

**October 13, 2022
Town of Freeport
Shellfish Commission Meeting
Freeport Town Hall
6:30**

Present: Chad Coffin, Sara Randall, Gina LeDuc-Kuntz, Charlie Tetreau, Jason Doyle, Nelson Larkins

Sara: meeting called to order 6:30

Sara: The special workshop was to continue discussions regarding conservation activities. And I hope, Charlie, you have that.

Charlie: Yes, I have it all written down; what we've discussed, what we haven't, and what we were supposed to discuss in September, which was seeding, so we can just discuss that tonight because we're taking each conservation activity that we approved and we're just breaking it up one for each meeting. So the ones that we are revisiting are seeding, recruitment boxes, predator netting, water quality testing, surveys, and mud flat field trips or educational trips

Sad: Okay. What was the one after recruitment boxes?

Charlie: That was predator netting which we already discussed in August, so we don't need to talk about that on and tonight is seeding.

Sara: So some aspects of seeding are that the consideration of what size seed is being planted and what time of year influences survival. So generally, when people or municipal shellfish committees talk about seeding, they don't really..they're not taking into consideration those aspects. And then also predator netting is helpful in allowing more of the seed to survive, typically, although you can get into the technical details about what size seed it is and what time of year those again influence the survival and then also where in the intertidal it is being seeded. For example, if you think of it on a flat by flat basis or a regional basis, like when I say regional, I really mean like a water body, for example, the Harraseeket River...you can think about the high, mid and low intertidal on a river system, whereas the high is everything up river...that would be like Pettigiill, probably starting at Bartel Island and back. Wouldn't you say?

Chad: I guess you kind of lost me, that's all.

Sara: Okay. Where would you say the high intertidal is?

Chad: I guess we were talking about seeding. There's two types of seeding right? There's reseeding and then there's seeding. So reseeding is when towns go out...we used to do it

when we had seed clams, but it's when you go out and dig small clams and then plant them somewhere else.

Sara: And that's also called relaying.

Chad: Yes. And then the other one is you would purchase seed or grow seed or whatever and put it out. But I think that where you're going with that..and I'm not on the committee, I'm just offering guidance, but I think that when she says time of year and all that stuff, that isn't very important, but it's not really and you didn't miss it, but you get into predator protection. What we found, you know, we've netted. I mean, Sarah oversaw a lot of it, and what I saw was 81% survival Down East where it was colder under nets and versus less than five if it wasn't protected. And down here, we got a lot of cases, less than 5% survival without nets on unplanted stuff. We didn't put a net on it. I mean, it was it was gone. I mean, it's gone. Is that what you were going with?

Sara: Yeah, I guess I was going with. If we're going to talk about seeding, there's some details that make it worthwhile or not worthwhile. So sometimes when I hear Chad get mad and say we shouldn't be seeding, I guess I'm trying to offer preemptively or more detail about why he would have that reaction about seeding. Or why not maybe him or somebody else have that reaction about seeding, because other clammers did work with us as well, like Clint and Mike Ashby and Jim Harriman and Adam Moore. So they may also say things about seeding because they saw the survival.

Nelson: Is it fair when you were talking about high, mid and low? I mean, low intertidal, probably there's even less chance of surviving, basically, just because the predators can get to it.

Chad: But in the high, they grow so slow that they also would...

Nelson: So it is then the sweet spot. If there was a sweet spot at all. But then the question is, is there a sweet spot?

Sara: Right. We found across the river, which is like the area across the Harraseeket River from the dock, to have higher survival.

Chad: Have you been reading, you've been reading stuff on clams?

Nelson: Not in the last two months, but before then, I was.

Chad: Just curious. You psychic? You psychic?

Nelson: No, I've just gone online to look at...

Chad: Well, it took me, like, five years of lugging, you know, 50 tons of mud off the flats to realize that, you know, the mid intertidal... I mean, it's crazy. You know, it's just crazy, really.

Nelson: Well, you know, I keep going back to if this isn't what we're talking about on the conservation, but when we get back into the aquaculture stuff, just how we're going to define that and figure out where the productive flats are? Where are the ones that are potentially productive that aren't? And how do you designate where you lease for folks? And I guess that's why I just was trying to figure out, okay, around Town, where are we looking at? Where is the high and the mid and the low?

Cgad: Well, I think it's so difficult, and again, I don't want to make it more difficult than it is, but, like, when you're talking about seeding, there's a lot of research that needs to be done. And, I mean, it's not stuff that can't be accomplished, but there's a lot of things that can be done through research to figure out ways to make the netting more effective in this environment. Because the reason why Down East has such good success rates with netting is because they don't have mud snails. It's too cold to mud snails down there. And here they use the nets to lay their eggs. They lay their eggs on the nets. It just choked everything out underneath them. We did everything we could. We tried to replace them. It wasn't feasible to clean them or to replace them. It was so heavy. And then also I don't want to get ahead of everything...go ahead.

Sara: No, I don't really know. So I was offering that as some sort of explanation that would guide, because I think ultimately we need to decide, "Okay, seeding is an okay activity."

Charlie: You could break that into two parts, because I know there's also soft shell and quohog. You know, no one's really done anything worthwhile with quohogs. I know Brunswick and Harpswell are toying with it right now, and I haven't seen any hard or concrete data from them, but I think you could say...

Sara: So I just visited Brunswick's area where they did some planting, and it is very fair to say that they do not have any concrete data about it. And if they find a quohog, they just say, "it must be bud seed we planted." And I did go to their area, and I was able to get, like, I don't know, ten hogs under five minutes, but I don't really know what...

Chad: Well, there has been some research. I don't think we've heard of Joe Parado, he's from Frenchman's Bay. But they did, I think, DEI... Brian...they did a million quohogs with him. And again, they had high mortality from ribbon worms. They had a difficult time keeping the nets clear.

Sara: Okay. But anyway so that's like the labor intensive part.

Cgad: Well, that's what we're talking about; is it worth it? Is worth it. But I think, in my opinion, people have to be able to try to figure out a way to keep them alive. That's the key. It can be done. I don't know really how much mortality is just so high.

Nelson: We're obviously different. It's obviously changing. We don't know how fast. and where exactly? It sounds like the Northwest and we're talking about different clams and different

conditions and stuff. It sounds like they've done a heck of a lot more in terms of aquacultural, right? Like Oregon and Washington State

Sara: With quohogs?

Nelson: Well, with clams they may not be our clams. That's a beast because they like they seed them into like PVC pipes right into the sandy mud and stuff. But it sounds like they're doing stuff like that almost with other things. And I don't know whether they have the predators that we have that's colder water, probably.

Chad: Well, they haven't had green crabs as long as we have. They've only documented them being in Washington State since 1984. And you are right, it is a different environment. I don't really know. I know that they're having more and more problems as it warms up, but it really is...

