

An audio recording of this transcript can be accessed at <https://attendee.gotowebinar.com/recording/8622412380796033803>

0:06

OK, Good morning, everyone, I hope you can all hear me.

0:11

We're still waiting for a bunch of folks to sign on. We have, we've had over 85 people register for the meeting, right now, we have about 60 people on, so we're still waiting for a few more people to join us today. In a few minutes, we're just gonna run through the rules of the road. We're going to give a quick introduction to this, the goto Webinar platform and how it works, and stuff, and then we'll get into our, our of our meeting from there. So, so, if you can hold tight for about another 3 or 4 minutes, until more people sign on, and then we'll get started. So, thank you very much.

2:28

Yes.

2:46

OK, thank you, everybody, for joining us today. We're going to try to get this don't going now.

2:55

We have, oh, right now we have about 65 attendees joining us today, which is great. Really excited to see the big turnout that we have.

3:08

Just some quick housekeeping things that I want to touch base on.

3:12

We have a lot of people here, so we're asking that people, we keep your mic's off and your webcam off during the presentations, we do have control over this, but it's just just just a basic housekeeping to keep those off while we're there during the meeting, um, during the meeting, we've allowed three opportunities in the agenda to entertain questions and clarifying any clarifying issues. So under the control panels, you're gonna see a box for questions. We ask that you enter your questions here. And then we will read through those questions during the time that we have available to to talk about them for anybody that is joining us on the phone. After we get through those questions We'll open up the phone lines for anybody that has questions on the phone.

4:03

Um, given the large number of participants that we have on today's call we're using the goto Webinar platform. It provides us this extra control on the added features. That said, I haven't used this platform a lot, so it's a little bit new to me, So just be patient and bear with us. We'll work through it as we go along. Hopefully everything will work smoothly.

4:27

Furthermore, just, just as a quick housekeeping rule, we've had a number of folks that requested that we record this meeting, So they can be seen at a later time because you are unable to participate in today's call, are given that we do have the opportunity to turn this feature on, which we will use during this meeting.

4:46

Just so people are aware, we're recording this, and after the meeting, we'll make sure that we spend the time to go through this recording, and make sure that, for any reason, there's something that, that we need to edit out, we can do that. So, but just as an awareness part, we are going to be recording this meeting. So, now I'm going to turn this over to Joanne.

5:11

Joanne is kinda.

5:14

Joanne is gonna give us a quick rundown through of the Will the goto webinar platform, and how it works, and how you can ask questions, and any other, any of the other features that it has to offer. So, Joann, I'll turn it over to you.

5:32

Thanks, Dan. Can you see the first slide?

5:35

Yes.

5:37

So, the goto Webinar platform, I'm going to go over the control panel, So you'll see on this first slide if you have joined over the computer, the best option is to do Computer Audio. You can click first off, you'll see this little orange box with a white arrow.

5:58

If it's pointing to the right, that means that your menu is open, and you can get to all of the choices under the menu.

6:05

If you see that, it's pointing to the left, just click on it, and that will hide the menu for you.

6:10

So, under audio, if you are experiencing any echoing or anything like that, you're going to want to choose Computer, Audio.

6:19

And then, the best thing, under the microphone and the speaker choices, is to make sure that you're using the same thing.

6:27

So if you have headphones, change that to your headphones, if it's a local computer, and you're just using it that way under your laptop, make sure that both of those choices are choosing the same microphone and laptop and speaker from that laptop.

6:43

If he joined by phone, let me go to the next slide.

6:47

Um, you are going to want to put in an access code.

6:52

And the audio pin, if you think you're going to speak, or may have any questions, and you want to speak, you're gonna wanna make sure you have an audio pin. And if you didn't put the audio pin in, you might want to hang up and dial back yet.

7:08

And here are other features, the Control panel, which we've gone through a little bit, Muting and Unmuting, hand raising, and the Questions box.

7:18

So, once again, if your arrow is pointing to the left, that means your controls are hidden.

7:25

You can have this during the meeting, and you can control your mute. underneath that.

7:29

You can also hand raise under that, if you want to open up your controls.

7:34

Just click on that arrow and it should point to the right, and then you will see your menu menu items on the side, such as audio and Questions.

7:46

You can expand, if you go down to questions anytime during the talk.

7:50

You can type in a question, and Max will be monitoring those questions, and you can be called on, or they will just be answering the question as they go along.

8:03

Muting and Unmuting, you are actually double muted when you, when you log into this broadcast.

8:10

You are muted.

8:11

You can see, if you look down on the control panel, there's an attendee's button. You can look there and see that your mute, muted or unmuted by the red microphone.

8:22

When you're unmuted, it turns into a green microphone, but you can also do that right from the main bar, where you will see a green microphone right now. All of you should see a red microphone under the arrow.

8:37

So what I said by double muting, we will tell you that we are unmuting you then you need to unmute yourself.

8:49

Hand raising, its this. The bottom icon, you can tell if your hand is raised, you'll see a green arrow pointing up on the control bar.

8:59

You eventually, if you decide you don't want to ask the question, you can bring your hand down and just click on it again, and you'll see a down arrow, and after you've been called on, you want to make sure you put your hand down.

9:12

Here's the question box.

9:15

We will immediately see who was asking the question by when you registered.

9:19

When you logged into the broadcast, will see your name, and then you'll be called on in as we read the questions.

9:27

And that's it.

9:30

If you have any technical questions, please put them in the questions box, and I will try to help you out, and that's all I have Max. I'm going to stop sharing my screen.

9:46

OK, thank you very much.

9:49

So, I'm going to quickly turn it over to Max to see if there were any questions during that, regarding the platform, or if anybody's having any technical issues that we need to address before we get into our agenda. So.

10:10

So far, so good, Wendy. Wendy was having some questions about whether or not she could hear you, I don't know. Wendy, can you hear Dan yet?

10:20

Unmute lynndie real quick?

10:24

Yeah?

10:28

Hmm.

10:33

Dan doesn't have a Question box, only a chat box?

10:43

OK?

10:48

So, Dan, in your control panel, across the top, it says file options, view, help.

10:56

Hit the view button, you'll get a drop-down.

10:59

It'll say full screen window attendees, chat dashboard, yada, yada, yada.

11:04

Maybe your word says questions. Maybe that question isn't isn't checked.

11:09

So, we don't need polls probably don't need dashboard.

11:13

But if you check that, the questions bar, you should have that come up, OK.

11:23

So.

11:28

OK?

11:32

Hmm, So are we all set to move on?

11:43

Think all the questions have been answered, Dann, we can work with those people as we go along.

11:48

Sounds good. With that?

11:54

Let's see.

11:57

Mmm hmm.

11:58

We're gonna turn this over now to, just to quickly walk through the agenda today. First, we're going to do, just a quick CMS update on where we are within the CMS. What we've done over the last year. We're going to hear from Julie Crocker on that. The next part of the agenda today is we're going to walk through each of the shrew team reports. They've been working really hard this year to put together annual reports. five, your work plan. So we're going to hear about our annual reports and our progress towards implementing recovery within each of the three truths.

12:33

We'll also hear an overall report of the cost of the state of the Gulf, of Maine DPS.

12:39

Then we'll open it up the floor to any questions that people have in regards to the presentations that we heard, and then we'll take a short break for lunch. We'll see how we're doing for time right now. Have set aside 40 minutes for that.

12:52

Um, then, after lunch, we're gonna hear from Tim Shan't. It's going to give us a Marina necessary update and things that we can be doing here at home in order to help fish when they get to the marine environment.

13:04

Then, we'll get a fork update from Jeff Murphy and Map Phi off, just us, an update of what's happened in the world over the last year, and where we're going with that.

13:15

At the end of the day, we've set aside time for any news or announcements that people have had. I had a couple of requests for that.

13:23

If anybody else would like time to talk, they can just let me know, and I can set aside, try to find some time, it's times available to do that. So, and then we'll go from there.

13:37

So with that, I am going to turn it over to Julie Crocker.

13:42

So she can give us a quick introduction.

13:45

Update on the CMS Selle, we'll go from there.

13:51

And you are live Julie.

13:53

OK, yeah, like Dan said this, go to webinars, a new platform for us. So hopefully, soco off the heads.

14:04

Um, so let's get some, hopefully brief, introductory remarks here today. For those of you that I have not met before, I'm Julie Crocker with the Protected Resources

Division of the National Fisheries Service. And I'm currently the Chair of the inter-agency Atlantic Sand Management Board.

