

TRANSCRIPT:

INTERVIEWEE: Greg Stunz

INTERVIEWER: David Todd

DATE: August 30, 2022

LOCATION: Corpus Christi, Texas

SOURCE MEDIA: Ringr MP3 audio file

TRANSCRIPTION: Trint, David Todd

REEL: 4126

FILE: RedSnapper_Stunz_Greg_CorpusChristiTX_30August2022_Reel4126.mp3

David Todd [00:00:03] Well, good morning. I am David Todd, and I have the great privilege of being here with Dr. Greg Stunz. And with his permission, we plan on recording this interview for research and educational work on behalf of the Conservation History Association of Texas, a nonprofit group here in the state, and also for a book and a web site for Texas A&M University Press, and finally, for an archive at the Briscoe Center for American History, which is at the University of Texas in Austin.

David Todd [00:00:41] And I wanted to stress here that Dr. Stunz would also have all rights to use the recording as he sees fit. It is his.

David Todd [00:00:52] So I wanted to make sure that would be okay with you.

Greg Stunz [00:00:55] That's fine with me.

David Todd [00:00:57] Great. Well, then, let's get started.

David Todd [00:01:01] It is Tuesday, August 30th, 2022. It's about 9:40 in the morning, Central Time. As I said, my name is David Todd, and I am representing the Conservation History Association of Texas. I am based in Austin. And this is a remote interview that we're doing with Greg Stunz, who is based in the Corpus Christi, Texas area.

David Todd [00:01:30] He is a marine biologist and a professor in the Texas A&M University system, chair of the Fisheries and Oceans Health Program at the Harte Research Institute for Gulf of Mexico Studies. And during the course of his career, so far, he has studied a variety of fisheries, including shark, cobia, tarpon, black drum and other species. And he has been repeatedly and deeply involved in research and conservation of the red snapper.

Greg Stunz [00:02:03] So, today we thought we would focus on his work there as just one small example of his efforts in many different areas.

David Todd [00:02:16] So I thought we would start this interview with a question about your childhood and early years, and if there might have been some people or events in your life at that time that might have influenced and encouraged your interest in animals, and fish in particular.

Greg Stunz [00:02:36] Well, yes. It's, well, nice to be with you, David, and I appreciate you doing this, first, first off. I think this is good. And I've been wanting to talk about red snapper in a format like this for a long time. So I'm, I'm very happy to do that.

Greg Stunz [00:02:49] But as far as my childhood, I grew up in Boerne, Texas, not far from you in the Texas Hill Country. You know, all my early childhood life, and really as early as I can

remember, you know, I just had a real love and passion for the outdoors, which conflicted a little bit, as with a single mom, you know. And my mom was not that, at all, but she did expose me, you know, when she could, to fishing and the outdoors and hunting. And I just really fell in love with it.

Greg Stunz [00:03:16] And so, there wasn't a, I guess, a particular moment in time that I decided, oh, I just love fish. But I spent a lot of time on the Cibolo Creek as a young child, you know, with a bobber and a worm. And, you know, watching that bobber go down with what we call perch, you know, sunfish now, as a professional, is what we call them. But you know that seeing that bobber go below the surface to this day kind of sticks in my mind. And so, that's probably what really spurred it along for me. So it's kind of ironic. I've gone from catching probably the smallest fish in a tiny little creek to, you know, some of the largest fish in the ocean now. So I've kind of come full circle.

David Todd [00:03:55] If I'm not mistaken, Boerne is home to the Cibolo Creek Nature Center. Did you spend any time there?

Greg Stunz [00:04:04] Well, I did. In fact, I take my kids that are now and we, my mom still lives in Boerne. We visit quite often. They've done a great, you know, interpretive kind of walk and hiking trails in general around the city, but especially in that area. But I was there before it was even a, you know, formal place to be. It was just somewhere we went as kids to fish and, you know, walk down the river and try to catch something and kind of hang out and have fun. So I spent a lot of times in the creeks and the rivers around that area.

David Todd [00:04:31] Nice.

Greg Stunz [00:04:33] Well, as you grew up and started to attend school, both grade school, and then later in your courses at the University of Texas - San Antonio, and Texas A&M, did you run across any teachers or maybe fellow classmates who shared this interest in, you know, just the outdoors in general, wildlife or fish in particular?

Greg Stunz [00:05:00] Well, somewhat, as I got going towards my more formal higher education, really. But in school, you know, I'm a first-generation college student. My parents, you know, had high school educations, but that was it. And so I didn't really know what options in life were out there. You know, if you went to college, you became a doctor or a lawyer or something like that. You know, so as, you know, I went full intention, I mean, literally, even after I was married, I was on the verge of going to medical school. And that was, you know, what was in my mind. Of course, I loved biology. And, you know, that was sort of just a natural fit. I didn't know ecology or fisheries or anything like that was even really much of an option. At least I didn't know any details.

Greg Stunz [00:05:44] And one day I was reading in a fishing magazine about a scholarship from this group at the time called the Gulf Coast Conservation Association or GCCA. Now it's called the Coastal Conservation Association because they've expanded beyond the Gulf Coast. And it talked about a scholarship and I was like, "Wow, I didn't even know you could go to school for this." This was to go to a graduate scholarship in Wildlife and Fisheries in College Station. And so I looked a little more. My wife thought I was crazy. She thought I thought I married an M.D. You're going to medical school. What's this kind of fisheries, what, you know?

Greg Stunz [00:06:18] But anyway, so it turned out that's what I did. And I ended up getting that scholarship. And from then on, I never really looked back. Of course, I have a real passion. I feel like, you know, I'm, my career is my, my passion and my job. So it's just a really great fit.

David Todd [00:06:37] You know, one of the things we sometimes hear in interviews, and I don't know if this is the case for you, but that there are kind of like family trees, especially at these kind of lofty higher levels of graduate education where there are mentors and mentees, there are professors, you know, who are thesis advisors? And then they're students who feel very loyal and indebted, I guess, to, to their teachers. And I was curious if that was the case for you, or if there were just a whole range of teachers in a variety of courses, and it was all good and there wasn't a particular person that might have encouraged your work.

Greg Stunz [00:07:26] Well, yeah, there was, there was definitely folks that encouraged my work. And I was, you know, were great mentors, and role models, and that sort of thing, especially as I went into my graduate role. And some of those folks, I was sort of trained broadly in the sense that I was trained by a guy named Phil Levin, is an ecologist, a marine ecologist, really looking at really broad-level ecosystem-level processes. And he was a very, very good mentor at that, at that level.

Greg Stunz [00:07:54] But I was very much interested in more of the fishery side, and I did a lot of my work at Texas A&M, at the Galveston campus, where I ran across a guy named Bill Evans. And he had, he was a marine mammal guy, of all things, but he worked at very high levels in the federal government, leading the National Marine Fisheries Service. And he really was a mentor getting me into the fisheries, and the red snapper, and federal fisheries management. He taught a class at the university and I was his TA for the undergraduates, and I taught the laboratory sections of that. And he was a great mentor in terms of how that system works, you know, really from a leadership standpoint all the way down.

Greg Stunz [00:08:36] And another person ... I had an internship that paid for my college education, really a cooperative agreement with the National Fisheries Service. And a guy at the Galveston lab named Tom Minello was another ecologist that really taught me how to sample fish, how to carry out the scientific method, and was really, really a detail-oriented guy.

Greg Stunz [00:08:59] So, I had a guy that really broad, broad brush with Phil Levin, another guy really down into "this is how you really do science at a meticulous level." And then, you know, what does it look like on the bureaucratic, kind of administrative level with Bill Evans. So those three had a real influential role in in my graduate and professional training.

David Todd [00:09:21] That is so interesting. It sounds like there was a kind of an overlap just within those three gentlemen you mentioned between the sort of systems-level thinking that Phil Levin might have helped you with, and the very detailed sampling that Tom Minello helped you with, and then Bill Evans, you know, how do you put this, your understanding, your research, into effect, you know, with all the levers of government and, you know, management ideas?

Greg Stunz [00:09:53] Yeah. So it was it was a really nice sort of combination, and exactly what you're saying. There was a enough overlap of those three that it really made for a great graduate training opportunity, even well outside my, you know, dissertation topic, which was redfish, by the way, kind of the iconic, not red snapper, the other red fish, this inshore fish

that's just about as, or probably more important even than the red snapper, too, depending on who you talk to.

Greg Stunz [00:10:18] But yeah, probably the most important thing I learned from Bill Evans being a scientist is that rarely are fisheries decisions made on the best science. We know what the best science is. It would be easy if we could do that. You know, politics gets involved very quickly, and it becomes more about managing people and users of the resource than, you know, the science pieces, relatively straightforward. So it's dealing with the people that I'm sure we'll get into here a little later today.

David Todd [00:10:44] That sounds like wise words from long experience.

Greg Stunz [00:10:50] Yeah.

David Todd [00:10:53] So, you know, clearly you've had years in coursework and lab work and field work. But I'm wondering if there might have been books or movies or TV, just some of those general pieces of the culture, that might have kind of lit your fire and impassioned you to carry on this kind of work.

Greg Stunz [00:11:21] Oh, yeah, definitely. You know, I mean, I grew up, you know, Omaha's Wild Kingdom kind of thing. When I was young watching, couldn't get enough of that as a kid. And those kind of things, I watched, you know, every outdoor show I could imagine. Of course, I played sports and all of that. In fact, I'm still a very big sports fan, as well as my kids. But those kind of movies and outdoor shows, I think are what really, really got me hooked in the natural realm. There wasn't, I guess, any particular ones, you know, in mind that really set the stage. It was just sort of a cumulative reading of all that information that kind of set the stage.

David Todd [00:12:02] Gotcha.

David Todd [00:12:05] So, this may date me, but I remember Jacques Cousteau and the Calypso as being a little window into marine biology and oceanography. And I was wondering if that came along too early for you, or if that was something that you watched?

Greg Stunz [00:12:26] Oh, it was definitely part of that. I clearly remember. In fact, I can remember some of my first memories of that. And then, you know, spearing sharks. You know, in the early days, they were considered, you know, a nuisance and bad. And, you know, let's yeah, of course, now that's come full circle and just the opposite. But you know, yeah, that played an influential role.

Greg Stunz [00:12:44] I remember my mom, even as a young child, reading me a lot of books about the ocean. I couldn't even tell you what the names of those are now. But a lot had to do with fish. And, you know, for whatever reason, I was particularly ... fish is, you know, some children are interested in dinosaurs and that sort of thing these days. I was interested in the fish side of that.

David Todd [00:13:08] It's funny, you know, we are air-breathing terrestrial creatures, by and large. And yet something must have appealed to you about these creatures that live in a very different environment.

