NATIONAL OCEANIC ATMOSPHERIC ADMINISTRATION

AN INTERVIEW WITH THOMAS BALF

FOR THE

VOICES ORAL HISTORY ARCHIVES

INTERVIEW CONDUCTED BY

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TRANSCRIPT BY

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Molly Graham: This is an oral history interview with Tom Balf. The interview is taking place on Wednesday, October 9, 2019, in Gloucester, Massachusetts. The interviewer is Molly Graham. We will start at the beginning. Could you say when and where you were born?

Thomas Balf: I grew up in Rockport, Mass. Born in Beverly, Mass. Birthdate is April 19, 1958.

MG: You grew up in Rockport.

TB: I grew up in Rockport. I was not part of a fishing family, but one of the other common occupations on Cape Ann is artist, and my father was an artist.

MG: What kind of artist?

TB: I would call him an expressionist artist, not abstract but not representational. He painted, and then also, he was one of the founders of Montserrat [College] of Art in Beverly, and then also did some graphic design work on the side.

MG: That's really interesting. Was the sea one of his subjects?

TB: Yes, very much so, especially the early paintings, which would be from the '60s, early '70s. Very much fascinated by fish shacks and the trawlers out of Gloucester. It's interesting that some of our favorite paintings are the ocean related scenes. Later, there were more – he got away and experimented with lots of different stuff, but didn't do as much associated with the ocean or fishing boats and fishing shacks later in life.

MG: Tell me a little more about your family history and how they came to settle in Rockport.

TB: We came to Rockport – so my dad, after the Army, World War II, went to Tyler School of Art [and Architecture], which is a part of Temple University in Philadelphia. During a summer, he and his roommate came up to Rockport with the G.I. Bill to paint. They operated a little frame shop. There wasn't a frame shop in Rockport. So they operated this frame shop on Bearskin Neck in Rockport, [and] painted during the day. They were essentially college students, so had fun at night. They had two summers here, I think 1949 and 1950. Then later on in life, after he had gotten married to my mom, he thought that this would be a great place to live and work and raise a family. They came back to Rockport.

MG: What about your mother's side of the family?

TB: My mom grew up in New York City and Connecticut. She was a bit of a rebel. She went to a pretty prestigious private school in New York City. The story goes that she got into Radcliffe, and she was more interested in the jazz scene and not ready for that college life. Then ultimately met my dad, and they got married within a very short period of time. They moved to Chicago to actually get married there, where my dad had a job. Ultimately, moved back to New York and then back to Rockport.

MG: Did your father make his living as painter or did he continue with the frame shop?

TB: No, he never continued with the frame shop. When they moved up here, he worked for *The Boston Globe* as a commercial artist/graphic designer. Then they went on strike, and he was offered a job. My mom desperately wanted him to take that job with a young family of two and expecting a third boy on the way, but he was insistent that what he really wanted to do was paint. So he left that job and cobbled together a life of painting. Then he and others taught at New England College of Art, I think it was called, before they went and formed Montserrat College of Art.

MG: What about your mother? Did she work outside the home?

TB: She did generally work outside the home in a variety of secretarial positions. A very bright woman, but primarily a stay-at-home mom, but augmenting that with working.

MG: Tell me about growing up in Rockport. It's such a beautiful area.

TB: It is. It is a beautiful area and it's a great community. I certainly still have lifelong friends there. When I was a kid, generally, Rockport was a lobstering town and Gloucester was a fishing town. Certainly, knew many lobstermen and many kids, meaning high school students, that would lobster in the summer or even longer. So it wasn't uncommon that some of us had paper routes and some of us were working in restaurants, and some teens were already lobstering by the age of fourteen, fifteen, sixteen. It was a beautiful community. I actually ended up leaving to go to a private school. I had a very, I would say talented – the school was very small, and a very small class. I was just into a ton of different things, from being a pretty good athlete to playing the piano and [doing] photography and a lot of intellectual interests. I just found that Rockport felt too small for me. Going to private school offered an opportunity to get a broader education and pursue a number of different interests. At the same time, I then probably wrote every English paper against the elite white moneyed establishment that comes with going to private school, but have always appreciated the great education that I got, and lifelong friends that I have from private school, as well as maintaining a – it was only about forty-five minutes away – Governor Dummer Academy, now the Governor's Academy. I was able to maintain strong relationships both at home and with school friends.