14:22

On behalf of the Management Board, I wanted to thank everyone for taking the time to join us today.

14:28

As you know, the Management Board is part of the Collaborative Management Strategy, or CMS for the Gulf of Maine GPS of Atlantic salmon.

14:36

The CMS aims to align our inter-agency governance structure with the Atlantic Salmon Recovery Plan and address the challenges associated with communications and decision making across agencies and mandates.

14:47

The fundamental goals of the CMS are to support the recovery of Atlantic salmon and the ecosystems on which they depend for helping to manage the people and resource side of recovery.

14:57

The goals of the CMS include providing clarity on roles and responsibilities to provide clarity on where decisions are made, to increase the speed of decision making, increase accountability and transparency, and to provide more opportunities to incorporate external partners and stakeholders in the recovery process.

15:16

The CMS process kicked off in late 2018 and we're all excited about the prospect of bringing our many partners and stakeholders together in person for our first annual meeting about this time last year.

15:27

Last spring, we had to abandon those plans and held a successful virtual event.

15:32

I never thought that we would need to meet virtually for our 2021 annual meeting but here we are.

15:38

The call the pandemic has affected so much about how we work but one of the few bright spots has been I increased comfort and meeting virtually and increased accessibility. This allows for meetings like this.

15:48

Last spring, the covert response resulted in changes to fish way in half of the operations, impact with the ability to get out in the field.

15:55

Through the CMS, woodworks, increased communication among agencies, and to develop emergency ad hoc groups to facilitate rapid decision making.

16:04

Rather than focus is our focus on the challenges of 2020, I'd like to take a moment to highlight the accomplishments that have been made under the umbrella of the CMS over the last year.

16:13

First and foremost, I want to call attention to the hard work and patience of the shrew teams and the routine chairs.

16:19

And to thank everyone who has participated, ensure team meetings.

16:23

This true teams are the heart of the CMS process and provide an opportunity for anyone to get involved.

16:28

It has been exciting to see the teams come together, to try to tackle challenging issues and to see the dedication to ensuring that we give salmon the best chance for recovery and restoration.

16:37

The true teams have the floor running and developing the first annual progress report that was completed in May of 2020, and then the second annual report that we'll hear about today.

16:46

These annual reports detail the status of Atlantic salmon, each of the three shrews, and the progress that has been made over the last year towards implementing recovery action.

16:55

These reports will be will be able to be found on the Atlantic salmon restoration dot org website. I think either later this week or next week, they aren't up there already.

17:04

The shure teams have also worked hard towards developing five year work plan.

17:08

These work plans identify the highest priority actions that can be taken over the next five years, that are necessary to move the needle for the species recovery in each shrew.

17:17

These work plans and identify priority actions for funding, as well as to assist the agencies and understanding what needs to happen on the ground to see meaningful change for salmon in their shredders.

17:27

When the teams are tasked with developing these plans, we asked if they think outside the box, but what is really needed to move the needle for recovery? And not

constrain the ideas based on the limited pool of resources that are currently available to us.

17:39

Although we recognize that we may not have all the resources necessary to implement all the actions identified in these work plans, we recognize that it's equally important to emphasize the work that isn't getting done, due to a lack of resources, as much as it is to emphasize the work that is getting done.

17:55

Over this coming year, we will see this through Teams Move from developing these plans to work with to implement them, at the Management Board, will be working to understand and address resource needs, and competing priorities will work not to lose sight of the bottom line of recovery.

18:08

I also want to remind folks that when we started the CMS process, we agreed to a one-year pilot.

18:13

At the end of a year, we would evaluate how the processes working and make any necessary adjustments needed to move forward.

18:20

When coding, we decided to postpone that one-year review until June of two thousand twenty one, as we believe more time is needed to adequately evaluate the process.

18:29

June is quickly approaching, and we are in the process of developing a survey that will be distributed among agency staff and stakeholders to seek input on what parts of the CMS are working well, and where we need to still do some work to for improvement.

18:42

It's like let the survey will not been distributed until early summer.

18:46

We'll do lots of outreach at the time to make sure that we get great participation ... strongly encourage everyone to take the time to complete it.

18:55

This will provide us valuable information necessary to ensure we are active in achieving the goals of the CMS.

19:01

This includes improved communications, increase accountability and transparency, increasing the speed of decision making, and increasing our opportunities for community and stakeholder involvement.

19:11

We have about 80 people on the line today. I haven't looked at the full list of attendees can assume that they're representing tribes, state and federal agencies, academia, NGO's, and other groups.

19:23

one of the greatest challenges of salmon recovery is maintaining the interest and engagement of our partners and the public. I want to thank you again, for doing your part, participating today.

19:32

I look forward to hearing from the show teams, on the progress that has been made in the last year, and hearing some of the questions and answers updates from our partners today.

19:41

With that, I will turn it back to you, Dan.

19:45

Thanks, Julie. That's great.

19:48

So, now, we're gonna move into the next part of our agenda, which is our, uh, report of 2020 activities.

19:54

So, we're going to hear from Paul Chrisman on the Merry Meeting Bay, Shrew, when the Act and work, that's happened down there and our progress. We're also going to aircraft and we'll hear from Meredith, Sean and all of our talks on Penobscot and then Ernie Atkinson for down East. And last, but not least, Tool Kit with an overall picture of

the GPS as a whole from Dan Tierney. So now I'm going to turn it over to Paul Krugman. And I will let him go from there. On fall. Let me find yet. Right.

20:32

OK, so you have Control part, so you can go to the sharing window and select the window that you would like to share.

20:44

Perfect.

20:44

The robot will work out well, Yeah.

20:58

Is that working? Hey, we can see it.

21:00

Yeah, Tastic, let me get me out of the way, so I'm not looking at me when I talk.

21:10

All right. Well, thank you, Dan. First, before I get into this, I just want to thank the co-ordinating committee.

21:16

I probably should have put their names down, but on this, on the slide, but the co-ordinating committee is really the heart of the heart of this on the co-ordinating committee made up of fall.

21:26

Chris Meaney, my boss, John No, Keith McGilvray For for most of last year it was all of our coc so, really want to thank them getting getting through all of this with them And doing all The planning that we did last year is really deserve a great amount of credit for all of us. All the work that was done.

21:46

And, and, by Extension, too, I also want to, I want to say that last year, we spent a lot of time. And, in online, working with our stakeholders in the ..., I couldn't be any more impressed with that, with that group.

22:03

And given the, given the amount of time that that group has done, some of those people have been working in the shrew. They've been around longer than I am. So they have a tremendous amount of experience.

22:15

It was really, it was really nice to have Norma problem participate and be part of this. We will come about without them.

22:23

So with that, I'll get right into the PowerPoint. Um, I only have nine slides. So it's relatively quick, and it's just a brief overview.

22:30

I would encourage anyone not tuned to read the report into us specific questions.

22:38

And I will try to answer them that maybe a little bit more block.

22:45

Ah, let's see.

22:48

Let's see if I can see if I can slide here.

22:56

I'll start with a, with abundance. Just a brief review of what happened last year with respect to the traps.

23:04

This is just logic, this crop information, except the river. We have a, it was a bit of a mixture here, but it wasn't.

23:13

It was mostly good news on the Youngest Coughlin did get some adult were times that.

23:18

That doesn't happen every year. It's sort of hit or miss.

23:22

A good year might be your more normal. Year might be 1 or 2 fish on last year.

23:27

We did get a number of fish back, and you can see here, we've got five, and the kinda back river was, was also a pretty good year. I think this might have been the third largest for our run that we, we had to the kinda back, Grover.

23:42

No. No, Hatchery, which is, which is not too much of a surprise. We, we tend to not get too many of those.

23:48

They're all naturally reared, which is, uh, mostly, most likely, a combination of a planting and.

23:56

Wow.

23:58

For those of you, that Pollock eggplant, on the, these are certainly going to be the expectation.

24:03

And some of these are what you sort of helped us create getting these adult backs. The sheets cover is maybe more more mixed as far as a good year.

24:15

10 rides are certainly not, not a, not a bad year, for us, not the worst year, but also not as not as good as we had hoped.

24:22

Um, but, but the estimate was 14. But, overall, I would say, for the meeting before, we're doing pretty well. You can see it on the table here.

