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Rob Grasso [00:00:10] I started fishing. Basically, my father my father was an avid fisherman, has been fishing probably since my great grandfather taught him. So it's been a long tradition in my family.

Rob Grasso [00:00:24] I grew up on the East Coast in New Jersey, so my grandfather was originally a tuna fisherman and was out every weekend inbetween the family business was running a local laundry. And every picture I see, you know, my father with my grandfather was they were always fishing. So I remember as a kid, I probably wasn't that into it. When I was first very young, just sitting in a boat for long hours. But you know I didn't appreciate the skills that I was learning that I have today when I go fishing. That video I showed you this morning of my son catching that brook trout, I just talked to several people around the community, and they're like, I think May lake is fishless, I haven't caught it in the last few times I went up there and I I kindly don't say anything in return. But I often suspect that maybe they just don't know how to fish.

Rob Grasso [00:01:09] So that's kind of my my history. My dad was an avid fly fisherman in New England.

Rob Grasso [00:01:16] We did a little bit, but we were most mostly ocean going fishing and then some freshwater back in New Jersey.

Rob Grasso [00:01:21] So I would say it's been long instilled and a long history of family fishing. That was pretty much every weekend when I was growing up. If we had the weather, we were going fishing or if we didn't have the weather. So.

Rob Grasso [00:01:38] I think there's something primal about it. I am mostly.

Rob Grasso [00:01:42] I enjoy all aspects of angling just for the recreational fun and the fight of the fish. But I also do a lot of like subsistence fishing. I'm an avid ocean kayak fisherman. So I spent a lot of time between the north coast, the central coast, areas of the Lost Coast in Northern California, mostly fishing for lingcods, rockfish, I fish Tomales Bay for halibut. And these are mostly things I'm doing just to stock my freezer. I enjoy the hunt to pursue and the fishing and being in Yosemite National Park, the wilderness experience is really important to me.

Rob Grasso [00:02:18] So there's a lot of people in the park and it's kind of the more people and the more presence you have in the back country, that dellution factor kind of goes up from a wilderness experience. But when you're on a kayak out in the ocean, you're back to the elements that it's just you and nature and you are at the sort of the perils of the condition of the sea to get yourself back.

Rob Grasso [00:02:36] I like to say The Old Man and the Sea is definitely my was my father's favorite book and something that I read and have watched and read again. So I think that's just something about the pursuit of being out there by yourself with the fishing rod and subsistence level fishing. It just strikes a chord, I think.

Rob Grasso [00:03:00] One of my prized possessions is like a nineteen fifties or sixties saltwater sportsman where my dad's on the cover, you know, fishing in the surf in New Jersey, so.

James Thull [00:03:11] That's pretty cool.

Rob Grasso [00:03:12] There's been a couple articles about him. And then he when he passed, with a local kayaking group called NorCal Kayak Anglers and I'd just like, a sobbing mess, just wrote an article and posted it for friends to read. And a friend of mine who edits the Santa Cruz Fishing Report and has some other publications, even magazines he writes for, asked me to sort of write it up as a magazine article that he later published in a kayak fishing magazine. So, yeah, just all stories about fishing, you know, like the book Adrift. You know, I would like if that really happened and I made it, it'd be a great experience.

Rob Grasso [00:03:51] I think it's really hard. I I struggle. I kept I keep in touch with my brother, who's still in New Jersey.

Rob Grasso [00:03:59] There's a lot of NOAA fisheries regulations imposed on New Jersey fishermen. When my father was in Florida, there was similar regulations that were imposed. And being in California long enough now to see how the marine protected areas were set into place, basically like these islands out in the ocean where you cannot fish. And the concept behind those is that they produce enough, You'll get the spillover effect where you can actually catch on the adjacent areas. I think the angling trust in the community is probably paramount.

Rob Grasso [00:04:33] If people don't support what you're doing and the regulations you're imposing on them as a paying fishing license sportsman, you feel like you want things to be fair and that your money is being justly spent for either wardens, enforcement or, you know, hatchery programs to support that sort of subsistence fishing. Salmon, ocean fishing. Salmon in California is basically 100 percent hatchery fish. There's no native runs really left of salmon going out to the ocean that are being caught. So I think people understand that, you know, there's this dynamic where the season may be limited as such. You may have one month of fish for ocean salmon. The season could be completely closed. And I think anglers kind of get it. In California, if there's drought and the fish are unable to spawn or the hatcheries don't have the water temperatures they need, people who can translate directly into there's not going to fish in that year or one or three out from now. In the park in freshwater, I think, you know, they probably were a tonic to themselves when they were actually putting fish in for recreational angling. You know, the idea of putting fish into remote lakes that were historically fishless was to sort of drive people out. You know, you can imagine after World War Two in the 50s, you know, this concept of like getting in their car and going camping was a little bit foreign and just getting started. And then when we created wilderness areas, you know, like why would people go hike 10, 20 miles to the middle of nowhere and giving them and other recreational angling opportunity sort of set that in motion to get people out further and further. But what they realized was that people would catch all the fish they could and take them all. And then they'd have to put fish back in. And maybe people were saying, you know, hey, I'm paying for a fishing license, I expect to catch trout. Limits probably are imposed. After that, you catch five or 10 trout per day. And I think that's where the where it lies in the key to people who are subsistence fishing or striking that balance is making sure the regulations actually make sense for what you're doing.