Nelson: So how big a problem are the crabs from Frenchman's Bay Down East?

Chad: It's a terrible problem.

Sara: So we down here have had them longer and we have more ups and downs in our water temps in terms of the summer it gets hotter and the winter it gets colder and Down East is more temperate. Probably they reached critical mass like in the 80s Down East...the green crabs... and clams grow slower up there too. We have an advantage where the warmer water enables our clams to grow faster if they can survive. Our clams will could reach harvestful size in a year and a half if they could survive in May and June and July.

Nelson: How much? Just for my information? So it seemed like the green crabs went totally ballistic, like, up to about, like, 2010, 2012 or something. And then we had a couple of cold winters, and I'm not sure my exact years, and then they seem to fall off some.

Charlie: I was going to wait for the regular meeting to play this. This was over at Brunswick's meeting. It was actually a presentation that Brian did last week, which I thought for some of the newer folks on the commission. I know you guys probably saw it, but I found it fairly informative. And it's only, like, seven or eight minutes long.

Nelson: Because I remember the year where it froze all the way over to, like, Bustins Island. Maybe it was that late fall of 13 and 14 was super cold. Super cold. And then they seemed to drop off. And that would make sense, I would think.

Chad: But what we found for the trapping was we found that their biomass dropped by about 90%, but their numbers remained the same.

Sara: More smaller ones. I have a video on my phone because I just had to sample a bunch...I sampled Brunswick for my clam recruitment monitoring network, and in Wells we found 99

green crabs in one box...a 2ft by 1ft, and they all fit in, like, a little sandwich bag. I mean, they only made it up to a third of the size, and that's how small the crabs in that place were.

Chad: Well, it's the Clam recruitment monitoring network, but it's more than that. It's monitoring green crabs now. It's monitoring recruits, everything. I didn't pay too close attention. But more crabs than you've ever seen?

Sara: Well, I mean, I have 24 sites in Maine, and I've done ten of them, so we'll see what the overall is. But, yeah, I mean, 99 is a record for crabs in one box as long as we've been doing this.

Nelson: I'm sorry, I got us off from an idea of the seeding end of things, but you talk about the predators again, and just the temperatures of the waters, too, are the different zones.

Sara: Yeah, so this talks a lot about that, but it's mainly about a study that DEI wants to do in 2023 over in Brunswick.

Sara: Yeah, we are doing it.

Charlie: But, I'll just play, like I said, seven to ten minutes.

Brian Beal (video) *Okay. There we go. Yeah. So I'm also the director of research at the Down East Institute, which is in the town of Beals, which is about 25 miles from Machias, which is where I teach.*

So I've spent a lot of my career, when I'm not in the classroom, on mud flats. And those mud flats have been all over the state of Maine, mostly Down East, however. But one of the things that we've seen in terms of clams is a major decline over the course of the last 40 or 50 years.

Since 1977, clams have declined or landings have declined along the coast by about 80%. And 2017 was actually the lowest clam landings in the state in history. So we're not in a good place. And the the questions are, what's the reason for the decline? And there's probably, you know, a dozen more. These are the ones that first came to mind.

One is that there's fewer clambers now, of course, than there used to be in 1977, but also there's fewer clams. And I think that especially here in the southern part of the state, you would agree that most of the clams are rimming the upper intertidal, and there's fewer clams.

So we've got ocean acidification to contend with, we've got ocean warming to contend with, and we've got invasive species to contend with. And all of these things aren't happening in a vacuum. They're all happening together. And that's the problem.

That image in the lower left hand corner is... I went on the DMR website and I downloaded seawater temperature data from 1940 all the way to 2020.

And what I did was I took the... so there's actually a daily temperature that's been recorded in West Boothbay Harbor off of the dock since 1901, one every day. So I took the data from 1940 and asked, what's the average wintertime temperature?

And that would be the time from January 1 to the 31 March. So those are the those are the dates. Those dates then are put up here. And what this shows is... so what was really interesting was in the 1950s, seawater temperatures in the wintertime were as warm as they are today. But as you can see, all of a sudden, the 1960s came along and it got cold, and then all of a sudden, it gradually has warmed up.

These red dots represent the average ten years. So the first one is the average ten years from 1960 to 1970, 70 to 80, 80 to 90, et cetera. And you can see that over those 50 years, there's been a gradual warming.

And it's really interesting. Essentially, we're back to where we were in the early 1950s, and Dan's got some interesting things on his wall in his office that were published in the Times Record back in the 1950s.

And it talks about green crabs, it talks about quohogs, and it talks about the lack of soft shell clams, so much so that people stopped clamming because there weren't enough clams to support them. We're almost back to that time right now, so we know that we can enhance clams locally.

It's a project that we did in Freeport in 2014. This is a picture across the river from the South Freeport dock. And we enhanced clams by planting hatchery seed at either 20 or 40 clams per square foot underneath these nets.

And what we got back was 1400 not 20 or 30 or 40 /sqft but 1400 clams per square foot, and that just shows the propensity and the possibilities of nature this doesn't happen all the time. And this area was deemed dead mud by the clambers in Freeport because they hadn't had anything commercial going on in that place for over 20 years.

So we know that we can enhance with hatchery seed. This is a mark that comes on hatchery clams once they start growing, but the big deal was the over, you know, 1200 clams per square foot that were wild. So we know that we can enhance, but we can't net the world. And so that isn't going to work for every place.

We've started a Clam Recruitment Monitoring Network in 2020 using a technique that we invented to take a look at the settling clams on flats. And we're working in those twelve communities that are listed up there, and Brunswick is one of them. We've actually worked at two flats in Brunswick. One is Thomas Point and the other one is Harpswell Cove.

And these are the data from Harpswell Cove and Thomas Point Beach near the mid, the lower mid intertidal. So this is not the upper intertidal, this is the lower mid intertidal. I won't get into

exactly how we do it because I don't have the time, but these are what we call recruitment boxes.

And we have the same project that's set out in Wells, Scarborough, Brunswick, Phippsburg, Bremen, all the way down to Eastport in those twelve communities. But what we see here is that in 2020 at Thomas Point, we were only getting 1.35 clams per square foot and Harpswell was only 3.8.

In 2021, Thomas Point Beach was 1.5 and Harpswell Cove was one. These are extremely low recruitment numbers. This is the number of clams that are only this big per square foot that are settling into boxes that have protective netting on them, so that hopefully there aren't many crabs getting in.

But look what happened in 2021. And that was that there were as many crabs per square foot in the boxes at Thomas Point and there were almost three times, three and a half times more crabs in the boxes at Harpswell Cove.

And so when crabs are so thick that they're in these boxes along with clams, what's going on outside the boxes is even worse. So we're not in a very good situation and the results from Brunswick aren't much different than the results that we've seen in the other twelve communities.