24:32

You can see, starting around 2014, you can see the run started to increase. And, I think, that could very likely be a function of the eggplant Thing, which we started getting adult returns back without an aunt in 20 14.

24:47

So, for those of you that can help us a plan, I think this is what we're seeing, we're seeing out of the population, is increasing for the most part. Um, and that's what this graph is showing.

25:00

Um, geometric geometric mean replacement rate.

25:05

This is another metric that's used to track the population as it moves forward, and it's based on a five year life cycle of Atlantic salmon.

25:15

And I'm not going to get into the, into the calculations of this, but it's just a way of looking at the population growth and trying to eliminate as much a yearly variability as possible.

25:27

And what we, the take home message is, we really want to be above one, this gives us some confidence that what we're seeing is, A, is a growth.

25:36

There's an actual growth rate, and we are, I think, outdoor of the three shows we're doing very well, we're, we're above wrong. one, you can see the Oregon right around 2014, you can see that increase.

25:49

That happened and I think this was largely because of the because of the planting and planting project.

25:57

The spatial distribution very much follows the stocking stocking distribution, you'll see the maps are very similar.

26:05

The spatial distributions in the meeting, they are largely interiors for the Sheepskin rubber and also the Sandy rubber. So down here on the lower, lower right of your screen, on the, on the, on the figure, you can see that. got we got the sheets get rubber is really sort of the biggest component of the southern part of the shrew.

26:27

Atlantic salmon run through certainly throughout the sheets get river, and even somewhat, to some degree above the lake.

26:33

The two other small waterfall me would be told this Yvonne. And we do have those as well.

26:38

Then the other big barrier we're Linux, Sam and I are currently residing are in the Sandy River watershed.

26:44

And this is sort of the bigger piece of how the cloud in the upper upper left-hand corner.

26:51

And that is, like I said, this is mostly due to the stalking as well as small reproduction.

26:59

Habitat accessibility is is maybe one of our most challenging issues in the mayor meeting day through.

27:06

You can see from the graph, I'll draw you to the map here. You can see the light green.

27:13

So our fully accessible area is unfortunately only in the lower part of the

27:20

It would be the Saint George from Adamec because Sheets get river.

27:25

on the main.

27:26

Some kind of backup of all Waterville and also below Brunswick on Audience Goggin Um, it's it's unfortunately that's that's the only pockets for truly free swarm accessible without any ways.

27:39

We do have some accessibility into the lower English goggin.

27:44

Unfortunately in this this is the maybe the most challenging part is is this upper watershed above the walkway and you see the slightly darker brown.

27:54

Coloring is showing you the part of the watershed that's inaccessible.

27:57

We are bringing adults, Atlantic, broke atlantic salmon out there, we're releasing them in the Santee river drainage, but the this is where most of the habitat is. So, a lot of the river is truly inaccessible mostly due to large, large, main stem dams.

28:17

For projects that were done last year, were almost entirely on culvert replacements and culvert work. I count them up. I think we had 18 or 20 culvert replacements done by mostly by US Fish, and Wildlife Service was was part of those as well as the Atlantic Salmon Federation.

28:38

And I just pulled out a few pictures of some of the crossings that they worked on that they completed last year.

28:44

And you can see that almost all of them were in the Sandy River Drainage, um, and that was, that was identified in our five year plan. And Work plans were really the connectivity issues that we have in the crew, were largely in the Sandy River.

29:02

And the Replacements, really ..., you can see this, we're, we're projects, this is a Project philipson in stocks and also a really big project, An arch that was put in on temples from byline Examined Federation and these these costumes or so are substantially better than what they used to be.

29:22

And this is really great work. It was actually a surprise to me when I got the list that how many of them were worked on desktop.

29:30

Certainly can't give them credit. For those of you that worked on these, worked on these, these process projects.

29:37

And the other one that I want to call out on this one to this one goes to the Court of Appeals for Somalis Service.

29:44

Oliver *** was, was the, the return of the zero plus par program on the river.

29:51

Um, it was discontinued for a year due to due to discharge issues.

29:56

And they were able to, at least for the moment, return this program, this program to the sheets giver, and this is up, this follows a substantial amount of work for the Sheetz Get Rubber. We're going to see probably an increase.

30:12

There should be an increase when whatnot year classes missing, but we should see that resume the following year because of the addition of that program.

30:23

Stalking efforts. You can see from the map as I saw, they follow the distribution. And where we're largely stocking two parts of the watershed, you see the lower part on the right.

30:34

On the right lower part where the sheeps get is, you see, and also a little bit and focus dream.

30:41

The, most of the, most of the lower watershed that we're all work with juveniles with going, and then again in the sheets. In the Sandy River, which is the upper left, you see the little blue dots.

30:55

We're doing a number of sites up there, and from the table we and this is this is is a good representative of what?

31:06

What's done annually on this is very normal. We did almost 700,000 eggs in the Sandy River last year.

31:14

And we did do, as I, as I mentioned, a little bit and told us last year. This was experimental. This will be discontinued.

31:22

We did, the sheets go, it was a relatively normal year.

31:26

The most unusual all part of the stalking last year was really the additional, small to the main stem, kinda back rubber.

31:33

And those will probably, Depending on what we get back for about return these, these should be should change.

31:41

The map are possibly the distribution map, as well as, potentially, it may push us into planting, and other parts of the watershed, as well as spawning and other parts of the watershed. So, we will see over the next couple of years, what this means for the watershed.

32:00

Diversity is something that those of us that are managing watersheds or have service specific stocks is something that we're we're concerned about every year. And this is just this graph, as well as, the monitoring is done by ... and the ..., Pennsylvania.

32:22

There are genetic samples that are taken when we collect the car in the sheets get river. That's where our roofs stalk is.

32:28

And those are those genetic samples are, are analyzed, and we're looking for genetic diversity overtime. And the idea is to take home, is that we really don't want to see a decline in genetic diversity. And this is something that we spend a great deal of time on in distributing the juveniles in the industry to get river watershed.

32:49

Where we collect those juveniles is all intended to try to keep these numbers steady as possible. So we're not losing any more, any more material. And that's, the point is to try to keep as long as steady as possible, would be nice to increase. But certainly not seeing any decreases is really what we want.

33:07

Um, we do not monitor genetic diversity in the, in the kind of a grid, or nor in the ..., given the fact that we're using stock is intended, or is grant from the, from the ... River watershed.

33:24

My anticipation would be that we, we probably are doing well, as far as the, as far as the kind of a river is concerned, with genetic diversity, it's probably a subset of what's available in the, in the past Scotty annually, and it is our, it is our largest population. So, I suspect it's relatively healthy, and it's always good to keep in mind, too, given, that all of the adults coming back to the, kind of, a river, and also the installed, and all allowed. Or, in the.

33:54

In the case of the, kind of, Go over there, brought upstream, but we have multiple year classes coming back, as well as, we find multiple year classes of smolts, Ops, multi-year, classes, all contribute to both of these. These would be the two C winners and the ones, when ours, we also get to two year smolts.

34:16

three are small, so we've even seen some for your small.

34:19

So we are, we have quite a number of cohorts that are interbreeding on an annual basis of that. Which is, which is also something that we actually like to see makes for a healthy population.

34:30

Emerging.

34:31

Emerging issues and priorities from last year were, were pretty extensive, and also extensive this year as we move forward. As Julie said, cope with 19 was a really big problem.

34:44

All those social effects were extensive.

34:47

We, we had to rethink everything that we did last year for, for everyone. Anyone working in the watershed?

34:54

Whether he, those of us that were we're moving adults, juvenile sampling, egg clamping.

35:03

Everything had to be, you know, safety was, was really the first priority.

35:08

So, we have to, we have to try to get all of our stalking done, move adults.

35:14

I know that some of the crews are working in the field doing cover replacements, had to rethink how all, how they were working in the field and it was very disruptive. I'm, I'm hoping that things can get somewhat back to normal fairly soon because they were because of instruction.

35:32

We also, we also noted that a big economic effect, whether it recovered or just the economy, but I know, at least from my agency, that, the cost of materials and projects that we're working on went up substantially.

35:47

And I think think everyone had the big, a little bit harder to try to find and make up for the funds that were, that were needed, because the cost of projects will outsource substantially.

35:57

So, this was, it was a very challenging year.

36:01

Due to those issues, as we move forward on one of the emerging issues that we're gonna be following fairly closely as they are the action plan or climate action plan that the State of Maine put out.

