year, there were quite a few horseshoe crabs and blue crabs and things and sand eels, lots of sand eels came up and died. And those live in the sand or in the bottom. So, I know that that red tide was all the way down to the bottom in that event.

But that was shallower so that wouldn't make sense that the shallower it is. Maybe you can answer my question as a biologist.

Female Speaker 1: Yeah.

Kevin Bellington: It is my understanding that red tide, the *Karenia brevis* plant lives generally about eight miles offshore, is that right? 8 to 20 miles?

Female Speaker 1: I don't know. I mean some of the research does suggest that it generally lives offshore.

Kevin Bellington: Yeah.

Female Speaker 1: But [0:16:00] in the, you know, the data that the state collects, it's also found in background concentrations, inshore when it's not in full bloom so...

Kevin Bellington: Just the plant itself, the *Karenia brevis* plant, the organism?

Female Speaker 1: Yeah, the plant, yeah the organism, yeah.

Kevin Bellington: Okay, all right.

Female Speaker 1: So I'm not *Karenia brevis* expert. My understanding is that it does live offshore but according to the data it is also inshore.

Kevin Bellington: Okay. Because that's the one thing I've been curious about and tried to do as much research as I can to find out exactly where does it originate?

Female Speaker 1: I don't think we know, I'm very sorry. That I can't tell you. There is also a theory that it forms like cyst and stays in the sediments that can get but I don't think we've actually found that. So, I think that's a theory but I don't believe it's been substantiated.

Kevin Bellington: Okay. All right.

Female Speaker 2: So, we're going to keep thinking about this event. You said – you told us about what species were affected. Do you remember what species you thought they were particular doing well compared to other species?

Kevin Bellington: Well none of the species were doing well. All of the species in that affected area were affected by the red tide to some degree. The ones that didn't die, we noticed a lot of very lethargic fish. They seemed sick, they just seemed emaciated. Some of them actually had lesions and sores on them. I don't think that's caused by the red tide but it may have weakened their immune systems enough to where they were being attacked by other organisms, I don't know.



But I've seen it happened in several of these events, where – when the fish that don't die are so weakened by the red tide that their immune systems don't seem to be operating at full capacity and everything that's in the water starts to eat them. And they start getting lesions and sores [0:18:00] and red spots on them, their fins start turning red, the gill area starts turning very, very red from just – from irritation. And then they'd become very lethargic. They don't want to eat. And they start losing weight pretty quickly.

Female Speaker 2: What are the – what are some of the species?

Kevin Bellington: That was almost all the species. One of the main ones in that inshore that I can recall because we used to do a lot of trout and snapper fishing, and even pumping out fishing in that shallower water, where three of the species that I saw getting – that were very adversely affected by it, where the trout seem to be hit very, very hard by it. Trout are very fragile creatures anyway. It doesn't take much to kill them. But snappers more a hearty fish but we noticed a lot of very ill snapper at the time. They had just severe inflammation to the gills and, you know, they were in respiratory distress and they just didn't want to eat and even the pompano were probably the most hearty of all of those.

We noticed that they started getting some lesions on their skin. I don't – it's not the red tide or the *Karenia brevis* organism itself but I just seemed to think that because they were in such a weakened state, that everything out there was attacking. And we saw quite a few. You almost never see a pompano with sores on. They're just a very hardy-hardy fish. They're very fast swimmers. So, they don't swim slow enough for most parasites to get to them. Most of the parasites don't even get a chance to attach to them but during that event, I don't know, it's slowed them down enough that the parasites were able to attach long enough to bore into the skin but they – we saw some with pretty bad sores and lesions on their skin.

Female Speaker 1: And did you see that during the red tide or was it lingering afterwards?

Kevin Bellington: Yes. It lingered for a while afterwards.

Female Speaker 2: How long it was the red tide event?

Kevin Bellington: Several months. We were there especially with the [0:20:00] trout. We noticed the trout, this – the population didn't rebound and the ones that were there were still pretty lethargic and pretty, pretty sick for the next several months after that event. That one as I recall lasted almost three months, you know, on and off. It was one of those ones where it will blow out and it will come back and it will blow out and it will come back. And, you know, I keep up with your NOAA's tide, your tide predictions or the red tide predictions and it would, you know, be background concentrations one day and then could back up to, you know, a heavier high level the next day. So, it just depends on the winds.

Female Speaker 1: Yeah. So – and so you said it – how long did it last did you say?

Kevin Bellington: I think it was about 90 days. That was a fairly long one.

Female Speaker 2: And but the effects lasted after that or another...

Kevin Bellington: Yeah, that lasted – lasted another three, four maybe five months after.

Female Speaker 2: Maybe five months?

Kevin Bellington: Yeah.

Female Speaker 2: So what did you do in this – in this period where this whole area was affected by the red tide?

Kevin Bellington: Mostly we went way offshore. That's when we shift into deeper water. We get out in – anywhere from 80 to 120 feet of water. Those fish didn't seem to be affected by it at all, didn't get out that far.

Female Speaker 2: How hard is for you are or was for you back then to make that shift? Like what did it mean in terms of money, in terms of your...

Kevin Bellington: It's tough. Oh, almost triple by fuel costs and you got to figure and remember back in 05, fuels was up over \$5 a gallon.

Female Speaker 1: Yeah, I remember, yeah.

Kevin Bellington: And my boat gets about two miles to the gallon. As a matter of fact, my boat back then got about 1.3 miles to the gallon. So, to go, the difference between, you know, 10 to 15 miles to 40 to 70 miles is huge. I mean, I was spending five times the amount of fuel per trip just to get out and get on the fish. Not to mention the time. If I ran these [0:22:00] trips in the 10 to 10 mile range, I can run to a day. Run one in the morning and, one in the afternoon, those offshore trips, I cannot. That's a one trip a day and I have to raise the price up on that accordingly. And even then, I couldn't justify raising it enough to cover all my fuel costs. That was – that was a tough one [overlapping conversation] [0:22:22]

Female Speaker 1: And that happened for about six months?

Kevin Bellington: Yeah, about a half a year. And it was – unfortunately it was right in the beginning of our season is when it started to dissipate and actually start getting better. I mean, it was still happening during our – the peak of our season. So, we lost a lot of revenue on that.

Female Speaker 2: Okay. One more question a little bit about the biology. Did you notice during these events, it was more extended, it was more inshore, changes in the spawning aggregation, anything related to that?

Kevin Bellington: The trout one was definitely way off. We usually see in the spring, we will see about 60% of our trout that we catch are egg-bearing females. And during this and for the few months after, almost all the fish that we caught were males. There were very few egg-bearing females in that group. I don't know if that had anything to do with the red tie but that was just one thing that we noticed that there were very few females in that group for quite a few months.

Female Speaker 1: Okay. But in this event, it was the 2002, you don't remember changes that kind of – just kind of changes?

Kevin Bellington: You know those fish out there, we don't really monitor the spawning patterns of them that much.

Female Speaker 1: Right. It's like offshore – you know, offshore.

Kevin Bellington: Yeah, they're mostly pelagic and reef fish. So we don't – we don't really pay much attention to their spawn. They're just a pretty much a year-round fish. I know they spawn but it doesn't normally affect [0:24:00] when we targeted.

Female Speaker 1: Okay. And during this event, was your health affected? Did you have to spend any time in this water?

Kevin Bellington: Oh, I was out there every day because even to get off shore, I had to drive through that.

Female Speaker 1: Right. You have to pass through so, what happened like when you would pass?

Kevin Bellington: Well, for one thing – well, one of the economic things is we had to shut our bait wells off. We couldn't circulate water through them during that whole time. And when you run that far with no water circulating on your bait, a large portion of it is going to die because it doesn't – it lacks oxygen. So, we lost a lot of bait due to that. And yes, me driving through, it was definitely hard on my lungs.

Female Speaker 1: Okay. So after the 2005 you said, do you think – 2005 and 2009, you notice several events?

Kevin Bellington: Yeah, there were several – I mean – but they were what I called normal events.

Female Speaker 1: Okay.

Kevin Bellington: They are – they last less than 30 days and they're relatively light, not a huge fish kill but mostly just displacement of some of the fish and drop in the number of feeding fish that – not that we noticed that many of them floating or anything. So those events, I turn those light events. When I don't start coughing but I noticed that the fish are not feeding the way they normally would and that we start seeing a few fish that are anemic or emaciated then I know it's a minor event. When we see them floating, then we called – well I called that a major event. And there – most of those events between then in 2009 were probably minor. We may have had one or two short ones that may have been caused fish kills but not too much. And then of course but – then we had the freeze of 2010. And that was a whole different thing. That had [0:26:00] nothing to do with red tide.

Female Speaker 1: Okay. So how did – do you have any thoughts on how that freeze affected red tide or did you – I mean did you have red tide in 2010 or....

Kevin Bellington: No we didn't. The year, the freeze, I don't recall seeing red tide that year.

Female Speaker 1: Okay. You had other issues with freeze but...

Female Speaker 2: Do you have – since you said these are sort of a normal events, 2002, 2005, any idea what could have caused this abnormal events back then?

Kevin Bellington: No.

Female Speaker 2: No? Okay.

Kevin Bellington: I generally keep pretty good tapes on the weather, the water temperature, storms, that kind of thing and I don't – I mean 2005, we had Hurricane Charley which wreaked havoc on a lot of the gulf waters, you know, that may have had something to do with it, I don't know.

Female Speaker 1: The hurricane was before the red tide?

Kevin Bellington: It was before...

Female Speaker 1: Okay.

Kevin Bellington: No, Hurricane Charley was in October. This started in probably May or June.

Female Speaker 1: I see, huh.

Kevin Bellington: But the one thing that I looked out was maybe the same thing that spawned the hurricane may have affected the red tide event is the water temperature because that year, the water temperature spiked way up.

Female Speaker 1: In 2005?

Kevin Bellington: Oh yeah. There were times out here in the Gulf of Mexico that we were registered 92 degree water. That's just abnormally hot.

Female Speaker 1: That's really hot.

Female Speaker 2: That's interesting.

Kevin Bellington: Yeah. And it seems like, I don't see as much correlation between the temperature and the red tide as I do between temperature and hurricanes and we have a really high temperature season water wise. We're probably going to have a pretty active hurricane season.

Female Speaker 1: Yeah.

Female Speaker 1: Yeah, they sense...

Kevin Bellington: I mean if they store – if they form and come into the gulf, that warm water feeds them and they become big. That's what happened or I don't know. I mean, [0:28:00] that we have probably 88 degree, 89 degree water we normally had. So, but I don't know. I'm not a scientist so I don't know if it affects the bloom or the *Karenia brevis* or not.

Female Speaker 1: Well I'm a scientist and I don't know either.

Kevin Bellington: I hope somebody finds out someday.