So here's what we can say with a high degree of confidence, and that is that there's fewer and fewer clams each year that are spawning and surviving their first year of life. And really there aren't a lot of options for towns to counteract this event.

Like I said, you can't close all the flats for any length of time, you can't put out netting because that's not going to happen. And it's also a logistical nightmare. There isn't enough seed wilder hatchery to do a good job enhancing one flat, let alone 20 or so flats in the town.

So although these are options, they're not really realistic options. So I've been thinking a lot about how clams get to be on mudflats and the activity that clams have to go through in order to reproduce.

They have a swimming stage, most of you know that. And here's a picture of that swimming stage. That swimming stage lasts about three weeks. And the size of the animals that are swimming, you can stick more than 25 of them on the head of a pin.

I've got a shot pretty soon here that tells us exactly but the last phase is the swimming and crawling phase. It's the phase that they're in just before they settle to the flats and undergo metamorphosis. Metamorphosis is just a change of shape and so that's what they do; these clams drop out of the mud and they settle to the mud.

Sorry. They drop out of the water column and they settle to the mud at a size that's one fifth of 1 mm. So they're really tiny. One fifth of 1 mm. So the key to successful management of clams isn't on clams that are this big, it's on clams that are this big and smaller.

If you can somehow enhance juvenile survival, you've figured it out, but no one has yet. But juvenile survival is the key to success of any softshell clam management program. Managing for juvenile survival, that needs to be a mantra

So, how small are these juveniles that drop out of the water column? Well, there's the head of a pin, and that head of a pin is 1.5 mm in diameter. It's a circle, so you can calculate the surface area.

The clams are circular, and you can calculate their surface area. So once you finish doing all those calculations, you can figure out that this is about 36 clams that you can fit on the head of a pin.

Okay, 36. And if you had 13 clams and they were all about three inches, you'd have about a pound of clams. So 36 is almost 3 pounds of clams. That puts it in somewhat perspective. But at the present, the amount of clams that are settling to the flats isn't enough to keep up with losses, either due to acidification or predation or just disease or other sorts of things.

So what we have to do is figure out how to deal with predators. We can mesh them, we can net them, but we can't net everything. There's another way to do it without really handling anything, and that is to have more clams settle on flats so that they swamp out the effects of predators.

And you're going to think, "where the hell does that happen?" Well, it actually happens in the woods. It happens in the woods in the fall. And it has to do with oak trees. So there's times when there's so many acorns that are produced in a year that there's enough for the rodents and all the other herbivores, and then there's also enough for some of those oak trees to germinate.

Why do you suppose a tree is actually producing seeds so that it can carry on its life cycle? So we call those years where there's more seeds and more acorns than what the herbivores and other things can consume.

We call them mast years. And what that does is there's so many acorns that it swamps out that consumption. So with clams, there may be a couple of ways to put more spat in the water column, but some of the ways that I'm going to discuss are not very tractable.

So hang on. You can close a season when the clams are spawning and open it after the season. That would allow more clams to spawn and put more spat in the water. But commercially, that's a non-starter.

You could close the fishery for a week during the peak of spawning. And what that would do, you might call those rolling closures, and it would be rolling from the southern part of the state to the northern part of the state.

So you'd have different times of closures depending upon where you are in the state. You could put an upper size limit on clams that would allow the larger ones to spawn. But that assumes something that we don't know, and that assumes that the larger clams, unlike you and me, do not undergo reproductive senility.

And that's a weird term. It just means that as you get older in life, you're not as functionally reproductive as you once were when you were younger. Does anyone know why there's a five inch upper limit on lobsters and a four inch upper limit on urchins?

Well, it turns out that those upper limits are there because those animals are producing a disproportionate number more of eggs and sperm than the smaller ones. It's actually, if you look at the relationship, it's exponential.

So the larger the lobster, the incredibly more fecund or egg bearing it is. The same thing occurs with urchins. Same thing occurs with oysters. But we don't know about softshell clams. We have an idea through some early studies, but we don't know exactly.

So I've designed a project, and it's been funded. And part of the reason why I've got funded was through a nice letter of support that Dan wrote to go along with my proposal. And the proposal is actually asking one major question, and that is do large clams produce more or less eggs than smaller clams?

And when I say large clams, I'm talking about clams that are three and a half to maybe four inch is in size. But in addition to answering the first question, we'll also answer the second, because the project that I'm going to describe in the next five minutes is going to be set up hopefully here in Brunswick, also in Bremen. And also in Jonesport. So there's three towns, one representing the southwest coast, you guys, one representing more mid coast and one representing down east in Jonesport. What we'll also find out is, "when do clams spawn?"

We have an idea, but we don't know precisely. Is there a relationship between clam size and the number of eggs that a clam produces? We're going to set this thing out at three different tidal heights, high, mid, and low, and does that affect how clams reproduce?

All of these questions will also cover geography. How does geography define this relationship, if there is any? And then once we are able to spawn these clams or induce them to spawn by shocking them with warm water, which is how they do it in the wild, we'll take these eggs and we'll fertilize them and find out whether or not the eggs from the larger ones are they as viable as the eggs from the smaller clams.

So this is a project that we're hopefully going to be doing here. I'm going to describe the project. These are what we're going to be planning. The clams in. This is six inch deep box. And you'll say, Well, I know the clams can live deeper than six inches that are three and a half inches in your right, but it turns out that they will survive at six inches just fine, even a four inch clam.

We're going to try to keep out milky ribbon worms and green crabs. The bottom of this is a pet screen that a milky ribbon worm can't get through, and it certainly can't get through here. And these boxes will be put so that they're nearly flush, but maybe a little bit above the sediment surface.

Then they've got this mesh on the top. The top mesh is half inch vinyl coated. That will keep green crabs from getting in through. And then there's another mesh in between this one inch thing, and this will be affixed to the top. This will be filled with mud, and within each box there'll be 30 clams. The boxes will be arrayed at three tidal heights. So 42 boxes at the upper, 42 boxes at the mid, and 42 boxes at the low.

So this is a schematic then, of what this project will look like. Just to ensure that these stay in the mud, we'll put lags that go down 20 inches into the mud, nails, through the lags into the box, and that will keep this box secured and in the flat.

Each box will contain five clams from each size category. And we've got six different size categories. The one that's in red are the ones that are illegal or sub legal. And those will have to be dug at the time that these boxes are put in, which is going to be March 2023.

And you can see that we're going to go from a clam that's about 1.2 inches to clams that are about almost four inches in each of the boxes. That's a total of 3780 clams. What are we going to do? Well, we're going to set this out in March.

It's going to take probably three or four tides. I need three clamors to help. We will bring up a couple of folks from the Down East Institute and to help I'll be out there with my hoe as well. But we need to establish the boxes and plant the clams.