36:15

There was some discussion and some of our meetings about how about possibly taking advantage of opportunities in that?

36:23

And also, some strategies may, not, we may be able to present.

36:29

May present some opportunities, or maybe we'll take advantage of given that we have some, you know, we all are those of us working in Atlantic salmon.

36:37

Field. You know, no doubt from, climate change is going to be a huge problem.

36:42

And if there are opportunities to, to work on our challenge populations as, well, as, in, in areas where we think that there is less, you know, less vulnerable to climate change.

36:54

We're not sure I know what part this will play, but it's something that we certainly need to keep our eye on and keep abreast of all of these issues, because we may be able to take advantage of them as we move, as we move forward.

37:09

The other one, too, and this has been all, this has been, an increasingly important one, is a kind of a management plan, Though, there's many of you, or maybe all of you know, that the Department of Marine Resources has put a plan forward.

37:23

And it's been out for some, for some public commenting. And we're continuing to work on that plan.

37:29

The idea is that we're gonna hopefully improve our chances of re to recovery.

37:35

And getting saved family affected passage in the cardiac rover, is really are, really are most important project right now that I know DMR is working on.

37:44

Um, but also as the routine, multiple witnesses, the kind of management point, this is really vital, so I'll go.

37:53

I don't have any more, at this point.

37:57

You'll want to take the control back down.

38:01

Yeah, sure. Thank you very much, Paul, and we'll, we'll reserve questions until the end of this session.

38:08

And so now we're going to move on to Meredith through his next, on the agenda and so give me a second here, Meredith.

38:23

Good morning everyone.

38:25

See, there we go. That's and Oliver, when it's time for you to do Part, I think all you have to do is turn on your mic, and you'll be good to go.

38:34

Thank you.

38:36

Great, let's see. I shall see my slides.

38:42

Yes, OK, great. So, everyone, thank you. I have *** is our co-chair here, and he's going to chime in on some of these signs, if I can.

38:54

Now, hey, are.

38:57

Nice.

38:59

There we go. OK, and so I also wanted to, as Paul mentioned, you know, thank our co-ordinating committee for the Penobscot Shrew and the co-ordinating Committee, Put all the information together for our report that we're going to be reporting out and speaking to you today.

39:15

That consists of myself and Oliver, who are the co-chairs, And then the Fish and Wildlife Service, Dan Kerchiefs from Noah, Mitch Simpson, and Peter ..., and then the car and often, the past kind of Indonesian are and make up our co-ordinating committee. So a lot of the work gets done for the reporting aspect.

39:37

By according committee.

39:38

But we haven't very active and very extensive, broader shree team. And a lot of the work that we're actually speaking to today as a function of the work that was done by that broader team.

39:51

This is, the according to theory, is just a small group of a much larger parts, that we really rely on to help contribute to my next salmon recovery.

39:59

So, with that, I'll get started.

40:04

So, the first metric that we're going to talk about for the penobscot shrew is the abundance criteria.

40:12

In 20 20, the total number of adult salmon returns increased from previous years.

40:17

So, we're continuing an upward trend over the last few years.

40:22

We're also seeing a similar increase, a slight increase, but still an increase in the number and the proportion.

40:30

Naturally, nationally rare international origin, individuals' as part of that return, so that is good news.

40:38

Something also to highlight for 2020 due to covert operations and modifications to some of the rootstock collection and issues associated with trying to implement staff safety and social distancing in response to covert.

40:56

Fewer numbers of individuals were transferred to cranbrook or Bootstrap purposes. And so here we see for the adult returns, about 196, I don't returns, we had just around 220 or just under 220 individuals that were transported to the Hatchery for Rootstocks.

41:14

So the rest of the individuals' this year or this past year are allowed to, were passed upstream for natural reproduction.

41:21

So, we hope to see, in future years, hopefully, a greater contribution of continued greater increase in that natural contribution to the return in future years, So, that will be something to monitor over time.

41:41

The replacement rate, then, as a function of this, the adult returns is calculated on a 10 year mean replacement rate, and this is reflective just for the naturally reared individuals.

41:54

And so far, the Penobscot River, we are this line represented by blue, and the blue color with the triangles, and for 220 20. And based on that, that 10 year mean

average, the replacement rate is at 1.12. So a slight increase, we're just slightly over that, one threshold that replacement ramp, one for that perhaps got, just over.

42:19

You can see, in a number of years for, we've been significantly under it.

42:22

So that increase in adult returns, and the increase, and the proportion of naturally reared individuals as part of those adult returns.

42:31

As reflecting in, the slight increases and that's replacement, right? So, that's the trajectory we want to try to continue.

42:39

Meredith, can I interrupt you for a second?

42:41

Your slides are somewhat, the ratio is kinda weird, They're getting cut off, so folks can't actually see all the information you, that is not good. And let me see if I can fix that for you here.

42:57

E.

43:03

This slide says, Hear Me Standard, that's my SKU, but hopefully you can see it better without getting everything that better.

43:18

Yes, and it looks good, Meredith. Sorry about that. Earlier, but I guess quite pass the test.

43:26

OK, I'm gonna keep going with spatial distribution. So we might have things I'll ask you.

43:31

But to see things askew then **** things south, I'm going to turn it over to Oliver to talk a little bit about spatial distribution.

43:41

So this slide is showing the essentially the distribution of us, stalking efforts in 20 20 with the table on the list there.

43:51

So I'll highlight some of the deviations from previous efforts, so this is what the smart Stocking Fish and Wildlife Service stopped at about 648,000 smolts.

44:04

That's it, an increase from previous years. The production at Green Lake.

44:09

Well, it's entirely dedicated to the penobscot for this cohort and that continued for this stock and season as well. So it's up about 100,000.

44:19

Um, the fry production is 614,000, in 20 20, was a little on the low side with them.

44:30

And then doing in the past, one contributing factor for that was we actually did a, um.

44:38

Pre spawned release might be getting that Susan ...

44:45

We did start some fish out priest for 2019, so for this cohort of fry, so that reduce some of the fry production, but those the 80 fish went into the East Branch, that we had originally collected from Milford for Rootstock.

45:01

The par numbers these are the great outs from Green Lake. There are 70,000, that's also a decrease from previous years.

45:09

But we transferred 100,000 great outs to nashua, National Fish Hatchery for the small program on Canada And so that's reflected there.

45:20

And then the age stocking.

45:25

Which represents most of the some domestics eggs from Green Lakes.

45:32

And those are shared with this kind of ed program as well. So that's 600 and some thousand that went through the Canada.

45:38

Also came out of Green Lake.

45:39

There was a couple adults that were pre born released last year. This is through our officials protocols.

45:46

They detected they were the positive for non pathogenic strain, as I say.

45:54

And so, they're released because we don't want to promote that in the blue line.

45:57

And then postpone adult releases is a combination of Sierra and adults as well as domestics And then the, yeah, occupancy in the table there. So the table shows the occupancy from 20 18 to 20 20. It represents three years.

46:18

Those are the three years that will be contributing to this fresh water production, small cohort, and it similar to what Paul Express, this shows essentially the distribution of stocking and where we are putting the fish for the last few years.

46:39

Right.

46:41

OK.

46:42

Thanks, Elena.

46:44

So next, we're going to talk a little bit about the habitat access. So the criteria for an accessible versus accessible habitat as defined by the recovery plan.

46:55

And as you can see within the penobscot shrew, the majority of that accessible habitat is limited to the lower portion of the Scott River and some of the coastal areas or the other rivers that are part of the shrew due to the main presence of the main stem dams on the Scott River.

47:12

So, there is passage at those dams, but based on the criteria that is limited to considered inaccessible within the finance not true, There are currently approximately 18,600 units of currently accessible or currently suitable and accessible habitat at that hot hutton's 10 scale.

47:33

And relative to last year's report, there is no change in terms of accessible habitat increases relative to that at 10 scale.

47:47

There were a number of smaller projects within the watershed, and then the shrew that improved passage and, and, and restoring some connectivity and some of that, some of the lower smaller scale. So a lot of these were the there were approximately 20 projects that were conducted within the watershed and within the shrew.

48:10

Most of these were that we have identified are within that penobscot itself and its tributaries over 20 projects that were, that were identified.

48:19

Most of these were considered previously inaccessible and so, due to culvert replacement and most most of these acts are, they were considered barriers.

48:29

And most of these projects were related to culvert replacements that then allowed, or passage once that Culbert was replaced.