MG: How did you choose that private school?

TB: My older brother had actually gone there for very different reasons and had had a positive experience there. I was familiar with its capacity to do the things that I was interested in doing at that time.

MG: Were you there at the same time as your brother?

TB: No.

MG: I think Governor Dummer Academy had just become coeducational the year before you attended. Was that a big deal?

TB: A couple of years before. It was a period in which there were a lot of day students because they were going through a financial crisis I think. But, a lot of day students, and then obviously they were assimilating, changing to a culture of women on campus. I don't remember it being truthfully all that different than the very small and insular world of Rockport in terms of the number of women and any of that kind of stuff.

MG: What did you hope to do when you graduated from high school?

TB: I was always a biology kid. I was always playing in a tide pool or playing in the woods or outside. I actually had become fascinated with animal behavior and did a senior project at Governor Dummer on the stickleback, which is a estuarine fish that does this very unique thing – the male turns a very bright color in the spring, and there's this very hardwired behavior in nest-laying and then the dancing that the male does to attract the female. I did this project on trying to replicate and observe and write about that. Then when I went to college, I ended up being a double major in biology and psychology, with an interest in animal behavior and neurophysiology. Although, by the end of my senior year in college, I was increasingly interested in ecology and being involved in environmental issues and being involved in having an impact in terms of conservation of land and wetlands and protection of the environment.

MG: You attended Tufts University.

TB: I did.

MG: What year did you graduate?

TB: I graduated in 1980.

MG: Tell me more about your college education there, the classes you were taking and professors you had.

TB: Again, the focus was on – between the double major, a lot of those courses accounted for at least fifty percent of my class work. Most of my good friends were not – they were economics or history majors who generally went into the financial industry. My closest friends were not of that world. I would say that one of the mentors that I had there was – I was a scholarship kid, and as an intern, I worked for the Mass. Association of Conservation Commissions, a woman named Nancy Anderson. The wetlands law in Massachusetts had just been passed, [Wetlands Protection Act?], and conservation commissions were set up in communities. This Mass Association on Tufts campus was designed to support these new conservation groups and agents. Then there was a professor at Tufts, Norton Nickerson – Nickerson State Park on the Cape is part of that family legacy. He was a leading wetlands ecologist. I think it was those two experiences that led me to really think more about ecology and environmental stuff and activism, rather than just the research world. I ultimately went to UNH [University of New Hampshire] for graduate school and got a degree in limnology/freshwater biology. That was clearly tied to their influence.

MG: What was the research you were doing at the University of New Hampshire?

TB: I was looking at – so at that time, lake acidification was a big issue. It's still an issue, but the concern was big coal-fired power plants and the pollution from those plants in the Midwest and New York coming east with prevailing winds and influencing ponds and lakes. So one of the dominant invertebrates in lakes is a little crustacean called daphnia. I was looking at the role of how they fed, which is a combination of being a filter feeder, and then they have these mandibles that push the food into their gut. Then looking at their feeding behavior under different conditions, both different algae concentrations and then changing pH and what that impact was.

MG: At this point, had you been thinking about or looking at the fisheries at all?

TB: No, no. There was a really strong fisheries group within the zoology department at UNH where I was. A number of those people either as professors at UNH or graduate students went on to either get their PhDs in fisheries-related fields and are acclaimed fisheries [experts], and/or go on to administrative positions within fisheries agencies.

MG: What year did you finish your master's program?

TB: It's a complicated question. It shouldn't be. I left to get a job at a nonprofit in Durham, New Hampshire, and then got married. My wife was going to graduate school out at the University of Minnesota to become a veterinarian. So I hadn't finished it when we left. My advisor [said], "Get it done before you leave, Tom." I didn't do that. So finished writing it and ultimately defending it after I left. I think I ended up getting my degree in '89. But I had actually started – so I was right at the end. I got started in '82, '83 or something like that. So it was at the end of the – "You need to finish it or you're out of here."

MG: Did you end up going to Minnesota with your wife?

TB: Yes, yes.

MG: First, can you tell me how you met your wife?