Female Speaker 2: Yeah [overlapping conversation] [0:28:18]

Kevin Bellington: That would be wonderful for us to be able – for you guys to be able to give us a heads up and say look, you know, these conditions are all – they have all been met this year. And there's an 85% likelihood that from here to here, we're going to have a red tide event. If we could just get some kind of heads up, you know, that this may be coming because I booked my trips three, four, or five months in advance.

And if I knew two or three months in advance that there's a high likelihood of a red tide event, I may move those people to a different time of year. You know, rather than booking that specific group of dates, I might say, you know what, look we've got – we've got a shot at – you know, having a red tide event out here. Let's not take the chance. Let's move it to, you know, the next six months or whatever because I have that opportunity to move some – some of my customers, not all.

Female Speaker 1: Okay. So that's really important information we're trying to gather. So the sweet spots, sort of for your business planning is two to three months...

Kevin Bellington: Yeah.

Female Speaker 1: ...you know, how that – that's how much of a heads up you would need?

Kevin Bellington: Yeah, yeah, oh I haven't. If we could get – if we could get a 90-day window, it'd be just awesome for us.

Female Speaker 1: Okay because I know that NOAA produces the three day forecast, that doesn't really solve it...

Kevin Bellington: Well it – believe it or not, it actually does help.

Female Speaker 1: It helps, yeah?

Kevin Bellington: Yeah.

Female Speaker 1: Okay.

Kevin Bellington: If I read the three day and it's, you know, very high concentrations in the backwater, I may move – I may decide to move my trip offshore. You know, I can do that but I just can't move the date of the customer's arrival or departure.

Female Speaker 1: Yeah.

Kevin Bellington: So that's it. I have to work with what I've got but I do. I use your – use your forecasts and if it's high concentrations, you know, on the [0:30:00] outer banks, on the outer sides, and maybe we'll fish way back on the inside. You know, we do move around just to try to stay away from it. There's times when you can't but...

Female Speaker 1: Okay. So the short-term predictions can help with sort of the spatial issues but the longer term can help with like your seasonal plan with customers...

Kevin Bellington: With the planning, yes, absolutely.

Female Speaker 1: Okay, that's good to know.

Kevin Bellington: Yeah. I wish there was, you know, I wish they could tell me that there was a red tide season, you know, red tides going to hit between May 15<sup>th</sup> and, you know, September 1<sup>st</sup>, that'd be awesome. Because I just close, you know, I just wouldn't operate during that or do something different. But we've had red tide events in December. We've had red tide events in July. There's just no rhyme or reason to it. It's something to do with the water conditions and the weather conditions and the temperature, and the salinity and bacteria accounts and everything all aligned to produce a bloom and one could be worse than another.

Female Speaker 1: Sorry, when you say bacteria counts, I'm curious – I'm interested in what, you mean, you think the bacterial or what sort of bacteria...

Kevin Bellington: Well I'm assuming that if it's a – if it's an organism that feeds on something. If it's a small organism, it probably feeds on bacteria or something of that size. So if there's high bacterial count that would mean that they have more to eat. They have more to eat. They're probably going to reproduce more in that season than they would in a lean season. I mean that's just kind of a basic anatomy of [indiscernible] [0:31:31], the algae...

Female Speaker 1: Okay, yeah.

Kevin Bellington: But, I don't know, I don't know. Like I said I've tried to do as much research as I can on red tide and on the *Karenia brevis* myself. There's not a lot out there and there's a lot of misinformation about, you know, there's still people out there that think that green algae is *Karenia brevis*. And, you know, that's killing us.

Female Speaker 1: Yeah, okay.

Kevin Bellington: You know that's...

Female Speaker 1: Can you can you tell us a little bit more about the misinformation like what – what do you encounter [0:32:00] there?

Kevin Bellington: It's mostly our media. When the media gets a hold of a red tide event, first time, fish start washing up on the beach. It's a media frenzy and they just – they run with it and it's sensationalism. You know, it's what sells newspapers is what sells advertising space. So they'll lead with those stories and they don't understand that the national news feeds pick those up and then they get run in Minnesota. And the people that were planning on a trip to Southwest Florida now look down and go oh, my God. I'm not going down there because beach is covered in dead fish.

Well what they don't get is that, that is one little 200-yard section of Sanibel, they got covered with fish. Not here and that hurt us especially this last one was horrible for us. Because there was such media frenzy on the northern part of the state about it, it's like when the BP oil spill happened. I had people calling me from all over there. I've got clients that come from all over the world. They would call me and say should I cancel my trip? And I said, wow, no. Why? They said well, I just saw the news. You guys are covered in oil. The oil didn't get within a 120 miles at us but they don't know that because the media does not make those differentiation. They don't make those demarcation lines.

As far as they say it's just Florida and that's all people know. And it's the same way with the red tide. When they say the red tide has killed 100 million fish, they don't know where that is. They just know it's in Florida and as far as they're concerned, it's where

they're going. I mean, people spend a lot of money to come down here for a two-week vacation. For example, on Marco, that's what I was doing before I came here. People that rent this house that I go help them learn to drive [0:34:00] a boat, they spend \$4,000 a week for that house. That's times' two weeks. That's \$8,000. Then, their food and their liquor, then their entertainment and then they rent the boat for another \$2,000.

So, then now they're up to \$10,000 for two weeks. And then they're going to hire a fishing guide for one or two of those days at four or \$500 a pop and it starts adding up. And that's just one house on Marco. You know, you multiply that by all the resort areas up and down the West Coast. You're talking a significant amount of money. And when a fraction of that gets scared away by the media, it makes a huge economic impact. I mean our business this year was down almost 22% in September, October, November. Because directly related to the media sensationalizing the red tide. And I can – I can verify it. I mean I've got voicemails from my customers saying I'm just not coming down there. There's red tide everywhere. And even though I would call them and tell them look, yes, there is red tide.

It's not as bad here as it is up there. I couldn't say with honesty that it wasn't here but it wasn't as bad here. And we were still fishing and we're still catching fish. But people just don't want to deal with it, you know. And if – again, if I'm spending \$10,000, for a two-week vacation for my family, I'm not taking that chance either. I'm going to go to Maui this year or I'm going to go to the Bahamas or I'm going to Mexico and they're just throwing money that should be coming to the state right out the window. And I just wish we could get them to stop that. And maybe if we can get a better handle on what this red tide really is and get better information out there, then we can help ourselves by disseminating this information a little more efficient.

Female Speaker 1: Yeah. And we hear this, [0:36:00] a lot too, yeah, from other folks but it's good to hear this perspective.

Kevin Bellington: Yeah. I mean, that our whole state is based on tourism. I mean if it wasn't [overlapping conversation] [0:36:10] Yeah, the whole state from Disneyland on down. If it wasn't for the tourists, we don't have enough industry here to keep a 10<sup>th</sup> of this population invalid. So without the tourism industry, we are pretty much spinning our wheels. So, you know, anything that we can do to promote this tourist industry and to keep it as healthy and productive as possible, I'm all for. Let's do what we need to do.

Female Speaker 2: So going back to – to the red tide events after 2005, what's the next thing, did you remember?

Kevin Bellington: I'm going to say we had a few small to medium events in maybe like 13, 14 and 15.

Female Speaker 2: 13, 14, and 15?



Kevin Bellington: Yeah. And I think those were – I would probably we categorize those three years as normal.

Female Speaker 2: You would? Say it's like normal events?

Kevin Bellington: Yeah. They were normal years and we had red tide. It is a normal event. We get it almost every year at some degree.

Female Speaker 2: So you would say it's normal because it was like a month...

Kevin Bellington: Yeah, less than a month.

Female Speaker 2: Was – were this mostly offshore or...

Kevin Bellington: They were a mix. There were a few that were in the back bays but those only lasted a few days. Generally when we get one blow in the back base, the next tide shift or the next wind shift will blow those out.

Female Speaker 2: Interesting.

Kevin Bellington: The larger ones offshore are the ones that are a bigger problem because they cover more area and when the wind shifts, it may not push all of it away from land. They push a large portion of it on the land and then the wind shifts and only – takes part of it back out. The remainder stays in close. The stuff that gets in up against the beaches are protected by the islands and the trees. If we get an east wind, those trees [0:38:00] and the islands make that wind go up over a large section of it before it comes back down to hit the water. And then until it hits that water again, it's not moving anything out. The only thing moving is a tide and if you get a small tide change during those days, that tide may only move a foot up from high to low or even less.

I've seen it move as much as little six inches. So you get an east wind with a light tide, a small tide that's only going to move that stuff that's on the beach out maybe a half a mile. And it may not move it up far enough for that wind to get to it and then keep pushing it so then when the tide comes back in it just brings it right back up to the beach again. So those events where they were larger – covered larger areas, those are the ones that could stay longer because they could get pushed up against the beach and stay there for, you know, weeks at a time.

Female Speaker 2: So among these events that you categorize as normal is there a spot – a spot that [overlapping conversation] [0:39:04]. So, what I'm trying to find out if there's an area where you know notice is normal events reoccur like that – and this is kind of a red tide area we often see...

Kevin Bellington: Yeah.

Female Speaker 2: Okay. Can you show us?

Kevin Bellington: One of them is right here. This is called the Cape Romano Shoals and from the end of this lot of shoals area, this go on out onto gulf shoals.

Female Speaker 2: Can we see it on the map?

Kevin Bellington: Yeah, you could see it. Yeah, these are called the Cape Romano Shoals and what happens is you get an east wind and it's coming out this way. This area gets blocked. This area does not. See the wind gets blocked here and it'll push out here. But I have noticed that in this particular area right out here is a normal area for red tide. This is where when we get a big bloom over the whole area, it's going to worst here than it is in any place else. And I don't know exactly why but this is where it seems to get hit, it hit the hardest. In 2010, this almost – this whole area that I've circled, it is not that big, that's maybe five or six miles around.

Female Speaker 1: Okay.

Kevin Bellington: That area was absolutely full of dead snapper, dead grouper, dead eels, dead catfish, I mean it killed everything.

Female Speaker 2: Oh, you said 2010, was that the...

Kevin Bellington: Oh, no, no – sorry, this is the last one [Overlapping conversation] [00:40:41] Yeah, in 2010, this area got hit again. It was hit – not in 2010 but after 2010. 2010, we had to freeze. So, there wasn't much red tide that year but like, 12, 13, 14 without red tide events. And I noticed that a lot them seem to center right around the shores. I mean, that's where I would notice them of the most.

Female Speaker 1: Yeah. You want to write it?

Female Speaker 2: Sure.

Female Speaker 1: Okay, that's interesting. And you mentioned the species that are affected?

Kevin Bellington: Yeah. When they hits out there.

Female Speaker 1: Are they trapped in anyway there? What wide do you think?

Kevin Bellington: No, those were just dying.