Rob Grasso [00:06:35] You know, and if you're now limited to only keeping five trout per day versus 20, you can understand why that is, that we need some natural propagation left behind. And I think that applies to almost all aspects of angling. And again, being in contact with others, like on the East Coast and the West Coast, I often hear that, though,

they'll put a slot limit. You can't keep a fish under this size and you can't keep fish over that size. And I think as long as that's just makes sense for the ecology of the species, then anglers will understand that and respect that. Poaching, you know, as you heard Rachel mentioned, it's probably still, or Joe talking about, you know, probably contends with a lot of fisheries. Is that, you know, is that people fed up with the regulations, they don't believe in them and they feel like there're plenty of fish to be had and they're ignoring them.

Rob Grasso [00:07:24] You know, I think that that widely ranges on people's opinion and perception of how regulations are imposed.

Rob Grasso [00:07:38] I would say the native species we have for trout and sport species, species are the rainbow trout.

Rob Grasso [00:07:45] So *Oncorhynchus mykiss*. This is our native western US trout and the only native trout that we have in the Sierra Nevada in this area where there was glaciers. Then there's the golden trout, another subspecies. And others like Red Band. All are more or less, like rainbow trout in the Sierra are *Oncorhynchus mykiss* and then like a subspecies like aguabonita for the golden trout.

Rob Grasso [00:08:14] We a lot of the controversy we run into is that most of the major river systems in California had rainbow trout. When dams were put in, when dams were set up for agriculture and water supply, you know, where they didn't have sufficient ladders to go over those.

Rob Grasso [00:08:30] They were they were barred and barricaded. Or in some instances what they're finding now is actually isolated. So you can actually go and find above rem-Dam some native trout still in existence. We did an exercise in the park where we'd been sampling rainbow trout genetics just to see if we can trace their origin. There's the Garza lab and we've been working with Devon Pearse out, Santa Cruz, UC Santa Cruz. They basically have mapped all of the hatchery strained trout. So they have this database where you can basically take a sample from a rainbow trout and they can tell you, oh, that has historic origin from Merced River Hatchery or, you know, a different hatchery in the state.

Rob Grasso [00:09:12] And we did a sampling effort when we were making the decision as a park to restore native ecosystems for other species and removing non-native trout.

Rob Grasso [00:09:22] Rainbow trout often come up as the first, I would say, animosity because they are native to the western California. The fact that they've been put somewhere where they didn't historically occur doesn't cause as much consternation to an angler because they still perceive that trout as native in origin to the west. But that trout, for all intents purposes, could have come from Kamloops, British Columbia Hatchery. So looks like a rainbow trout, but it was just reared somewhere else. And hatchery performance and the fish that they were collecting mattered a lot when you're putting them into a high mountain lake. And you know, other things they discovered is when you cross the golden trout with a steelhead or a rainbow trout, you can sometimes get these sort of increased hybrid vigor crosses that do well. So golden trout do really well at high elevation. So if you have lakes above 10000 feet, golden trout of are your fish of choice. But what anglers find out is that they often get 6 8 inches and don't get any bigger. Rainbow trout have the opposite. They can get very large, but they don't do well at high elevation. So when you cross them, they actually perform better. So sometimes you run into that, you just get a different type of trout or hybridized version of trout that just performs better.