And that's the goal for March then the project. Begins in April, at the fourth week of April, and it goes every week until the end of August. Now, a lot of that time is going to be a waste, because two years ago, we did a similar project in Freeport, but we didn't start until May.

And we found that from May until the middle of June, the end of June was the only time clams were spawning. But we don't know, because we only collected the clams from one title height, not three. That was Freeport, not Brunswick.

That was 2020. This is 2023. So what we need to do is to have somebody go out on the flats and collect clams, either by pulling the boxes themselves or digging the clams out of the boxes. We'll have to give you a drill so that you can unscrew the tops.

But we need the clams from two boxes from each tide height shipped to DEI once a week. That's 19 weeks from the end of April to the end of August. And then what we'd like to do is to have a clammer from Brunswick or two or three

How many want to come down to DEI and see how we do this? So what we're going to do when we get the clams is that we're going to try and induce them to spawn. And inducing a clam to spawn is no different in the hatchery as it is on a mudflat. So let's call this the mud flat, and let's call this low tide, and let's call this the middle of June, and let's call it a 02:00 low tide. The sun is out, and that mud is going to warm up. We and when that tide comes in over that flat, it might be, I don't know, 52 degrees or 53 degrees, but by the time it covers that flat, for the first few minutes, as you know better than I do, that water is 80 degrees.

And every. Every time that that happens, the water is warming up and cooling down and warming up and cooling down, and that touches off clams. It's that thermal shock that induces them to spawn. So in the hatchery, we put clams in a tank with cold water and some algae, and we let them feed for a while, and then we drain that tank, and we immediately fill it with so it might go from 50 degrees to 72 degrees.

And if they're ready to spawn, if they're inducible to spawn, then they will release eggs or sperm. And it's really easy to tell the difference between a male and a female.

What we're going to do once those clams begin to spawn is to remove them from a large tank, put them in individual small bowls that have seawater that's warm, let them continue to spawn, which could take anywhere from a half an hour to 45 minutes for one clam. Take that clam out after it spawns, and then estimate the number of eggs that that animal spawned. That's a fairly straightforward process which I won't get into.

So the activities occur in March. Very intensive activities for three days to get the boxes in, get the mud in the boxes, plant the clams, get the covers on, walk away. And then somebody or some group of people that will hire every week, and it will probably be the same day every week, to go and just get the clams from two boxes at the high, two boxes at the mid, two boxes at the low.

And that person will be working with my colleague Sara Randall, who's the Co-P.I. on this project, and Sara will ultimately get the clams and ship them. That's the project.

Sara: It's an important study, and we're going to do it 2023 and 2024 in those towns and all three of those towns.

Charlie: Yeah, I just thought that gave a good background from the very beginning.

Chad: I mean, I thought it was good. I thought towards the end, I thought Brian, I mean, towards maybe three quarters of way towards the end, I thought he was doing a pretty good job selling the project. Because there are some things that.. one of the reasons this project... he pursued this project was because the DMR, they threw up some information that they didn't know either.

They said that when it was proposed to, the upper size limit isn't going to pass the legislature because most people are opposed to it.

Sara: What you mean is that it was anyway, there's some political background to it. When it was previously discussed, it didn't pass. Like putting an upper size limit didn't pass. So this is going to provide data about more than one.

Chad: We do have some pretty good data on when they spawn here, not just because of the project they did, but because the processors keep records on the yields per bushel. And it's interesting. I go over to Cantrells. He's got a board, and you can see each year it's within a week or two or whatever, you can see it growing, growing, growing all fall through the winter, in the spring. It's like crazy. They're getting out of the stuff from Freeport they were getting close to two gallons out of a bushel in March, April and May. And then it drops right down to 1.2 gallons per bushel almost. Sometimes not even just a little over a gallon.

Sara: Yeah. Because they're heavier when they have the eggs.

Chad: And that's another thing that I think that they do know, is that's another difference is Down East, they never fill up with the amount of eggs and sperm that they do in this part of the state. And as a clammer, I thought it was good that he said some of the things weren't attractive. The problem with the way the system is set up with town by town management is I wouldn't want to close my flats because my clams are not spawning. They're not seeding my town. So I wouldn't be in favor of that because... I guess I would have to think.. because what the state wanted us to do is on a town wide basis, on upper size limits, there's no real motivation for a town to do that. There's no reason for us to close our flats down in the late spring so that Scarborough gets spawned if people to our East aren't doing it as well. Does that make sense to you? The spawn is coming from other towns. It's not coming from Freeport, so it doesn't make sense on a Town basis.

Nelson: Unless you can sell that.

Sara: Right. Yeah. I mean, what he means is that...

Nelson: Economically, you could make as much off of that as you could make off of...

Chad: We talked about it, but again, it definitely wasn't supported by the legislature at all.

Gina: When was that? It wasn't recent.

Sara No, it wasn't. I think it was either 18 or 19 at that part.

Chad: Well, we have worse representation now. Yes. again, I thought one that was an excellent video in that it said, that it's really about managing the juvenile survival. And that's one thing I was trying to figure out a way to word that was what we what we're really trying to do is... I think

that...we're it's and also when you put what we did with those net. I have some other stuff in my folder that we did at Winslow Park that produced tremendous amounts of small clams. But I think that it really is you are creating some sort of when you put a toggle on nets, you put toggles on nets, you're fishing for clams. We can debate it over and over again, but that's what fisheries management has to look like in the future of clamming, is the future is now, really. But what it is, is we can't think about fishing. We can't wait to fish for them when they're this big, we have to fish for them. When there's 38 on the head of a pin, that's when we have to catch them if we're going to have any chance of success.

Nelson: And keep them alive.

Chad: Right. And then we can talk about whether that's aquaculture keeping an area protected after you've caught the clams, but you have to catch the clams first.

But anyway, and that goes back to what it does tie nicely into seeding, because that he's talking about is but seeding, it's the same thing. You're basically trying to swamp out the predators. You're trying to protect what you put out, you put enough there that whatever you're using, you can swamp them out and they'll live. And it's just I did a lot of the numbers on buying seed. You really you do have to do better than 5% survival on stuff that you purchase to plant.

Nelson: Is there a concern that like, the acorns, I've heard a bunch about that...how, you know...do the trees know and, you know, do they produce more when they realize that there's been a couple years and stuff like that, or they produce less to cut down the squirrel population?

Chad: Yeah, I don't know. It's a good question.

Nelson: I mean, that's one of the things, too, you almost have to figure out, is there a way to swamp out the predators, or are we just going to create more and more predators? Because they're just like, wow, this is great.