Greg Stunz [00:13:23] Yeah. Yeah. And I just, you know, and I of course, I fell in love with the water growing up in the Hill Country. You know, my opportunities for fish and fishing and the

outdoors were lakes, rivers and streams. And it wasn't really until the early '90s. Of course, I'd been to the beach many times. We would fish on piers and things like that. But what I would consider real classic coastal fishing, and especially offshore, was just not even, even any type of opportunity for me at that time. You know, I didn't really understand that, or know what it was really about until probably the early '90s. And my uncle who grew up there, my great uncle really, who grew up doing that, and I just had an opportunity where he took me fishing out of Rockport and my first time to really fish in saltwater, wade-fishing. And I was hooked after that.

Greg Stunz [00:14:10] And that was really the dividing point of where I was sort of newly married, just graduating college, figuring out what I want to do professionally. And that trip there really made the difference of, "Wow, this, you know, if I could build a career around this, this is what I want to do."

Greg Stunz [00:14:25] Well, so you mentioned that you did your graduate dissertation on redfish, the red drum. And I was wondering if when you were wade-fishing with your great uncle, if that was one of the fish that you were chasing?

Greg Stunz [00:14:41] Oh, yeah, that, that's exactly what we are after. Well, redfish and speckled trout, or spotted sea trout, were the two main ones we were after. And we just, as luck would, as fate would have it, we just had a really good fishing trip. You know, it was a weekend thing and probably came back a week or two later. And I, you know, since then, I still, to this day, I can't get enough.

David Todd [00:15:02] Oh, that's great. Well, you know, all this, I guess education and exposure eventually became a, a career. And I gather that you have been at the Harte Institute for quite a while. And I was wondering how you got there. You know, what was your first sort of serious career commitment? And then what your work at the Institute has largely involved in the years since.

Greg Stunz [00:15:37] Yes. So, I've been here at the Harte Research Institute since 2007, really, since pretty much they opened the door. For those, just to make sure everyone's clear, so everyone seems to think we're cardiologists or something at the Harte Research Institute, but it's H, A, R, T, E and our institute is named after Ed Harte, who was a very philanthropic individual. And he endowed our institute with a \$46 million endowment to do work in the Gulf of Mexico. And really, that was kind of the broad mission. And so we have a lot of leeway under that.

Greg Stunz [00:16:14] Of course, I run the fisheries program, but it didn't start that that way. I was right out of graduate school in this cooperative program I was mentioning earlier. I, it facilitated you getting a job with the federal government and I work for the National Marine Fisheries Service for a couple of years, right out of getting my Ph.D. And it was good and it was interesting and I learned a lot.

Greg Stunz [00:16:37] But I really wanted my own research program to have the flexibility to do what I wanted to do. And during that time, a regular professorship position opened up at A&M Corpus and the Harte Endowment had just been given about that time, and there was a lot of, that was really an unprecedented amount, and there was a lot of interest around that, but no one had been hired. The building wasn't even built. It took four or five years for that to happen.

Greg Stunz [00:17:04] And I was able to get the professor position in 2002 and I took that and that slowly evolved into me becoming part of the Harte Research Institute, which in 2007 I became the endowed chair of Fisheries and Ocean Health. And so I've been working on that in that realm, ever since.

David Todd [00:17:26] I see. Okay.

David Todd [00:17:27] Well, it's interesting. I mean, clearly you have your own, you know, instincts and interests, but I guess it does matter what hat you're wearing, what institution you're with, you know, whether it's the National Marine Fisheries Service or, you know, the Texas A&M system or, you know, the more, I guess, focused program at Harte. Is there anything you could say, just in general terms, about how those three institutions compare in your mind?

Greg Stunz [00:18:03] Oh, well, sure. Yeah, they really have very different roles. You know, the National Marine Fisheries Service is part of the Department of Commerce, and they're charged with managing fisheries that are of federal jurisdiction in federal waters. But they also manage things like shrimp and crabs and other things which spend their time in both places. And it was a very interesting, great job there in Galveston. And, you know, there was nothing really wrong with it.

Greg Stunz [00:18:29] But the issue is if you really want to pursue your own passions and research interests, one of the best ways to do that is in the academic realm. You know, you essentially kind of trade out your teaching. And I love teaching, obviously, I wouldn't be doing this, and teaching young folks about marine biology. But then, you know, you also get to follow your passion, assuming you can raise money and grants and things like that, you can do what your interests are. And that's kind of how the academic system works.

Greg Stunz [00:18:59] But then when the Institute came along, we, my job now is just about 100% research, even though I'm a professor of marine biology. I don't do the professing gig much anymore that most people would recognize is in the classroom and that sort of thing. I, of course, I have a lot of graduate students and I'm very academically involved, but my role now is to really carry out high-level focused research. And that's what I do.

Greg Stunz [00:19:27] My training now involves primarily undergraduate and graduate training rather than formal classroom. And an outgrowth of that, of the Institute was that we recognized quickly on that there was no real center or focused area to work on sportfish, and recreational fisheries are huge economic drivers in the Gulf, for sure in Texas, and especially Florida, but really all throughout the Gulf.

Greg Stunz [00:19:50] So, just about ten years ago (we're about to have our ten year anniversary), we formed the Center for Sportfish Science and Conservation, and that's kind of a mouthful, but we call it the Sportfish Center. And it's a research program under the umbrella of the Harte Research Institute that focuses on recreational fishing research.

Greg Stunz [00:20:09] And so that really played into, you know, that's kind of the, I guess, the pinnacle of my career in the sense that I am right now in about the most sweet spot I can be in to be able to study fish, and fish, and do recreational fish things for a living.

David Todd [00:20:26] Well, that's interesting. Oh, you've gotten a nice exposure to all sorts of angles of, you know, managing and understanding the fishery resource.

David Todd [00:20:36] And so, you know, one aspect of fisheries that I was hoping you could talk about, and I gather it's a very important one, you know, economically and ecologically, is the red snapper, for the Gulf of Mexico at least. Could you give us a full introduction to the life history and ecological niche that the red snapper has?

Greg Stunz [00:21:06] Well, sure. So, red snapper, really, you know, this iconic fish and fishery in the Gulf of Mexico, they're reef fish that typically occurs offshore. What that means is they're associated with some type of structure. They like, for example, oil and gas platforms. What traditionally most people might know is snapper banks, but they're natural rock formations, underwater mountains, essentially, that form these large structures or features that make it different than just the open, flat, muddy bottom of the Gulf of Mexico.

Greg Stunz [00:21:39] They also can be artificial reefs that are intentionally put there, or sunken ships or, you know, you just sometimes it's just mud lumps that come and go as the currents. But whenever, wherever, you find structure in the Gulf of Mexico, it really becomes an oasis. And we tend to call those reefs or artificial reefs.

Greg Stunz [00:21:57] And snapper, among a lot of other fish, are reef fish, and they congregate around those areas. That's what they like to be close to, to those features.

Greg Stunz [00:22:07] Then, of course, they're probably the best fish to eat in the Gulf of Mexico. So people really like to, and they're very, they're relatively easy to catch. So when you go out, it's more about getting to the spot than actually catching the fish. So, you know, people like to have, you know, high catch rates and easy and fun, and they pull hard, and they're delicious to eat. So they just, they just make kind of this idealized fishery.

Greg Stunz [00:22:30] And so, but they do they can even occur inshore, in estuaries, which is really rare, typically small ones. But you need to be really 20 to, you know, 40, 60 miles out is kind of the real sweet spot where you have the high aggregations of these fish.

Greg Stunz [00:22:47] And that fishery has had its lows of all lows. And right now we're probably experiencing highs of all highs, and, you know, everything in between. And so we've been involved in how do you manage that fishery for a long time now.

David Todd [00:23:04] Well so, what do you think the niche is that the red snapper fills in the Gulf? What's sort of its role in that the bigger cast of characters and plot in the Gulf.

Greg Stunz [00:23:23] Yeah. So they're a main player any time you have a reef in the Gulf, or any type of structure in the Gulf of Mexico. We tend to have grouper if you went out towards the east on the other side of the Mississippi River, and you start getting into Florida and a little bit of Alabama, you begin to see a lot more grouper around. And while we have grouper, for just whatever reason, through evolutionary time in our region, the snapper have preferred, it's kind of their niche in the western Gulf of Mexico.

Greg Stunz [00:23:55] And so they play this important role of a top-level predator, not at the top, but one of the top-level predators that's occurring in and around these natural and artificial reef structures. And because they're at the top, you know, they're voracious feeders. They're not worried about, you know, dolphins and sharks might take a few, but in general, a large snapper doesn't have a lot of predators, other than us. And so they form sort of the top of the predator of those reef fish communities.

David Todd [00:24:30] I see. Okay. And can you sort of introduce the, you know, outlines of the life history of one of these fish? I hear that that some of them can live decades. Is that right?

Greg Stunz [00:24:44] Yeah. And that's a real challenge we have with management from, you know, when this fishery is overfished. They can live upwards of 50 years, you know, well into their late fifties. Typically they have very fast growth rates. And so they spawn in the late spring and through summertime, through about right now. They have a very protracted spawning period. But it's generally a late spring, summertime thing.

Greg Stunz [00:25:08] And their young are broadcast to the currents. There's no nests, you know, like bass or something like that in freshwater. But the young tend to do better, more inshore. And they're a very territorial fish; they're cannibalistic. So, you know, the small ones don't want to be around the large ones because that doesn't typically end well for the little ones.

Greg Stunz [00:25:28] And so they go into inshore areas, maybe old remnant shorelines and old oyster reefs that are now covered up with the ocean, just old, you know, in geologic time, shoreline, kind of the drowned shorelines that have happened, and where there's a lot of shell and rubble area - sort of what we call real low relief. It's different than the muddy flat bottom, which is characteristic of the Gulf, but it's not mountainous structures or something. That is preferred by the older individuals and they exclude the young ones.

Greg Stunz [00:26:01] But on the rubbly area, it just so happens to be some of the best shrimping grounds as well. And I'm sure we'll talk about that later.

Greg Stunz [00:26:09] But the young ones utilize these areas until they grow up and they become about 1 to 2 years old, maybe, let's just say roughly 12 inches, 12 to 15 inches in size.

Greg Stunz [00:26:19] And then they make a shift out to these more structured habitats where they join the adult population. And at that point, we consider them part of the fishery, even though they may not be completely legal, they're still part of the population that can be caught and released and will eventually grow into the more desirable ones.

Greg Stunz [00:26:37] We tend to fish on the relatively young fish that are 2 to 10 years old, in that sort of 16 to 20 inch realm, maybe 18 inch, you know, nice, big snapper that people would be proud to catch. And then their growth, at about ten years, they become as most what we call, "fecund". They produce the most amount of eggs for the shortest amount of time around that time period. So those 10 year, 8 to 10 year old fish are very valuable for the sustainability of the population because they're spawning and they're having a lot of eggs.

