

PETER HARVEY  
Aquaculture research worker

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Location of Interview: Unknown

Student Interviewer: Jay Daigle                      Grade 10

School: Ellsworth High School  
School Location: Ellsworth, Maine

Teacher or Parent  
Interviewer/Chaperone: None

Transcriber: Joyce Whitmore

JD: Where do you work?

PH: I work for the University of Maine at the Franklin facility, which is an egg salmon farm. My job title is systems manager. But that entails a lot more than just a strange title that means nothing. Effectively I fix and keep everything running that is there. I design the future expansion of the facility.

JD: What is the main purpose of the facility?

PH: The main purpose of the facility. It is what is known as an industry incubator, which means it is enhancing employment in the state of Maine, by the use of agriculture.

JD: And that means...

PH: And that means exactly that - through the means of agriculture and we are courting employment in the State of Maine over and above what there was there before. Through the induction of new technology and new techniques and training.

JD: You told me before that you recently made history..

PH: Yeah, we have made history as far as American history is concerned by the fact that we spawned halibut for the first time on American soil and not so long back we made history for spawning cod for the first time on American soil.

JD: We have a federal facility being built next door that will employ up to forty people in the next eight years. We are having many millions of dollars of expansion work underway at the present moment in time. We have a new pump house, which is a federal, and University of Maine linked project, which is being constructed as we speak. At the moment it is a twenty-four deep hole in the ground down by the beach, which is full of or was. I have not been there for the last two days. It is going to be filled with concrete on Tuesday. We have a pump house, which was two and a half million dollars investment on that project alone. Our hatchery is being constructed. That is a.... train project. Uh, there again that's two and half million dollars worth of investment. My boss, Nick Brown, who is the Facility Manager, started the initial work two and a half years ago. Since I have joined the team a year ago it has come to fruition. We broke ground on that project in March and it is going reasonably well. We will have a three hundred and eighty foot fish hatchery, which will be dedicated to a variety of species. The first one will be halibut, of course, uh, we will be working with industry partners. There are various ones at the present time producing juveniles, homegrown, and actually jump-start the halibut industry in the State of Maine. There is industry space that could be rented from us within that building. There could be anything from cod,

sea urchins...you name it we could advise and help on any subject and variety of species. It doesn't have to be a fish species.

We have the worm farms down there and sea bait in the cape, sea bait in the USA. That is the first commercial worm farm in the US. That's going to commercial scale in the next eighteen months. That is an ideal example of what we do. We take something from its juvenile stage and we accelerate the industry and make it work.

JD: Apart from the halibut and cod are there any other species that you work with?

PH: Personally at this point in time I am only involved with the nor-ring project which is another project with a graduate student from Harvard and he's trying to develop a technique for actually growing nor-ring - the fastest and most economic way. Then in two weeks time we have a sea urchin project started. And that is in one of our big sixty-five foot tanks - outside tanks. Eventually we will do a sea urchin hatchery where we can spawn them and actually grow them to a size which means they can be reintroduced into their environment which is very optimistic at this point in time seeing that the sea urchin fishery has been completely devastated by the forest that came through here starting in 1993. Since then, the sea urchin fishery has declined to such an extent that it is almost non-existent now. Most of it is closed. So we will actually bring them up and re release them.

JD: Anything specific that you had to do to get this job?

PH: Uh,..How I got this job is basically from my past experience. It is a cross over from being a

biologist and an engineer. I have degrees in engineering but I haven't in biology. I have many years of experience in marine aquaculture so it is a rare crossover. Not many people tend to do it. And commercially being involved with systems; there again, it is probably two dozen people world wide that actually know about marine systems that can design and build other standard operating systems without particularly thinking about it. I don't find it particularly difficult. I don't find it very stressful to think about these systems. Other people seem to think it is God's gift, bow down to the Master, but it is not. It is not that hard at all.

JD: Do you enjoy what you do?