Chad: And I thought it was interesting, like when he mentioned lobster, when he said lobsters and urchins, because there's a lot of little facts that I've taken in over the years with him and just in general. But in 1980s, when I was lobstering and as a kid, you didn't see any lobsters under 2 pounds that would have eggs on them. None. I mean, they didn't exist. And as water warms up, crustaceans in general produce, they have much smaller reproductive sizes. So now you catch lobsters; you catch undersized lobsters now that have eggs. That's a biological fact of warming water; crustaceans reproduce at much younger and smaller sizes. So crabs...and I didn't want to really speak out at the Network, but that's what we were witnessing is the crab recruitment numbers are skyrocketing with the temperatures, and the clams are going down.

Sara: This is my third year, but compared 2020 to 2021, 2021 overall was on average warmer. And we experienced much less recruitment in 2021 and also way more green crabs in 2021.

Chad: And it's you know, you look at I actually they I helped them pull some boxes in in Phippsburg, and I was, like, looking in through I could see through some of the screen. I was

like, man, look at the clams in there. It's loaded with clams. And when they popped the tops off, it was shells. It was just shells. It was loaded with crabs.

Gina Is the point for buy-in on Beal's study to determine if the clams that have been harvested...to challenge the assumptions, like, "Oh, these larger clams are the ones reproducing," to change the size of what has been normally harvested. Like, "Oh, we had it wrong. They're actually producing more during this life section of their life.

Sara: The two inch clam law, I think, was kind of put in randomly. Right. So, like, trying to figure out if we're going to have size limits, like, what size limits make sense, given our goal.

Chad: They were put in by dealers, not biologists.

Gina: Okay, alright.

Nelson: What do we want in a restaurant?

Chad: Well, that's basically it. They didn't want people coming in with stuff this big, and they didn't want people coming in with giant...

Sara: Yeah. We did a preliminary study in 2020 to look at fecundity, and we sampled Brunswick and Jonesport, and we got an inch and a half clam to spawn.

Chad: He's very careful. That's one thing about him. I've been frustrated by him, and I understand it much more now than when I first met him ten years ago. But when I first met him, I was... so I at times I was angry because we'd be at meetings and, you know...I shouldn't say... he's being honest, but he's been spawning clams for a long time. And, you know, he knows that you're not gonna take little clams like this to to get the seed they need for the hatchery. And so you know, and it made him really angry, I think, when he went to the legislature with this size limit and the DMR said, "Well, small clams have more robust eggs." I don't know where you've been. And the legislature said, "Jeez, we didn't know that small clams have more robust eggs." And that's true in some fish species, but it's never been proven true in shellfish. And, I mean, that's just the specifics of it, but I think he's going to nail that one way or the other. But he's not trying to prove something. He's just getting the info.

Gina: Can Freeport be a part of the study, like, if we had volunteers?

Sara: No, not at this point. It's going to be Brunswick.

Nelson: Two things off of the video. One, when he was talking about doing the Freeport project and coming up with, what, 13, 1400 clams, and I think I've heard say in other meetings that like, okay, fine. One, you have to make sure that you get a ton of the tiny juveniles, but then you just lose them so much. That study, was that taking out bigger ones or really tiny juveniles? Did the study really prove that they were growing, at least to that stage with some protection?

Chad: Yes.

Sara: So that is a little confusing. Like, we seeded different areas on both sides of the river for 2014 and 15, and I don't know, I think 16 too. But I think the year that we got that, we got a lot of recruits. We continually, for two to three years in a row, got way more recruitment on the east side of the river, So, not on the South Freeport side.

Chad: But I think I don't know if you're going in this direction, but rather than in that area, say these pieces of paper are nets, right? So there's 20 nets out there and under those 20 nets, the average was 1400 clams a square foot. And outside of them we didn't find any.

Nelson: Right.

Chad: But what I was going to say is that, we took the nets off that Fall and in November we went to sample, we took the nets off, we rolled them up and we left. Another thing we did was we tried to take some of the plots and see if we could remove the clams, and we scraped them off and we scraped the mud off, washed it up in onion bags and we got bushels of small clams. And we never really, from a commercial perspective, we never dented the clam population doing that in those plots. And they grew and we had clams off and on... it was hard to tell when they were going to be back again. It was a matter of getting there before the worms got the clam. So they would be like this. A lot of them would grow to two and a half inches. And if we didn't get them, the worms got them pretty quickly. But that process went on for three years; that one year of 1400 claims a square foot, these plots were commercial off and on for three years. Because of that.

Sara: And it wasn't an area that people were digging before.

Chad: We didn't do anything to it. So in theory, if you could get even one year, if you could net an area the size of this room, if a guy could net that and you had a mast year, he could, in theory, have enough animals there to keep it going for a few years.

Sara: We did do something. We did seed it.

Chad: And we didn't get a lot of those, though. Because they were big.

Sara: And you can tell the difference, as he was mentioning, between what was from...

Chad: But there were so many of stuff that big that we got a lot. We ended up getting... I mean, I say there's so many...we didn't dig 1400 clams a square foot. You know, I don't know what got eaten, but it was also the first time that I learned that a clam this big could be the same age as a clam this big. It just was a matter of the density, and when this one was removed, this one could go, and that was kind of interesting.

Nelson: So the other question out of the video then was he was showing the boxes that you're using in the study, and he was talking about obviously having a really tight mesh on the bottom to keep the worms out there and then less of a mesh on the top to keep out crabs of a certain size. Are there real concerns that you're going to get a ton of little crabs getting in there still?

Sara: Yeah. Well, so for that study, those are different than recruitment boxes. So that's for the Fecundity study, so those boxes will have the larger clams in them, so the tiny ones won't be an issue for the larger clams. Anything over a tiny 130 millimeter clam is not going to be affected by the crabs.

Nelson: Okay, got it.

Chad: Yeah, that makes sense. Another thing we did, like, at Winslow Park was and. Impound clams and we were trying to keep them alive...big clams alive. We had we had trouble with that. I mean, we did a lot of that here. And again, though, we put toggles in these bags.

Sara: We had cages that we planted in the mud and we just put a mesh over the cages. And so it just so happened that a lot of recruitment hit those cages. And because we had nets over them, they were protected so they could survive.

Chad: Like I said, the large clams were largely dead from worms, but they were full of small clams.

Sara: That was a higher density.

Chad: It was unbelievable what we got out of that. I don't really have a good thing, but we put these wire cages, they're like two by 3ft and we had some of them we zipped up with pet screens ever and some were velcro and one thing that was kind of interesting and I mean, Sara discovered something so she was out monitoring these things all summer and she had to take them apart and look inside of them...

Sara: I wasn't physically strong enough to unzip them, so. I could only do the velcros.

Chad: So she left a hole like that big in the ones that had zippers and those had zero clams in them.

Sara: No. Velcro. I was like, looking in and okay. And then closing it. And maybe there was, like, a little. Bit of a velcro, just a little piece.

Chad: That was enough.

Sara: But the zippers I couldn't unzip because it was too tight, and so I couldn't get into them. And so all the ones in the zippers survived.