Greg Stunz [00:27:09] And then they stop. Their growth kind of slows down rapidly. It really flattens out, really fast growth, to get out of predation windows. Then they flatten out and then they grow, they continue to grow, but just small amounts for the next 50 years or so.

David Todd [00:27:25] That's interesting. So they're in that window, I guess up till, what, the time they're eight years old of maybe being in that prey window? Is that what you're saying? Where they're small enough where there may be more fish are able to to predate on them and then get larger and they're somewhat invulnerable?

Greg Stunz [00:27:49] That's exactly right. Yeah. So in general, not just with red snapper, but, you know, marine life in general, when you're small, that's not selectively advantageous, I guess you could say, scientifically. That means that a lot of stuff can eat you. So the faster you grow, the less time you spend in those vulnerable size classes where you're a prey option for a lot of different species.

Greg Stunz [00:28:12] So a lot of marine species go really, really fast when they're young, some up to a millimeter a day, you know, almost, you know, an inch a month kind of thing, you know, very rapid growth. And then once they get big and there's not quite as much that they're kind of top of the food chain, then that growth slows down, and they can dedicate resources to reproduction and that sort of thing.

Greg Stunz [00:28:32] But yeah, it's not good to be small in the marine environment.

David Todd [00:28:38] Well, I guess everything is hungry.

Greg Stunz [00:28:43] Yes.

David Todd [00:28:43] Well, and you mentioned earlier that these red snapper are in a kind of sweet spot for people to fish on them - somewhat easy to catch and very tasty and, you know, beautiful fish, to boot.

Greg Stunz [00:28:57] And I was wondering if you could talk to us a little bit about the historic trends in red snapper populations. I understand that, I think it was in 1988, there was a finding that the snapper stocks were really overfished in the Gulf. And, you know, maybe you can tell us how it got to be there and maybe what some of the trends have been since then.

Greg Stunz [00:29:23] Yeah, sure. And the story goes way back before then, even in the 1800s and off of Florida, you know, even sailing vessels before ice was even readily available, knew about, you know, the desirable aspect of red snapper, particularly off of Florida, kind of, sort of that Orange Beach, Alabama, Pensacola, areas is where it really got started, all the way down to Tampa. And sailing vessels would go out and catch them. And of course, they had to bring them back to shore as fast as they could, because they couldn't preserve them. Or they could salt them to some extent.

Greg Stunz [00:29:58] And so those fisheries were sort of just exploited in the way that they could for the technology and resources at the time. Of course, then icing became available and better engines and boats and that sort of thing. And that fishery became very, very popular, especially around, you know, towards the end of World War Two. There were really directed fisheries for them.

Greg Stunz [00:30:21] The recreational fishing, because of the whole cultural changes going on in the United States, and recreational fishing becoming important. Those started. Groups started to access the red snapper fishery.

Greg Stunz [00:30:34] And over time, we drastically reduced that population from what it had been in the past. And that really happened in the late '80s. We started seeing real clear signs of what we consider overfishing, you know - depletion of sign depletion of sites near shore, much smaller fish, very low catches for the amount of effort you put out (we call that catch per unit effort) - all the classic signs.

Greg Stunz [00:31:00] And what we call a stock assessment came out from the federal government that really sort of was the framework, or the groundwork, saying, "Hey, we got to do something. We got to curb, you know, sort of unrestricted fishing on this fishery, both commercially and recreationally."

David Todd [00:31:21] Well, it's intriguing to me that it seems like it was a kind of a combination of cultural things, that there was more interest in recreational fishing, but also the improvements in I think you mentioned motors and, you know, the ability to get out to these fishing spots. Is that the case?

Greg Stunz [00:31:42] Oh, yeah. That's a pattern among all fisheries, probably. You know, the poster child for that is the red snapper fishery.

Greg Stunz [00:31:48] Another interesting thing was happening at the same time is that the oil and gas industry was booming. And you were having all this infrastructure put in place out in the western Gulf of Mexico where structured habitat is relatively rare. Then all of a sudden, you had these enormous structures in the water, you know, sizes of three-story buildings and bigger.

Greg Stunz [00:32:09] And those became, some suspect, that that's what allowed the snapper to recolonize, or at least further colonize the Gulf of Mexico. They were always here on the natural banks. They just, they were far from shore and not as easily exploitable as it was over in Florida, where they have a lot more natural features on the bottom and that sort of thing.

Greg Stunz [00:32:31] And so a lot of folks speculate that if it wasn't for those artificial reefs, the snapper population might not look like it does today. In fact, the state of Alabama has extensive artificial reef programs where they claim that more fish are on those artificial reefs than there are on natural habitats. So it's a way that man has really enhanced or supplemented the natural population of providing structured habitat in an area where it didn't occur, and that created a fishery that may not have existed in the past. We just don't know for sure. But it wasn't such a big deal off of Texas until the '70s and '80s kind of thing, when we had better boats and equipment to get out there.

David Todd [00:33:17] That's fascinating. Gosh.

David Todd [00:33:20] Well, you know, a question that occurs to me is how the Gulf is a very broad and deep place. And I'm curious how scientists like yourself have been able to understand what is in it, in this case, how many and what age red snapper there are out there? It seems like a complicated thing to understand. How do you go about estimating the red snapper populations and then the harvest as well?

Greg Stunz [00:34:03] Yeah, that's a great question. And you know, it's something we obviously really need to know. It's kind of like managing your bank account. It's hard to spend money and buy things if you don't really know how much money you have in your account, right? And that's kind of what we do with the fish when we manage them. We, the first question we obviously have is, you know, how many are there, how many do we have? And we have something in fisheries we talk about - sustainability. And it's kind of like renewability. Unlike oil and gas, you know, fish populations will renew it in our time, not like oil and gas or geological time, you know, were created. But fisheries, if you don't fish too hard on them, they actually produce a surplus, and we call it surplus production.

Greg Stunz [00:34:49] So if you know how many you've got and you know how far you can fish down into that population, they respond by producing even more fish. So it's kind of this really nice perpetual cycle. Well, of course. You don't want to fish too far down into your principal, you know, and then you curb that sustainability. And all that has to do with how many are out there and of course, how many we can catch.

Greg Stunz [00:35:15] And when I walk into the fisheries classroom the first day, you know, he said fisheries management and biology is really easy. You know, counting fish is kind of like counting trees except, you know, you can't see them and they move.

Greg Stunz [00:35:29] And you quickly realize, oh, maybe it's not as easy as we thought because historically, and even in the red snapper fishery, we measured the abundance of the fish based on how many you caught. The more fish you caught, well, the more fish there must have been out there because, you know, you caught them.

Greg Stunz [00:35:48] And so, but we made a fundamental mistake as fisheries managers through time is that we kept catching more and more fish. We're like, "Oh, this is great. The Gulf of Mexico and the oceans in general are limitless. You know, they're always going to, Mother Nature is always going to supply."

Greg Stunz [00:36:04] But what we failed to factor into that catch was the amount of effort that was going into it. And that's the problem is - so, in fisheries, we teach you, you don't monitor just the abundance of fish you catch, you monitor how much effort you expend to catch those fish. And that really tells the story, because what we failed to figure out is that, well, you know, first we had sailing vessels, you know, then we got motorized engines. And then we got LORAN electronics to find places in the Gulf of Mexico, you know, in the featureless Gulf. And then you got GPS. And then you got now engines with boats with five engines hanging off of the back of them that can find a rocking chair anywhere in the Gulf of Mexico and travel 40 to 50 miles an hour.

Greg Stunz [00:36:49] Well, our catches obviously go up from all that because we get better and better at catching fish. But that doesn't mean that the population is healthy. All that is considered "effort". You know, we can have better gear, fish more hooks, you know, better baits, all kind of things. So your catch rates goes up, but in reality, your population might be going down.

Greg Stunz [00:37:08] And we didn't realize that at the time. And we really overfished that fishery because we weren't accounting for all this effort going into it.

David Todd [00:37:19] Well, I guess you're trying to track effort around I don't know how many miles it is from Brownsville to the Keys and, you know, thousands of fishermen, on thousands of boats. And I imagine it's very difficult to pull together all that data. A lot of it's, you know, not probably even cataloged. I imagine a lot of sort of private fishermen don't submit forms readily. So how do you get a sense of that fishing pressure, that, that effort that you mentioned?

Greg Stunz [00:37:58] Yeah, and that's very difficult. And I spend my life trying to figure that question out pretty much.

Greg Stunz [00:38:05] On the commercial side, it's relatively easy. And I say, "easy", I mean, it's not easy, but compared to the recreational side. The defining difference there is the commercial folks have to sell that fish at some point. So you have a point of sale and you can, you know how many. Now, of course, you have to have permits to be able to even carry out that operation. And it's very controlled where you can sell and trip tickets and all that kind of thing.

Greg Stunz [00:38:30] So we know on the commercial side pretty well how many fish are being caught because you have sort of this point of contact that has to be made to carry out that commercial fishing business.

Greg Stunz [00:38:42] That's not true on the recreational side. The recreational anglers, by definition, are doing it for fun and recreation. They're not really reporting their catch. There's many of your listeners will have probably been "creeled". That means when you pull up at a boat ramp or you've launched your boat, there's the Texas Parks and Wildlife scientist there asking about your catch. And they're looking at a very small segment of the population, and they expand that out to what the recreational catch is. And that obviously is not near as accurate as you might get when you sell it at the dock, like on a commercial fishing.

Greg Stunz [00:39:21] So we have a lot of questions about how many anglers are out there, how much effort are they expending? And oftentimes we don't know that. And so not too long ago, we developed an app, really when iPhones were coming onto the scene, a colleague of mine and I were like, "Why can't we just, like, enter this with all these new cool apps coming out?" And we developed something called "iSnapper". And that was to get at that effort in the amount of catch in recreational fishing. And that's been a real successful tool at looking at recreational catch in the red snapper fishery.

David Todd [00:39:57] So I gather there's the iSnapper app, which I gather sort of hires, deploys these individual fishermen to, to track their own catch. But then I understand that you also have been involved in something called the "Great Red Snapper Count", which has been, you know, pretty involved program in itself, with tagging and bounties and bioacoustics and so on, to try to get an idea of how many fish are in the sea. Can you talk about that, that program as well?

Greg Stunz [00:40:34] Yeah, that's something that we're very, very proud of. What, it was the largest fisheries grant ever given, ever, in the United States. And because of the iconic nature of the red snapper fishery and maybe for another time, we'll get into it a little bit, I'm sure, but all the swirling controversy around the management of this fishery. Things like iSnapper that I was telling you about. And now the other states have similar apps and programs throughout their states. That was really to get at the amount of effort and the amount of catch. We call it catch and effort. That's very key parameters to managing the fishery.

Greg Stunz [00:41:11] But it doesn't really tell you much about how many fish are out there. It can, indirectly. It's kind of an index of abundance, but it's not the true abundance.