48:39

And all these contributed to 35.4 stream miles that were then made accessible through these replacements.

48:47

And that equaled about 618 additional habitat units that were now Open EDX made accessible within the shrimp.

48:54

So that's great news, especially given there operational constraints, and this past year, we're looking forward to another great year moving forward.

49:04

Metrics of diversity, like like Paul, we report on metrics as life history.

49:11

So looking at the proportion as we see winner, multi winner fish that are, that consist of the population, as well as the proportion of different age ages of, smarts, as. then we also report on estimates and genetic variations.

49:28

Or that metric we're looking at just the number of alleles per locus, all right, way to estimate diversity within the population.

49:37

So as Paul mentioned, within the Penobscot, there are, the ...

49:42

River has, of the main rivers, the greatest, the greatest number of alleles per locus within the population.

49:51

And as you can see, that, the goal is to really maintain as part of the recovery program.

49:55

The goal is to maintain that genetic diversity within the population over time.

50:02

There's been, for the most part, that number within the penobscot has been relatively stable.

50:08

And this, this number is generated from looking at the Android stack. They adopted staff that are captured as returning adults to previously visa dam now, know, for them.

50:19

In 20 20, as I mentioned, the number of individuals handled and then sampled and transported for Bootstrap purposes decreased.

50:27

It was approximately 220, a little bit lower.

50:30

And that's a function of kind of operational changes due to coven.

50:35

And, as such, we had slightly less diversity, and that was captured within the population.

50:41

So, it'll be interesting. Although that continued a slight decrease from the previous year, too.

50:45

So it'd be interesting to monitor this change over time and see if that is reflective that decrease or if that's reflective of some changes in the population.

50:56

So we'll continue to monitor that.

50:58

But then looking at the contribution of multi winner fish within the population, there was a decrease in the proportion of once you enter fish in the population and for the to see winter in three C winter fish. These were the highest percentages that have been documented in the previous five years.

51:16

So, that is important, because that's generally, those are, it's reflective of, kind of an increase in older older fish that are starting that are coming back to the population.

51:27

And this is also connected with an increase in the H two and H three slots that are contributing, that that the population is comprised of.

51:37

So that is important, because that shows that the increase in the proportion of H 2 N 3 spots, or flecks, and increase proportion, unnaturally reared offspring, actually weird or natural production that's contributing to that return.

51:50

The H one, ..., is our our net or RF hatchery origin.

52:00

So as 20 tiny was was an interesting year, for sure. And so there were a lot of challenges to the program to the salmon restoration program this past year.

52:09

So I'm going to ask her to highlight changes as a function of that.

52:14

So then one thing: Meredith alluded to the probably the biggest one: where changes to how we collected rootstock last year.

52:22

So we were pretty much we're in a holding pattern in the beginning of May, and even into June for Recollecting rootstock utility could work through some of the staff safety issues we've been. We started collecting rootstock around June 15th, so which is, you know, just a week, or so before kind of the peak of the run.

52:42

So, that was in: so that resulted in fewer rootstock also resulted in fry production being reduced for the fry. There'll be released here.

52:53

In the next few weeks, Craig Brooke currently has about 250,000 fry station, most of those are actually from a domestic origin, so we transferred some domestic eggs from Green Lake to create birth a little over 200,000 to increase the production there. And then, the remainder, just some tail ends of different takes from the sea run.

53:17

And how we process those, all the C run exit, were collected.

53:21

Craig Brooke, most of them, were transferred to Green Lake for the small production program.

53:26

And that small production program also is going to include domestic eggs are so small from domestic origin. So, we really ...

53:35

of our resources between both hatcheries because of that reduced numbers of rootstock that were collected.

53:43

Another change the code related change last year was Green Lake started stocking their small town in March, March 23rd. So it's about three weeks earlier than their typical stocking, and that was just really due to lot of this.

53:58

Now, obviously, this March, we were learning a lot about code that it was, we didn't understand, as well as we do now.

54:05

And so we made the decision to move the production off station while we still had a full crew, healthy staff.

54:12

So, that was the reason for that this year.

54:16

We're, for 2021. We're back on a normal schedule. Scott stuck in started on Monday.

54:27

Great. Thanks.

54:29

Certainly, for the next year and the Management Board had asked the Shrew team to identify a number of emerging issues and priorities that we've identified in the work plan for the next five years.

54:43

Then identify the ones that kind of leased out that were priority issues for this next upcoming year. And so these are kind of the issues that are most most pressing at

hand for the true team to address in this next year, and so this is where a lot of our focus is going to be.

55:00

I just wanted to highlight those just for awareness, and if any folks are interested in contributing or have any questions to please feel free to follow up with Oliver and myself.

55:12

There's a lot of, one of those issues is conducted, feasible assessment, feasibility assessment, to implement a basin wide marketing program, there are a number of large projects that are occurring within the, within the shrew.

55:25

And, so, evaluating the potential to an American program to enable assessment, as, those, those other projects, would be, really, could be very beneficial. However, there's obviously a number of costs and, and a lot of effort associated with implementing such a program.

55:42

And so, one of the goals of this, your team is to determine what those costs might be, identify the feasibility of implementing such a plan and develop in some options that would be associated with different, different types of plans and different options to move forward with a marketing program.

56:02

So that way we have to make make a right information to make an informed decision for whoever that decision maker would be.

56:09

Whether it's the hatcheries or the management board or or other parties. So, that is where that's one of our priorities for this upcoming year.

56:19

Another one is to evaluate opportunities to increase escapement and natural reproduction in the ...

56:25

River. There's a lot of great habitat within the Piscataway ...

56:30

and a lot of potential for increasing natural production and natural production coming from that watershed.

56:38

And so, we're going to be the various members of the team are going to be working to identify different habitat projects and working with partners to identify what what are some options might be for that moving forward. And to come up with a strategy and a plan to try to say something in.

56:55

And what that would look like for the Piscataway this one of these large large projects within the shrew.

57:01

And that's starting to occur that's kicking off this year, it sounds like, is the Salmon from Means means Rivers Project, which is led by DMR.

57:11

And so that is, getting started this year with that transfer of smarts from Green Lake, over to the Secret facility, and so, you know, as a shrew, what, what are various aspects that the true team can do to contribute?

57:28

And what are the activities that are already ongoing? that could be used to help inform that?

57:33

So, trying to ensure, you know, whatever support that we can lend, to make, make that project successful. And make sure that we can learn as much as we can from that effort.

57:44

Another priority is to, as associated with the West branch.

57:49

Evaluating what the plane or what sort of potential that that habitat could could make to potential salmon recovery and the penobscot, true.

57:58

So, the number of relicensing activities that I think are coming up, and so there's some discussion about, you know, what, what could that potential habitat contribute to recovery.

58:09

And so our role as issue is to just make sure that there's encourage that discussion and encourage whatever plane that we can contribute to to evaluate the potential for that action, that that opportunity.

58:22

Then within the shoe one of our action items for this upcoming year is to complete a stocking plan for

58:29

So there's obviously a number of you know, there's been an saki program that's been ongoing in the watershed for a number of years.

58:37

Within the show we're just looking to try to formalize that undocumented.

58:42

So that way we have a comprehensive written plan that we can refer to and N minus pi as conditions change.

58:49

But it that way, it's an open and transparent plan that folks can access.

58:57

Some additional plans that we have for my work plan that will be taking our time in this next year is there's a potential to do some marketing of Smart First Stack in the ... River.

59:08

And so that's our project Oliver is working on with them number of other partners. So that's not to be coming from Greenland.

59:15

In terms of habitat restoration, there's at least nine barrier, improvements or removals planned within the watershed. They say, this is a pretty small number, especially compared to completed this past year, with all the operational challenges. So, I'm assuming that that number will greatly increase.

59:32

And so, I'm trying to capture, capture that as much as possible.

59:35

Then, as I mentioned, for that salmon, for Main Rivers project, will be transferring, send smelt ... River to the Sea Core Facility too.

59:45

Get that part of the project kicked off. So if you have more questions about that project and Danielle for sure is that it did a contact person for salmon project.

59:56

But in terms of that, that's not true. That's kind of a highlight of our activities for this past year and a little bit of insight on where we might be going this next year.

1:00:05

So with that, I also want to share that we're happy to steal Oliver from the ... And Todd mentioned that Oliver was on that, that, co-ordinating Committee. And the ana Harris departed to to another program within the Fish and Wildlife Service. And seven, Her Absence Oliver stepped up to help co-chair this team with me and say, I am greatly appreciative of being able to do that.