Chad: In this learning...it wasn't something we were working towards finding the seed there. It's where Elaine does her stuff. And this is some of the pictures. This is a Jet Sled. Yeah, it's not a giant jet slip. I mean, we just got, you know, mountains of sea just scooping it up with our hands and throwing I mean, it just it just was crazy.

Down at Winslow just right by the boat launch.

Sara: Yeah, right there. Yeah. So that area has been given to the students because it never... it's called dead mud by clammers. And so it would be... it's shocking. We did not expect that we would find that many recruits occurring. So that's an example of just because there aren't commercial size clams in a place doesn't mean that they aren't receiving recruits. They're just not able to survive to a harvestable size there.

Chad: Yeah, they're going in there. I guess what I'm trying to say is that I think in a nutshell is what my goal was, is to try to create... I don't really care what anybody calls it, but that's what the idea behind the conservation...area license is to give some... it's basically the future of fishing is you have to catch these things while they're tiny in the water column because clamming is in deep trouble here in Freeport. So I'd like to see something happen before there isn't anyone left doing it, including myself. That would be a good thing.

Nelson: You're retirement, aren't you?

Chad: Well, I'm not really. I wish I was, but you know what I mean? It's not so much retirement. There isn't going to be any clams to be a commercial clammers unless something happens. And don't know who knows what's going to happen with the weather. But the projections don't look good.

Charlie: So keep seeding on there for now?

Chad: I definitely would keep seeding as at least part of a management plan,

Nelson: And it can cross over if we end up organized on some aquaculture.

Chad: There's a lot to do with it as far as learn about it, too. There's still tons to learn.

Sara: They're more like detail in terms of how to increase survival in certain locations. I think that's what you mean.

Nelson: In terms of all this netting and the boxes and everything else that's just being home grown, developed, right? You're not getting any resources or folks that have looked at this and said, "Okay, here's the kind of mesh you're going to want to use."

Sara: Oh, no. We did it all through experimentation.

Chad: Well, we found 3.2 millimeter mesh we had better growth.

Sara: Which just makes sense because larger water flow means that they're eating more, but it also.

Chad: It let's in bigger predators. That was when it was really stark, was the, in the 3.2, anytime you've got a crab that was the size of a quarter or bigger, there wasn't anything in the box, not even crabs. There's one crab, but the boxes that had survivors looked a lot better. Does that make sense? But we did pet screen and that all, that all became but, you know, because that's because I knew everything. I was, I was the genius on clams. And when I met Brian, I said, "I'll grow some clams in boxes." And we put out 400. We ran out of the mesh for the bottom. We put, ground cover on seven boxes out of 412, and those were the only boxes that had any survivors because of worms. That was probably one of the most depressing things in my life, was pulling those in because they all weighed about 150 pounds full of mud. You know, just basically, we had to sample them, but just throwing them away, dumping them out. There's nothing in them, just worms. That was crazy, wasn't it?

Sara: Yeah. From 2014 to 18, there was a huge amount of experimentation and worked studies done in Freeport to look at clam survival and different ways possible to enhance clam populations, commercial clam populations. Sometimes it's complicated because you really have to get into the details to really talk about it, and that often doesn't happen. It's not really available to happen in public meetings, but we do have the information and the data. Sometimes I can't remember it all, so I have to look it up. But we did over 86 different experiments; 27 different types of experiments at 86 locations, plus two years of green crab trapping, where we trapped every one to two to three days. So, at least three times a week, hauling 50 to 60 traps each day. So we do have a lot of data. It's just how do we use this data in our management plan? And if we can incorporate it, we'll be ahead of any other town, really.

Chad: Well, it's frustrating for me, because when we bring up Brunswick and stuff like that, it's not just them, but a lot of towns are doing projects, in my opinion, for photo ops and media. Um, it's there's like there's no follow through. We need actual information. You know, we can't just, you know, say, well, let's throw 600,000 quohogs out there. We're restoring quohogs. You know, we need to know if it works, you know?

Sara: The data, which I can just say that I know in particular, like, the Brunswick quohog project, they're not. I don't even think they know how many quohogs they put.

Chad: They don't want it. That's what I feel like. They don't want the data.

Sara: It's harder. It's more work. Okay. Like Charlie said, we keep seeding on the list?

Committee: Absolutely. Good. **(No motion).**

Chad: Is there any other things we got to go over?

Charlie: We can keep going right down the list if we want.

Sara: So if recruitment boxes would be a good use of time for clambers to get conservation hours.

Charlie: would say that these what we're talking about, if down the line, these conservation areas go through and this is something that you guys decide to do, these would be the conservation measures within those conservation areas.

Chad: Yes,

Charlie: But we need to bring it back to do we have 50 something license holders, if any of these are really productive for them to be doing, if they're just wild harvesting. Which is why we suspended this issue.

Chad: Actually, that's a great point. That's awesome. Because that's what was on the video. It may sound good, but it's not feasible, really, to send people out in large scale to try and seed the town in. You know what I'm saying? That's a good point. That's an awesome point.

Nelson: But one of the notes I had was, if you go ahead with the projects, is that in addition to the license, the commercial license, you already have, or do you have to have a commercial license to be able to do a project?

Because, you're adding... You could argue it a couple of different ways, but one way you could argue it is, "Well, there would be no need to have a commercial license already, because you're working in areas that are unproductive, have been designated unproductive." So you're not affecting the overall, which is kind of the reason why we supposedly have a certain number. Right? This is what we can sustain this with, traditional licensing.

Chad: And that was, I thought, one of the supporting aspects of a conservation area license is that one of the big problems in all fisheries, as Gina's pointed this out many times, is that you can't get a license to do anything, and there's a reason for that, but I don't know if they're all the right reasons. But the bottom line is it's very difficult to do anything in marine fisheries, you can't get a license. So this would enable people to get a license and start doing something in areas that are not for productive.

Nelson: It just needs to be sold to the traditional commercial harvester.

Chad: He doesn't have to do it.

Nelson: Well, you don't have to do it, but it's also not going to affect negatively affect your haul.

Chad: Right, exactly.

Sara: And again, it's in the details. It's in what areas, where do you do it?

Nelson: How do you figure that out?

Sara: The resistance that just occurs, first of all, it always happens. Like, a lot of times you stay up, a lot of clambers will just stay down. Yeah, they're oppositional.

Charlie: But another thing is too, as far as where I come from, if there are things on this list that truly worked, then you wouldn't be awarding someone points to do it. It would just be done.

Chad: That's a good point.

Belson: No. And if this is more for the benefit of the aquaculture, the conservation license, folks, is it just conservation measures or requirements for them versus the other group? Like we said this year, everything that has been traditionally done, going out and just gathering up crabs or cleaning up or something, it's probably a waste of 10 hours.