Rob Grasso [00:10:35] Other than that, brook trout that are native to the eastern United States. And we often, you know, we've we've explored the concept but haven't really had any response. You know, it's ironic that sometimes Eastern Brook trout aren't doing well in their native range. And we have so many of them out here. You know, could we possibly have some genetic diversity out here that we could introduce back to the East Coast to try to bring the fish back? And I think that's still a concept that's just getting some inception. I don't know if people have thought long and hard about it. You know, those fish were brought out as eggs on railway cars originally propagated in Berkeley in the late 1870s. And, you know, that's something. I've mentioned my wife, Molly Stevens, who does a lot of golden trout work. She'll get calls from all over the country saying, hey, this really native strain of golden trout. Would you like some eggs or some samples? And, you know, on rare occasions, actually do shell out a little bit better. But once fish are brought into a hatchery, that dilution just starts. You know, there's there's just too many fish from different places that start to jump across race ways and they get planted back out in the wild. And then at some point that dilution happens that you don't have that purity left. I can talk more about that if you're interested about, you know, from the golden trout point of view. So in the park, when we did this park wide effort, basically, you know, if we were planning to remove fish from a lake, specifically rainbow trout, we wanted to make sure we weren't removing something that was native of origin. So we will often take Finclips from those sites and have them analyzed by by Devon Pearse and Santa Cruz. And when we did this park wide effort, we found that the South Fork Merced, which is just about five, six miles down the road, actually contained rainbow trout that didn't match any or any hatchery origin specifically. So what we infer from that is that there are likely native strain rainbows still persisting in the South Fork Merced, even though there was fish plantings done all over and around them in those systems and in the lakes above. But spawning times and differences could actually speciation from a species point of view, keep them separated if they're spawning in the fall versus spring or midwinter? And somehow what we've learned in the last year is that the South Fork actually has some. Are they pure rainbows, we're not sure, but early evidence suggests that there at least something unique to that system that's worth exploring and possibly preserving. When you move over to the main step of Yosemite Valley, we've had several hatcheries in the park in Wawona and Happy Isles, which is in Yosemite Valley proper. It's hatchery standards go. They tried early on to take very specific fish or eggs, I should say, from Lake Eleanor. Lake Eleanor had rainbow trout that were stocked by an old homesteader named Horace Kibbe in the late 1870s. So they thought they were getting pretty pure rainbow trout genetics from a local source, bringing them into the hatcheries. But as it goes, if there's die offs or mishaps, you can call another hatchery and usually get like a fresh supply of fry or fish back into them. And from our own stocking records, we know that trout came from all over California. That was largely, even though it's a national park and we do have explorers exclusive jurisdiction over our fish and wildlife, it was largely a state Calfish and game then now Calfish and Wildlife sponsored program that oversaw most of the fish stocking that happened in the park. So today we are left with rainbow trout in the high country, possibly native rainbow trout in the South Fork Merced River and potentially in the main stem Merced River into Yosemite Valley, although that's uncertain. German Browns, which are obviously native to Europe and Eastern brook trout. And we have a population of green sunfish in Lake Eleanor and then smallmouth bass had also, I would say invaded the main stem, Merced River, probably from Lake McClure, where they were stocked and finding their way up into the system. I've been told by Peter Moyle and others and other parts of the state, you know, perhaps that climate related aspect of trout fishing in California is that water below dams now is getting too warm. So it's very favorable for red-eye bass, smallmouth bass, and perhaps anglers are actually taking the initiative of moving them up further because where they once fished for trout that's now too warm, they can at least fish for smallmouth bass.

So I'm actually anticipating or waiting and I'm hoping it never happens. That small mouth may be introduced to Yosemite Valley, but, you know, that's a threat that we're keeping sort of vigilant on. We have some fish, some folks that conduct annual fish fishing surveys that were sort of just, again, staying vigilant.

Rob Grasso [00:15:22] You know, the kill policy. You know, we have the program we had in place.

Rob Grasso [00:15:28] What we try to convey is that we have about 250 lakes in the park that have either rainbows, browns or brooks. Brooks are by far the most prolific just because, you know, their their Latin name, *Salvelinus fontinalis* literally translates to breed's in springs. Our problem is that we don't often have good outlet and inlet habitat for fish to spawn but brook trout spawn right in the lake. So when we're deciding to remove fish from a lake, we brook trout are often the best target because they're not native to the West Coast. Anglers will often complain that they don't prefer brook trout. They prefer the fight of a rainbow or brown. And they're so prolific that they often stunt themselves in a lake. So you'll have hundreds, if not thousands of fish in the same water body. But then they just kind of reach a maximum size of six to eight inches. They can be fun to catch because it's one after another. But in terms of putting up the fight, you know, not as much. And although I don't find them to be unpalatable, anglers will often complain it's not their favorite tasting fish. So if it works for us, we do try to select a site that has brook trout first. We're after, you know, about 10 percent of the lakes in over the next twenty five years for fish removal to benefit the federally endangered Sierra Nevada yellow legged frog. And when we pick a site, usually our criteria is just having a definitive downstream barrier because we we we have 12 hundred miles of stream occupied by trout. And it's just not feasible. We don't use any chemical means to remove fish in the park. It's all either e-fishing or with gillnet. So if we have long inlet and outlet sections, it's just not practical for us to get those since it takes about four years just from gill netting operations in a lake. Brook trout what are the hardest fish to target to remove. They're just being so prolific I think just sets them up that when you reduce the initial population and you still have fish left, you just make conditions great for those remaining fish. Rainbows are fairly easy because they don't have that spawning capability. So when you're targeting rainbows or preserving or restoring a site with rainbows, they generally don't have that spawning habitat available to them year after year. That's just usually one year. They get it. They get lucky in a series of maybe five to ten years. So the removal usually goes faster. But, you know, from an angling point of view, we know it's not practical to even propose moving removing fish from all of those sites, the lakes and the streams. So we just try to be very selective about where we are. But it often comes that we just can't avoid going someplace that has rainbow trout.

Rob Grasso [00:18:12] I think that's a good question.