PH: I love it. I get paid to play...to experiment, to see if it will work or it will not work. I pose problems everyday that I can encounter, usually adverse conditions. For instance, the other day they blew the sea line up. They were blasting for the pump house and they blew up the main sea water line. We had to actually run another sea water line around the side to actually allow our fish to survive. That is the sort of thing I thrive on. It is not particularly difficult; it is just the challenge. You just have to do the right job at the right time. It is fun.

PH: Aquaculture in the State of Maine is a very dubious subject. Basically because in the State of Maine as well in most of the northern areas, is primarily fishing. Aquaculture is deemed to be a threat to the fishing not to the support of fishing. A lot of people might resent what aquaculture brings. A lot of people are against aquaculture because they see net pens. They don't want net pens because it causes pollution and a whole lot of problems. That's not where we are

headed. We do use net pens, now, not us personally but aquaculture does. But as far as I can see it is a stopgap measure. Net pens shouldn't be there really. Aquaculture should be recirculation, which means you are reusing the water, which means you are conserving water. It also means you can remove the waste products from that water and you can control the fishes environment or the species you are dealing with, the environment to a high degree. That is another aspect of what we deal with in Franklin. We are recirculation. We are ninety five percent recirculation. We are only replacing five per cent of our water in every system per day. That is a small amount; that is like running a garden hose in the system to produce on a pilot scale which would be several thousand tons per year, not on a commercial scale, fifty thousand or so tons a year. Fifty thousand tons would be three garden hoses. That is what we are talking about the water replenishment per day. And with that you can actually screen the waste products off, you can actually filter the water, you can process the water even before it reaches the sea.

The biggest thing we've got in the minute is our discharge license. Our discharge license enforces the amount of particulars that we released into the environment is less than we draw in. Our suspended \_\_\_ is thirty milligrams per liter. The water we draw in is at forty milligrams per liter. So the water we release is far cleaner in every respect than what we draw in. It is an ironic situation to be in. The bay is very, very murky at most times. It is not clear down there.

So we have got quite a lot of \_\_\_\_\_so it is coming into the facility. So we have to treat the water before we even put it into our systems. So when it comes out of our systems it is cleaner than when it came in it. Further down the line we will probably be reprocessing that and get it even cleaner still.

And that is actually set up to do that.

JD: In Franklin, do you work primarily with marine life or?

PH: Primarily the research is marine. The aquaculture research service, which is federal. Actually, they have rented space in our buildings and they are doing salmon work.

We have set up a production from local marine species rather than the region species. So the salmon farmers of Maine can actually remain Maine salmon rather than region salmon. This has been deemed a problem because of genetic variability. So obviously your escapees are then going out diluting the natural stocks of salmon. This is obviously a problem, so Bill Walters, who is an extremely eminent scientist, he has set up a catfish production in the United States. A very, very learned man with a wealth of experience has taken on this project. And, as I said before, the IRS is setting up a facility next door to ours, which is another twenty-seven acre sight, and they will be doing this breed-stocking project for salmon. That's just a first step. Down the line who knows what is coming up. They may be dealing with salt-water stock; we may be dealing with fresh water stock. It's going to be a real mixing. Down there it is going to be the biggest aquaculture research facility in the United States within ten years. That is something to really cry about and that is something to be really excited about. For the people of Maine and the United States. Hey, you know it is really happening down there.

JD: People will actually think Maine is part of the United States rather than Canada.

PH: Well, I think it is up to the rest of us to put it on the map. If they did not think it was

part of the United States perhaps we ought to bring it to the attention, it is. If they were not proud of it before, perhaps we will bring them something to be proud of.

JD: You take care of all the systems that run...