Chad: I asked him why in Scarborough, I think they have a trap. Everyone gets a trap. And I asked the guy, it's been on the shellfish committee for I don't know how many years, 30 years. I said, "Jeez, well, if it doesn't work, why do you keep doing it?" He said, "Well, we just don't want to change it."

Sara: Do his voice, Chad.

Chad. Well, I'm not going to do his voice, but he just said, "Well, we just don't want to change it." He said, "We know it doesn't work. We just don't want to change it." I said, "Oh, okay." I don't know how to argue that. I really can't.

Gina: Maybe they need to use 100 traps per person. I'm not...

Chad: You're right. That's a legitimate question. I mean, that's just an example of some of the data we have. We've gone through trapping already, right?

Gina: Yeah. Well, one trap isn't going to kill the crabs. You can kill anything with increased effort.

Chad: Not crabs.

Gina: Really, you don't think so?

Chad: The science is is very clear that you can't affect them.

Sara: You can take crabs out, but they're not the crabs that are doing the most damage to the young.

It's not the ones you can trap that are going to do that are doing all the damage.

Nelson: Plus, you got to have a reason for folks, if there was a commercial market for. That was viable, that people would do it like they would regular crabs and lobsters.

Chad: Okay..you want to give it that ten more minutes?

Charlie: Whatever you guys want to do.

Chad. Ok, you just gave us the list tonight. We can just go down through the list. It was seeding and then recruitment boxes.

Sara:That was the list that he gave us with the remainder of the activities, I believe..

Chad: Can we switch over to recruitment boxes?

Sara: We sort of started.

Charlie: I think if you were doing something in a conservation, you're going to have something like a recruitment box that you're using, or if we're doing any sort of survey to find whether mud is dead or we're going to use some sort of box to do it, so I wouldn't get rid of that. They've already proved to be pretty useful in certain areas,

Chad: But they're not necessarily something that a wild clammer would be interested in.

Charlie: That's just it. None of these things are. Like I said, if I need assistance. But I guess my biggest thing is if I'm doing something that's in the ordinance, if I'm mandating that someone's doing it, I want to give them, like I said, benefit back, whatever that may be. And really the only thing is maintaining healthy water quality.

Nelson: I don't want to give up on the concept of potentially having folks help with educating the public, though. Not too many of these guys are our classic educators but to the extent that we can just educate kids or the public whether there's an opportunity to feel like this is a resource that they do want to save, right?

Charlie: If they want to come in and help out and swing a field trip like the one that we had on the 30th, then I think they should get some sort of something.

Nelson: Right. And it may not be, like, mandatory that you got to do your 10 hours of this or that just to maintain your license, but if we've got a slush fund or something, we could pay people to do it even, too.

Charlie. We've been over that. We can't.

Sara: Okay. I just wanted to convey money information o from the teacher that I've worked with for four or five years, Elaine de Prague, who teaches 7th grade science, she was asking me on

the 30th. Charlie and I and Brian actually came down, too, to help take in these modified recruitment boxes that the students had redesigned because they were trying to exclude crabs. And we spent the morning to afternoon washing out the mud from the samples, whatever, with the students, and they're taking the data back to calculate. But she was disappointed because in the past clammers had helped, and she feels that it's really important. And I would agree that for the children, because especially as this town is gentrified, a lot of the students don't have that connection to that.

And so in the past, clammers have talked to them and helped and whatever they get to meet them and talk to them and gone into the classroom and talked to them there, and that helps the children get an appreciation and understanding. This year, no, clammers helped. So she was like, "Should I give up with the claimers?"

Charlie: It is because it wasn't mandated this year, but the only fair way that I could see it happening is you have your license list, you have an activity like this, and let's say you need five people. You go to the top five alphabetical order how it's right on the list. Contact the first five. If you get three out of five, you keep moving down. If whoever wants to do it volunteers for it, they could get a percentage off. And then if that's all you have for that year, then the following year or whatever each project and you keep going down the list. But folks can say, no, I don't want to do it. That's fine.

Nelson: But they can get there will be their next license if you give them, whatever, 50% off their license for helping out.

Gina: What about my husband; ge used to clam? He can't get a license now but he clammed down on Chrbeague half his life and lobster and ground fish and everything. He's a great educator, and he's a great storyteller. He would go in and do it.

Nelson: Folks that aren't...

Chad: Well again, what I would say is I would be opposed to this only because..

Gina: Really?

Chad: Yes I would. And it's not that I won't be outvoted and I understand that, and I wouldn't be upset and I promised Sarah I wouldn't jump up and down on the table and stuff. But I am opposed to it because I made this promise, I guess, to myself that I would try to as long as I was on the shellfish committee, would try to steer the committee towards stuff that had a direct impact on the resource because the resource is dying out. And I don't know when I think about when I hear people say clammers going to the schools or helping out with the children or teaching something I don't know what you're trying to pass on to them. Until we have a method or methods that can sustain clamming it doesn't seem to me to be very important to have someone go into a school and say, "hey, I dig clams. I used to use one of these clam holes. They used to be clams." I don't understand why this would be something that would be

sustaining or enhancing commercial production of clams. One of the things is that doesn't directly enhance clams.

Sara: Okay. So you're going to need people to volunteer to be on the shellfish committee, for one. You need, like, adults that are going to volunteer to manage the resource.

Chad: There is no resource to manage is what I'm saying.

Sara: Well, there is technically still a resource to manage.

Chad: Right, okay. Well, it's in severe decline.

Sara: Well, these are I don't I mean.

Chad: I don't see why, you know, you want to spend money I'm sorry to interrupt you. Go ahead.

Sara: Yeah. If you don't have people that are interested in it or at least understand a little bit of the importance, you won't have the volunteers on the shellfish committee.

Gina: Also. I think it's kind of hokey myself. I can understand why the clammers wouldn't want to do it, but it breaks down barriers...

Chad: To what, though?

Gina: To the perception of what a clammer or fisherman is.

Chad: There isn't going to be a clammer.

Nelson: Well, I don't think they're mutually exclusive. I'm not saying, "Oh, let's just educate folks and forget.."

Chad: What are you educating them about though, that's what I want to know.

Sara: Well, you're educating about the culture.

Chad: What culture?

Sara: What do you mean, "What culture?"

Chad: If there isn't clams, why would anyone...

Nelson: It's a work in progress. It's not saying we're just sticking it here in the flag.

Charlie: It could be something that DEI comes up with another study that we want, or it could be that they need volunteers in Brunswick for a couple of hours.

Jason: If you save and enhance the population but you have nobody that wants to do it, what was the point?

Chad: Well, again, we have to have a program that is focused on enhancing production; commercial production of clams.

Jason: But if you enhance the production and you have nobody to do the producing then we'll...

Chad: I guess what I'm saying, if we're not successful maybe somebody would step in...