Rob Grasso [00:18:14] You know, I think it's showing the angling community that we don't have this hard line of like you have we have no appreciation for the fish that are in the park. Therefore, take as many as you want. There are some lakes in the park where we have a remnant population of Lahontan cutthroat trout. They were called black spotted trout historically, when they were planted. They were placed in several locations in the park. They only took to one site in the park. And we have one lake. There's Adair Lake with golden trout and Hanging Basket Lake that has Lahontan cutthroat trout. And we've talked about actually imposing special fishing restrictions on those just as like a promise to the community that we have these unique fisheries in the park. And quite frankly, we've evaluated them and they don't we don't think they would make great frog habitat. Why not

just leave them as they are and actually place special restrictions on those, like maybe barbless or no take, just to ensure that those populations have some management into the future where there's not going to be any actions taken. How that translates to us just saying, take all the fish you want out of these other lakes we don't care about, you know, we really haven't had those discussions. Why that is? You know, honestly, I can't say. It's just something I hadn't felt the need to pursue. We'll often receive criticism from angling groups. If you just let us know where you going next? That we could go there and fish and, you know, have our heyday. Right. they can catch as many fish as they want. I think most anglers we find are largely catch and release. There are very few subsistence, although that's how I've started in the Sierra. I would not pack, you know, two to three days worth of food on a week long trip, anticipating I'd be having trout for dinner most of those nights. I don't know how much of that is occurring in the park. I assume that's on some scale, but probably a low percentage. And through hikers, probably not a lot of people subsistence fishing. But we don't currently have any mandates. Again, we do have exclusive jurisdiction over our wildlife. So if we wanted to impose those rules or lift, you know, those sort of take limits, we could do that.

Rob Grasso [00:20:25] It's just not something we felt the need from a management perspective to take on head on.

Rob Grasso [00:20:34] I would say my short answer would be no.

Rob Grasso [00:20:38] Even though they've been defined as non-native species in the park or perhaps invasive species, our specific management today directed at a few of the species we're trying to restore. Most notably the federally endanger Sierra Nevada yellow legged frog.

Rob Grasso [00:20:53] We know we only need about a handful of key locations in the park to allow that frog to prosper. So it's not we don't feel like we don't feel the need is to say we need every single lake we can to get that frog back to historic levels and then sort of ultimately removed from the endangered species list. We think we can identify a few key areas in the park, get them reestablished, and then sort of give them a foothold. And then, and, you know, we basically recover them from a standpoint that we don't have to get every single water body, but we've gotten enough key habitats back. And I think a lot of that translates to the monumental effort.

Rob Grasso [00:21:29] And I often try to convey that to folks I'm reaching out to or anglers or communities I'm talking with, is that even if the will was there, the funding and the effort would just not even be practical to actually take on something of that scale. So I think that's the I think that's the notion is that we just couldn't even do it if we wanted to.

James Thull [00:21:50] Well, I know in Yellowstone they have a a few years ago instituted a policy where if you catch a rainbow or brown or brookie, you're required to kill it and not replace it. It's just the idea of these aren't native to the waters and its idea of allowing especially cuts, which I think are more susceptible, to interbreeding and being just displaced by by brookies and rainbows and browns. Of helping crack those native species. I didn't know whether or not you guys had a similar policy here.

Rob Grasso [00:22:22] No.

Rob Grasso [00:22:23] We have tried to place there's actually a woman here, Rachel, in archeology, where her grandfather was a packer for the park in the late 1960s.

Rob Grasso [00:22:34] Where the state was running into those issues of hybridisation between rainbows and native Paiute cutthroat trout.

Rob Grasso [00:22:42] The park was approached and said, Hey, can we take out some fish from Silver King and put him into Delaney Creek in Yosemite National Park just to give them a place where they'll be pure. And that already had brook trout, which is a char not likely to intergraph with the Paiute cutthroat trout where we've implemented those programs and we've taken a fish out of its native range, put it inside the park, decided it sort of preserve it, protected in a different way. And then while they removed rainbow trout below, which just happened in the last few years to give them habitat back then the idea was they would come back and grab those Paiute cutthroat trout and put them back in areas of Delaney Creek. I could probably look at the regulations. There may have been that requirement that if you catch a brook trout, you probably were to capture and kill it. In the end, efforts like that didn't succeed. The brook trout eventually took over, even though they made several attempts to try to eradicate the brook trout and then put it in another additional plant of Paiute cutthroat trout. If we were still trying to preserve that Paiute cutthroat trout, I'm sure we would have a similar regulation. If you've got a brook trout and Delaney Creek, you know, we would encourage you to remove or kill it to sort of preserve the Paiutes that are there. We don't have any now that we've just discovered it in the last year that we may have some rainbows native to the South Fork. We've been discussion in discussions with the state, at least as I understand it. There wouldn't be an immediate need to go and pull out those fish into a hatchery setting to sort of preserve those genetics because they're cut off. If they had any steelhead origin, they're cut off by red dams to not sort of well, I don't want to say intergraph, but, you know, sort of to mingle with the federally threatened steelhead that are still in the San Joaquin Valley. Although this might be some habitat that they could get back if they were able to access it. So other native species of fish, we have things like Sacramento Pike Minnow. There's probably California Roache, Sculpin, others that may be impacted by invasive species, but don't sort of have any special status designated with them that we would want to go in there and encourage that. And we do have a lot of local angling and guide services that, you know, a client comes to Yosemite National Park, you know. Although the rainbow would probably be the prized fish to catch. You know, there's other browns and other things to catch. You know, there's there's still some, you know, sensitivity to making sure that, you know, there are some angling opportunities, even though they're not necessarily what was historically here. But we don't have any special regulations to catch and kill in order to preserve another currently in the park. For specifically for salmonids.