Greg Stunz [00:41:18] And so Congress was able to support funding the study because I'm sure their phones were ringing off the wall with their constituents very upset about, you know, the kind of the saying was, "We pretty much can walk on red snapper in the Gulf of Mexico, there's so many." And the season had been restricted down to three days because of just mismanagement.

Greg Stunz [00:41:38] And I guess I should say I'm a member of the Gulf of Mexico Fishery Management Council that manages these federal fisheries. So in a way, I'm kind of part of the problem, one of the 17. But it's not, you know, it's a very complex process of how we manage those fisheries.

Greg Stunz [00:41:54] But because of some of the failures in management, Congress has been very upset. And so they earmarked some funds. It was a \$12 million project, total, to find out how many snapper were in the Gulf of Mexico, so we could better access these fish.

Greg Stunz [00:42:10] And it's really been a success story, in the end. You know, we were having some serious management conflicts between user groups and access to the fishery. And this study showed you know, what is our bank account really look like.

Greg Stunz [00:42:25] And so it was a, I led the study here at the Institute, but it was a team of the 22 best red snapper scientists in the world and their research teams and statisticians. And we used our ROVs, which are Remotely Operated Vehicles, that were basically just small submarines we could send down to literally physically count the fish.

Greg Stunz [00:42:48] And we used acoustics which are, when we can't, when we don't have visibility, but we know the fish are there. It's like very high-end fish finders, and we have means to do that.

Greg Stunz [00:42:59] And so we used every method that we could, that was scientifically valid, to really assess what the population is like out there. And that was called, "estimating the absolute abundance of red snapper in the Gulf of Mexico". And that was certainly a mouthful. And somebody said, you know, some point, "Wow, this is just the great red snapper count." And I didn't give it that name, but it stuck. And, you know, everyone calls it the great red snapper count, so I'll stop there, Todd. I don't want to go on. I mean, I'm sure you want the punch line from the story, but that's the genesis of it and why it was needed.

Greg Stunz [00:43:37] You know, a question occurs to me after you told me a little bit about the iSnapper and the kind of public, individual fisherman, interest in the resource. And then this other program where you've got all these scientists and field folks and statisticians who are working on this, is that it seems like the count, in some sense, brought together the two, because I had read that you used some tagging and bounties. And I was hoping that you could tell us about that as a way to try to get a handle on the snapper populations.

Greg Stunz [00:44:17] Yeah. So, in fisheries, we have different, I guess you could say, "qualities" or "levels" of data that come in. One is fishery-dependent data, which is data that comes in that's by the fishermen. It depends on them telling us what they caught. Maybe we observe what they catch. Or, even in the case of iSnapper, it's a user-reported information. So, you know, there's some issues with that. How do we know it's not a 13 year old kid on the sofa, telling us about all the snapper he caught, you know?

Greg Stunz [00:44:46] And so, but it's all useful, and we have ways to account for that kind of stuff.

Greg Stunz [00:44:51] And then we have something called fishery (that's called "fishery-dependent data"), and then we have something called "fishery-independent data", where scientists go out, and following very rigorous scientific methods that we apply to our data

collection, we collect fisheries data that doesn't have anything to do with the way the fish are caught.

Greg Stunz [00:45:12] And so that study, the Great Red Snapper Count, was a fishery-independent study that was very rigorously done. Of course, we can't do that all the time, and many times, there's not resources and those type of things needed to carry out those studies, so we rely on fishery-dependent data.

Greg Stunz [00:45:30] Well, anyway, one important aspect of fishery-dependent data is where does the fishery occur? And so we did a tagging study, where we tagged a lot of fish - thousands of them, from Brownsville to Key West. And by the way, this was, there's probably over 100 scientists involved in this study, by the time we added up undergraduates and our staff. It was a massive study.

Greg Stunz [00:45:52] But our return rate was astonishingly high. We, on a normal tagging study, you tag a fish, you put a dart tag in it, you hope someone catches it again, and then reports that. We had a very high dollar reward of \$250 a fish, or if you caught one with two tags (sometimes we tag them with two tags to look at tag shedding rate because that can be a problem scientifically), and for those fish you got 500.

Greg Stunz [00:46:17] So clearly, people, the idea was that we didn't, no one caught a fish and didn't return it, because, you know, the value was high. But in a normal tagging study, you would get back about 6%. That would be very high, off-the-charts kind of a return rate. Well, we were seeing 30% return rate, from a fish that theoretically didn't even handle catch and release that well.

Greg Stunz [00:46:39] Because it's, it's a whole other story, but they're deepwater fish coming from deep depths and sometimes they have injuries related to gas expansion as they come up to the surface. And we have techniques now, we can, we can mitigate that. And one thing it showed is that these devices can really promote catch-and-release in that fishery.

Greg Stunz [00:46:57] But the return rate was just off the charts. I mean, it was, I had to go ask the government for more money to pay for all our tag returns that we, you know, I budgeted 10%. You know, we'll never get 10%. And we were at 30%, and which that's a great problem to have, by the way.

Greg Stunz [00:47:13] But what it showed, and why it's really important, and later, I'll tell you, the results of the snapper count and it will all make sense, is that it showed that anglers, they like to fish pretty close to shore, at a few spots, and they don't want to spend a lot of time and effort, you know, like looking around and going places. Areas near the inlets and the jetties where you go out to the Gulf of Mexico were obviously the spots that were fished the most. And that's important because it means all the other areas are really untouched, kind of thing.

Greg Stunz [00:47:47] So would you like me to keep going, or would you like me to tell you about the results of the snapper count and how all this comes together?

David Todd [00:47:54] Yeah, don't hide the lead. Hey, I want to hear it.

Greg Stunz [00:47:58] So here's the punchline. So what drove that Great Red Snapper Count funding is we were convinced, and Congress was convinced, all the oil and gas platforms are

coming out of the Gulf of Mexico because the oil and gas plays have dried up, and the oil and gas companies are moving on to different places. And that was fine. And that was the agreement that had to occur.

Greg Stunz [00:48:22] But what we didn't realize, at the time, that all of these structures coming out after 30 years, or sometimes much longer, they've developed flourishing ecosystems around them. And we had to say, "Time out." You know, we're going to like impact fisheries now because the fisheries have become accustomed to all this habitat.

Greg Stunz [00:48:40] And we work closely with the state scientists, particularly the Texas Parks and Wildlife's Artificial Reef Program and others, to help retain that structure, at least the structure that's below the water, so ships can still transverse over the top. And that's the most important, important part for the fish. And we were convinced that artificial reefs were the main reason that snapper fishing had become so good.

Greg Stunz [00:49:04] And so we looked at artificial reefs, the abundance on artificial reefs or oil and gas platforms in the Gulf, which are one of it, as well as a lot of manmade ones in the meantime. We looked at natural banks and we knew fish occurred there because that's where the fishery had taken place. And sure enough, we found millions of fish utilizing those structures. We don't try to minimize that at all.

Greg Stunz [00:49:27] But what the federal government was saying is that we had 37 million fish, is what their numbers showed. And we showed that wasn't the case at all. We had more like 118 million fish. And to put that in perspective, we have these sort of almost bloody battles over management of red snapper, and we manage 15 million pounds of fish. We showed that well, we probably have on the order of 800 million pounds of fish, not 15, you know, million - 800 million. You know, we're pretty far off, you know.

Greg Stunz [00:50:02] And so, and the question became, well, why is that? And and it turns out where we found the mother lode of fish wasn't all on artificial reefs and natural bottom. It was on something we call, "unclassified bottom". And it turns out that the mapping of the seafloor of the Gulf of Mexico is pretty ... we're living in the 1800s in terms of mapping of the seafloor of the Gulf of Mexico. It's, we know virtually nothing about it.

Greg Stunz [00:50:30] And it turns out there's a lot more natural, probably manmade shipwrecks and other things we just don't know. And it harbors the mother lode of red snapper.

Greg Stunz [00:50:40] Now, the red snapper, everyone seems to think they're on just this, we called it "uncharacterized bottom". Now we got "unclassified bottom", that they're on the mud and sand. And that's not it at all. They're not on the mud and sand. They're on all these features we just didn't know about. And when you begin to add that up, over the vastness of the Gulf of Mexico ...

Greg Stunz [00:51:00] And I probably should pause for a minute, and tell you, just take a step back, that we were ultra-conservative in this estimate. We took a conservative turn every step we could. So our estimate is probably very much an underestimate.

Greg Stunz [00:51:14] And we were also asked to stay 300 feet and shallower. Now we're beginning to discover that there's a lot of snapper out deep that we didn't even assess in this study.

Greg Stunz [00:51:25] And when you add up all that unclassified bottom, some type of relief anomaly is what we call it, or there's something that's different from the flat mud bottom, there's a lot of that out there. And when you really look at the vastness of the Gulf of Mexico and add that up, that number grows really fast, really quickly.

Greg Stunz [00:51:46] So, the punchline of the whole story, is that the fish are on the unclassified bottom. And we continue that in a way. We had reports from fishermen that, you know, everybody had their secret spots no one else knew about. Commercial fishermen knew that, you know, there are some areas out there with large densities they didn't really talk too much about because, you know, it was their livelihood.

Greg Stunz [00:52:06] And well, anyway, we began to discover those. And it turns out that that there was a lot of it. And when you really add it up, that's where all the fish came from.

Greg Stunz [00:52:16] But the really important part is that's not where the fishery takes place. The fishery takes place where there's relatively, there's still millions of snapper, but they're relatively lower in abundance, like natural banks and oil and gas platforms and known artificial reefs. So that's why our catch rates were so high in terms of our return of those tagged fish.

Greg Stunz [00:52:38] But the good thing is, is all of a sudden you have all this reserve supply of fish that we had not been fishing and didn't know about.

Greg Stunz [00:52:47] Now, of course, we're trying to figure out how to handle that, managerial-wise, you know. How do you, you know, are we just going to open up the fishery now? We're fishing, you know, hundreds of millions of pounds of snapper when we're fishing 15? Well, probably not. The federal government's much more conservative than that. And we're going to slowly work these fish in, because, and I agree with that. I mean, the whole idea is we want to little by little begin to add these fish into the fishery. But we want to see that population continue to increase. And when it begins to flatten out or hopefully not go down, that's where, you know, "Okay, well, we're probably at the sweet spot there."

Greg Stunz [00:53:23] So, you know, it'll take years to integrate those fish into the fishery, and I'm working on that literally as we speak here. My time is spent on how to integrate that study, because going from what was going to be a 2- to 3-day season to now, Texas, just this, it ends on Friday. So we've been fishing since June the first. Pretty much we're going to get through Labor Day or close to it. And that's good. That's, that's a lot of access. It's a lot of economic drivers in the region. There's a lot of positive things to have that long of a season in terms of Texas' economy.