Female Speaker 1: Well, just dying passing through the area?

Kevin Bellington: They were just – there were acres of shrimp eels about that long and that's big around as your thumb. And one of the things I've tried to get a hold of the guys at the Mote Marine Laboratory to get them to come down because one of the things

that I noticed in this area out here, when the shrimp eels died, they all had bite marks on their stomachs. And I thought that that was very odd that, you know, a predator would only bite the stomachs of those shrimp eels. While I was driving out there and saw some of them coming to the surface that weren't dead yet. And I found out where the bite marks were coming from, they were biting themselves.

Female Speaker 1: What?

Kevin Bellington: They were actually [00:42:00] bending around and biting themselves in the stomach and tearing their stomach out. Something was causing it, just extreme pain in their stomach and they were actually biting. And I've had pictures and I can't – I don't know what I get them. I think I sent some of them out but [Overlapping conversation] [00:42:16] I'll see if can locate them. I can't remember if I locate them [Overlapping conversation] [00:42:20]

Female Speaker 1: We'll remind you later but that would be very interesting.

Kevin Bellington: Yeah, it was just weird. Because, you know, it was strange because there were so many of them floating.

Female Speaker 1: And what do you remember? What year you notice that?

Kevin Bellington: That was in – I thought it was in 15 or 16.

Female Speaker 1: So – okay, so it's continued 15, 16?

Kevin Bellington: Yeah.

Female Speaker 1: So, it's just the area when you see red tide and the year it seems to be concentrated?

Kevin Bellington: Yeah. And it doesn't matter where it is up and down if it's anywhere in the area, I seemed to notice it here more than any place.

Female Speaker 1: Okay, that's really interesting.

Kevin Bellington: Yeah, maybe the topography.

Female Speaker 1: Yeah.

Kevin Bellington : Because if you'll notice either you got 17 foot troughs in there and then it comes or 21 foot troughs that comes up to seven, those shoals come up very, very shallow. So the troughs in between them are quite deep and it keeps the tide, when the tide is coming in towards the land that tide will roll over those shallows and not actually go all the way down to the bottom of the next one, it'll roll over and just kind of go like this. So, the water that's down in the bottom stays, it doesn't get moved with the tide like

the rest of it. And I'm guessing that probably we have something to do with that that's why that the tide stays in there.

Female Speaker 1: Where is the – sorry, where is the trough that you're talking about?

Female Speaker 1: Is this?

Kevin Bellington: Yeah, they come all the way out here.

Female Speaker 1: Oh, these are that little lines we're seeing here.

Kevin Bellington: Oh, yeah. I get that way too small, let's bring this all the way here.

Female Speaker 1: Okay, here we put.

Kevin Bellington: Let's bring this all the way out here. I thought that map was [Overlapping conversation] [00:43:59]

Female Speaker 1: Yeah, the scale [00:44:00] of the map is different, so it's really – this is where you're saying the deep waters [Overlapping conversation] [00:44:03]

Kevin Bellington: Yeah, there's deep water is here and then these shoals are very shallow.

Female Speaker 1: Okay. Okay, thanks. That's really interesting.

Kevin Bellington: And that's where we saw the majority of the eels. And that's the first time I can remember eels being affected by this. It was in probably 15 or 16, I can't remember which one it was. But I'd never seen eels that have been killed by red tide before.

Female Speaker 1: So, they were like, you said, they were biting and then they were dying basically and how...

Kevin Bellington: They were in respiratory distress. You could tell their gills were very red, very irritated. But what caused them to bite themselves in the stomach? I don't know.

Female Speaker 1: That's really interesting.

Female Speaker 1: And you have pictures of them doing that you said or what?

Kevin Bellington: I didn't get any pictures or video or anything of them doing it. But I had at some time of point I had some pictures of me holding a couple of them and you can see the bite marks right in their stomach area.

Female Speaker 1: I'd love – yeah, you can take those pictures up. I would love to see them, so we can do...

Female Speaker 1: Yeah, that would be fun.

Kevin Bellington: I hope I've still got them. I've lost two phones since then, so...

Female Speaker 1: I know how that goes [overlapping conversation] [00:45:12]

Kevin Bellington: I usually don't email, I don't post pictures like that on my social media or anything. I never post them.

Female Speaker 1: Did you say you send it to somebody?

Kevin Bellington: Oh, I thought I may have sent them to the Mote Marine Laboratory.

Female Speaker 1: Oh, okay.

Kevin Bellington: If I do, I may have a copy of that email.

Female Speaker 2: Yeah, that's why I'm saying that email of – okay.

Kevin Bellington: If I can remember.

Female Speaker w3: Yeah, it's fine but that would be an interesting.

Female Speaker 1: And you come out – sorry, so we're here, right? So, when you go out in your offshore trips, you come through here routine then?

Kevin Bellington: Yeah. No matter where I go out here, I'm going to have to pass through this to go north or south, unless I just have the coast to go this way. But I would say [00:46:00] 80% of my offshore trips, when I come out, I'm going to be passing somewhere through this cone.

Female Speaker 2: Okay. Oh, I missed that. So – sorry, you said...

Female Speaker 1: He's coming out from here.

Female Speaker 1: So, you have to pass this and continue it. So, what did you do?

Kevin Bellington: I'll usually pass on one side of this or the other. I normally don't run over the shoals because unless it's a very high tide, it's dangerous.

Female Speaker 1: I see.

Kevin Bellington: But I'll pass on either side of them. If I'm going north, I'll come on this side, when I'm going south for going this side but I'll pass somewhere through this, in this area that we've got started because the shoals are only here.

Female Speaker 1: Right.

Kevin Bellington: Yeah. I would imagine that's probably how wide the shoals are and they come out to about here.

Female Speaker 1: So, during these events – first, just to make sure I understand this 2015, was this a little bit abnormal?

Kevin Bellington: Yeah.

Female Speaker 1: Okay.

Kevin Bellington: It was in this area, it was abnormal.

Female Speaker 1: So, normally you get – you see the red tide here but...

Kevin Bellington: We see dead fish, you know, some dead bait fish, stuff like that. But nothing at the scale that we saw in there.

Female Speaker 1: Okay. So let's talk a little bit about, specifically about 2015. What else did you notice besides the eels, what other species besides...

Kevin Bellington: They were snappers, there were goliath grouper, lots of goliath grouper now and I remember big ones between 300 pounds. But I've typically seen – there's a couple of other fish that we saw that was real unusual. Oh, we saw cobia, we saw a kingfish. And neither of those I've ever seen died in a red tide event. They just - they normally, the kingfish moves so fast that they're usually through it and gone before it affects them too bad. But we did see [00:48:00] kingfish floating, we saw cobia floating, triggerfish, spadefish, all of your different bait fish or pinfish or squirrelfish runs [indiscernible] [00:48:15] I mean, it was like something just killed everything on the bottom.

Female Speaker 1: And that was back in 2015?

Kevin Bellington: Yeah.

Female Speaker 1: And how long did it last? Few minute?

Kevin Bellington: That one lasted about 90 days.

Female Speaker 1: 90 days. So it was like a – so, compared to the usual occurrences which are like 30 days, 2015...

Kevin Bellington: This one was a little heavier, yeah.

Female Speaker 1: 30 days and it has killed most species. In the other events, there are not so extreme, the last four months, what species are normally affected?

Kevin Bellington: Normally, you're going to see catfish and possibly pinfish, pinfish are very susceptible to it. You know, in a light event, that's what you're going to see, you can see catfish, pinfish, mullet will be affected, possibly grunts and organs. But you almost never see grouper or any of your pelagic species affected in a light event. They're not immune to it. I'm sure but they just aren't affected as much as the smaller bait fish are.

Female Speaker 1: In 2015, what did you do to – so what did you have to change [overlapping conversation] [49:31]?

Kevin Bellington: Well, one thing we avoid in this area all together, when we came out, we would come out and bypass this area and come all the way down the coast and then cut out or we come down the coast this way and cut out. We just didn't go through here at all, try to avoid that.

Female Speaker 1: Did that affected you economic – that mean that you have drop your boats somewhere else. Where do you usually drop your boat?

Kevin Bellington: Right here.

Female Speaker 1: Okay. So – okay.

Kevin Bellington: But – and [00:50:00] you know, the shortest distance between two points is a straight line. So, if I come up in Cape Romano here and I'm coming to here, I got to go through there.

Female Speaker 1: Right.

Kevin Bellington: I'm going to one of the towers, I got to come through here. So, anytime I can't go through a straight line to get to where I'm going and I have to come here and then out or here and then out.

Female Speaker 1: Yeah.

Kevin Bellington: It adds, you know, a certain percentage to my total trip to the time and to the expense of the trip. So, my fuel wind up and my time wind up.

Female Speaker 1: These species were similar to what you usually target because they were only affected in this area?

Kevin Bellington: No. No, the stuff that I targeted offshore weren't affected in this one at all. They were nothing that I targeted offshore was affected adversely until this last, this last one is one that just wiped us out.

Female Speaker 1: We'll talk about that in a minute. I have one more question. You mentioned mullet was affected in 2015. Did you notice anything in particular about the mullet, about the way they're responding?

Kevin Bellington: Yeah, I don't pay much attention to mullet, I just noticed when I see them floating, I don't buy mullet fish...

Female Speaker 1: What about other species?

Kevin Bellington: Well, the other, the bait species we don't pay much attention to their spawning habit either. Really, the only fish that we pay a lot of attention to about the spawning habits or the trouts.

Female Speaker 1: Okay.

Kevin Bellington: Yeah, that I think only ones that we - because we try not to target the females trout during the spawn.

Female Speaker 1: Got it.

Kevin Bellington: And that's the only reason that we even pay attention to that. The rest of them, it's, you know, if the season is open, we'll catch them.

Female Speaker 1: And I remember, you mentioned the trout was affected by them?

Kevin Bellington: In this area?

Female Speaker 1: In 2015?

Kevin Bellington: Yeah, just off the shoals here, there's a little grass flat, yes. That will - that killed all the trout out there.

Female Speaker 1: [00:52:00] Okay. So that was 2015, you said even in 2016, you know, it's sort of like a normal?

Kevin Bellington: Yeah.

Female Speaker 1: Red tide after that.

Kevin Bellington: Those kind of hard to remember because we get them, it may be a week or two. And it may be just a localized, you know, a couple of square miles and it's no big deal and we're close up on the beach. And a lot of times with these smaller



events, I don't even know about them until my customers tell me. They'll say hey, we're out on Tigertail Beach and we're trying to walk down the beach and it was - we were having trouble breathing. And I'm - and then every time I know that's a red tide event, so...

Female Speaker 1: In 2015, well you said you avoided the area as soon as you noticed it. But did it affect the shores like, did your house get affected in any way? No. As long as you can avoid it, usually it's okay. Okay, got it.