1:00:28

MS and I've ever happy to have over two.

1:00:32

Thanks, Dan.

1:00:35

Thank you, Meredith. Great presentation. So we have, we're moving on to our last true, Downy Shrew. And so, I'm going to turn this over to Ernie soon as I can find him.

1:00:51

Hmm.

1:00:56

OK, you should be on. Good to go.

1:01:05

Excellent.

1:01:05

We can see your presentation now, OK.

1:01:15

Other?

1:01:18

Well, it's good.

1:01:21

Well, good morning, everybody. Thank you for a chance to talk about what's going on in the downie Salmon Habitat Recovery Unit.

1:01:27

Uh, I'm the chair of the team, as has been noted, I have the extreme pleasure to work with this group of professionals that are highly are very proficient subject matter experts, analytics, data management.

1:01:42

They include Culvert Brooks, who also works with Main DMR, Denise Buckley, and Scott Craig to work with the Fish and Wildlife Service and Rory Saunters with the National Marine Fisheries Service.

1:01:53

Madani Salmon Habitat recover unit, comprises six drainage, is which from the west to the East or the ...

1:02:00

, the Pleasant, tries and tries and Danny Rivers and comprise five out of the sudden stop to Atlantic salmon that are currently reared in Green Lake disability.

1:02:17

Get right into it, we are a number of 194 salmon returned to the shrew.

1:02:26

Uh predominantly hatchery reared, uh, 115 of those.

1:02:32

This number is slightly down from 2019, but given the time series that is shown in the figure here, it continues to be much higher.

1:02:41

This is primarily can be contributed to small stocking in the ...

1:02:46

River, 2021 is the last year, or the last year we expect to see ... or adults returning from the last small spot.

1:02:55

And also, the zero are stocking effort that the Federation has been undergoing in the East ... River.

1:03:06

The replacement tenure geometric replacement rate is zero point nine four, which is essentially wanted.

1:03:12

And, if you look at the range that thoughts are presented here, it certainly was in, in the same, same line.

1:03:19

Replacement rate is, basically, how many adults do a pair of adults replace?

1:03:26

produce.

1:03:28

when you look at adult to adult, so a pair of salmon replacing themselves with only two more dollar, two more adults returning would be a replacement rate of one.

1:03:39

Uh, this is a fairly consistent number in the ...

1:03:43

from, you know, over the time series here and that's probably consistent with the fact that stocking rates are very similar. Return rates are very similar marine survival rates.

1:03:52

And so on to get the picture, there's been nothing really that has changed the input to alter the output, so to speak.

1:04:04

These figures, you've seen these in the last two presentations, represent occupancy from all cohorts that contribute to the 2021 small cohort.

1:04:15

As has also been stated, this does this spatial distribution very well correlated to stalking efforts.

1:04:23

Yes, there are.

1:04:25

We see a large number of returns, natural spotter's but they just do not, it's still not occupying the habitat at the same rate. So without stocking, we'd have no salmon.

1:04:37

There are 72 Huc 12 Downie Shrew and of those 21 or only 30% had an occupancy greater than zero.

1:04:46

And within the occupied drainage is, so these are drainages when there is current stocking activities management work going on, the mean was 41% with a maximum of 97% zero.

1:05:00

You know, the black shaded lines. The darker the coloring in these Huc 12 polygons represents a larger proportion of that habitat as efficient.

1:05:13

Continuing on about stocking activities, Total of 963,076 Salmon Restocked.

1:05:22

Dowty Shrew and these include posts on adults.

1:05:27

Ballpark price.

1:05:29

And I'll give you a quick second if you want to look at the table on the right. Pick your favorite river. Figure out what went in there.

1:05:35

Do the same primarily that.

1:05:38

Fry are still the predominant product, outland entity streams.

1:05:43

Eggs are a second, and width ballpark.

1:05:48

Bult from the east which IS.

1:05:51

Peter Gray Project and a small component 16,000 are as uh, that were raised at Green Lake as part of also supporting small stocking efforts for the Atlantic Salmon Futures program into the Charles River.

1:06:11

If you were paying attention last year, you'll notice this figure hasn't changed the bit.

1:06:16

But that's about to change, which is exciting.

1:06:19

This figure shows a currently accessible habitat In the 10 level, I did not say suitable because suitable, Kiowa, fuzzy, fuzzy metric. We kind of uncertain we have to do a lot of this based on our own knowledge and experience.

1:06:36

We do have some data and some modeling which is helping port that qualify suitable or unsuitable, but I will say this is accessible habitat.

1:06:46

What I want to point out here and the Upper River, this been a yellow here, and I'm going to talk more about this in a second or two.

1:06:55

This we will be turning the green if all goes well this summer, because this represents the polygon above, many babbs Powerhouse, which will hopefully be removed and opened.

1:07:09

Yes.

1:07:10

Summer.

1:07:16

There has been a lot of work focused on connectivity in the bowtie shrew.

1:07:20

We're all very familiar with the culvert work replacing Hong Kong Perch Coleridge, bad passage into the small tributaries across Downy Shrew.

1:07:33

Federation and projects share, the Fish and Wildlife Service, DMR have done a lot of work.

1:07:41

The figure I'm showing here is from projects share, and while this is not last year's work, this is in the last 20 years work, it just shows the difference that this caught up.

1:07:51

These kind of activities can have over a 20 year period.

1:07:55

So this is the Upper ... River.

1:07:57

This is the, you know, this is where cold water is, where the good production is, and you can see what it was like in 2005.

1:08:07

Basically, completely accessible means that the fish or water can move one way or the other without impeding.

1:08:15

This is important to understand as we start to talk about, say, the cherry field down, which because that's in place, none of this matters as far as conductivity is concerned and accessibility as shown in that other figure.

1:08:33

This figure is, uh, can be a little overwhelming at first.

1:08:38

if you can get it right away, well good for you.

1:08:41

This is A This is an output of a model that Scott Craig has worked on.

1:08:46

trying to understand habitat suitability in these in these drainage is, particularly, in this case, the narrow wiggers forever.

1:08:55

And how this works is, he's looking at the mean seven day.

1:09:01

So the lowest flow days over a seven day period in the ... River.

1:09:07

He's bringing in the main summer temperature from the extensive test temperature work that he's been doing over time, maximum temperature, number of days, greater than 22.5 degrees Celsius.

1:09:17

And all they ask it, plug it into an equation, and it gives them an overall productivity score.

1:09:23

So, when you see these low bars over the blue line, which represents that overall productivity score, you see how this varies from year to year.

1:09:34

Last year was not a good year.

1:09:37

We had severe drought conditions in eastern Maine, which contributes to higher summer temperatures, water, temperatures, and so on, and if you look back through time, these other years are also where they're in the spot or not ideal location.

1:09:53

Craig categories are also years with low water, So I would say we need to do, need to ask, where are we believe in, and to give us some more water this year.

1:10:06

Keep this moving, So we're going to continue to work with us. This is a really nice figure, and I'm glad Scott takes time to build this stuff in the show. Applause.

1:10:17

Another measure of productivity, fitness, and so on, is looking at the diversity.

1:10:23

This is data that's provided from Meredith and her lab, and we incorporate this in all our reports.

1:10:30

We look diversity Istio from 4017 to 20 18 in the Airways, but slightly decreasing in the East retires from a child, but as she said, it was within range of previous years.

1:10:43

And you can see the figure on the right shows these trends over time.

1:10:49

Thing that's interesting is that the 2018 part group were all hatchery origin.

1:10:55

There is a small component of Frei, which would be considered naturally reared that are replaced that are stocked into the East River.

1:11:03

But compared to the overall group, the par just are just much more.

1:11:10

More numerous.

1:11:12

But that's different because in the past, it's been more like 75.5% hatchery or it can be tied directly to the park program.

1:11:20

And I said in the beginning, But, continue this.

1:11:27

Downy, Shrew has five of the seven particular stock and Atlantic salmon.

1:11:32

So, continued monitoring is absolutely essential and maintain the diversity amongst these stocks, OK, that's what happened last year.

1:11:42

Looking ahead at some projects that we have upcoming and I'll be tying this in with some of the priorities are priority actions or general actions that we'd like to see happen.

1:11:54

We're just going to quickly go through this.