Greg Stunz [00:54:02] And the fishery can handle it. We're still you know, the catch per effort is through the roof. There's a lot of fish still. So we're, the management is headed in the right direction.

David Todd [00:54:13] Well, that's a, that's a heartening story to hear.

David Todd [00:54:18] You know, of a couple of words here ring a bell with me that I think might spur a question.

David Todd [00:54:24] And that is you mentioned the you know, the Texas season and harvest, and then also this idea of integration of information. And I was wondering if you could talk a little bit about the administrative, managerial issues that you run into with the Gulf, where you've got all these different players - you know, you've got Texas, Louisiana, Mississippi, Alabama, Florida, and then you've got the federal government. And I guess they all have somewhat different mandates and data streams and but it all collides over this, this fishery, which I, I gather, has hotspots, but it's still kind of a shared resource. Can you talk about how all that is, as you say, integrated, or, calibrated, I guess that was one of the buzzwords I had seen - the calibration debate.

Greg Stunz [00:55:29] Yeah, and they're all interrelated. And I'm sitting here thinking, how do you collapse, you know, 50 years of information, you know, in just a few minutes here. It is a very complex story, but it really boils down to just a few things, is that we are great at catching fish as human beings. There's not enough fish to go around to all the people that would like to have fish. Even with that many snapper that we found, we could catch them all, if we open the floodgates.

Greg Stunz [00:55:56] So the state and federal governments team up to take this fishery into a trust, essentially, and manage it for the good of the people. And that's where you can imagine the conflict comes in, because it's not at, right now, it's not a population problem in terms of numbers of fish. It's deciding who gets access to those fish.

Greg Stunz [00:56:17] So the state of Texas, and now all the states in the Gulf, their state waters go out to nine nautical miles. In some states, it was three. And now for the red snapper, most states have opened that out to nine to be consistent. And what they do in those state waters is sort of the state's business. They manage those red snapper.

Greg Stunz [00:56:38] When you go from nine out to 200 miles, that's federal waters. And that's where the federal jurisdiction comes in, including the Gulf Council.

Greg Stunz [00:56:46] Except for a big "but" there. But those fish caught in state waters are deducted from the federal allocation, or the federal quota, you could say. So there's a lot of controversy between the federal and state government over, you know, could we catch the Texas quota in state waters? So state waters in Texas are open year 'round, with a four-fish liberal bag limit.

Greg Stunz [00:57:10] And the season in federal waters, depending on what state you're in, is roughly 30 to 90ish days, kind of thing. And they're all managed sort of as one population, by different groups. So you can imagine two government agencies managing that creates problems.

Greg Stunz [00:57:29] Well, what we've done at the Gulf Council recently, we said, "Look, the states have a successful track record of managing fish. Clearly, the federal government did not." You know, that was the controversy.

Greg Stunz [00:57:41] And so we delegated the management authority to the states to manage the red snapper fishery in both state and federal waters off their states.

Greg Stunz [00:57:51] Now, the little hook that the government left in there was that, "Well, we still tell you how many you can catch, but you can figure out how and when you want to catch them."

Greg Stunz [00:58:01] Now, all that was primarily for the private and what we call the "for-hire" sectors. So private anglers, like you and I going fishing when we want to. "For-hire, what many would call guides, or you're paying somebody to take you. It's either a private charter, or it might be a party boat that might take 50 to 100 anglers out. All of that is considered recreational, the recreational side. So we're talking about the recreational fishing.

Greg Stunz [00:58:28] On the commercial side, it was a little bit different. It's still federally managed. And that was quite a disaster of a management process, maybe 20 years ago. It was kind of like the Wild West. The government said, "You can catch this many fish." The commercial guys said, "When you ring the bell, they're fishing like crazy. You get a glut in the fishing market because all the fish come in at one time. It, the weather doesn't matter, because if you don't go catch the fish, you're not going to make any money." So there were safety at seas issue. It was just crazy.

Greg Stunz [00:58:58] And so they developed this system called, "Individual Fishing Quota". And that meant if you could prove that you'd caught so many fish throughout time, with a catch history, and if you could demonstrate a catch history, you were given essentially an individual quota.

Greg Stunz [00:59:17] And that was kind of like a, you know, the sheriff coming into the Wild West and restoring order. And it was actually a good thing. It curbed the overfishing that was occurring at the time by the commercial fleets. And it said, "Hey, you got this quota that we know is a reasonable amount, that's sustainable. You can fish it whenever you want. You can decide. The markets will tell you when to go fish. You don't have to fish in dangerous, rough seas anymore. And you can let the market dictate your price at the dock, essentially."

Greg Stunz [00:59:45] So, it was a good thing. And that's, so that's how they curbed the fishing on the commercial side.

Greg Stunz [00:59:53] And then we curbed fishing on the recreational side through season and bag limits.

David Todd [01:00:00] I see.

David Todd [01:00:00] Okay. So there are rules on the days that you can fish, and the weights and lengths of these fish for the recreational folks, and then I guess this is the individual tradable quotas, is that right?

Greg Stunz [01:00:20] Yes, it's called the, "IFQ", the individual fishing quota. But that word, "tradable", you just said, is where all the controversy and and things come in. And so if we just don't talk about the private side for a minute, we say, okay, well, they're governed by season length and bag limits, to stay within. A bag limit means you and I can go fishing and we get two snapper per person or whatever that rule happens to be. But that's what it is today in federal waters.

Greg Stunz [01:00:49] And, but then on the commercial side, they can fish whenever they want to. They just can't fish. You know, they only fish up to what they're given.

Greg Stunz [01:00:59] But it turned out it could be tradable. And that's where all the controversy came in, into that fishery, because what happened, and it's sort of the law of

unintended consequences, is that now that fleet is graying. And most, many of those guys, aren't even fishing anymore. Many have died, or some aren't capable. And so they have this quota. And now what do you do with the quota? Because you got to have somebody to go catch the fish.

Greg Stunz [01:01:26] And so, they can trade that quota. So speculators came into the fishery and started buying up the quota that weren't even fishing fishermen. Some were in fact were foreign governments through LLCs that did it, you know, in an illegal, but kind of a loophole way, to buy U.S. fish for foreign countries.

Greg Stunz [01:01:47] Some of the captains decided they want to lease their quota. And so that means somebody that doesn't own the fish has to go fish for somebody that owns the fish. And we call them, "slipper skippers", which means they don't fish, but they just collect royalties off of their leasing their fish to the guy that actually fishes. And some of us, including myself, have a little bit of a problem with that, because the intent was never to make people rich off a public resource. It was to curb a fishery problem and keep the cultural aspect of the fishery going in a sustainable way.

Greg Stunz [01:02:24] So, what happens now, to give you an example of how out of control it's become: one person sent me his invoices a few weeks ago where he paid \$750,000 last year, just for the rights to lease the fish, to a group of speculators that don't even fish.

Greg Stunz [01:02:42] And some of us are saying, "Well, time out. Why does this guy get to collect all this money on a natural resource that's owned by all of us, and this guy doing the work?"

Greg Stunz [01:02:53] So, the federal government is term termed those guys "sea lords", which, kind of, it's a real word, I'm not making it up, that they control the fishery because they're the big quota shareholders.

Greg Stunz [01:03:06] But then you have the sharecropper fishermen which are like this guy that comes in and has to pay for his ability to go catch the fish, even though he takes all the exposure of the boats and risks and crew and fuel, bait, ice and all that.

Greg Stunz [01:03:18] So, it's kind of gotten a little out of control.

Greg Stunz [01:03:21] So, there's those of us on the Council, of course, some on the Council think it's the greatest thing ever, if you have the quota. If you don't have quota, it's the worst thing ever.

Greg Stunz [01:03:29] And there's probably a solution there in the middle somewhere where we can kind of fix some of these unintended consequences. And it's probably too much to get into today, but we're going through some processes to kind of restructure that program so it can go back to its intended purpose of getting the fish to the fishermen in a sustainable way, that's good for the economy, the resource and the consumer.

David Todd [01:03:55] Got you. Okay. Well, that that helps a lot. Thank you for explaining that.

David Todd [01:04:01] This quota business seems like a real departure from the, I guess, tradition of as you said, you know, bag limits, seasons, length, weight. And I'm curious how

this IFQ program first got voted in, because it must have been a big controversy and a political change to accept this different way of managing the resource.

Greg Stunz [01:04:30] Yeah. Interestingly, and the fishermen, because we're talking about the commercial side now, and by the way, there's some on the private side, especially the for-hire, that would like to have this, you know, that including myself and others, oppose because we feel there's fundamental private, you know, access should be retained in that fishery for the private angler.

Greg Stunz [01:04:52] I actually think the IFQ system is good, if it was structured properly. Right now, we've found that there was some of these major unintended consequences. And that's what we're, that's essentially what we're trying to fix.

Greg Stunz [01:05:06] But when the Gulf Council had put this program into place, it was relatively new. The Alaskan fishing fleets, you know, if you watch "Deadliest Catch", and some of those, those are IFQ systems that that were initially set up. In many areas where they were set up, we're starting to see these same problems where they've either gone away or they've been severely restructured.

Greg Stunz [01:05:30] But no one intended for people not catching the fish to be making money. And then, you know, so, for example, you might pay \$5 a pound for, to access quota to go fish, but you might only make \$5.50 or \$5.75 when you go sell those fish. So these fishermen that are doing the fishing are not, they're making, you know, pennies on the dollar when others that are leasing are making all the money. And there's a large group that just think that that's just fundamentally wrong. That was never how it was intended. It's just through a variety of loopholes in the way the program was set up that that happened.

Greg Stunz [01:06:11] So what we're doing is developing ways to recover that quota through quota banks, which are kind of like a independent group, holds that quota, and then gets it to the right people, and doesn't allow for some of these more undesirable type activities that are going on.

Greg Stunz [01:06:29] Of course, there are some that think it's perfectly fine. It's just market forces at work. And if there's people willing to fish, people willing to sell it, you should allow that.

Greg Stunz [01:06:40] But then some say, well, this is a public resource and there's no public royalties, like oil and gas or timber, would never allow something like this to happen. You know, imagine someone coming in extracting our oil and gas without paying royalties. You know, that would just, especially in Texas, would be, you know, unheard of. And that's kind of what's happening. And so we're trying, no one wants to just get, the IFQ system in principle, does what it's supposed to. It's just all these other problems have reared their head that we're trying to fix. And, you know, what's that horse is out of the barn, it's really hard to pull that quota back.

Greg Stunz [01:07:15] And then, some folks were given the quota, in the beginning, but since then, some folks have bought quota. So it gets very difficult to if you were given it, well, you might could argue that could be, in fact, the law says we could take it back at any time. You know, that's the rule. But that's a very hard thing to do politically. And it gets even harder for people that might have mortgaged their homes or have loans and that kind of thing and actually bought that quota.