Kevin Bellington: Now, the island of Cape Romano, there's quite a few camping areas on this beach and on this beach. Those pretty much shut down during that because it smelled horrible out here. Just the amount of dead fish were washing in with the tide and the stench out there was just horrific.

Female Speaker 1: In 2015?

Kevin Bellington: Yeah.

Female Speaker 1: Again, anything that you could link it to, why do you think it was so nothing? [Overlapping conversation] [00:53:23]. Yeah, yeah. All right. So, after that, what's the next big one?

Kevin Bellington: The next big one was this one last year.

Female Speaker 1: Okay. Let's talk about that?

Kevin Bellington: Yeah.

Female Speaker 1: When did you first notice it?

Kevin Bellington: Oh gosh. I'm going to say towards the end of July, we started noticing dead fish.

Female Speaker 1: Where?

Kevin Bellington: Off of Cape Romano.

Female Speaker 1: Off of Cape Romano?

Kevin Bellington: Yeah. It's just right at the point of this, right there.

Female Speaker 1: Green or red - oh, we have red, we use during - and then I drop my [00:54:00] green mark.

Female Speaker 1: Purple, we have purple.

KevinBellington

Female Speaker 1: Yes. We got plenty of colors.

Kevin Bellington: Okay. Well now, this one – I mean, this one affected everything.

Female Speaker 1: Okay.

Kevin Bellington: I mean, from where we are all the way out.

Female Speaker 1: Like how many miles out?

Kevin Bellington: 50 miles.

Female Speaker 1: 50 miles out.

Kevin Bellington: And then it's just – you can just follow the coast around like this and anything inside of 50 miles, there were dead fish in.

Female Speaker 1: Okay.

Kevin Bellington: I mean lots of dead fish. Just acres and acres of floating dead fish.

Female Speaker 1: So, how would you bring this all the way to here?

Kevin Bellington: Oh, it went all way up.

Female Speaker 1: All the way.

Kevin Bellington: We couldn't go far enough north to get away from it.

Female Speaker 1: So, you don't know how far?

Kevin Bellington: No.

Female Speaker 1: How far did you get?

Kevin Bellington: Oh, we went up past Fort Myers.

Female Speaker 1: Past Fort Myers?

Kevin Bellington: I went all the way up past redfish past and then we just couldn't seem to shake it.

Female Speaker 1: Okay. So, it's 50 miles out dead fish.

Kevin Bellington: Well, matter of fact, I know it went farther now, if you guys were up at Madeira Beach, you know about what they had.

Female Speaker 1: Yeah. We talked about Madeira Beach.

Kevin Bellington: I was out there in November in Madeira Beach and we went to walk on the beach one day and I couldn't walk on the beach and that's in November.

Female Speaker 1: November, wow.

Kevin Bellington: The red tide was still so bad up there that I couldn't breathe on the beach.

Female Speaker 1: Wow.

Kevin Bellington: It was horrible and just acres of dead fish. And the funny part was, I talked to several people that were fishing up there and they were excited because the last couple of days, they had not seen fish washing up on the shore and they thought that maybe it was over. And I said, well, no, there's just no more fish. No more washing up because they're already all dead. I've never seen anything to scale with this devastation [00:56:00] before ever. And I know, I've talked to guys that have been down here for 50, 60 years, the old timers. They've never seen anything like this. They had never seen one this – cover this much area and be this - absolutely devastating. And nobody knows why.

Female Speaker 1: So now – yeah, this is going to be a next question talking to all these folks, have they – have any...

Kevin Bellington: The news it's the algae coming out of Okeechobee, it's the phosphate. You know, it's the run-off, I don't know. I'm not a scientist, I wish I was. You know, I've tried them because it really drive me crazy trying to figure out what's causing this.

Female Speaker 1: It's driving me crazy, I'll tell you that.

Kevin Bellington: Well, I know, there's more than one reason. I mean that there's – it's more than one factor involved. Honestly, nobody believes me but I still think we're having residual effects from the BP oil spill.

Female Speaker 1: We've heard that before.

Female Speaker 1: Yeah.

Kevin Bellington: They talked about, you know, it's over, it's done and they put that dispersants on it. Well, that wasn't a dispersant that all it did was just sink it to the bottom. And now you've got these giant tarballs as big as a city down there just rolling across the bottom with the currents. And whatever that rolls over it smothers that, whether it'd be marine life, coral fish, anything. Whatever it sets on for any period of time, it's going to die because it can't breathe in that toxic environment. So, if it rolls along the bottom and just starts killing everything in its path, everything out here is

connected. I mean every little plankton and everything is connected to the next thing of the food chain. If you kill something on the bottom, eventually it will move up the food chain until it starts to affect the top predators. And I – that's what I see. The only thing that I have not seen [00:56:00] it really affect is the sharks. And that's because the sharks are more opportunist and they are hunters.

Female Speaker 1: Okay. So, this one killed off everything but sharks?

Kevin Bellington: Yeah, I never saw a dead shark. Now that I guess, north of us, they did see sharks floating. I didn't see any down here. But I mean almost everything else, I saw dolphins floating down here. And it's got to be a really significant event for it to affect that dolphin enough because that means he's got to get enough of that ingested into his lungs when he comes up to blow to cause respiratory, you know, irritation. And then that's got to develop into something like pneumonia or whatever before he dies. So, I'm guessing that would have to be a huge concentration or over a prolonged period of time to cause that to happen. I'd never seen dolphins been washed up dead. The manatees were coughing and sneezing and wheezing, so I know it was affecting them. They didn't – I didn't see it kill any of them but I know that it was affecting. But, you know, all the fish was just – it was horrible, I never saw anything like that.

Female Speaker 1: Let's think a little bit about the timeline again. So, you said you've noticed first in June, 2018?

Kevin Bellington: Yeah, it started maybe in June, July.

Female Speaker 1: June, July of 2018. And immediately, it was so widespread or initially was just...

Kevin Bellington: It moved. It would, you know, one day it would be straight out, straight west of Marco.

Female Speaker 1: Okay.

Kevin Bellington: You could go straight west and go 25 or 30 miles, and you were still running through dead fish. And then the next day, you can go north, 25 or 30 miles and there will be no dead fish. But two days later, you could go north on the same course and there would be dead fish there. So, I think it was either moving or the tide was moving some of the dead fish, I don't know. But I know we've covered a huge area, [01:00:00] we came out for I don't know, probably two weeks and just started going out in different directions trying to find places where it wasn't affected. And in probably three months, we went out 25 or 30 times, not once did we go in any direction that we didn't run into some dead fish somewhere. Sometimes they wouldn't start telling route, we're out here 20 miles. Sometimes they'd start as soon as we got to pass the five mile and then we continue all the way up to almost 50 miles.

But there was never a trip that I can remember going out that time that there wasn't some dead fish somewhere and across the board. I mean, [indiscernible] [60:47] snappers, groupers, goliath groupers, kingfish, triggerfish, spadefish, permit, giant permit float on, never seen anything killed the permit before. Permit are very healthy fish, pumping up, they die. I mean, it just much pretty much anything that swam, died. Big eels, like our big, not morays, but the grey eels, they're probably five feet long. Sea snakes, I saw a dead sea snakes out there. Never seen a dead sea snake before and I saw several. I mean, four or five footers, you know, that's a pretty healthy beast. And it takes – and they usually lives in 80 plus feet of water.

And what I've noticed over the years is that if we have a moderate red tide event, it usually doesn't affect out past 30, 40, 50 feet. Once you get past 30 or 40 or 50 feet of depth, then the bottom fish don't seem to be affected by it. This time it went all the way out to 60, 70 feet and above or you saw a dead fish out to 100 feet. You know, that was [01:02:00] what really floored me because I never seen fish kills on the bottom that far out before, I've seen them in close but never out, never out that deep. And when they start dying out there, you talked about an economic impact, now we can't run. I mean, I can only go so far like, you know, I've been limited by the amount of fuel that I can carry and how fast my boat will go. And right now, I'm limited to about 125 miles in one way. But that means I got to do it 250 mile round trip at about a gallon to the mile or mile to the gallon. So, now you're talking 250 times for that's \$1,000 in fuel every day.

Female Speaker 1: That's, I mean, how is that economic, I mean...

Kevin Bellington: I can't charge enough. I can't charge enough to be able to cover that. If I'm spending a \$1,000 in fuel, 4 or \$500 in bait and tackle and ice and just incidentals, so I'm up to \$1500 dollars, that the most I can charge is about \$1800. That means I go out and work all day long for \$300, I can't do that, I'll go broke in no time.

Female Speaker 1: So did you – I know you said your business was down about 22% last year. Did you have to take any time off completely because of this event or?

Kevin Bellington: Yeah. But there were a couple of weeks in there that I didn't move at all, just didn't have any thrills and that's unusual for me. I'm usually on the water about 300 days a year. And last year while this – I haven't done 2018 yet but I'm probably down 50 days. I'm probably down below 250 for 2018.

Female Speaker 1: Well, when was the last time you notice the red tide for this event?

Kevin Bellington: Here?

Female Speaker 1: Uh-huh.

Kevin Bellington: Last Saturday.

Female Speaker 1: Last Saturday.

Female Speaker 1: Oh, wow, you said last Saturday?

Female Speaker 2: Where did you start?

Kevin Bellington: [01:04:00] Yeah. It was a small patch and the only reason we knew it was red tide is all our baits die. We were offshore about 18 miles, my shrimp...

Female Speaker 1: Can you show us what you found out?

Kevin Bellington: Where were we? It was Cape Romano. We came out here because it doesn't show the tower.

Female Speaker 1: What if I wanted the towers, like...

Kevin Bellington: Yeah, we were out by the Earth Tower. It's going to be somewhere in this area, I don't know.

Female Speaker 1: Last Saturday, wow.

Kevin Bellington: Yeah. Well, I don't know it could have happened anywhere in between here.

Female Speaker 1: Yeah.

Kevin Bellington: But this is where we stopped to fish and that's what we noticed our bait was dead. So, we could have run through a patch anywhere along here and killed the bait, we just wouldn't have known that we stopped to fish. But when we stopped to fish that 80% of our bait was dead.

Female Speaker 1: That was the fifth, right?

Kevin Bellington: Yeah.

Female Speaker 1: Any idea what triggered that or?

Kevin Bellington: No.

Female Speaker 1: No, wow.

Kevin Bellington: None. It could have been totally unrelated to red tide. I mean, there are different –there's other bacteria out there. And there's sometimes there's just something in the water that doesn't agree with the bait [Overlapping conversation] [01:05:20]

Female Speaker 1: Did you have any of the health symptoms?