Rob Grasso [00:25:33] I think pretty crucial. I think there's been a lot of mistakes made in the past that we don't necessarily have the means to immediately correct.

Rob Grasso [00:25:41] But if you still have the native species strains present that they're worth protecting. There are examples on Sierra National Forests just to the south, our neighbor, where a Lahontan cutthroat trout have been planted into waters both intentionally and then sort of questionably. You know, they have some populations Lahontan cutthroats that they have no records of how they were stocked and put there. They are taking genetic fin clips of those and trying to decide whether this is something we're going to manage for a native species propagation benefit, even though they're stocked outside of their range. And I think that's causing some management issues. But in the meantime, they're they're taking the initiative by saying we're going to preserve this section of stream and it's closed to fishing I think year round, I believe. And they also have populations of Paiute cutthroat trout. One's in Stairway, which is burned over in the Lyons

fire that's going on right now. So the future status and certainty of that population of Piutes, that's in Stairway Creek is is uncertain. You are allowed to fish for them, but, you know, release is encouraged. And then if you catch rainbows, you're encouraged to keep them. I don't think it's a specific requirement to kill, but again, just encouraged. And then another Shark Tooth Creek is another area that Paiute cutthroat specifically put in. I think a lot of that translates just to the conditions back in streams or lakes within their range just aren't, you know, hospitable, habitable or have other invasive species. Like if we were get to get serious about taking fish out of the South Fork and putting him into Merced River and Yosemitite valley, for example, we have invasive red signal crayfish, we have German Browns that we would need to contend with. The valley certainly favors brown habitat over rainbows. It's mostly sandy large wood conglomerations in the river that just favor brown spawning than it does over rainbows. That's probably some history of management. You know, large wood was removed from rivers, waterways with de-water to get roads and mosquito abatement. There's restoration ongoing in the valley that hopefully if gravels and other things return that it makes more favorable for rainbows, that might be a targeted action. But I think it's pretty paramount that the native species that we have that we try to protect them in some way or another until we can get their habitat back. And I think that's kind of some of the ideas behind these programs where fish were put, or at least that foresight was take it now, while it's still pure and put it somewhere to preserve it until we can get the habitat back in the future.

Rob Grasso [00:28:19] Yeah, I'd say pretty paramount.

Rob Grasso [00:28:21] I'd say a lot of my experience working with those organizations, Trout Unlimited specifically, has been on National Forest Service lands and in the Park Service. It's been I don't want to say it's been a little bit of a void, but I think the message is simply out there that, you know, the park is out to restore lakes for other species benefit and therefore it cares less about the trout that are in those waters. There are several designations of trout that are not native to California that are designated as wild trout rivers. For example, I don't know if you've heard of those. But there are some creeks that may contain German Browns, but they've been certified or declared by the state as wild trout waters. And they're to be managed as such. So there are examples on some tributaries to the South Fork American River, for example, in El Dorado County that have those wild trout designations. And I feel like that's kind of the relationship working with groups like Cal Trout or Trout Unlimited is to sort of identify key areas that are going to be managed for that specific, you know, target or, you know, the fishery, if you will. And there's there's not competing management objectives and sort of where that makes sense. And I think that's pretty instrumental and critical. Working with those organizations on the El Dorado National Forest before I came to Yosemite was we've spent a lot of time on that discussing, you know, hey, we're thinking about this lake for targeted removal versus this lake. You know, and how do you feel about that? And then try to get their buyin and support. And basically the messaging between the communities and then the management objectives is that we're not trying to get, you know, fisheries removal everywhere we're going. In some areas will just be managed for fisheries purpose. The Forest Service has the California State Fish and Wildlife kind of overseeing those programs and has kind of set up management units. You know, we're managing for trout in these waters. We're managing for native species in these waters. And I think that idea is this kind of strike a balance. Where I think its better is if when you open it up for public input and comment. On some of the original efforts that were done on those were sort of done and without the public's input about what water should be stocked and which ones shouldn't. And I think that's just a longstanding tradition of, you know, state management and sort of ideologically maintaining these opportunities where they've have been maintaining them

and then sort of letting them go. And probably had a lot to do with this lake is just really hard to stock with trout anyway. We're free to let those go. And this one gets a lot of fishing and angling pressure. Let's keep maintaining and stocking those. So I think that relationship is kind of crucial working with those groups. I'd say early on my discussions with Trout Unlimited, you know, it was sort of met with consternation to what we were doing over removing fish in order to preserve our native amphibian to the Sierra. And beavers might be another example of where some organizations are, trout organizations kind of perceive beaver to be a hindrance to trout migration and dispersal, you know, working closely with.

Rob Grasso [00:31:32] Well, you know, let's go out and visit a beaver dam and see what it looks like. And you find all kinds of fish fry is like. And they understand that this is actually a nursery for trout. These are actually really important and then kind of change some of the mindsets of some of the work we were doing. You know, some of the early calls I got working with these groups were like, hey, we've got a beaver dam on here. And I think we need to remove it because it's impeding trout. We're not seeing any trout above it. And then actually having those field visits and then having that, you know, observations in the field together, building that trust in and coming up with what's best for the management. You know, the systems that we're in is experiences I've dealt with directly.