PH: Any system on site, which is the actual back up system right down to the fish baiting systems, uh, computer systems. I deal with every single system on site. I have a degree of confidence to say that if any one system failed, all the systems that lead into a security system. If any of them do fail or parts of them fail, they automatically dial out. We have a pager back up system where at least two of us are on call twenty-four seven taking turns over a period of five weeks. At least two of us are paged out if there is a problem during the night or during off working hours. We will have to trundle our way back in there and solve the problem and if we can't we must find someone who can which is usually me. That's just the way it is. We should have a project starting in the future, which will have computer monitoring on some of our official life support systems. So we will have a live, wet connection to some of our systems. So we can monitor them through cameras and different perimeters: temperature, oxygen, just to see what is going on. We can do a blow-by-blow account of the water content as it changes through the recirculation system.

JD: Is there anything that you think we should know about this system?

PH: Aquaculture is not the enemy of the people. Aquaculture is not the cage sights that cause pollution. Aquaculture is not poisoning your food. Aquaculture is trying to secure food that is from water born nature for the future. No different

from farming. And that is important to really get to groups with. You will hear a lot of publicity that is anti aquaculture, especially from people with other agendas. You have to separate out what is truth from what is political blusto. And it is not easy a lot of the time. But what you have to realize is the seas are over fished to a remarkable degree. They are dying. If you want to have a sustained, a most important protein source which is very varied. As I said before going from fish right to seaweed, for goodness sake. If you want to protect those than maybe you should look more seriously if we can produce these on land with the security of not polluting the seas or raiding or pillaging the seas.

The biggest problem at the present time is the feed for aquaculture. And that feed is primarily from gash fish. Gash fish is taken from the sea and that is possibly a feed for the fish that are actually there. That is changing. We are starting to develop new feeds, processes, to actually use non-sea born proteins within aquaculture. The sea worm that we are actually growing at the Franklin facility that is now being used as a trial additive in some of our feeds for fish stocks on site to evaluate whether we can use other protein sources such as soya for our fish with a worm additive. If we could do that and rule out a lot of the fishmeal, which comes from the gash fish, then you are starting to weed. You are then starting to leave alone the sea and let it recover to a degree. If that is possible. We have given it an awful beating for the last hundred years. Whether it is too late or not, I do not know. We are still going to have to go down the aquaculture route, because If we don't we will lose our fish which is a very important part of our diet. If we don't get those fatty acids easy from anything else.



That is the most important I think.

PH: No reediting.

JD: It will be transcribed exactly.

PH: It is a big subject, a huge subject. We haven't even started to scratch on it. Depending on where you are coming from we can talk at least for hours, days, and weeks. My colleagues, and myself we do every single day. There are a thousand and one different aspects of aquaculture that is important and there are a thousand and one different aspects that the general public doesn't realize. It takes a lot of effort to put this into operation. They see salmon on the market shelves; they see cheap salmon, coming from Chile, nothing else. It is undercutting a lot of the salmon farmers in the US. It is hurting them, badly. It is hard for the salmon farmers in the US at the present time to diversify and try encouraging aquaculture. You could say that was bad playing on their behalf, yeah, sure, but the bottom line is you are still buying Chilean salmon, that frozen stuff you buy.

We are going to have to get over that. Farmed fish is going to have to cost a.... Farmed halibut probably cost somewhere in the vicinity of eight or nine dollars a pound. I think that is very reasonable....

The trouble is we are talking about what is practical and what is political. They are not good bedfellows; it doesn't work very well. I guess it is the same worldwide. The US, however, is the only one at the present time excluding China and Australia that is putting its money where its mouth is. It is investing in aquaculture. It is

impressive that they are investing as much as they are doing. It impressed me enough to come here and work for an organization that is the same - putting its money where its mouth is. Its putting money there. It is doing it. The UK, no. Canada, no. In Europe it is winding down; they don't have enough money or resources to do it. That's all. That is not very forward thinking. That is where political is getting in the way of your industrial and that should not be. That's politics. I am not a politician, I never will be. I open my mouth a bit but that is not what I am paid to do. I am paid to build systems and get things working and I will do so.

JD: Thank you.