1:11:56

We've got the money that's powerhouse, the upper photo, Curry, Brooke, predominantly, is a perennial Hong culvert that just continues to be obstructed and cause problems.

1:12:08

That's going to be replaced this year, Cherry Hill Down, Work, continues Ontario, field down, improving fish passage, and that Habitat Complexity Project, the ..., project shares working on, and then, kind of new and revolution Rep.

1:12:24

Going back to the future, in some regards, it will be looking at zero plus part in there, a little more on that effect here.

1:12:33

So, if we were to group priorities of actions, come up with 3 to 5, that we really wanted to focus on.

1:12:42

A couple laws would, would involve, improving the habitat complexity a function of R Street basically restoring their functionality, so that they stay cool, that they continue to grow fog. So, we have primary production, and so on.

1:12:56

We can do that through course would addition, something that project shares become somewhat of an expert in, or you can go in and you can outright manipulate the stream bed.

1:13:09

Rather, novel, I would say, novel, then nationally, there's certainly a novel to the north-east, because he used to heavy machinery and streams.

1:13:18

Do dig holes, creating pools, putting channels back into streams, placing bowlers, you know, name. You. Name it just outright on all kinds of muscle.

1:13:31

So that's involved in the Route nine Habitat Project, and you can see the list of partners here, particularly projects share who it is.

1:13:41

You receive funding to make this happen, and then the various other agencies that are assisting you, assessment, work, and design, and so on, so forth.

1:13:52

Another big one event is the main events going on here issue on the Danube River.

1:14:01

And while it's primarily a Passage project, that's what you're seeing popping out like popcorn in that lower and then video clip.

1:14:09

You can see this powerhouse structure, how it fit in the upper right-hand photo is a view looking up river through this jumble drop that these fish cannot access.

1:14:23

Thanks in large part to the Dani ...

1:14:25

Federation, definitely name Outbred Chicken Tally, who's got his foot in the door with the family that owns eastern side of it.

1:14:34

On the river there, we have permission to move far. We have some bonding, and this thing should be removed.

1:14:42

By the end of the summer, with the intent of having the stream bank over, leyden widened out your life well, now access many events like via the main channel of the river.

1:14:55

This also means access for Atlantic Salmon, to some habitats, which are in the upper end of the lake. So, this is this is going to be huge.

1:15:06

Jerry, feel down as an ongoing.

1:15:10

We want to continue improving conductivity, despite all work that's been done with culverts and such like that up and down the coast.

1:15:19

In the Dani Shrew, this down still represents, Hey, a barrier that prevents us from saying we've hit 30,000 units of accessible habitat, so work is ongoing. The study is in the next steps are looking at feasibility of different options.

1:15:41

Just so you know, this dam will not be coming out.

1:15:44

At least that's not the top option, believe it or not, primarily, because it is a female control structure.

1:15:50

And there are a lot of heumann person given safety issues that are at play.

1:15:57

But we can replace it with something else that will mitigate passage, ice, ice retention, and fish passage, though, we'll stay tuned, we'll be back to that, but this is an ongoing project.

1:16:10

And finally, as mentioned, we're gonna be looking at plants around 150,000 plus our legacy this fall.

1:16:20

This started with the SF ...

1:16:23

iteration, submitting a proposal to the committee asking what would they can expand their hatchery process to include other drainages after some discussion with the management board and no red flags.

1:16:38

They started working on the permitting process and they got their permits, they are extra transferred this spring and we are on our way to see if we can repeat some of that positively, intriguing results from the Easement chios.

1:16:57

We also have the logical choice because we have the infrastructure to evaluate it with doll traps, small trapping with a long time series of ballpark estimate and so on and so forth.

1:17:12

So, that's my last slide. That's what we got going on, and that's where we've been, It's also good to well, anyway.

1:17:22

All this data that you've seen in these last three presentations are all summarized in the upcoming 2021 US Atlantic Salmon Assessment Committee report, particularly in Section five.

1:17:33

So I went, encourage you, once that's available, to take a look at it.

1:17:39

It also covers most of the living work. Thank you very much.

1:17:44

Thank you, Ernie. Much appreciate it.

1:17:47

So now the last in this series is going to be Dan Tierney, which is going to give an overview of the DPS as a whole. And after that, we'll entertain any questions that folks have on the phone on the previous previous presentations. So just a second, Dan, I'll make you a presenter.

1:18:06

Hmm.

1:18:10

There you go, Dan. So you should be able to share your screen now.

1:18:17

Oh, OK.

1:18:19

Are you seeing my, Yeah, PowerPoint, not, not your PowerPoint. We can see a beautiful picture of ... upon, OK, let me see if a case, yes, awesome.

1:18:33

So how do I do that?

1:18:35

Screen.

1:18:39

Screen two.

1:18:43

There you go. Yep.

1:18:47

Just open that.

1:18:54

How does that look?

1:18:56

Excellent.

1:18:57

OK, so, I'm Dan Tierney, and the National Marine Fisheries Service out of the Orange Office.

1:19:03

And what I'm going to do today is essentially take, or we just heard, from the three recovery teams and kind of show a scorecard of how we're doing in terms of our recovery criteria, So I only have a handful of slides. This shouldn't take that long.

1:19:22

First are What are our recovery criteria? It's good to review this every once and awhile.

1:19:27

We have 2, 2 goals for looking for down listing and delisting down listing.

1:19:31

Well, be the transition from endanger to threatened under the Endangered Species Act.

1:19:36

So that's somewhat less imperiled place for the species to be, and then delisting, essentially when we've recovered this species.

1:19:44

And we have three recovery criteria, abundance, productivity, and habitat.

1:19:49

So the down listing criteria, that'll be the easier hurdle for us to, to get over focuses on two out of the three assures for, for these criteria.

1:20:00

We will need 1500 naturally reared adults to come back to the Gulf, and then in DPS, in order to ensure our some geographic distribution, two of the three teachers have to have more than 500 adults.

1:20:13

Once you've achieved the abundance, we want to make sure that we have a positive population growth, so that's what productivity is referencing.

1:20:20

The 10 year growth rate has to be greater than one, excuse me, and two of the three recovery units For Habitat, the requirement is that we have more than 7500 habitat units that are accessible to the three recovery units.

1:20:39

So buy accessible, essentially, remain a fish can free swim to it from the ocean, which, which takes out any of the trap and track operations.

1:20:48

For the delisting criteria is obviously a much higher hurdle. We need to get 6000 and wild adults returning to the company and GPS.

1:20:59

That's more than 2000, to each of the three recovery units, that populate positive population growth rate has to be over one and all three recovery units, and we need a minimum of 30,000 accessible habitat units in each recovery unit.

1:21:17

So what I'll do now is just go through this, and we can look at that, how we did in 20 20 in reference to these.

1:21:26

This table on the left, what I've done here, has just taken the information that was just presented on abundance from the three recovery units, paired them with the 10 year average, here, you can see how we did, in reference to those, and then I just did a little off, just to get a snapshot of how we're doing, if, if the cell is green, that means it's higher than the 10 year average.

1:21:46

So actually, 2020 was a pretty good year.

1:21:49

And we had 7500 total returns, which was more than the 10 year average, both in total as well as for the hatchery and financially reared component.

1:22:01

Financially reared, we're around 22%, which is actually pretty close to the 10 year average.

1:22:08

The figure on the right shows the total returns over the last 10 years, broken up by hatchery and natural reared.

1:22:17

That, line, there, that horizontal line at 1500, is the down listing criteria, abundance criteria. I remember that's for naturally reared return snap for all the returns. So we actually have to get that green bar up to that line.

1:22:31

So we still have, not surprisingly, ways to go.

1:22:39

So, what I did here was just grab the naturally reared returns for the 10 year average returns of naturally reared adults and wild adults, and then just calculated, right?

1:22:51

What percentage of our target we've achieved? Not surprisingly, shouldn't surprise anyone here, It's, it's still quite low.

1:22:59

But we are getting up close to a quarter and ...

1:23:01

Scott back, There's plenty of room to, to improve here.

1:23:08

So for productivity, or population growth is kind of a easier way to think of it. We use the geometric mean replacement rate to look at this, this is specific to naturally reared adults to keep in mind is that number is influenced by stocking practice, however.

1:23:25

If you're in a system as Arak and Fries talking, you're gonna make it a different result. And if you're doing a lot of small stacking.

1:23:33

But, it is when it is.