TB: I met her at UNH as a graduate student. I was a teaching assistant, teaching lab. She had gone to the University of Pennsylvania, and hated it. She was from Philadelphia. [She] dropped out and had come up to New Hampshire with a friend, and started taking courses. Her dream was always to be a veterinarian. She was taking science courses. She was a student in that. We like to say that we didn't date while she was a student. I always tell the story that I thought she was cute and bright and funny and all those good things, and it wasn't until the end of the semester when I realized that she had the highest grade in the class that I thought, "This is pretty impressive." Anyway, we met there, and ended up getting married in New Hampshire just before moving out to Minnesota for her to go to veterinary school.

MG: What did you do when you were out there?

TB: So when we moved out there, I had met – so, taking a step back, I took a job at a nonprofit in Durham, after I'd finished my core coursework for graduate school, called the Environmental Hazards Management Institute. This was the early days of the hazardous waste laws and the superfund laws. I was ill-prepared, but I think I did a decent job of being, essentially, the managing editor of a publication that went out to businesses and major industries for a every two-week journal that talked about how to comply with emerging hazardous waste, air, water, OSHA [Occupational Safety and Health Administration] regulations. I quickly became an expert on this emerging field, so both wrote this and did specified projects in those areas and spoke at conferences and workshops and stuff like that. At one of these conferences, I had met the chair of the law department of one of the larger law firms in Boston. When we were heading out to Minnesota, he inquired if I would be interested or willing to lead an effort, from Minnesota obviously, to offer regular communications to their legal clients and to do projects for their clients, where it had to do with developing policies and procedures and operational manuals and guidance on these environmental regulations. So I did that for a couple of years in Minnesota. I'd interacted with a really broad group of different environmental stakeholders. I did that for a few years before a position became available at a company called Aveda Corporation, which is a cosmetic company – hair care, skin care, and cosmetics – out in Minneapolis. The Valdez Oil accident had occurred a few years earlier, this enormous oil spill impacting Alaska coastline, and an emerging group of socially responsible investors and environmentalists had come together to create something called the Valdez Principles, which ultimately became the Ceres Principles, C-E-R-E-S. This company, Aveda, was the first company to sign these Valdez Principles, which committed you to being a strong environmental steward as a corporation or an organization, and doing an annual report, showing transparency on how you are doing as it relates to your use of resources and impacting the environment. As part of signing that, you had to have somebody be an environmental director that reported directly to the CEO. So the company Aveda was in search of that position, and I was hired to be their first environmental director, and really, as part of the first company to complete an environmental report card that would be made available to anybody and everybody.

MG: What was on that report card for Aveda?

TB: It covered everything from where do you purchase your materials to what are your policies and procedures to how much hazardous waste or solid waste do you generate? Have there been any OSHA-reportable accidents? In retrospect, it was a time when energy-usage was certainly important but nobody was even talking about carbon per se. The use of plastics was certainly a priority. It covered a broad swath of environmental regulations, governance, policies, and procedures. So it was a good first start. We've come a long way in terms of corporate social responsibility, investing, and transparency. I'm jumping way ahead, but one of the reasons that I became fascinated when we moved back to this area to live and raise a family, as I was continuing to do environmental consulting – so, after I left Aveda, living here, I became really fascinated by the story of the challenges of fishing and the world of changing regulations and changing perspectives as it related to fishing. Fascinated because I'd lived in that world, and continued to at the time, of environmental regulations and knowing that they're by no means perfect. What can start as a solid regulation over time, can get increasingly – you keep adding and adding and adding, and sometimes you need to go back and structurally fix. It's like a house that keeps adding stuff and eroding, and challenges emerge. Sometimes you need to tear down

the house and start again, rather than continuing to put Band-Aids or some sort of tape on it. I was fascinated by how the regulations were or weren't working, and having an appreciation for how there's no one victim here and there's no one bad player. It's not just the fishermen overfishing. It's some combination of government policy and lack of science. Certainly fishermen have a responsibility in all of this, but so does government, so does community, so do the companies that are – so this term has now become quite commonplace: ecosystem. But there's this broader ecosystem involved here than just, "Fishermen are bad. Regulations are good and necessary." So I became fascinated with wanting to be a player, having a unique experience and perspective but in a different discipline. But having equity in it because of growing up in Rockport and living in Gloucester and that this is my home, and feeling like I could bring perspective and experience and skills from outside into this battleground, for lack of a better word.