Kevin Bellington: No, I didn't have any coughing or anything. But usually when I'm up on plane and I'm running, I don't get that. I only get it when the water gets aerosolized up next to the boat. But when you're moving forward that fast, all the aerosolized waters behind you, so I wouldn't have noticed it. The only time I would notice that is if we splashed into a wave and it broke up over the front and that's when you really notice is everyone in the water gets stirred up and aerosolized, then I noticed it's very bad. But up on plane I'm running 45 miles an hour but I haven't notice that but I just noticed that when we stopped and all of our bait was dead.

Female Speaker 1: Wow. [01:06:00] So, before that last one, was there a like a longer period of time or do you notice the red tide?

Kevin Bellington: Oh, no. The one from last year just lingered up until, well, this is April? I bet it lingered well through February. We still are running into patches red tide out here in February even in the backlog.

Female Speaker 1: Really.

Kevin Bellington: I mean, back in Pumpkin Bay, back in here and, you know, because I fish all of this area here. And all of these little bays back in here. There has been times when all of these bays have had red tide in them. And then you got Sugar Bay.

Female Speaker 1: So, when you have these little spots in the bays, I mean, do you see those pushing from offshore.

Kevin Bellington: I'm guessing, yes. I'm guessing that what happens is we get a pretty strong tide and not much wind, so the tide brings those in and it kind of walks them in there and they'll just stay there for however long they stay alive. I don't even know how long those spores remain active.

Female Speaker 1: I think they start to feed on that, you know, as they kill things, they just the population feeds and when it's killing.

Kevin Bellington: Okay.

Female Speaker 1: So my understanding is once they get started and they kind of, [Overlapping conversation] [01:07:19]

Kevin Bellington: Okay. So, that they could last for indefinite amount of time in there, as long as there's nothing that acts upon them to move them out.

Female Speaker 1: Yeah.

Kevin Bellington: Or they run out of food.

Female Speaker 1: I'm just curious if the blooms initiate here and this stuff is getting pushed off from the offshore.

Kevin Bellington: Well, from all of the indications that I've got, the blooms start somewhere between eight and 20 miles offshore. That's the home of the plant of the *Karenia brevis* organism. And then all of the stuff that happens back in here is caused by either wind or tide bringing it in. And that's the best information [01:08:00] that I can get.

Female Speaker 1: Yeah.

Kevin Bellington: And if I'm wrong, I hope you can tell me because I don't want to give people the wrong information.

Female Speaker 1: Well, I don't know because I've read that too. But I've talked to a lot of fishermen who think that it originates close to the shore then far offshore. So, that's why I ask [overlapping conversation] [68:16]...

Kevin Bellington: See that's the problem with fishermen. Fishermen are not scientists. I'll be the first to admit, I'm not a scientist.

Female Speaker 1: Yeah.

Kevin Bellington: I am interested in this whole phenomenon because it affects me.

Female Speaker 1: Yeah.

Kevin Bellington: And so, I try to get as much information on it as I can but there's not a lot out there. I mean, there have been a few good articles written about it over the years.

Female Speaker 1: Yeah.

Kevin Bellington: But one of them that was written, I don't know, probably 10, 15 years ago, I've read. And I really thought was a great article and they really went into depth on everything, what was happening with this. Well, three, four years ago, somebody from Mote Marine Laboratory debunked about half of what they said. So now, I'm back to square one, I'm going okay. I believed all that for until somebody came along and said, no, that's not true.

Female Speaker 1: Yeah.

Kevin Bellington: So, you know, who do you believe?

Female Speaker 1: Yeah. I mean, most of the work that I've seen is – yeah, its combination of offshore factors and there's inshore factors and everyone's kind of in



agreement that they're all at work. But that is not answers. And so which is more important or what drives this major bloom.

Kevin Bellington: For a second, tell me, you know, give me a set of parameters that would trigger a large bloom. You know, whether it'd be water clarity, water quality, salinity levels, temperatures, bacterial levels, whatever. If they, you know, if you had 20 different criteria that you know were met during this bloom and during that bloom. If all of those criteria were met during those two blooms, then you could start narrowing it down and say, okay, we have those conditions when this happened. And we had those same conditions when that happened but we didn't have them when this happened.

Female Speaker 1: Yeah.

Kevin Bellington: So, you know, maybe this being a [01:10:00] minor event. It wasn't totally a red tide event.

Female Speaker 1: Yeah. I don't know.

Kevin Bellington: And that would be nice to be able to tell the difference.

Female Speaker 1: That wouldn't be. Part of the issue is we don't have, you know, we're not out there on the water like you guys are. So, I mean, I could look at the data from the state but they didn't go sampling out here last week. So I...

Kevin Bellington: No, they don't sample this.

Female Speaker 1: No, that, yeah.

Kevin Bellington: No.

Female Speaker 1: They don't sample that at all. They sample up here and over by Marco.

Kevin Bellington: Yeah.

Female Speaker 1: But they don't sample out here so.

Kevin Bellington: Yeah, the only samples they take are right off of like Tiger Tail beach over here off of Marco.

Female Speaker 1: Yeah.

Kevin Bellington: I think they take one over here at the County Ramp and Goodland, just right around the corner, which is really not very effective because we're landlocked in here, we're inland.

Female Speaker 1: Yeah.

Kevin Bellington: And, they need to be out on the edges where the Gulf of Mexico meets the islands.

Female Speaker 1: Yeah.

Kevin Bellington: I mean, that's the way to tell is it being brought in by the tide? Is it being brought in by the wind? Is it originating here and moving out.

Female Speaker 1: Exactly.

Kevin Bellington: You know...

Female Speaker 1: So it's...

Kevin Bellington: Testing back in here, I don't think really gives them a fair testing sample.

Female Speaker 1: Yeah.

Kevin Bellington: And, if you guys ever want to get something going or you want to go offshore and test, call me. I would be more than happy to help.

Female Speaker 1: Well, you know, where he's in call is, there's some fisherman that we've been working with out at Pine Island is they're actually initiating their own water quality testing and we're working with them. So, when they go offshore and they see water that look odd?

Kevin Bellington: Are they with Captains for Clean Water or are they...

Female Speaker 1: No, it's – Casey Streeter is the captain's name who...

Female Speaker 2: I've heard that Captains for Clean Water.

Female Speaker 1: Yeah.

Female Speaker 2: You think that's what they called themselves for?

Female Speaker 1: No, no, no.

Female Speaker 2 No? Okay.

Female Speaker 1: His organization is Florida Commercial Watermen's Conservation FCWC. But Casey Streeter is the guy who's initiated a lot for...

Kevin Bellington: I mean, I don't know why we haven't over the years worked more closely with NOAA and the scientists.

Female Speaker 1: Yeah.

Kevin Bellington: I'm out there [01:12:00]. Why don't you just give me a couple of test kits? I will take samples while I'm out there. All you have to do is show me how to take the samples and keep them, you know, the chain of command or the chain of evidence, sealing them and bring them back and give them to you or you pick them up here to Marino. I have no problem. It takes me two minutes to take a sample while I'm out there.

Female Speaker 1: Yeah. So that's what we're trying. I can put you in touch with Casey, but that's...

Kevin Bellington: Okay.

Female Speaker 1: ...the idea is that, you know, when you're out there seeing this water and he's actually, he's gotten his own funds to purchase the professional scientific water quality equipment. So he's not only just sampling, you know, for *Karenia* but he's...

Kevin Bellington: Well, yeah, they're probably more concerned especially up in Pine Island, they're concerned with the one from like Okeechobee.

Female Speaker 1: Yeah, yeah.

Kevin Bellington: Yeah, that's Okeechobee guy is one of these.

Female Speaker 1: Yeah. Thank you.

Kevin Bellington: And I don't understand their frustrations up there, because they have got a whole different set of problems that we don't have here.

Female Speaker 1: Yeah.

Kevin Bellington: You know, we don't have the Green Algae.

Female Speaker 1: Yeah.

Kevin Bellington: As of yet.

Female Speaker 1: Yeah. But it's not just Pine Island. He's got folks up in Madeira Beach or in just – so he's, trying to branch out but anyways...

Kevin Bellington: We're all in the same boat.

Female Speaker 1: Yeah, exactly.

Kevin Bellington: We've only got so much water out there. And if we don't take care of it, it's going to die. And this, what's happening right now has gotten me really scared. Because, I mean, I've been doing this a long time, and I have never seen it this bad. I mean, it's driving a lot of guy dead business. I mean, I'm fortunate because I've got established clientele and I can do fishing at backwater, even if this out here just turns into a desert. I can still fish in the backwater. And, I do a fair number of trips that have nothing to do with fishing. They're just sightseeing and shelling and, you know, aqua-touring.

Female Speaker 1: Yeah.

Kevin Bellington: I can do that, it doesn't bother me. Because then when it comes to fishing, fishing, we don't keep any fish anyway. I'm a huge advocate for catch and release. We don't keep very many [01:14:00] fish at all.

Female Speaker 1: Yeah.

Female Speaker 1: I just want to make sure I understand. Do you know kind of like the extent in this direction? What was the – where did you this far, did you...

Kevin Bellington: No, because I only went about 23 miles is as far as I would go.

Female Speaker 1: Yeah, let's make a note of that because even if that's how far you went and you've noticed it all the way here.

Kevin Bellington: Yeah, I noticed it all the way down to Pavilion Key is probably the farthest south I go out of here.

Female Speaker 1: And, how far, you know, in short does it – you mentioned here, we have it a little bit at the base, but...

Kevin Bellington: Well, there's Pumpkin Bay, I've seen it back in here. I've seen it Buttonwood Bay, Faka Union Bay. All of these smaller bays in here, like, I thought Sugar Bay, I've seen it in their Palm Bay, Santana Bay, I've seen it all the way back into these.

Female Speaker 1: Okay.

Kevin Bellington: You know, so that's a pretty good distance from the Gulf. Now, this was Whit Horse Key. From White Horse Key to Pumpkin Bay is probably about two and a half miles.

Female Speaker 1: Okay.

Kevin Bellington: And, you have to kind of wind back up in there. And, I've actually seen red tide as far back as Pumpkin Bay. Now, it's like some of these, the closer ones here, like Shell Key Bay is kind of connected to the Gulf of Mexico. There's only one little opening here and there's an opening here. But this is the Gulf coming in both of those places. So, yeah, that I can understand the tide getting in there. But to get to Pumpkin Bay, look at the path that this water's got to travel to get there. I mean, it's got to come up here, make all these turns, and come in here because it can't make it all the way through here. There's too many islands in there.

Female Speaker 1: Okay.

Kevin Bellington: I mean, it would be filtered before it got there. So the only main channel to get in there is just one main [01:16:00] channel that comes in there. And that's a long way for water to flow through a pretty narrow, relatively speaking, narrow channel to get in there.

Female Speaker 1: And this, I mean, the tides get up that far?

Kevin Bellington: Oh, yeah.

Female Speaker 1: Before it stop?