Greg Stunz [01:07:42] So yeah, it gets, it gets pretty complicated pretty fast.

David Todd [01:07:49] That's interesting. It reminds me of the system with water rights where, you know, these rights to water, at least in Texas, were distributed for free. And then the rights take on value over time as it becomes scarcer. And you know folks end up banking those rights and maybe not using them in the most efficient, public-spirited way.

Greg Stunz [01:08:20] Well, that is exactly what is happening. Yeah.

David Todd [01:08:25] Well, you mentioned this idea of a quota bank. And can you tell me just what the model might be for doing this in a more equitable way?

Greg Stunz [01:08:36] Well, we're working on that right now on the Gulf Council and working with economists and others. And so the idea is, well, you know, the groups that put this in, and I don't want to fault my colleagues 20 years ago or whatever, that put this program into place. But, you know, they didn't maybe have the foresight to think that this was going to happen. And so now it's like, "Well, what do we do?" And so, for example, did they intend that if a fisherman was given those that they would never..., would they pass them on to their heirs, who may not even fish? Or do they give them back to the fishery, or you know, that was never really thought about.

Greg Stunz [01:09:16] So the idea was to you establish a quota bank, and it's run by an independent group. You know, it theoretically has no dog in the fight. They're just doing what's right. And when it's time to either recoup or return that quota, you return it to this quota bank. And then it can be either sold, or auctioned off, or a variety of means to redistribute that quota to those that are more connected to the fishery.

Greg Stunz [01:09:48] Now, the issue is: you're, some would say that's a taking. You know, some would say, well, you know, you're redistributing something I paid for. And, you know, so it gets very, very complicated. You know, we don't want to necessarily hurt anyone, but we also don't like the idea of foreign governments controlling, you know, fisheries off the state of Texas, you know, and because they bought quotas. So and we don't like the idea that, you know, is this just going to perpetually stay in one family that may or may not even be fishing anymore? Is that right?

Greg Stunz [01:10:19] So you have some real, you know, ethical kind of questions of how do you do it? And it's it gets very difficult, very quick. And we're going through that process. And it's painful, and it's very argumentative, and it's very controversial. So we'll see how it turns out. I would think, hopefully, in the next three years we'll have some program in place that allows an independent group to start gathering that quota and doing it in a way that might be more equitable.

David Todd [01:10:53] Got you. Yeah.

David Todd [01:10:55] Well, thank you for explaining this. It sounds like a complicated thing. And then also a whole system that's in flux. So thank you for helping explain it.

David Todd [01:11:07] You know, I think to date, we've talked mostly about the fisheries within each sort of category. You know, there's the commercial fishery. There's the for-hire

recreational fishery. Then there's the individual sportsmen who go out and fish. Can you talk a little bit about the rivalry between those three kinds of harvest?

Greg Stunz [01:11:42] Yeah. So it's the classic, you know, commercial versus recreational battles that that have been going on in many, many other arenas. And it's happening here. So that fishery, just for practical purposes, is split roughly 50/50. It's a little it's about 51/49, roughly, commercial to recreational. But just for the sake of argument, you know that that 15 million pounds, or now, it went up. So now we're about to 18 million pounds. So, you know, 9 million goes to the recreational sector. And at the last meeting last week, we just approved an increase of quota. So let's just say eight to 9 million go to go to commercial, and 8 to 9 million pounds go to recreational. And that's how it's split.

Greg Stunz [01:12:29] The commercial sector split, I mean, I'm sorry, the recreational sector, split a few years ago into private, pure private anglers, just general private sportsmen and then those that are for-hire. And that split is about 60/40, roughly, to the private over to the for-hire boats.

Greg Stunz [01:12:52] And those, some of those folks, would like to do an individual fishing quota in the for-hire arena, although the appetite on the Council right now, I don't think is to do that because of, you know, what we're, we want to get the first program fixed first, kind of thing.

Greg Stunz [01:13:09] But, but anyway, so it's really just a game of, you know, who gets those fish, because each sector each sector can catch those fish relatively easily.

Greg Stunz [01:13:22] And so one thing, of course, the Great Red Snapper Count would, you know, make the pot bigger and everyone would have more fish, and you would think that would be a good thing.

Greg Stunz [01:13:32] But just last week, we heard over and over and over again, that the commercial fleet doesn't want any more fish, because if you go to the grocery store and look at the price of a red snapper filet of 30 bucks a pound, you might wonder why they don't want more fish, because, you know, supply and demand, they like, where they're at.

Greg Stunz [01:13:50] Of course, the for-hire private would like more fish, because more fish means more days and more access.

Greg Stunz [01:13:56] However, you know, we're kind of a little bit in a sweet spot now. We got the whole summer, and as you probably well know, in Texas, you know, we're talking about football right now. We're talking about hunting season, which starts this weekend. And so people begin to do other things. And so if you get, my phone used to ring every day, almost, with some irate person over red snapper on any, pick your sector, every one of them. My phone hasn't rang on red snapper in months. Anyway. So we're doing something right.

Greg Stunz [01:14:25] But it's just, you know, we haven't quite got exactly where we need to be.

Greg Stunz [01:14:29] So my idea is that the snapper count will show that we're not really overfishing this fishery anymore, because we got all these fish that are out there that are really not utilized by the fishery because of where they occur. And then we've kind of fixed the private side because they're getting their summer seasons, for the most part. And then if we

can fix this IFQ, I think we'll be in a good spot. Now, that's easier said than done, but it will take us, I'm guessing, no less than 3 to 5 years at the pace that the Gulf Council works to work through our process to fix that.

David Todd [01:15:03] Okay. So I guess most people who catch a red snapper are eager to fillet it and cook it and eat it. But I gather that that some red snapper are discarded. And I was hoping that you could tell us, you know, how do you mitigate that? Because I gather, and you mentioned this earlier about the compression problems, I guess it's sort of like the bends. Is that right? That these fish that are discarded sometimes don't make it.

Greg Stunz [01:15:42] Yeah, that's exactly what happens. We call that barotrauma, but it's the same thing a scuba diver would get. There's gases compressed in your bloodstream. Humans, when you're diving, if you stay down too long, or any period of time, it begins to compress. And fish, of course, live there. So they have a lot of gas in their bloodstream just from living at depth. When you catch them and bring them to the surface, that gas has to follow the laws of physics, and it begins to expand as the pressure decreases, as it gets closer to the surface. And they essentially get the bends or barotrauma, which means trauma associated with pressure-related damage.

Greg Stunz [01:16:24] And if you fished for any deep water fish, most people would clearly recognize the symptoms of barotrauma. The eyes are bugging out. Sometimes the air is coming out underneath the scales, and they're hissing, and they're bloated. And if you release them, they can't descend because they're kind of like a balloon at the surface.

Greg Stunz [01:16:43] And so the old school method was to what we call, "pop and drop", and it was to insert a needle and you let the air escape. And it turns out they do very well, especially if you know where to put the needle.

Greg Stunz [01:16:54] But the problem is sticking a large, you know, a large needle into a fish and maybe not knowing where to put it is not necessarily a good thing, you know? Sometimes the stomach is extruded through the mouth and maybe you've seen pictures of that. And people want to poke that, which is the stomach, which is definitely not something you want to do.

Greg Stunz [01:17:12] And so we've been working at developing alternate ways to do that, what we call rapid re-compression. And you can put a small device on their lip and it's weighted, and they're reusable, and you can send them, they're called, "Seaqualizers". It's kind of a play on words, but equalize, seaqualizer. And so you send them back down to depth. Just even an atmosphere of 30 feet, or maybe too at 60 feet. And those gases rapidly re-compress. And what happens if you're not too deep, but where the fishery generally occurs, you can convert what would have been a dead fish into a live fish by what we call rapid re-compression.

Greg Stunz [01:17:56] We've done a bunch of scientific studies and some very fancy electronic tagging where we can real-time track these fish to show that, "Wow, this, this really does work." And in fact, our tagging study from the Great Red Snapper Count showed, well, gosh, at least 30% of those fish survived, because that's the tags we got back. And, in reality is probably much, much higher than that, because if you get 30% back, you probably can at least double that.

Greg Stunz [01:18:20] So, why is all this important? Well, back when we had shortened seasons and the fishery had not recovered to a state, it was today, we discarded more fish, called "regulatory discards", than we actually retained, not because people didn't want them, but the season was closed and snapper are very easy to catch. And while you're trying to capture something else, you know, you can't really stay away from the snapper. The commercial guys in Florida that were trying to catch grouper, now the snapper had recolonized so much of that area, they can't really catch grouper. So they had these really high discard rates, which means by regulation, if they couldn't get quota, which is a whole other problem with IFQ we were just talking about, or if you're a private person out of season, you're required to throw those fish back. And that was just simply a waste of the resource, in many of our opinions.

Greg Stunz [01:19:12] And it also fueled the low catch, the low seasons, because those discards, many of them would die. So, you had to deduct that from the quota. So, it was just a bad situation.

Greg Stunz [01:19:25] In fact, in Florida, they dug their hole so deep that the discard rate exceeds the quota, and they can't even have a season, even though there's snapper everywhere on the east coast of Florida. So, you know, it can get bad really quickly.

Greg Stunz [01:19:38] So, we've been working, and there's programs now that anyone can get one of these devices for free if you fish for reef fish. We've shown scientifically it works. There's a bunch of videos on our web page showing how to do it and watching the fish actually decompress and swim away.

Greg Stunz [01:19:53] But in general, if you don't do that, it either won't, it won't be able to be submerged, and it will be preyed upon by dolphin or sharks or other things. And even when you descend them, they still get preyed upon sometimes, but it's a heck of a lot better than releasing them at the surface.

David Todd [01:20:11] Well that's fascinating. It seems like, you know, both a good thing for the stocks and just a humane way to treat an animal that you're not going to use.

Greg Stunz [01:20:22] Yeah. Anglers, in general, commercial and private, you know, they're conservationists. Nobody likes to see a dead fish floating behind the boat. And unfortunately, sort of the draconian rules had kind of forced that to happen. And now we've developed ways to mitigate that, what we call, "discard mortality". And that survival affects how many days you get the fish is how, what your discard rate looks like.

David Todd [01:20:53] All right. Well, you've, of course, we've been talking most about red snapper, but, you know, they don't live in a vacuum. And I was hoping that you might be able to talk about the interaction of the red snapper fishery with another major user of the Gulf, and that's the shrimping industry. And can you talk a little bit about, you know, the pressure and competition between the shrimp harvest, the trawling, and the red snapper fishery, particularly the juveniles?

Greg Stunz [01:21:35] Sure, yeah. Early, earlier on in our discussion, I talked about the, where the young snapper go, are these sort of remnant shorelines and these rubblely shell areas that are shallower, more inshore. And that's their nursery ground, or their nursery habitat, for red snapper. Well, it turns out that the nursery habitat for red snapper happens to be some of the best shrimping grounds. And so a lot of little red snapper caught is what we call, "bycatch".