MG: Tell me what brought you back to this area. Then tell me more about what you were seeing when you became fascinated with the fisheries regulatory environment.

TB: We came back simply because after my wife had graduated, we both had great jobs out there, but we had one two-year-old son and aging families back east, mine in Rockport and my wife's in Philadelphia. We knew that within those few years, 1994 roughly – we had great friends out there and loved Minneapolis-St. Paul. Either we were going to be there for our foreseeable life or we needed to move back. We ended up moving back east. We ended up moving to the Boston area. Truthfully, as much as Rockport's a beautiful area, never in a million years would I have imagined that I'd come home, two, three miles from where I grew up and my mom and dad at the time still lived. My mom still lives there. So we moved back from Minnesota. I actually took a job, again, working with this lawyer friend, who was now chair of the law department at a different law firm, Mintz Levin [Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.], and doing environmental consulting. This was at a time when there was an emerging environmental standard called ISO 14000, which was an environmental management system standard. This was an internationally recognized standard that you could certify conformance to that prescribed, for lack of a better word, what a good organization has in terms of how it sets goals and objectives and achieves those goals and objectives to comply with the law, and achieve its environmental goals, whether it's to minimize its carbon footprint by twenty percent or reduce its energy use by twenty percent or set very minimal [goals] – "I'm going to reduce our solid waste by five percent." But do you have a system in place to achieve your defined environmental goals and objectives? I was involved in setting up a shop to provide those consulting services to the legal firm's clients as well as do a variety of other environmental consulting services. So I was commuting to Boston on the train. Ultimately, that law partner and I left to go to another smaller firm. We set up our own environmental consulting practice that also did facilitation and mediation, and then did that for a number of years. I think I commuted by train into Boston for about seven years before basically setting up my own shop in Gloucester doing consulting. A lot of the work that I was doing at that time was for colleges and universities, which had become – the Environmental Protection Agency and state environmental agencies had just recently discovered that these colleges and universities had various – their environmental regulatory programs were not that strong. They were getting penalized, especially as it related to the management of hazardous waste in laboratories, in significant six-figure fines at Yale and Stanford [University]. There was a great need to help colleges and universities

figure out how to better comply with environmental regulations, manage their environmental programs, and, at the same time, there was an effort to green colleges and universities – enhance recycling, minimize carbon footprint, reduce energy, etc. I was very involved then. I feel very fortunate that in my professional career that I was there at the beginning of corporate sustainability or corporate social responsibility and leading edge companies, and then to colleges and universities, where the nexus between simply complying with the law and the greening of colleges and universities took place. I think now I am convinced that our world has changed and our understanding of the importance of protecting the ocean and being great stewards of the ocean, while truthfully, extracting even more economic value from the many resources that the ocean provides, that I've been at key junctures in some of these major points in the United States and maybe world, where change is happening, and it's really positive change. So, at the time, I was doing a lot of work for colleges and universities and managing a nonprofit that had about thirty elite colleges and universities that were trying to advocate for stronger environmental programs, find that sweet spot where the environmental programs were married with the greening programs on colleges and universities. Also, it was part of a stakeholder and regulatory educational program to say a lot of these environmental regulations designed for the Ford Motor Companies and Bethlehem Steels and electroplaters of the world didn't apply well to colleges and universities. One of the reasons that they were challenged with complying was because of the structural regulatory impediments, not their lack of desire to comply with the law. So again, this interest in performance-based programs and regulatory flexibility and understanding disconnects between environmental regulations and performance. I think I brought all of that to me as I became more involved in Gloucester. At some point, I then became the executive director at Maritime Gloucester. Harriet Webster, an extraordinary woman and one of the founders, the first executive director of what was the Gloucester Maritime Heritage Center, which then changed its name to Maritime Gloucester had, unfortunately, passed away. They were looking for a new executive director. So I applied and was chosen to be the next leader of that organization, and certainly brought with me – not that this was so different than Harriet – but an interest in both celebrating and recognizing the heritage and the history of maritime activities and fishing out of Gloucester, but marrying that with the current array of issues in Gloucester, such as the challenge of fishing or what to eat in seafood or the reemergence of schooners as part of visitor destination. So I was really interested in building out the programs at Maritime Gloucester to serve our membership, to serve the community, but also be a change agent as it relates to the future of this fishing port. Then I left Maritime Gloucester after about five and a half years. I took a little time off, but really then had the very specific projects that had to do with fishing and the blue economy that I was interested in pursuing. So over the last two years, I have been pursuing all of those.