Kevin Bellington: Yeah.

Female Speaker 1: Yeah.

Kevin Bellington: Pumpkin Bay is actually a tide station.

Female Speaker 1: Okay. And you see, like, fish kills in there, right?

Kevin Bellington: I didn't notice major fish kills. They're mostly the stuff that died back in there were the – what we called the first line, which is the catfish. Catfish die, any little pin fish and bait fish die. The real sensitive fish, they die.

Female Speaker 1: Did you see those?

Kevin Bellington: But we didn't see any of the more hardy fish like the redfish and the snook and stuff like that were not affected back in there. But you could – I could tell it back in there because I got the respiratory and, you know, the sore throat and stuff.

Female Speaker 1: Okay.

Kevin Bellington: And all through these is these all these keys down in here. It was – it's been on occasion, get pretty bad.

Female Speaker 1: Yeah. And then out here is that pushing all the way up to the beach?

Kevin Bellington: Oh, yeah.

Female Speaker 1: Yeah. Okay. So, it's to the shore?

Kevin Bellington: Yeah, this is Tiger Tail beach over here. And this is the one – and then this is also pretty good or Keewaydin Island.

Female Speaker 1: Okay.

Kevin Bellington: And, again gets hit really bad or there's Keewaydin Island. And that gets really bad, that's Keewaydin Island. Yeah, this is [indiscernible] [01:17:24]. This gets hit really hard because it's open right to the Gulf of Mexico.

Female Speaker 1: Okay.

Kevin Bellington: And, when you got any kind of a north wind or a west wind, it's pushing it directly onto that beach. And the wind really seems to be a huge factor in moving this red tide on the surface.

Female Speaker 1: Okay.

Kevin Bellington: Even more so than that the current itself.

Female Speaker 1: Even more than the current? Okay.

Female Speaker 2: So, since June 2018, when it's started, was there – what was the peak period [01:18:00] for red tide, like, worse?

Kevin Bellington: Probably in September, we saw a real heavy resurgence of it in September, October, which is normally one of our slow periods of the year, I mean, as far as business goes. So, it wasn't that big a deal, because I'm usually not as booked solid during that.

Female Speaker 1: Okay.

Kevin Bellington: But during that time, I usually do all my tournaments and stuff. And I remember I had to cancel a couple of my tournaments because of it. Because I just made – we just couldn't fish and it was horrible out there. There was just no fish to be had and the ones that you did find were just sick. We, see when we do that, we started in – I think I started in July. And, we didn't end our moratorium on keeping fish until well into February. I mean, we just imposed our own company moratorium on keeping fish. We just want to let anybody keep any fish, because we were scared.

Female Speaker 1: Yeah.

Kevin Bellington: You know, the bacterial levels were just off the charts back here.

Female Speaker 1: Yeah.

Kevin Bellington: You know, because of all the fish kills, because all those dead fish, the ones that you don't see on the surface, float to the bottom, and they rotted.

Female Speaker 1: Yeah.

Kevin Bellington: And that's a lot of bacteria out there.

Female Speaker 1: Yeah, yeah.

Kevin Bellington: And that bacteria just gets pushed in and out with the tides. And, that's when we really start seeing our trout, especially showing up with just huge lesions on them, big sores looks like ulcers almost on their skin. And where the fin meets the body, there'll be just a thin red line of ulcerous skin.

Female Speaker 1: Yeah.

Kevin Bellington: And, it was just really, really red and infected.

Female Speaker 1: Yeah.

Kevin Bellington: So we just, like I said, we just put a moratorium on new people keeping fish. We can catch them and release them. And we actually even tried to keep people from handling at that point, because I didn't know what it was. I know, you know, red tide had been bad. But I don't know what that bacteria causes [01:20:00]? That bacteria could cause all any number of infections.

Female Speaker 1: Yeah.

Kevin Bellington: You know, and the last thing I need just to have a customer is a digit to handling a fish in proper way.

Female Speaker 1: Did you hear of any kind of like extreme health effects on the community or among the fisher have been on the captains or?

Kevin Bellington: This last year, yes. I thought that I've run into half a dozen different captains that had – we've got a thing and we get most to the offshore guys get. It's called grouper rash. That's what we always called it was grouper rash. And it's a bacterial infection that gets in your skin. And that's mostly from handling grouper. I used to get it every year when the grouper were dick out there, I would handle so many grouper per year that I would get these just horrible rashes on my hand and the skin starts to dry and it starts to crack and it bleeds and it just won't heal. And you need to put all kinds of lotions and stuff. I finally ended up going and getting prescriptions to put on it. And that

cleared it up. Now since this red tide, because there have been no grouper, no grouper rash. I have not gotten once.

Female Speaker 1: Wow.

Kevin Bellington: But several of the guys have gotten infections from the water just by being stabbed by, you know, different fish when they're handling them and stuff.

Female Speaker 1: Yeah.

Kevin Bellington: They get stuck. And if they don't get it cleaned out right away, they wind up with pretty nasty infections. Well, one guy was in the hospital for two days. They put him on an IV drip.

Female Speaker 1: Wow.

Kevin Bellington: I was afraid he's going to lose his hand, just puffed up like a balloon.

Female Speaker 1: We've heard of you.

Kevin Bellington: Yeah.

Female Speaker 1: Part of your stories, yeah

Kevin Bellington: So, yeah, we're just very careful about it anymore. But like I said, we put that moratorium and effect all the way into about the middle of February.

Female Speaker 1: Okay.

Kevin Bellington: We wouldn't let anybody keep any fish back here.

Female Speaker 1: Oh.

Kevin Bellington: Just said no, can't do it.

Female Speaker 1: So, after February, you've noticed last of the...

Kevin Bellington: We started noticing more healthy fish.

Female Speaker 1: Okay.

Kevin Bellington: Yeah, the trout and stuff started coming up. We're seeing fewer and fewer of them with lesions on them. Now in the last month, no lesions and they all [01:22:00] looked healthy.

Female Speaker 1: Okay.



Kevin Bellington: The big females are full of eggs again, and they look really good.

Female Speaker 1: Okay. So you're saying since February until now, you've seen a gradual improvement in the fish population.

Kevin Bellington: Uh-huh.

Female Speaker 1: Please...

Kevin Bellington: In some species.

Female Speaker 1: Okay. So...

Kevin Bellington: None of the ones out here.

Female Speaker 1: Okay. Can you tell us about those different species and how they are affected?

Kevin Bellington: Mostly our trout and lady fish and mackerel have really rebounded in the last three months.

Female Speaker 1: Okay.

Kevin Bellington: They're still not back to what I would call normal levels. But there's more than there were.

Female Speaker 1: Uh-huh.

Kevin Bellington: We're starting to be able to find them pretty much on every trip. Prior to that back in January, February, sometimes we would have to really, really search to find a place where there were any trout at all.

Female Speaker 1: Okay.

Kevin Bellington: They were just really tough to find.

Female Speaker 1: Uh-huh.

Kevin Bellington: But now, they seem to be coming back a little bit. And, know you, part of it is just due to the time of year.

Female Speaker 1: Okay.

Kevin Bellington: You know, they are cyclical with the temperature of the water. And when the water temperature comes up to into the high 70s, the trout have a tendency to start moving out onto the grass flats and they become more prevalent.

Female Speaker 1: I see.

Kevin Bellington: When the water temperatures in the 60s, they moved back up into the deeper holes, they're harder to find. And when the water gets up into the 80s, they again, they move back up into the deep holes because then it's too hot, and they won't come out on the grass flats. So 70 to 82 degrees, that's when the trout are usually out on the grass flats and we're starting to see more and more of them come out right now. And our water's right at about 80 degrees right now. That's what it was this morning.

Female Speaker 1: So you said like 20% of your fishing though is offshore. What do you notice about offshore?

Kevin Bellington: Offshore is horrible. I was out Saturday and Sunday, we caught one gag grouper and four sharks. That's all we caught in two days. [01:24:00] It was horrible.

Female Speaker 1: You notice death fish?

Kevin Bellington: We caught a few lane snappers, but not many.

Female Speaker 1: Any dead fish that you notice or just like there's no fish?

Kevin Bellington: No, no floating fish. There's no floating fish.

Female Speaker 1: There's just no fish in the water?

Kevin Bellington: They are just not there anymore.

Female Speaker 1: Yeah.

Kevin Bellington: All the habitat that normally would hold red grouper just devoid.

Female Speaker 1: So right, like, normally during this period of the year, you would see a lot of red grouper, what else would you see?

Kevin Bellington: Oh, yeah.

Female Speaker 1: What else would you see?

Kevin Bellington: Mostly red grouper, lane snapper, porgies, grunts, about three different species of grunts, blue runners and blue fish. Now our blue runners and blue fish are just off the chain this year. They're everywhere. I don't know. Because I think

they're more of an opportunist fish. I think they're eating some of the dead fish on the bottom. I think some of the fish that didn't rise to the surface when they died are still, carcasses were still on the bottom. And I think those blue runners and blue fish are feeding on those carcasses. Yes, probably.

Female Speaker 1: These are including?

Kevin Bellington: Millions and millions of pounds of them down there so.

Female Speaker 1: Wow. So, you're saying there are still down?

Kevin Bellington: Oh, yeah. I think they are. We need to talk to the divers, we need to talk to.

Female Speaker 1: We have. I've talked to some of the divers above Madeira beach, yeah. I mean, they didn't get it that bad up there this year. I mean, this last year's event was much worse down here than up there, is my understanding but, yeah.

Kevin Bellington: I would definitely want to talk to especially the commercial divers down here and see what they're seeing.

Female Speaker 1: Yeah.

Kevin Bellington: Do you talk to the shrimpers at all?

Female Speaker 1: No.

Female Speaker 1: We've talked to – well, for they're up north, they're not here, we've talked a lot with stone crabbers. We did go and put cameras down. And we need to repeat that. But we had some cameras down last October when we're on survey the big affected area, we went all the way up to [01:26:00] Pine Island area from the Keys and sample.

Kevin Bellington: Well, there's a reef 22 miles out. And it's a large reef. It's probably five to six miles north to south, and probably two to three miles east to west. And that was a reef that I fished for many, many, many, many years. And, up until probably 2017, I could go up there any day. I don't care what part of the year it was. If the waves were small enough for me to get out there, I could go up there and catch a limit of red grouper every day. And just, we got there for tournaments. And we would catch 200 or 300 red grouper in a morning.

Female Speaker 1: Wow.

Kevin Bellington: And, most of those would be keeper sharks. Since this last red tide event, I've been up there three times. I have not caught one very big. Not one.

Female Speaker 1: Do you think the red tide killed the bottom habitat or just the fish?

Kevin Bellington: I think it killed the bottom habitat.

Female Speaker 1: The bottom habitat? Yeah.