That's unintended catch in a shrimp trawl. You might imagine a shrimp trawl's indiscriminate in terms of what it captures. If animals can't swim or move fast enough out of the way, they're scooped up by the shrimp trawl. And these trawlers, once you're scooped up, you're probably going to die.

Greg Stunz [01:22:24] It turns out the little red snapper could, in fact, maybe swim out of that. But they like it once they, some video showed them once they get sort of scooped in the net, they're just swimming along with it. They're structure-oriented fish and they're like, "Wow, this is great", you know, until the net comes up, you know?

Greg Stunz [01:22:42] And so, the bycatch of snappers was very, very problematic for a long time. In fact, shrimp trawl bycatch is a big issue just broadly in the bays. If you talk to a shrimper and there's about three, three pounds of unintended catch per pound of shrimp. If you talk to an environmental group, it might be seven pounds of stuff other than shrimp per pound of shrimp. And so bycatch is a big, big problem.

Greg Stunz [01:23:10] And so not only that, they catch your sea turtles, so they're required to have something called TEDs in their net, which are Turtle Excluder Device, because those reptiles have to breathe air. So being in a shrimp trawl's particularly problematic for drowning.

Greg Stunz [01:23:24] Then they're required to have BRDs in their net. It's B, R, D, and what's a BRD or DFD is a bycatch reduction device. And it's an area of low pressure, and it's kind of like a metal ring that sewn into the net. It's called a "fish-eye". And as the fish are swept into the net, this area of low pressure, the shrimp can't swim against it, but the fish can swim against it and go out. You're basically putting a hole in the net that the fish can swim out.

Greg Stunz [01:23:52] And that does help clean up the catch, but not altogether. Interestingly, some video we have, we put a video camera above, the fish eye or the BRD, and you see snapper just all right there in the fish eye swimming along with the net and they're coming out. You're like, "Oh, wow, this is working great." And then all of a sudden, all the little snapper come back and swim back in the hole that they just swam out of. Like, what's going on here, you know, and the camera pans back around and there's dolphins and sharks and other things.

Greg Stunz [01:24:23] And so we kind of changed the name of a BRD to a DFD from a Bycatch Reduction Device to a Dolphin Feeding Device, because the snapper would come out and the dolphin would be sitting there just sort of eating them like popcorn coming out of the the net.

Greg Stunz [01:24:36] But still, that's kind of a joke. They do definitely improve the catch. You know, it may not be as perfect as we would like, and neither are the discard devices that I told you about. But, you know, it's better than not.

Greg Stunz [01:24:48] Well, so anyway, snapper were a major problem of bycatch. And in fact, we had to reduce catches and other things. The, I guess, good news or bad news, depending on what side of the fence you are on on this issue. The price that the shrimpers are getting at the dock now for shrimp and the cost of diesel. And this was way before this last sort of really run up of diesel prices. This has been going on for 5 to 10 years with the cost of diesel. And then, of course, imported shrimp have really reduced that shrimping fleet to a fraction of what it was in the past, because of just the economics of the situation. Of course, that greatly reduced bycatch. And interestingly enough, the snapper population exploded

about the time BRDs were introduced and the fleet started shrinking. And so we don't really know how much of the recovery of the snapper population, which is clearly recovered, especially in the Western Gulf, is due to the fishery regulations versus due to the, all the young animals being able to survive and recruit into that fishery and not being caught as bycatch.

Greg Stunz [01:25:59] So, either way, it's probably a good thing for the fishery, but the shrimping decline probably definitely had something to do with the red snapper recovery.

David Todd [01:26:10] So one thing I was reading about, and of course, I get probably, you know, a very small piece of what's actually being discussed, but I thought it was an interesting kind of natural experiment in that following Hurricane Katrina, was that 2005, I guess, a lot of the shrimping trawler fleet was, you know, really decimated. And I understand that curiously, there wasn't much effect on the snapper harvest, snapper numbers, like you'd expect, if you relieve that kind of pressure on the snapper. And I guess things has happened since then. But can you maybe give us some insights on what Hurricane Katrina might have told you as a snapper expert?

Greg Stunz [01:27:05] Yeah, sure. I should have brought that up, because the shrimping fleet, you know, took some serious hits. You know, obviously, hurricanes did some major damage, you know, right in the heart of some of that fleet. You had imported shrimp coming in that could be raised in aquaculture for pennies on the dollar. So they had serious competition concerns. And then you had these prices of fuel going up that really, really made it difficult for that fleet to make a living.

Greg Stunz [01:27:35] Now, of course, like everything, there's some that come out of it, those that survived, are doing pretty well, probably.

Greg Stunz [01:27:42] But, you know, it really reduced the capacity of that fleet. And we are seeing effects from that. One interesting thing about fishery impacts in red snapper, or really a lot of other fisheries as well, is you have some type of event, but you typically can't detect that event for several years down the line. So it's really hard to pin it directly back on, back to that effect. But in general, we tend to think that that reduced shrimping effort, which is way less than it has been in the past, has been a major contributor to the rebound of that fishery.

David Todd [01:28:20] I see. Okay. I'm looking at our long list of questions here, and I see that we've made a lot of progress. And I thought maybe something to follow with would be to talk about, again, some of the players. You know, I think you earlier mentioned the various states are involved, and the U.S. government, and the Council and, you know, the agency, the National Marine Fisheries Service, and the university and then your Harte Research Institute. And I understand that there's also been participation in fishery management and research from nonprofit groups. In fact, I gather you got your first boost from the GCCA, which has had a long interest in snapper, and redfish for that matter. And then I understand EDF, Environmental Defense Fund, has also been interested in the IFQs.

David Todd [01:29:26] Can you give us your view of the contributions from these non-profits to how the fishery is understood and managed?

Greg Stunz [01:29:34] Yeah, it, really, their participation really changed the dynamics of that management and fishery, you might imagine. And still it exists in many places. These Councils, you know, it's the, it's the fishermen doing the fishing. And maybe if there's not all areas have such strong recreational fisheries as we do in the Gulf, in Texas and Florida, but you've got

private recreational fishery and managers kind of interacting. And that traditionally had been how it was.

Greg Stunz [01:30:02] And then all of a sudden you have advocacy groups coming in to advocate for their position one way or the other. Typically, it's a group like the Coastal Conservation Association, which is going to advocate on behalf of recreational anglers because that's their mission. And the Environmental Defense Fund, of course, is going to advocate strongly on the basis of, you know, protecting the environment at the cost of commercial or recreational fishing.

Greg Stunz [01:30:31] And it really began to develop more that the federal legislation or the act that governs federal fisheries management, we call it the Magnuson Act, or the Magnuson Sustainable Fisheries Act, and it was developed mainly with foreign, not foreign, Alaskan, really industrialized fleets in mind. It probably didn't take into account recreational fishing as well as it should have. It's been authorized, reauthorized several times. And we're trying to go through a reauthorization right now. It's a slow-going process to fix some of the, you know, it was, it's kind of like IFQ: it was great in the beginning to fix some serious overfishing problems, but it needs to be, you know, reauthorized with some new ideas, you know, each time. And it's about time to do that again.

Greg Stunz [01:31:19] And what the Act did is it made the process very, very transparent. And that's when you began to see a lot more of these organizations coming in. But some strategic alliances have been made. You know, I think like, for example, the Environmental Defense Fund, another one is the Ocean Conservancy, are two big players in the Gulf advocacy arena on that end. And the CCA and some other groups are more on the private anglers, but you have the Shareholders Alliance, which is an alliance between the Environmental Defense Fund and commercial fishermen. You have the Charter Fishermen's Association, which is a similar partnership, and they've kind of partnered up.

Greg Stunz [01:32:03] Of course, the environmental groups like IFQs because it really reduces the capacity to fish and not that's clearly a positive on the environment when you have less, we call it, "over-capitalization", which means there's too many boats to catch too few fish. So you're compelled to over-fish because you've got to make your note payments and all the debt that you're in and that over-capitalization. And so IFQs and those programs do curb that.

Greg Stunz [01:32:29] And so that creates another dynamic where all of a sudden where you just really had two kind of groups fighting over a resource; now you might have five, with all kind of different allegiances and alliances and they're very politically active and they really control who's on the Gulf Council, who's not. By the way, that's an appointment that the governors put three people on a list with a preferred candidate. And then of those, the Department of Commerce, the Secretary of Commerce selects that person. There's eight, there's eight regional management councils across the U.S. and the Gulf of Mexico is the one that obviously handles the Gulf that we're talking about today.

Greg Stunz [01:33:10] So then all of a sudden, that opens the door for a lot of politics to come in, because whoever you get on the Council obviously might vote and move the direction you advocate, and that kind of thing. So it really opens the door to a lot of contentious controversy.

David Todd [01:33:26] And I'd have to say the Gulf Council is the poster child for that, of all our eight regional management councils.

David Todd [01:33:35] I can imagine: it must be lively discussions.

Greg Stunz [01:33:40] Well, right. At the end of the day, you know, we took an oath to make sure we have sustainable fisheries. And then then, you know, you try to manage to everyone's, you know, there is a lot of folks who would like to see no fishing, period, you know, just leave the Gulf like it is naturally. Then there's those that really want to heavily fish and you know, the balance is somewhere in between.

Greg Stunz [01:34:02] And I probably should tell you the other thing that this Act did was it specified that you had to consider economics in this. And so you've got a big price at the dock for snapper of \$8. And of course, that can be magnified through restaurants and that kind of thing. But then you look on the recreational side and you have multimillion dollar yachts and hotels and tourism surrounding it, you know. And so a lot of activity now has gone towards, you know, where's the real economics. Typically the private recreational eclipses the commercial side.

Greg Stunz [01:34:39] But then you also have cultural aspects you have to manage for, because fishing is an integral commercial, fishing is integral, you know, whatever part of our fabric in coastal communities and that sort of thing. So right away as I began this about saying, you know, "The science side is relatively easy." We can tell you what's best scientifically, but then you bring in all of these groups and different, you know, views on how that fish should be managed, and the resource, and the environment. And it gets very difficult very quickly.

David Todd [01:35:09] Hmm. I can imagine it.

David Todd [01:35:14] So something that that intrigues me, and I think you touched on this a little bit with the effects of the shrimp industry on the snapper industry, and vice versa. I gather that there's been a lot of focus on the red snapper and trying to get its management tweaked and corrected and focused correctly. How do you think that that focus and effort has affected other fish, like vermillion snapper, and red grouper, and other fish in the sea? Do you think there's some spillover or collateral effects that need to be thought about?

Greg Stunz [01:36:01] Todd. Did I lose you there? Can you hear me okay?