MG: Is it under the auspices of an organization you have formed?

TB: I've created a for-profit consulting firm, yes.

MG: That's Oceanvest.

TB: That's Oceanvest, right. It's a limited liability company.

MG: You brought up a number of things that I want to go back and learn a little more about. Maybe start with the Maritime Gloucester experience and what those five years were like.

TB: I inherited some very strong programs. They'd had a great program called Ocean Explorers that provided third, fourth, and fifth graders in the local schools with education-focused somewhat around heritage, but more around marine science and connecting them with the harbor and the ocean in a way that – it's remarkable how quickly, meaning really a generation, that most kids' experience with the ocean is now recreational. It's going to the beach, maybe being on a boat. In the prior generation, or at least two generations back, when there were many thousands of workers working on the harbor, kids – to go visit their parents, it would not be surprising to go down to the piers and wharves, whether it was simply to play or create havoc or check in with mom and dad, or whatever the case may be. But certainly, those times have generally been lost, where there is not a strong connection. Certainly the fishing fleet has shrunk. The fish processing has all but disappeared. Kids' connection to the harbor is not particularly strong and not related to work generally as we know it. It's related to going to restaurants down there or going to Fiesta at the festival time. So simply bringing kids down to Maritime Gloucester right in the center of the harbor and being able to walk on a pier and go on a schooner and see a dory and just feel that connection is an important thing for kids in Gloucester and/or other schools. That was a core program. We expanded that program to try to serve other communities, and also to bring in some other schools and other programs. I was particularly interested in really immersive programming. So trying to build a program where students either would come very regularly – Waring School, typically in their spring semester would come every other week just for an hour, but I was really more interested in a one-week class. We had a really successful program with Harborlight Montessori and actually with Waring on these kind of model – but Waring, we had a one-week program where it was all about lobster – actually, it was two weeks – all about lobsters. So the kids came and they built a lobster trap. They went out lobstering. They got information, a great interactive lecture with Harold Burnham, talking about lobstering off of schooners, rather than just today's traditional lobster boat. We dissected a lobster, went to the supermarket, went to a lobster wholesaler, read articles about lobster. It was this great multidisciplinary course in science and regulations and history and physiology and seafood. It had culminated then in – the final day was a guy named Matt Beach, who used to have a successful Beach [Gourmet] catering, brought the sixteen students over to his catering place, and they prepared a lobster dinner. In the great Native American tradition, the students gave their thanks and spoke about what the course meant to them. It was a transformative course, and it was really eye-opening about seafood and global markets and the challenge between regulations and all the things, for example, that by going out, lobstermen do to protect the species from too short, too large, females – you name it – getting appreciation for what stewardship could look like or does look like. So it was those sort of immersive programs that I was particularly interested in. We developed a number of those and expanded the educational programs. The other thing that we did a lot of is just demonstrating the value to the community of the organization and building the brand, but doing lectures throughout the winter months, doing more programming, everything from making ocean-themed crafts supplies at holiday time to – I inherited it, but it certainly grew, was a really successful gig rowing program; these Cornish gigs are a boat out of Great Britain that – I'm trying to remember – I think it's six rowers and a coxswain. They're about thirty-feet long. Grew the program to about a hundred and twenty active rowers. Now there's three boats that are out in the harbor. For different people, it's

purely recreational and social, and for others, it's bodybuilding and quite competitive. But there's a great fabric within Maritime Gloucester of this gig rowing program. The other area where we continued to build was the schooner tradition out of Gloucester and Essex, and expanding further the Gloucester Schooner Festival that had been, at that time, going on for more than twenty-five years, but continuing to build that. Harold Burnham and the *Ardelle*, the schooner that he built that was located at Maritime Gloucester that we used in our Ocean Explorers programs, and he provided trips on during the summer. Harold and then the larger schooner festival really centered and built the brand for the schooner festival, but also showed that Gloucester as a center could compete with Maine for being a place where if you want to learn all about schooners and go on a schooner trip, really was the place to be. So we really built up the schooner program very strongly.

MG: Was it in this role that you started forming connections with the fishermen?