Kevin Bellington: I don't know if red tide affects coral, because coral doesn't breathe through gills like a fish does so.

Female Speaker 1: Yeah.

Kevin Bellington: But I don't know. Whether it – I've pulled up a couple of pieces of coral in the last 18 months and haven't noticed any significant differences in them, no dead spots or anything. They're mostly still pretty alive.

Female Speaker 1: Okay.

Kevin Bellington: In any of the coral that I've seen.

Female Speaker 1: Yeah.

Kevin Bellington: But I haven't been diving.

Female Speaker 1: Yeah.

Kevin Bellington: I quit diving when this water got really bad. I just quit going down there.

Female Speaker 1: Yeah, I don't know if red tide affects corals itself. But we did – when we went out sampling last year in October, we documented a really large area of low oxygen or zero oxygen [01:28:00] from all that, you know, rotting red tide or whatever it is, you know.

Kevin Bellington: Well, just the dead fish will deplete the oxygen because they converted into carbon monoxide.

Female Speaker 1: So that, yeah, that'll kill the corals. No oxygen but I don't know about the red tides itself.

Kevin Bellington: Yeah, like I said, the leases reef up there is just, like I said, I've been fishing out for about 18 years.

Female Speaker 1: Yeah.

Kevin Bellington: And, I mean, it was just an absolutely steady supply fish.

Female Speaker 1: Yeah.

Kevin Bellington: Never wavered from year to year, from one part of the year to another didn't matter. If you could get out there, you can catch all the gag grouper for you want. They were just everywhere. And I dove that back in 2007, and it was just absolutely amazing. There were barrel sponges that tall, just giant 55 gallon drum looking things, and gorgonians and fans and, I mean, it was just alive. And behind every leaf, was a big older group. And, I could take you out there today and you could probably fish for two hours and maybe catch a grunt, maybe catch a small Porgy or a snapper or something and that's it. There are no [01:29:19]. And there's – that's not overfishing. I mean, I can – I understand the whole thing about overfishing. That's not overfishing. You couldn't send enough boats up there every day to over fish that reef. It's just – it would be virtually impossible.

So, there's something affecting that that's not overfishing. It's red tide. It's the BP spill. It's [indiscernible] [01:29:47]. It's the green algae, I don't know. I think it's all pieces of the same puzzle. And I think they're all working together to decimate this fishery [01:30:00]. And if it didn't it, I'm telling you, if it doesn't change, the state of Florida is really going to be hurt. Because if you lose all of this fishing up and down this West Coast, do you know how much, I mean, sure, we're still going to get a lot of the tourist dollars. But you're going to lose a lot of ton. All these people here with boats, you know, yeah, the guys are still going to fishing in that water. But all the big boats, all the guys that buy the big \$3000,000, \$4000,000 or \$500,000 boats with fought engines on and that are paying, you know, \$50,000 in taxes every year, they're not going to do, they're going to keep those. They're going to get rid of them. What's the point, if I've got to run out here 130 miles just to catch a fish, and then the limits are down to two grouper per person?

Female Speaker 1: Yeah.

Kevin Bellington: So now, I'm running 130 miles to catch two groupers.

Female Speaker 1: Yeah.

Kevin Bellington: It doesn't make any sense. I can go right over here to Kirk's fish house for 18 bucks a pound by all the grouper I want. It's just not economically feasible. And I tell my customers that. That's how I've gotten a lot of my customers to agree to catch and release.

Female Speaker 1: Yeah.

Kevin Bellington: I mean, even on our polytypic species, I said really, honestly, if you're coming out here to catch fish to eat, first of all, if they call me and they want to go out catch fish to take home, they don't go with me. I tell them to go with somebody else. I don't do any trips anymore.

Female Speaker 1: Yeah.

Kevin Bellington: But if they do decide to go with me and they honestly think they're going to run out there 100 miles to catch two grouper for dinner, I really discourage them from doing it. I said, if you want grouper for dinner, go to Kirk's. First of all, its FDA approved. It's been checked. I can't verify that what you're catching out there hasn't been chewing on some kind of deadly bacteria. So, why do you want to take that chance? Now let's go out catch them fine, catch them, take a picture, put them back. And that's what we really practice a lot.

Female Speaker 1: [01:32:00] I want to discuss a little bit more on how this last event, 2018, changed your business practices, your fishing practices. You mentioned, you've already talked to us a little bit of how you kind of like shifted to more inshore fishing.

Kevin Bellington: And that's the biggest thing, is we've just shifted bigger portion of our business to backwater. And to the aqua-tourist and to the dolphin-tourist and to the shelling-tourist and things like that, we're just steering away from the offshore a little bit more, because it's just not cost effective anymore to go run out there 80 miles. I mean...

Female Speaker 1: So with all the changes, like shifting in shore, doing other things like the aqua-tours, are you at similar levels with previous years in terms of...

Kevin Bellington: No, I'm down about 22%.

Female Speaker 1: Twenty-two Percent? Okay.

Kevin Bellington: And it's continued, the last – it's harder is, the last month or two as a sample because historically, January, February, March and April are my busiest month.

Female Speaker 1: Oh, they are?

Kevin Bellington: So, I have to average them against September, October, November, and June, July and August. I mean, if I just use these four months, I'm probably up 18%. But when I average that out and take away what I lost in September, October, November, I'm still going to be down 20 some percent. So I'm, you know, I average I'm down 22% or 23%.

Female Speaker 1: How about if you compare on these last few months with last year, I mean, last year this time before the red tide, how much are you down?

Kevin Bellington: This the month of – this is?

Female Speaker 1: April.

Female Speaker 1: April.

Kevin Bellington: April?

Female Speaker 1: Yeah.

Kevin Bellington: The month of March, oh no, I'm sorry, the month of April last year, I'm up 42% on the number [01:34:00] of trips that I'm doing.

Female Speaker 1: Wow. So that's saved you a little bit from March come in.

Kevin Bellington: I am – my number of trips is up 42%, but my overall business is down.

Female Speaker 1: Okay.

Kevin Bellington: I'm definitely not doing near as many offshore trips. The dollar amounts have changed considerably.

Female Speaker 1: It's not more than a few?

Kevin Bellington: Yeah.

Female Speaker 1: So, tell us a little bit about this community just briefly? Like, is it mostly tourists? How is, you know, I don't know what's the population here, was it affecting the community per se?

Kevin Bellington: Well, Marco, population of Marco swells to about three times its normal size during season.

Female Speaker 1: Okay.

Kevin Bellington: Offseason, there's, I think 23,000 residents on Marco year round.

Female Speaker 1: Uh-huh.

Kevin Bellington: Don't quote me on that. I think that's right. And, during the peak of the season that swells to over 70,000. So, I mean, it's a huge influx. And that's just tourists.

Female Speaker 1: Yeah.

Kevin Bellington: That's seasonal residents, they're only here for two or three months a year. And then, just weekly rentals and that sort of thing. The JW Marriott being open here has really brought in a lot of new tourists business to Marco, because that's a huge premier resort destination. Now they used it for just giant conferences. As a matter of fact, there are several scientific conferences that have their thing here every year.

Female Speaker 1: Okay.

Kevin Bellington: One of them is a big genetics conference that they do here every year.

Female Speaker 1: Oh, cool.

Kevin Bellington: At the JW Marriott. That's fun.

Female Speaker 1: Yeah.

Kevin Bellington: Yeah. They're in a roomful of geneticists?

Female Speaker 1: We're some geneticists, yeah.

Kevin Bellington: They're just a fun group. They know how to have a good time. No, they're really actually want to go fishing with me every year.

Female Speaker 1: That's great.

Kevin Bellington: But that's been a huge draw for Marco. And it's, I would say 70% of [01:36:00] Marco's annual revenue is derived from either seasonal residents or tourists.

Female Speaker 1: Yeah.

Kevin Bellington: I mean, that's...

Female Speaker 1: 70%?

Kevin Bellington: That's why we're here. If it wasn't for them, that's up to this whole Marino is about. It's all seasonal residents and tourists. The full time residents, they keep their boats here, maybe 25%. If that – it was not, that mean they stay here around. I'm going to, well, I think there are about two or three other guy too that fish here around. A lot of the guy didn't even leave.

Female Speaker 1: Wow.

Kevin Bellington: When the season's over, they just quit.

Female Speaker 1: Yeah.

Kevin Bellington: They either go someplace else and guide or, you know, they'll move up north or whatever. But there's not very many of us that stay here year round.

Female Speaker 1: Wow.

Kevin Bellington: It's really closely tide to the tourist season.



Female Speaker 1: Yeah.

Female Speaker 1: Let me see if I have any other plan. Oh, you know, one more question that I don't know is about, are there any – you know when these events happen, is there anything that could change in terms of regulations that would help you better adapt your business practices? Do you have anything right now that it's like, oh, I would like to do this thing to help during this red tide season, but I can't? Because it's not...

Kevin Bellington: Well, yeah, well, one of them would be the Gulf of Mexico reef permitting. In order to fish outside of nine miles in the Gulf of Mexico, you have to possess a Gulf of Mexico head boat reef permit. They put a moratorium on those permits in 2000. I have a permit. But I only have one set of permits, I have two boats. And I would like to be able to switch those permits to my other boat in short notice.

Female Speaker 1: Why?

Kevin Bellington: Because there's times when one boat [01:38:00] can get offshore and the other one can't. So it would be really helpful to be able to...

Female Speaker 1: Why, I mean, I don't know anything about boats?

Kevin Bellington: Well, one of my boats only got one engine. The other one has two engines.

Female Speaker 1: Okay. So, you're kind of aware of the red tide was and how...

Kevin Bellington: Yes, if I got to go 70 miles, I want my big twin engine boat because I can get out there faster, and get through it faster. If it's out, you know, when I have to go 20 miles, then I can leave it on the single engine, that's not a problem.

Female Speaker 1: Okay.

Female Speaker 1: But you said there's a moratorium. So if you are like new in the business, or...

Kevin Bellington: You can't get one.

Female Speaker 1: You cannot even get one? And, why is that?

Female Speaker 1: But you have one and its tie to the boat, it's a big deal. That shows we can't especially get.

Kevin Bellington: Uh-huh.

Female Speaker 1: Do you know anything about, I mean, I guess we can find out why?

Kevin Bellington: Oh, trust me, I'm – we don't want to go into the technical part of that.

Female Speaker 1: Yeah.

Kevin Bellington: They're going to make me put a vessel monitoring system on my boat. And this year scientists, I just want to get your take on this. All right, let me put it to this way. If you drove a pink Volkswagen and a pink Volkswagen was less than 1/10 of 1% of all of the cars on the road. And all of a sudden the federal government came to you and said, you know, because you drive a pink Volkswagen, I'm going to put a monitoring system on your Volkswagen that you have to pay for. And, you have to pay a monthly service to keep, so they can monitor where you go.