Rob Grasso [00:32:09] In Yosemite, it hasn't been. I've reached out to organizations. You know, there are several people who have come into my office to discuss, you know, the program. And I think it's hasn't been I haven't been as successful reaching out to those groups. You know, and again, the messaging I'm trying to convey is we're not after everything. We're just after a small subset.

Rob Grasso [00:32:29] But, you know, I'm not sure, but it just hasn't been that free flowing with the groups that are related to Yosemite. So.

Rob Grasso [00:32:43] Yeah, I think invasive species probably stand at the top of the list.

Rob Grasso [00:32:48] You know, and invasive can range from everything that's just non-native to truly invasive.

James Thull [00:32:53] What's the difference?

Rob Grasso [00:32:55] The difference is, you know, invasive means it's usually causing harm to another species. Non-Native simply means that it's present, it's outside of its range, but it is not necessarily having an impact. You know, one of the prime examples, probably in the in the delta of California where the Sacramento in the San Joaquin Rivers meet is the introduced striped bass that's native to the East Coast and salmonids and then maybe like Delta smelt issues. So is the fact that striped bass are present, you know, reducing our native species. So are they invasive or are they non native and invasive or are they just non-native? And, you know, I think they've done a lot of studies to try to answer that question.

Rob Grasso [00:33:37] You know, you can catch the striped bass and cut up on its belly and find lots of small smolts or or young fish that are native like salmon and steelhead that are migrating out to the ocean, for example. Where they probably haven't captured the full impact of that, you know, of the maybe tens of thousands that are getting eaten out of the ultimately, millions that are making it out to sea, sort of offset by that. So that's kind of an example is something that might be non-native, but not necessarily invasive. Red signal

crayfish is definitely considered an invasive species. So if trout are spawning in gravel riverbeds and then the crayfish are just coming in and eating all the eggs, that would be a prime example of invasive. That's a invasives are probably the number one threat, whether it be a plant and invertebrate or another fish or things like mud snails, New Zealand mud snails or quagga mussels that may disrupt habitat. Those types of factors, didymo is another one that might be considered and invasive that was brought in from another trout water that just kind of choke out spawning habitat.

Rob Grasso [00:34:48] Let's say climate change is certainly another factor. Warm water is just not favorable for trout. And if we're seeing more warm water, you know, some of the climate change predictions I have seen written about and now I think we're just experiencing are going to be a big factor. In California specifically, you know, this idea, this concept of greater inter annual variability is not something we're waiting for. It's already here. So what that translates to is last year. This year's not going to be like last year. And next year is probably not going to be like this year. So we're seeing these wide swings and predictions that have been made or that dry years are getting drier and wet years are getting wetter. So, you know, we think more water is good, but we've seen some really nasty flooding events that we've experienced that probably aren't good and favorable for trout propagation. Fry smolts, probably getting washed out prematurely. And in the drought years that things are dry and low, water is getting too warm. So I'd say that's probably number two at the list is climate change and just warming water and unpredictability of, you know, having a normal precipitation year that would be more favorable for recruitment.

Rob Grasso [00:36:03] Yeah, I would say the same. I remember being a kid in New Jersey and I lived near this place called Beaver Dam Creek and it would freeze and most winters in the 70s. You know, we would go ice skating on it. As a kid and, you know, maybe even the 80s, we would we would still have ice.

Rob Grasso [00:36:19] But it seemed like it was getting thinner, even even just growing up and noticing that. And then now. Yeah, kids don't even have that concept of like that. It's like you used to go ice skating in this pond, like near your house. Like that doesn't even occur anymore.

Rob Grasso [00:36:33] Yeah.

Rob Grasso [00:36:33] So I would say yes, I've definitely seen that as well. And even just in my time in California, I've been here about 20 years now and hiking around and just going out and not seeing snow on any of the mountains is just really bizarre. You know, you would still see patches of snow, you know, at some bases of peaks and especially north facing peaks. So I was out yesterday out of a mountain that's ten thousand four hundred feet. Looking at the north face, you know, it should be pretty sheltered from the sun and not seeing any snow.

Rob Grasso [00:37:02] And then getting up to vantage points and looking around and seeing no snow is just really bizarre to me. I've never experienced that before. So, yeah, I think it's I think we were I was under the assumption or maybe taught or, you know, sort of led to believe that climate change would be this thing that we were waiting for to happen. But as I read some of these predictions, I feel like we're already living it. You know, we're seeing these swings. How can we go from five years of California drought to a winter in 2016 17, where we are 200 percent of normal? You know something? We've, you know, almost unprecedented. And then this year, we're right back to 40 percent of normal. So you know what's normal anymore? I think it is getting harder and harder to measure. IAnd

species, just they're adapted to deal with some of that. Probably not adapted to deal that year after year after year. I think they just need some years to mimic the next or the last. And that's just not what we're seeing anymore. And finally, the third prediction was seeing more precipitation as rain than snow. I think that's been truer than ever. When I went out earlier this spring to sites near over 10000 feet, I saw these weird formations all over the landscape. And that was I didn't even know what I was looking at. And somebody else pointed out like, oh, there was this rain on snow event that happened in March, which is pretty atypical.