TB: Yes. From the get-go, I was very interested, and saw Maritime Gloucester as being able to, as a nonprofit and consistent with its mission and its ability to be an honest, neutral convener, be able to have programs. Whether those programs were exhibits or whether those programs were speaking programs, that we could play a role that I saw was unique in Gloucester and necessary to give voice to the fishermen, but also not afraid to have – certainly interested in hearing NOAA's point of view and bringing NOAA into the conversation. We had a presentation that involved – where it was Vito [Giacalone] and Peter Shelley from the Conservation Law Foundation with a facilitator, talking about the possible protection of select areas of the ocean and the good and the bad of that. I regarded that as perfectly successful because some people were pissed at me, felt that I gave voice to the environmentalists, and other people were pissed at me that I gave voice to the fishermen. So that was perfect from my standpoint that – the classic – we want the conversation to be had and information out there, and then people can hopefully be informed and make their own informed decisions about the path forward.

MG: You have really good trust and access with the fishermen. They support you, even if they don't agree with everything you say. I saw a quote from Vito Giacalone saying how you speak the fishermen's language.

TB: I think I brought fresh eyes to it. I think I bring a background of environmental activism and knowledge. I can read through a federal register with the best of them if I have to, not that I want to. So the ability to – this place, this heritage, and this future is important to me. So I'm honest and thoughtful, and continue to be interested and active in trying to figure out what a 21st Century fishing port will be. That's an ongoing conversation. As I was telling my nephew recently, I don't think that I'm one of these arrogant guys – I certainly have my opinions – that knows what that future looks like exactly. I like being surrounded by bright, passionate people, and believe that I want to be where paths forward are made and solutions forged and challenges, bring it on.

MG: Can you paint your picture for your vision of the future? For the fishermen I've been talking to, they feel it's fairly dismal.

TB: Yes. I think things are really tough. But I think there's a couple of projects that I'm involved with that certainly give me hope. One is I think that you need to take a broad view of 21st Century Gloucester port. I certainly hope and believe that fishing will be a core part of the economy that flows through here, but I think it's a more diverse view that involves NOAA, the two hundred and twenty-plus employees that are up here. It involves ocean management. It involves ocean monitoring. It involves genomic sequencing out of the Gloucester Marine Genomic Institute, and new products and ecosystem understanding that will come from having a leader in the field of marine genomics in this community. It may or may not involve offshore wind. It may or may not involve aquaculture. It may or may not involve – there's a lot of wealth in this area, and to the extent that investors are interested in ocean investments, whether it be fishing or new biopharmaceuticals or new boats or who knows what, I think that fishing will hopefully be one of the main economic engines going forward, but I think it's going to be a more diverse portfolio of ocean related activities than it was in the past. On the other hand, I think that – so, two projects that I'm involved with, and obviously I wouldn't be involved with it if I didn't think there was a strong future for it. One is an ocean monitoring project. I've been working with a number of computer scientists and engineers, and we've developed an ocean-sensing device that fits into a lobster trap. This device, it's a two-inch cylinder, it's about eighteen inches long that has a pH probe, a temperature probe, and a depth probe on it. Inside the cylinder is a battery and the electronics. It's driven by our belief that the cost of censors and the cost of electronics continues to go down and down and down, and so that the ability to develop a relatively cost-effective ocean-monitoring tool is or will soon be available. While there's a role for a quarter-million dollar buoy in Mass Bay, there's also a role for these relatively inexpensive ocean-monitoring devices that can be used by fishermen or agriculture or entities or citizen scientists. The way ours works is that it fits into a lobster trap, so the lobster trap becomes a research platform. It collects information every fifteen minutes. Then when the lobstermen hauls the trap, it wakes up and senses that it's at the surface. Then it wirelessly sends all the information its collected since the last haul to this little boat node, which is like a little tablet that we've developed that based on Raspberry Pi or Arduino, relatively low-cost electronics. That information there can get sent to the internet, to the data cloud, either via wireless or conceivably, radio waves. So the lobsterman becomes the researcher, and the trap becomes the research platform. I think this is part of the future. I have a good friend from Rockport, actually, Kevin Baker, who is a very successful writer and novelist in New York City. The writing world, it's very few people that can survive on books alone. You write books, you write magazine articles, you review books. He's done a comic book. He's working on a Ken Burns [documentary]. You do a bunch of things to cobble together a living that allows you to live in New York City, or similarly, to live in this very expensive area. You need to put together things that get you to six-figures or something close to that. I think this notion of lobstermen not just harvesting from the sea but having other aspects of what they do is part of that future. So we've been working on this. It's been a challenge to just deal with the technical issues, but we're finally at the point where we've got about fifty of these devices out there that are collecting information. We're now madly looking at the data and figuring out how to slice and dice it, and what's the connection between the market and valuable data. But certainly ocean data, fisheries data, whether it's from a science standpoint, whether it's from a traceability or provenance from the seafood side, this is part of the equation going forward for what a 21st Century fishing port looks like. This is essentially, again, funded by the state to get it going, by the Seaport Economic Council, with the idea that we've partnered with the Mass Lobstermen's Association, but the