Female Speaker 1: Yeah.

Kevin Bellington: And on top of that, every time you leave your house, you have to call me and tell me where you're going. When you're coming back, how many people you have with you, and how much money they're paying you. And you have to do that every time you leave your house. And, the reason that they ask you to do all this is because they need to know that how much damage one car is going to do to the roadways.[01:40:00]. So, that by taking a 1/10<sup>th</sup> of 1% sample, they're going to extrapolate that out over all the cars in Florida and determines how much they're going to have to allocate for road repairs. Did that make any sense to you?

Female Speaker 1: I can't comment on that...

Kevin Bellington: Okay.

Female Speaker 1: But I know you're going the...

Kevin Bellington: Well, that's exactly where I am.

Female Speaker 1: Yes.

Kevin Bellington: There are 735 permit holders in Florida, Gulf of Mexico reef permit holder, so which I am one. There are over 3 million recreational anglers in Florida. We have to abide by the same rules and regulations as a recreational anglers as far as bag limits, open and close seasons.

Female Speaker 1: Yes.

Kevin Bellington: We take the same fish at the same times. But they think that by following us around with a microscope that they're going to get a better, clearer picture of how many fish are being caught in the Gulf of Mexico. And they are absolutely wrong.

Female Speaker 1: I mean, we hear a lot about the frustration and the lack of data collection in the private sector.

Kevin Bellington: I understand. I know, the data collection has been flawed for years. But this is not a remedy.

Female Speaker 1: Yes, I honestly, I don't...

Kevin Bellington: And it's a messed.

Female Speaker 1: I don't know...

Kevin Bellington: It is a messed.

Female Speaker 1: Why they are moving to do that and I really don't have a background on it.

Kevin Bellington: Yes.

Female Speaker 1: We do the science that's on the, you know, the regional office side but...

Kevin Bellington: Well, I mean...

Female Speaker 1: But it's good to document and I mean, once you brought up about the reef permitting and being able to...

Kevin Bellington: Yes.

Female Speaker 1: ...I mean, that's something these are adaptation strategies that we can bring to the managers and talking about how it would help so...

Kevin Bellington: It would be wonderful to be able to, or if, you know, I can split them or I can run two boats on that permit for just a period of time during those red tide events, you know to get away like because I can run my single engine boat out to here. I run my twin engine boat out to here, [01:42:00] but it's the red tides from here to here, I'm going to run both of them here.

Female Speaker 1: Yes.

Kevin Bellington: But they're both outside of nine miles. So, now I got and one of them is going to be illegal.

Female Speaker 1: Yes. I know that's a great point. So you know, these are things that we're trying to document because if there's thing that we can do to help you guys become more resilient to these events.

Kevin Bellington: I hope so.

Female Speaker 1: Like you say...

Kevin Bellington: Because I see, when I hear from guys every day, I get phone calls almost on a daily basis from guys that are just fed up, they want a, they just want to quit. They're just frustrated with the whole dog and pony show between the regulations and the rules and all the new restrictions that they're putting on everybody. And then you top that off with a red tide event that kills off you know 80% of our fish anyway.

Female Speaker 1: Yes.

Kevin Bellington: What do you do?

Female Speaker 1: Yes.

Kevin Bellington: Now, it's tough enough to fight Mother Nature.

Female Speaker 1: Yes.

Kevin Bellington: And now, we are up against it with Mother Nature every year.

Female Speaker 1: Yes, but this is – I don't know if this is Mother Nature.

Kevin Bellington: No, that's not Mother Nature.

Female Speaker 1: I don't know what this is...

Kevin Bellington: Well, I hope we can find out.

Female Speaker 1: Yes. Well, this is....

Kevin Bellington: Well, did I answer your questions?

Female Speaker 1: Yes...

Kevin Bellington: I have a tendency to go off on...

Female Speaker 2: No, no that's exactly what I was looking for.

Female Speaker 1: This is really important.

Female Speaker 2: If there's any other regulation that perhaps doesn't want to help you, but you've heard people talk about, complain about?

Kevin Bellington: Well, the main one is that they want just any normal charter operator that's a licensed charter operator to be able to go out and fish out there without permits. They really, it does, it doesn't make much sense. I know that they're not having permits will keep a few of them from actually venturing out there. But it's not stopping them. There's just 90% of them they're illegal. And you have no enforcement. That's a big Gulf of Mexico out there. And it's really, really hard to enforce those regulations on people when there's nobody out there to watch dogs. You know, [01:44:00] and they say, well, if you know somebody who's running out there, you know, call us and let us know, that's easier said than done. We're very small community.

And you ran out one of your colleagues, because he's running out there. Me, I don't have a problem, because I have to jump through all these hoops to keep my permits. And if you don't have permits, you're not going out there. And I will tell all my colleagues, if I catch you out there I'll turn you in, I turn my mother, I'm sorry, because I have to just go through a gauntlet to keep these permits and to keep on the straight, narrow and keep legal. I don't want somebody who doesn't even care to go out there and be fishing in the same area as I am.

Female Speaker 1: Yes.

Kevin Bellington: But on the same token, if they just did away with the permits all together, I'd be okay with that. Let everybody fish out that, I don't care. Cut the limits back now. You're not limiting the record the number of recreational anglers that can go out there. So, what's adding another thousand guides on top of 3 million, is that really going to matter? No. That's it's not.

Female Speaker 2: So, what are some of the most annoying hoops you have to jump through or?

Kevin Bellington: Well, this vessel monitoring system has to be attached to my boat. And if I pull my boat off the left and I want to go get fuel over one of the other marinas, I have to call them and tell them I'm leaving my left, I'm going to get fuel, I'll be back in one hour and 45 minutes.

Female Speaker 1: Oh, wow.

Kevin Bellington: And when I take a trip, I have to tell them where, when I'm going. I don't have to tell them where I'm going because they can monitor me from satellite.

Female Speaker 1: Yes.

Kevin Bellington: But they want to know how much I charge for my trip. Really, what scientific data are you going to glean from that?

Female Speaker 2: Well, it's a economic [overlapping conversation] [105:54]its about...

Female Speaker 1: Yes, they do economic, yes.

Female Speaker 2: Trying, I guess they're trying to understand...

Female Speaker 1: Yes, the economics...

Kevin Bellington: How much you make?

Female Speaker 2: Probably [01:46:00] much less than you. [Laughter].

Female Speaker 1: Yes, now again I hear the frustration a lot...

Female Speaker 2: I don't have the physical strength that fisher woman has...

Kevin Bellington: No, it's the principle of asking the question, it's just...

Female Speaker 1: Yes.

Female Speaker 2: Right.

Kevin Bellington: Yes, I don't think that is...

Female Speaker 2: No, I understand what you're saying.

Kevin Bellington: I don't think that it...

Female Speaker 2: Well, it is confidential in the ways handle.

Kevin Bellington: Supposedly.

Female Speaker 2: No, it is – I mean...

Female Speaker 1: Yes, we can...

Female Speaker 2: We would be penalized, like, it would be...

Female Speaker 1: Yes, we can go to jail for giving out [overlapping conversation] [106:29].

Female Speaker 2: Yes, exactly so in that sense, one man would not be...

Kevin Bellington: If I file a Freedom of Information Act request, they can't deny it.

Female Speaker 1: Not, nor for confidential...

Female Speaker 2: Not for confidential.

Female Speaker 1: I'm pretty sure it falls under a different or they have to even do a compiled forums [overlapping conversation] [106:45].

Kevin Bellington: There's only about a half a dozen real reasons to deny up in FOIA claim or a request. And one of them is National Security Executive Order, I mean, it's pretty cut and dry.

Female Speaker 1: Yes.

Kevin Bellington: So, but I mean, honestly, I just don't think that that's something that they need to know. You know, if they've got my tax records, they know how much I make.

Female Speaker 1: Yes, I think it's for the economic analysis, the relative value of Fisheries and things like that.

Kevin Bellington: That's fine, they've got my tax records because they want to know, how much I make...

Female Speaker 2: I don't think – yes.

Female Speaker 1: Yes.

Kevin Bellington: Look at my tax record.

Female Speaker 1: Yes.

Female Speaker 2: Yes, because it's like a very specific information about the area.

Kevin Bellington: And how much do I pay in fuel and when I'm coming back in with clients, and for me, it's not, it's going to be really ridiculous because like I said, 80% of my people are all catch and release. So, I'm not keeping any fish anyway, but I still have to call them hey, alien can have a window of time that I can't leave my boat until they come down and have a chance to check it and make sure I'm not bringing any illegal fish, which is silly if I don't have fish to begin with.

Female Speaker 1: Yes.

Kevin Bellington: [01:48:00] But they don't understand that.

Female Speaker 1: I understand your frustration.

Female Speaker 2: Yes.

Kevin Bellington: I'm not a big fan of this whole program as you can probably tell.

Female Speaker 1: Yes, I don't – I honestly don't know why the decision [indiscernible] [01:48:13] haven't been involved in that. I guess, but anyways, your points are well taken, you know, we'll do what we can to get so much information.

Kevin Bellington: Honestly, what I would really like for you to do is tell me what causes red tide and when it's going to happen?

Female Speaker 1: All right. We can promise you we're doing our best to work on that. Can't promise you any answer but, I mean, this is...

Kevin Bellington: But like I said, if you do get to the point where you guys want to do water samples, you know, farther out, let me know and I'd be happy to take sample kits because I do tagging for some different organizations anyway.

Female Speaker 1: Yes.

Kevin Bellington: You know we tag different species of fish for medical research and for data, you know, collection and that kind of thing. And we do we swab sharks for medical research. So yeah, take a motor sample, so no big deal...

Female Speaker 1: Okay.

Kevin Bellington: Because I don't have to reaching the shark's mouth.

Female Speaker 1: Yes. I'll send you the information on the groups that we're working with for sampling and...

Kevin Bellington: I think – yes, that's there's an email on there.

Female Speaker 1: Yes, I'll send you an email as soon as I [overlapping conversation] [109:20].

Kevin Bellington: Yes. Emails on the front.

Female Speaker 2: No, I didn't.

Female Speaker 1: I forgot mine but I will send you an email. I can send it now, so you have my contact info.

Kevin Bellington: Okay. Well, you need anything else?

Female Speaker 2: That's all, unless you have anything else to add...

Female Speaker 1: Questions for us?



Female Speaker 2: Questions?

Kevin Bellington: Oh, I'm supposed to be answering questions. I wasn't supposed to be asking.

Female Speaker 1: Well, it is [overlapping conversation] [109:44]

Female Speaker 2: You have that option too.

Female Speaker 1: You know so much information and so we appreciate it.

Kevin Bellington: I hope it helps.

Female Speaker 1: Yes, it's very helpful.

Female Speaker 2: I will stop the recording right now. [01:49:57].