Nelson: And maybe it just means that it's two separate sections or two. You're talking about conservation license. That is, how do we conserve our resource and enhance our resource by doing appropriate forms of aquaculture and eliminating predators, if it's possible in some way. But on the flip side, there also could be an element that "all right how do we make it so that anybody even cares in 20 years in Freeport about this?" Are there going to be people that if we do create this system, you obviously think, okay, people are probably going to want to do this if they think they can make money.

Chad: Yes,

Nelson: But does that mean you're going to let people from outside the town do it, or are you going to make it so it's an interest from in town or both? You could get some pushback that if it's just right now, most of the folks that are digging are our neighbors, and if it's just outside interest doing it, only you're going to have to educate people why that's a benefit to them. That it's part of our traditional culture, that it's financially helping the town one way or another, that it's putting seafood in our restaurants that we sell to all the tourists and all that kind of stuff.

Gina: I don't think it's a big lift either. Like, my husband is part of the greater story, the reason why he can't get a clamming license, although he knows a huge amount about every single fisheries. People like Amos Doughty on Chebeague Island who cannot clam anymore because there's no clams on Chebeague. That's all part of the story, and everyone's in a different phase of that story. You're you're well... we're headed into Chebeague's phase. So telling the story, not making a mandate for somebody who holds a license. Why not bring in people like Amos Doughty and Jimmy Kuntz?

Chad: Well, we could, but we're not necessarily going to be allocating conservation time to do it.

Nelson: No. Well, it just may be... see whether how big a lift it is and how much it...

Chad: Really, but if everyone was in favor of it I definitely would be as well.

Nelson: I don't want to forget to at least think about it and where it might make sense as we go forward with this stuff and getting people motivated to help.

Jason: Because, I mean, if people don't know about it, they don't care about it.

Chad: I've done a lot of schools.

Charlie: And also, not that this isn't a good idea from the commission, these conservation areas, but this is not just like, oh, the next meeting, "let's do it." It's a process that you have to start out small. Get it bigger and bigger. But we still have our 50 somewhat license holders in the way our ordinance reads. That's the part that you need to look at the 12 hours.

Chad: Exactly. That's what I was coming at it from was yeah.

Nelson: And I mean I mean, I'm not into just making people go out and pick up garbage. I mean, nice to have the shorts cleaned up.

Chad: And it's difficult, too, because if this was a program, obviously we can do background checks and stuff like that. And it's not as bad as it used to be by any stretch of the imagination. But still, I mean, there's people you don't necessarily want down there.

Nelson: Well, and I'm not just talking about kids. I'm just talking about what can we do to make it so that people remember the fact that...because the more people that you have.

Chad: But we have airboats.

Nelson: Well, I know, but you've got all the new people going into the apartment building over on Desert Road Why are they going to care about shellfish and me?

Chad: Right.

Nelson: So we at least make it so that actually there's something out there. Maybe.

Chad: And I will admit I am biased.

Nelson: Or it may be an education night, that somebody or you go in and they have their little community thing and somebody goes in and just spends an hour telling but it's not mandated.

Chad: There really is more to it than just me.

Nelson: I just think where are we going to see the growth in the population? It's going to be more and more people that aren't connected to this.

Chad: Oh yes, that's the key. I agree with I totally agree. That is I want that.

Nelson: And they just don't say, well, I like global warming because the water will be warmer when I go swimming.

Chad: Do you we set the agenda for the next meeting? We didn't have it really.

Nelson: But this is good.

Chad: Yeah, this was good to talk about.

Sarah: We didn't talk about surveys.

Chad: What else?

Sara: So I would just say; to define surveys, there's two types. One, you can use recruitment boxes where you're measuring the amount of clams that are settling, and then at the end of the growing season, you can see how many survive. And then there is a what I would say is a traditional survey where you go out and you're in the mud and you're counting clams that you can see and you're not running it through a sieve. Those are less useful because depending on what time of the year you do them in, usually in the summer, you're not going to find as much. And if they're commercial quantities they might be there one day but gone the next. So I'm not really sure if the traditional survey is useful.

Nelson: Well, I think the survey is going to be important to the conservation license because you're going to have to convince...

Charlie: You need to keep that.

Nelson: The traditional harvesters that they're not losing productive ground.

Chad: That is key. And that's why I think it's important to make sure that it's independent.

Sara: What he means by independent is not done by clammer but done by trained people. Sure. But then you need to have this.

Nelson: You got to do the survey and set the standard. What's a productive flat? What's a flat that could be used? You almost have to figure out what's a productive flat, what's a potentially productive flat and what's like nobody has any interest in it.

Charlie: I think the six things that we have left on here which are seeding, recruitment boxes, netting, water quality surveys and field trips, education all into one could stay on here. I don't know. I haven't heard of any reason why we would get any legitimate ones, why we would get rid of them. Maybe for the next meeting I can write some sort of verbiage that breaks the down kind of activity can be approved by the commission. Once that activity is approved, if then I go

right down the list on a voluntary basis. Write that process out. Then that can be you guys can look at it and tweak it, whatever.

Sara: Okay?

Charlie: So then you at least you have a process for these field trips if we want volunteers or whatever that the commission would approve. Because some years you might get years where you need 25 helpers throughout the year. Some years you might only get five. But at least you're going down the list chronologically.

Sara: So that could help the issue of needing help occasionally.

Charlie: Right.

Sara: Right. And then differentiate.

Charlie: You want to say, "no," no problem.

Sara: But there are people that once you get to their name, they'll definitely help out. Just to mention it; I told Elaine that I would mention this. She wanted to know if there was somebody that would make sieves.

Charlie: I've been talking to Clint because he built a bunch of sieves two, three years ago. So I think we already have his W-2.

Sara: Okay. He'll make the sieves?

Charlie: Yeah. **(No motion)**.

Sara: Okay. How many? Like three?

Charlie: I think we're sending four.

Sara: Okay. Yeah. Good.

Charlie: We have \$400 left. \$300 left in that account for her class.

Sara: Okay.

Chad: So at the next meeting, do you think we should start going over the ordinance? You have a copy of it, right?

Nelson: I have multiple copies.

Chad: You called it a red line copy or something like that?

Chad: Well, there's the one nelson...I'm having problems with these.

Committee: Discussion on tracking changes already suggested by committee as changes have become confusing.

Nelson: Offers to have his secretary create a dynamic copy mapping the proposed changes.

Committee agree this is a good idea and further agrees ordinance copy will be available at the following meeting as a working document that will serve as the agenda.

No motion made regarding tracking proposed ordinance changes and adopting for next agenda

Sara: Motions to adjourn.

Chad: Seconds:

All in favor. Meeting adjourns at 7:57 pm.

Submitted by Gina LeDuc-Kuntz
Town of Freeport
Freeport Shellfish Commission Clerk