desired outcome is a commercialized service that is adding value to the mass internet of things and technology economy. That, to me, looks like it's part of the future. The other is that I've been working with Vito and others – in Gloucester is the Gloucester Permit Bank, which is a 501(c)(3), a nonprofit. It's full name is the Gloucester Fishing Community Preservation Fund. It was started in 2007. It has acquired permits. It now has more than fifty-four permits that are valued at more than $11 million dollars. It has used those permits to subsidize the Gloucester fishing fleet. So it has been absolutely critical to those fishermen and this port to keep groundfish fishermen fishing. At the same time, those fishermen are aging, the number of fishing boats is declining. There's probably a dozen really active full-time successful fishermen at this point. So we have received a grant from the National Fish and Wildlife Foundation to support convening a number of focus groups, and ultimately writing a strategic plan that says how can we leverage these assets. I'll tell you that we had our first focus group last week. We'll have two next week and two the following week. The first focus group was with lenders and investors to ask them, "What do you see when you see this organization and its assets? What do we need to do to attract grants, debt equity, impact investors, you name it?" I think among other things, people were blown away by what they perceive to be an overfished fishery to learn that it's certainly a more nuanced story, and that for some of the fish – pollack, redfish, haddock in particular – the biomass has been growing significantly. The quantity of fish caught against the allowable quota is, on average, less than ten percent. In other words, there's an extraordinary amount of fish out there that are not being caught, which is an economic opportunity. The question is – where we are now, assuming that we can continue to preserve and protect the ocean, and climate change is certainly going to have an impact on all of that, and it's hard to predict – how do we use the organization and the organizational assets to get investment in the fleet? I think there's a particular interest in potentially supporting the design of what would be a 21st Century northeast groundfish fishing boat. What does it look like in terms of everything from productivity and safety and energy-efficiency and getting the quality of fish that the marketplace wants, not just commodity fish, but really high-end fish? How do we get young fishermen into this field? How do we engage them? How do we convince them that there's a rewarding career ahead and that it can be financially fulfilling and sustaining? How do we develop those skills knowing that that's a high hurdle, but believing that there is opportunity in this arena, and that the old model – both because of the scale of the fishery, but also just education has changed, and how a recent college graduate/millennial would look to training is not the old style [of] you're going to be an apprentice and I'm going to haze you, and you're going to – it's going to look different. The only way that millennial young fishermen can succeed is some combination of fishing knowledge, skills, technology knowledge, business acumen, and entrepreneurship. How do you build a program to bring those folks in? I think people are engaged. I'm hopeful, and I think there's passion in this community, there's equity in this community, and there's some infrastructure that it's still a viable port. There's an organization like GFCPF [Gloucester Fishing Community Preservation Fund] that offers opportunity to look forward to a future that's a thriving fishing port.

MG: I have a number of follow-up questions about the regulatory environment, climate change, and other things you've brought up, but we're out of time. It's almost 12:30. I wonder if we can find another time to get together to ask more questions.

TB: Yes, that's fine.

MG: Good. Well, thank you for your time today.

TB: You're welcome.

MG: This has been really interesting. It's given me a lot to think about. I'll turn this off, and we'll find a time to get together again.

TB: Okay.
-------------------------------------END OF INTERVIEW------------------------------------
Reviewed by Molly Graham 12/11/2019
Reviewed by Tom Balf 1/21/2020
Reviewed by Molly Graham 1/27/2020