David Todd [01:36:04] Yeah, I can hear you.

Greg Stunz [01:36:05] Sorry. You cut out at the very end of your question there for me, but I think.

David Todd [01:36:10] Yeah.

Greg Stunz [01:36:11] But you were asking about the collateral, how does what you do on one fishery affect what happens in others?

David Todd [01:36:16] Exactly. Yeah.

Greg Stunz [01:36:18] Well, what, fisheries is rife with unintended consequences. We were talking about the IFQ, and we had this concept in fisheries called, "fishing down the food web" or "fishing down the food chain". If you regulate one fishery, the fishery's really dynamic and good, and they'll switch to something else. Or you regulate that fishery and they switch to

something else. And you tend to go from these very highly desirable fisheries like bluefin tuna, all the way down to very small, less desirable, is sort of the trend.

Greg Stunz [01:36:50] And so that, we see that in the Gulf of Mexico. You regulate snapper, well, then you start fishing vermilion snapper. You regulate grouper, you go to snapper. And you regulate snapper and you get over vermilion snapper. Now we're going to trigger fish. So, you know, now we're moving out to dolphin fish might have some regulations, or cobia or what we call ling. So yeah, that, there's what we call, "cascading effects" throughout an ecosystem.

Greg Stunz [01:37:16] And we have really began to preach a little more, something called, "ecosystem-based fisheries management", where you can't just, these fisheries don't exist in a vacuum. What you do when you pull out a little part of one, you, it's kind of like a balloon. You squeeze one side, that air's got to go somewhere else. You know, you take out a little, you know, and so we as ecologists, and this is where my ecological training comes in, realize that you can't really pick out one piece of the ecosystem and not expect to have impacts in other areas.

Greg Stunz [01:37:46] A perfect example of that is forage base. There's big menhaden fleets now off Louisiana. There always has been. In fact, they're fishing very close to shore and getting some redfish and trout and, you know, having conflicts with recreational fishermen. But we have big concerns that you can have the best management practices in place, but if you don't have the forage base for them to thrive and grow and and be sustainable, you've got big problems.

Greg Stunz [01:38:12] So, you got to, we've got to start looking at managing the harvest pressure, more globalistic in terms of the ecosystem level. Now, that sounds great from my academic ivory tower over here. It's perfect, you know. But, then when I go to the Gulf Council meeting and I have to make decisions on ecosystem-based management, we just don't have the scientific tools or information we really need. We're going through the motions, and we're working hard to define what that means, but it really comes back to single-species management. And, you know, at the end of the day, the commercial and recreational people want to know how long is my season, how many fish I can catch? And that's clearly, you know, single species.

Greg Stunz [01:38:57] But the tide is moving and it's just the science is trying to catch up with the management needs and that's a pervasive problem in general. And fisheries management is not having the, you know, we're required to manage on the best science available, and many times that's very limited or no science.

Greg Stunz [01:39:13] So, it's, it's, it's the future. But we have, for example, to give you the way it works in the opposite direction. The snapper fishery clearly recovered in the Gulf of Mexico, especially in the western Gulf. And then the triggerfish plummeted because they happen to be nest builders and there were so many red snapper that they interfered with their ability to repopulate.

Greg Stunz [01:39:36] And so, you know, it's kind of like you got to be pretty careful when you start messing with Mother Nature.

David Todd [01:39:45] You work in a challenging field!

David Todd [01:39:49] You know, and it seems like one of the major challenges, one of the big obstacles, is just this whole idea of how do you manage a commonly-held resource. In our, what I see as a pretty capitalist system, you know, most things are held within some sort of boundary and controlled by whoever owns those rights privately. But, but fish in the sea seem to be a really different kind of situation. And I was hoping that you could give us sort of the 30,000-foot and maybe more philosophical view of how do you do this, how do you do this, how do you skin this cat, you know, manage this wild fishery? It seems like a tough thing to do.

Greg Stunz [01:40:41] Yeah, well, it's interesting you say that the first day in my, well, in most of my classes that deal with any type of ecology or especially resource management, there's the concept I'm sure many of your listeners you've heard of, called "Tragedy of the Commons". And when you have common property that's available to everyone, you know, it gets degraded really quickly, because human nature, humans are compelled, I better get my access to that resource before someone else does.

Greg Stunz [01:41:08] And it was, philosophers have been writing about it forever: Garrett Hardin probably wrote the famous, most famous essay on it, and it had to do with common grazing areas in England and Europe. And, as you can imagine, if you have a private field that you only graze on, it's lush and beautiful and controlled. But the public common grazing areas get devastated really quickly, because that's the first place you're going to put your, your cattle, or sheep, or whatever.

Greg Stunz [01:41:35] And it's no different than fishing and it's no different than, you know, experiences you might get out in parks and other things. This is a pervasive principle through human nature.

Greg Stunz [01:41:47] And so our ability really comes back down to that, at that level, is what do you do when you have a resource, a common resource? And the idea is that governments and other things take that into trust to manage it for the good of the people. And that's great. And that, you know, if you're a dictator, it's easy. It's just, if you're in Cuba, they have great coral reefs, because Castro said, "Sorry, nobody can access these coral reefs."

Greg Stunz [01:42:12] Well, we don't really do that in our capitalistic society. So, you know, how do you manage that? And then how do you define well, what's the good of the people? What's good for the Environmental Defense Fund is probably not good for the Coastal Conservation Association, you know. And so you're trying to balance that. And that's really what it comes into in terms of natural resource management in general, and especially fisheries, is how do you balance the needs in a world of limited resources. And that's really the challenge.

Greg Stunz [01:42:44] We're dealing with it right now with oyster reefs. I know, I listened to your Larry McKinney, you talked to, and Jenny Pollock, and, you know, you probably hear that same story over and over. We're dealing right now with how to handle public commons in the oyster fishery. And it's not going real well, for this very reason. It's the same thing offshore. And so by managing with a Council like this, you're at least going through the motions and trying to get where you can.

Greg Stunz [01:43:11] And I don't want to send the message to your listeners that, you know, we've done, red snapper is a success story. We got more snapper than in any of our lifetimes.

It's an allocation issue at this point. And so that's a good thing. And many of our fisheries are in really good shape because of this.

Greg Stunz [01:43:27] But it's just a hard process when you have to divide up a limited resource when there's less to go around and decide who gets a piece of that pie.

David Todd [01:43:37] Hmm. Yeah. Anybody who's looked at a pizza or a peach pie, you know, we all want the big slice. So even if you have enough, you want a little bit more.

David Todd [01:43:56] And what do you, when you look into the future, as you said, you know, snapper is in good shape now, but they have fluctuated over time. What do you foresee their prospects to be like?

Greg Stunz [01:44:13] Well, I'm very much an optimist and I see it very good. I'm, I'm also a realist. I'm not going to say there's not a lot of problems that need to be fixing and tweaking. But we're in a good spot. We have a robust population of red snapper in the Gulf of Mexico. Yes, we have a lot of contention and conflict over who gets access to that. But we could be in a very different situation, where we don't have that resource, and we've got to rebuild it, and we've got to have, you know, make some really tough decisions, and very hurtful economic decisions that is, you know, where you just have to let that fishery do its thing to recover.

Greg Stunz [01:44:49] Well, the good news is we're not there at all. I mean, you know, Port Aransas, where I live, right out of my back door here, has a great offshore season this year and it continues to be good. I think it'll continue to be good. We'll fix, we'll tweak is IFQ system to make sure that's fair and equitable, but still controls the resource. And that'll keep the environmental groups happy. We'll give a lot of access to the fishery for private anglers. That'll keep that side of the advocacy group happy. So I'm confident of where we are.

Greg Stunz [01:45:18] Do I think there'll be some ugly battles and things? Most certainly. And there'll be other fish we deal with. But in general, if you looked at us compared to some other countries, we're in a pretty good place to be.

David Todd [01:45:33] That's great. I love hearing, you know, positive stories like that. That's super.

David Todd [01:45:42] Well, just one last question, if you don't mind. This is just a general, open-ended question. Is there anything you'd like to add that we might have just given short shrift to, didn't really give the attention that some issue deserved, for red snapper, or just fishery conservation in general?

Greg Stunz [01:46:05] Yeah, well, really, I think you know what I said, you know, we definitely have a lot of problems. You know, in general, they are good problems to solve. We could be in a much worse situation. But we tend to, and even on this call today, you know, we tend to focus on red snapper. But there's a lot, that's how we, everybody's always concerned about red snapper. We neglect a lot of other species probably because of that.

Greg Stunz [01:46:27] But there's, there's a lot happening. You know, we've got very robust inshore fisheries. The state of Texas does, I mean, an outstanding job where really it's, you know, a fully accessible fishery. We can go fishing inshore any time you want with liberal bag limits, take home a lot of good fish.

Greg Stunz [01:46:46] I mean, we preach catch and release because of the nature of the population growth in Texas. And, you know, we're going to double here by 2050, is what the demographers are telling me. So we're going to have to really be wise steward of the resource. But certainly we think eating fish and keeping fish is a really important cultural aspect of the, the whole aspect of what we do.

Greg Stunz [01:47:09] But we also preach that, you know, keep what you need, you know, so we can maintain this resource.

Greg Stunz [01:47:14] But I just would want your listeners to know, inshore, we've got robust fisheries. You know, it's, it really is the good old days. We just have a lot more people, for the same amount of resource, so it may not seem that way. But we've done a good job there.

Greg Stunz [01:47:27] And of course we have freezes like we had and other events that come along, red tides. But in general, because we've done a good job managing, those fisheries are resilient.

Greg Stunz [01:47:36] So, my outlook's very positive for natural resource management. We definitely don't want to take our eye off the ball by any means, and, you know, do what's right in terms of wise conservation. But we're, we're in a really good place.

Greg Stunz [01:47:50] Oh, I love hearing that. Thank you.

David Todd [01:47:54] You know, I think you have told us about a lot of the issues and controversies and challenges, but it's nice to know that things, seem to be, working out well and that people are discussing, you know, how to manage this whole resource in a productive way.

David Todd [01:48:13] Well, unless you have something to add, I wanted to thank you for taking all this time to explain what you do, what you know. And you've been very kind to share all those insights with us.

Greg Stunz [01:48:27] All right. Well, this has been great. I'll be interested in hearing it. I hope your listeners enjoy it.

David Todd [01:48:32] Yeah, well, I'm sure they will. And I know I did. So thank you so much for your time. It's good to visit.

Greg Stunz [01:48:39] All right.

David Todd [01:48:40] All right. I'm going to sign off now. Thank you again for your time.

Greg Stunz [01:48:44] All right. Sounds good. It is nice talking to you. We covered a lot of ground.

David Todd [01:48:48] We did. Thank you so much.

Greg Stunz [01:48:49] All right. Bye.

David Todd [01:48:50] Bye now.