Rob Grasso [00:38:24] We're still seeing snow at those elevations. There was snow on the ground. Rain, it was raining up higher. And then all these mud debris were coming out, you know, projecting out and over the snow. And once the snow melted, it just left these little deltas all over. And I never seen that before.

Rob Grasso [00:38:39] So I would think, you know, just thinking of the fish that were in the streams of the breeding habitat, now they're just all silted out in a, unusual event where it was like a winter silting event, not from a normal precipitation of just snow melting. So I think that that conception of more precipitation coming as rain snow means more warmer and less duration of cold water and in lots of outlets that would generally favor fish in their native in their native streams.

Rob Grasso [00:39:15] I think that's probably the hardest messaging to be done. I think, you know, I often encounter friends and fishermen in the Central Valley who are reliant upon agriculture for their you know, that's that's their job. You know, it's so it's agricultural first and then it's kind of fishing second. And I said, well, you know, we used to have salmon and steelhead and sturgeon coming up, the San Joaquin rivers. And, you know, it's it's kind of a water first and farmers first.

Rob Grasso [00:39:44] You know, you know, the argument you'll see on the billboards are, is growing growing food a waste of water? You know, and, you know, we're saving all this water for a fish and we're letting trillions of gallons float out to the ocean. Uncaptured. And I think that's just one of those arguments that's really hard to balance. I think if you're balancing it for a sport fish or something that's commercially viable, then it's a little bit more of an argument to be made.

Rob Grasso [00:40:10] I think that the disconnect between where you're growing food in the Central Valley and that salmon fishermen that's impacted out in the ocean is just there's just no connect between those two. I think if they were together having a beer, they would probably sharing like I get your side and I get your side and then trying to find a balance. I just don't think those two sides are talking. So I think there is that that fairly large disconnect between where water comes from, how it conveys through, what it's used for, and then ultimately what it means for other impacts downstream, literally downstream in terms of the commercial fishermen out in the ocean.

Rob Grasso [00:40:43] So balancing it here in the park.

Rob Grasso [00:40:48] You know, we don't have any major dams other than Hetch Hetchy, O'Shaughnessy Dam on the Tuolumne and Lake Eleanor, is are other dam site in the park that's mostly for water drinking for the city of San Francisco and not directly related to agriculture. There is some downstream water purveyors like New Melones on the Tuolumne system that are more irrigation district related for water supply.

Rob Grasso [00:41:14] I think the predictions are getting better. You know how they map snow and how that translate into acre feet is pretty good.

Rob Grasso [00:41:21] How we translate to the snow that we have and how it's managed, I think is still very much up for debate. You know, it's surprisingly water in California seems to be, you know, not as regulated in terms of metering and how much is being used and where it's being directed. You know, as it could be. I think it's just set up that way. And, you know, going into the groundwater concept of the valley is just it's just an unknown science to most. You know, how much water can you actually pull out of the ground? So I haven't been, I sit in on some of the meetings when they're doing a lot of the FERC re-licensing. Sort of the Federal Energy Regulatory Commission, when they're looking at dams and how water is going to be sort of stipulated and sort of minimum flows and how much is released, how much is stored. From a park centric point of view, you know, I sort of watch, you know, from the sidelines just to see how those avenues are playing out. There was a large effort done by the Forest Service on state lands in California at least basically saying, like, we have all these rivers in the state that are above red dams that the trout just can't get to. So if you can find a way to get them over these dams, they have all this protected land on federal lands to access. And I think that's true. And if we can just get the fish over the dams and then you look at Oregon and Washington and other parts of the world where they have massive infrastructure built to sort of get fish passage to these areas. And I'm waiting to see if that's where they get. And then offering Yosemite as a potential hub, you know that yes, we have basically free flowing water conditions and a lot of our rivers if you can get the fish in above those areas. And then that's those objectives are gaining traction, I think we're on par to sort of help meet those needs. We have the South Fork Merced we have the mainstream Merced that could actually be good fishery refugia, you know, if you will, to actually get the fish to where they need to be to sort of maybe offset some of these climate change or agricultural concerns above dams or maybe just conditions aren't right and favorable. And I know people going into it, it sounds like a lot like you're going to take a fish, move it above a dam and you're going to collect the fry and move them below the dam, but they can be successful. So I think it's just a lot of getting warmed up to the idea that these things are practical to implement. So not just a waste of money, taxpayer or user fee dollars going into those programs, but they seem to have success. So I think there's potential to sort of balance those needs and then no longer have that direct competition. There's always going to be a water need for California and water storage. And I just think things are not getting any better anytime soon they're getting worse. So finding new innovative ways to sort of meet those needs to sort of balance, even though these projects may seem crazy, they might actually be good ways to try to balance those needs. So the waters exist. They just don't exist where there's competing interests.

Rob Grasso [00:44:18] I again use the phrase paramount.

Rob Grasso [00:44:20] Yeah, I think it's it's actually absolutely critical that anglers participate in political agendas and have their voice be heard. You know, they a lot of these areas that were set aside, you know, take Yosemite National Park as a preserved national land area.

Rob Grasso [00:44:41] To me, it should be in people's minds. I mean, anglers, hunters in general are our conservationists by nature. And, you know, they want to be able to preserve the things that they're doing and have lands to hunt have lands to fish.

Rob Grasso [00:44:55] And if those areas are being threatened, then they're sort of they're not having their voice be heard.

Rob Grasso [00:45:00] Then I think they're actually missing an opportunity.

Rob Grasso [00:45:02] I think that most of the projects that I work on, it's translating that experience from either park visitor, a hunter or fisher. You know, hunting is not allowed in the park but fishing still, is you know. So people say it was a national park why would you allow fishing where you don't allow hunting. You know, that's just one aspect that we decided that we're going to preserve. You know, a lot of true anglers are catch and release.

Rob Grasso [00:45:24] So there's the argument to be made. You can't you can't go hunting and practice catch and release. Right. So but being conservation is by nature, why wouldn't they take to the political platform to sort of preserve and protect and sort of dig in their heels a little bit about the areas that they're trying to preserve and protect? I think their voices are often vetted, but not in the political context, like other constituents actually getting the messaging that they're trying to convey.

Rob Grasso [00:45:53] If you can turn anything into an economic impact, I think studies have been attempted to be done now.

Rob Grasso [00:45:57] But I actually think, you know, picking up the phone and calling your congressman and say, I'm unhappy about this. If you have this impact, my fisheries is gonna be interrupted. And this is my, you know, area I've been going since a kid my grandfather's taking me to. You know, like those kinds of stories that legislators actually need to hear about, why certain areas, specifically like national parks play that role to maintain and shouldn't be open to those, you know, potential development and interests. I mean, maybe I'm favorable because I'm in a park that maybe doesn't have those development opportunities present. I mean I get the understanding of, you know, places and the Park Service lands, or I should say federally held lands where there's opportunities to get our foreign dependence off of oil and other commodities should be precedent. But I agree with you that if we take those away, are we not having this, you know, what are we going to inherit from that based on the damage that we've done? And I think that's the hardest part. You know, you see a lot of mining propagation in Alaska. And what's that going to do to the fisheries? You know, I think when they have real economic benefit, you know, in terms of millions of dollars that are going to be lost if you implement this mine, you know, I fish Tomales Bay and a small mining operation was allowed to occur on the south portion of that bay that now leeches mercury into there, because basically once the resources were extracted, you know, there was no responsibility by that landowner or the property of that mine to sort of maintain any kind of environmental conditions or do any kind of clean up and then it becomes somebody else's problem or federally inherited. It's very common practice that, you know, now I have to feed my kids halibut that I caught that are contaminated with some level of mercury and sort of monitor, You know. That really strikes a chord with me. Like when I hear about these places that are trying to be fought in Alaska to not allow those mining activities to happen because of what those potential consequences are means something. And if people aren't being vocal about that, you know how they potentially can proceed. They're going to be impacted based on that short term economic benefit. Yeah, I agree. Things are definitely difficult to reverse. We have several circler sites, you know, referred to as Superfund sites in Yosemitite National Park that I go out with people and I'm just like, guess just not know they not care. You know, like you just said, open refuse dumps. You know, there's oil, 55 gallon drums, you know, break

parts, car batteries, you know, like, how could this happen in a national park? You know, I don't think the oversight was there and lost. I think they knew what they were doing. It was just like, no, the attention was paid to it. Now we're sort of left with those costs. So I think that's my biggest fear, is that, yes, if these things are being deregulated, there are species being put at risk. Long term consequences are definitely not being thought about. You'll hear that a lot with fire-fighting here in the local community. You know, it's the damn environmentalists that are stopping the harvesting of trees that are leading to these national fire catastrophes that we're experiencing. Well, you know, literally, it's probably a hundred years of fire suppression past management that's ultimately to blame, you know, followed by plantations where we overstocking didn't thin that set up these conditions. You know, and I like to step in and say without the damn environmentalist's, we would even have a Yosemite National Park or something to protect or communities surrounded by those that are economically viable based on what's here. And now, do we want actually put that at risk by sort of extracting some short term gain? Because I don't think most of those operations are long term in nature that are actually going to pan out versus what the economic value of what the visitor brings to the community. Sort of by spending on accessing those areas.

Rob Grasso [00:49:47] Yeah, I would say definitely be proactive.

Rob Grasso [00:49:49] You know, these are your lands to enjoy and to protect. So it's not just the government's responsibility or sometimes the perceived irresponsibility to manage these lands. It's actually contingent on a lot of public opinion and participation. So I would say if you care deeply about something that is near and dear to your heart, you know, whether it's that wilderness experience, that angling experience, just nature in general, that these places are under constant threat. And I think your attention to that, as you mentioned, is is ever present. And if we let that go, just realize that we're all in this together and that we all share responsibility. And if you choose not to participate, you are you are choosing not to play a role in something that you could have had a hand in preserving. So I would encourage you to make your voice heard. Write to your congressman. Have your opinions, not just only voice, but make sure their message to the right entity to sort of preserve the areas that you care about.