1:23:34

And what we have is a, a productivity rate, population growth rate above one, um, for the Gulf of Maine GPS as a whole for nine for the last nine consecutive years.

1:23:47

But the recovery require the recovery criteria, is a shrew specific criteria, And this has already been presented in the previous three presentations.

1:23:57

And as you can see, where bouncing around 1, 4 penobscot and downy Swift Mary meeting Day.

1:24:09

Had to do a last-minute change to the successful accessible Habitat table here, this is actually the same as what I presented last year, and it was in the last and last year's report.

1:24:22

Initially, I was confused Penobscot Bay reported 600 new accessible units, I wasn't sure if that was above or below dams, sounds like it's above.

1:24:30

So I went back to the, to last year's numbers.

1:24:34

The takeaway here is that we are, we're still above, that all three recovery units above the 7500 down listing, criteria, and still, I'm getting close, particularly downey's within striking distance of that 30,000 listing criteria, it, just remember, that's a minimum.

1:24:56

We obviously, given what we're seeing for adults now, we're like, We need more than 30,000 units for sure, but that is what we have to look at right now.

1:25:08

This map on the right, as, as in the other presentations, has not changed from last year.

1:25:13

We did not see any, have 12, as far as I know, Open up it, open up in 20 20, if we did, please, please let me know.

1:25:21

Um, just to clarify what these mean, The green watersheds, again, are fully accessible, meaning they don't have dam main stem dams or they're considered accessible because they have dams with fish ways that are highly effective.

1:25:38

So, mostly in the lower rivers or in the lower parts of the the big rivers, the yellow areas are above Dan Smith Fishmongers, but those fisheries have not been evaluated for passage effectiveness or have not yet achieved their highest high, pass it effectiveness set my performance standards.

1:25:59

The red areas are inaccessible for a free swim salmon.

1:26:04

Salmon are trapped at the ... Dam on the Union, and at ...

1:26:07

Dam on the ..., and track to habitat in those watersheds.

1:26:13

As far as habitat goes, that does not count towards our accessibility targets.

1:26:23

All this is, this is compiling the information that was in the three reports that were just presented.

1:26:28

So, just to give kind of a Gulf of Maine BPS snapshot of connectivity projects that were conducted, I would say this is a minimum estimate of project stand.

1:26:38

But we have 42 connectivity projects reported for 2020, which improved access to 95 stream miles is an improved rather than accessible, because most of this habitat is upstream of, of other barriers. Like this one in the right, which is the Joseph ... project and the Union River.

1:26:58

Opened up a fair amount of habitat, It is on the Union River, however, which has significant downstream passage issues.

1:27:05

So this habitat is yet to count towards our accessibility targets.

1:27:09

That 95 stream miles from the benefit of that will be realized, obviously once wants to downstream barriers are addressed.

1:27:18

I just wanted to close with, we talk a lot about connectivity. It's not just about connectivity. We know there's a lot of habitat that is not producing, that are, it's not producing juveniles as it should.

1:27:30

and particularly down east.

1:27:31

In their report, they had several actions identified that are geared towards getting at this problem and trying to identify things that can be done in order to improve production in that habitat.

1:27:44

I just wanted to find that this picture is, from project share, doing their their Boulder Projects in the ..., they asked for appointed a fair amount of large word edition and their report saucer, riparian corridor and protection.

1:27:59

Thermal profiles identify coldwater areas and water quality projects.

1:28:05

Looking at increasing PH and rivers at our I'm overly acidic, so lots of good work being done, but not quantum, not easily quantifiable in this context.

1:28:21

And that's it for me, Dan.

1:28:24

We want to go I think questions next.

1:28:27

Yeah. Let's let's do that, so How do I do this? Means you can stop sharing and I'm going to turn it over to Max. Max, do you want to handle the questions?

1:28:41

Know, there were some really good ones came in a couple of congratulatory comments regarding the West branch.

1:28:49

The first time it was addressed and if this'll official presentation, a lot of folks who are glad to see that, Uh, early on we ask about habitat suitability or come complexity achievements or plans in any of the meeting day or I'm Scott Shrews.

1:29:15

Yeah, Paul, can you, can you address that one?

1:29:23

I'm trying to find out, it was early on.

1:29:28

Do you want to repeat the question max?

1:29:31

Are their habitat suitability or complex city achievements or plans underway in that meeting? They are pronounced catchers.

1:29:43

At least in the mer meeting by because you know we do something. You know that we did a project increased complexity with a large project that we did for a couple of years.

1:29:54

Um, it was on our plan to work on those last year, but given all the difficulties of last year.

1:30:03

Permitting and all of those issues, there was no additional work that was done, but it is definitely in our plan to increase complexity in the sheeps get as much as possible.

1:30:17

Since since she was there.

1:30:19

Paul I think you I think you answered. The question duane also asked, What are the likely likely stocking origin of that Andrew Hatchery returns?

1:30:34

Role is Certainly, certainly, a problem, as far as origin is, concerned there, is some of the Fish Friends program does talk some fiber and we do see some natural adults showing up. They've been really sprout.

1:30:51

Over the years, I think even going back into the nineties, there was occasionally number showing up. So, they certainly could be coming from the drawings themselves.

1:31:00

We we've also At least one instance we found for spawning in the Little River which is which is right there in Lisbon Falls.

1:31:09

And, so, And, we went on documentary juvenile format, so, so, the possibility is the drainage, either stock does.

1:31:17

Her friends or from the opera are not very good option.

1:31:22

But we also know, we've documented adults that have gone into the bargain.

1:31:28

Eventually, ended up pushing on that Lockwood. So we were strong into the, into the watershed, for whatever reason.

1:31:37

We also like last summer we we documented adults who came back there were a Hatchery Oregon and we used to call our True Oregon Crash Data showing signs on our scales that they were small stock and those would be from the penobscot.

1:31:51

So I think those are all the all the options and I think we we probably see all of those.

1:31:58

Not every year, but Occasional.

1:32:02

Since we're still in many meetings, True, way to ask, is it a priority, ... Shrew to increase availability of eggs to address vacant habitat?

1:32:13

Or is there a plan emerging to fill all currently accessible habitat?

1:32:20

Yeah.

1:32:20

We what we've been advocating for for a while, as well as we talked about our development. The five year plan was trying to get up rootstock program for.

1:32:31

Um, we have a great variability in the number of eggs. We get over a year and we're never sure until the last minute how many eggs we're going to get.

1:32:40

Because course, the accessibility I X boss comes from what are the part about, needs them, or not. So every year, it's something we don't decide until December, so it can be 300,000 eggs, or it can be a million to. It really.

1:32:52

depends on, depends on availability, so that makes management very difficult.

1:32:57

It makes it makes it much more challenging for us to expand into other parts of the watershed.

1:33:04

We would we would very much like to to sort something out for allowable every year, um, that would be part of the answer in expanding into rows into other parts of the watershed that we would like to expand into some of the lower tributaries as well as possibly even into the lower tributaries in the Sandy.

1:33:24

And, like you said, the other part of all, there's really a developer time. We we do expect about returns to increase over the next few years, due to small talking program.

1:33:35

And so while anticipate as well, we may be able to stock strategy moving some of the lower Toby terrorism.

1:33:47

So we do have questions, we want to, part of the, part of the answer or maybe a big part of it, is a proof stock program, a reliable source.

1:33:58

Thanks Paul. Great work tags.

1:34:03

Meredith or Oliver, could you tell, can you tell Dwayne if there were any reds noted in the duck trap with a lower lower put off Scott Streams?

1:34:15

Yeah, there was some data here real quick that I can just reference.

1:34:19

So there's two questions I saw about red in the penobscot, so, there was a higher statement to the river.

1:34:29

Um, I don't see where there was any red counts done in the duck trap, and maybe, I'm not sure if we have anybody from DMR Bangalore office on They do.

1:34:41

I do see where, For the lower part of the penobscot, there were five reds, documented in the marijuana keg.

1:34:52

They searched streams like cobra, French, treme great works, ..., all those lower stuff. Actually, there was no red's documented there, and they did do some some surveys.

1:35:07

Overall, in each branch of the penobscot, there was 26 reds documented. Actually, there were no reds documented that trap.

1:35:17

I see that now on this assessment committee data, and there was some surveys done.

1:35:23

Then, there were five in the matter, one K, because I said, and then 26, reds in the Piscataway. So I don't have any data to see how that compares to previous years, but my guess is it's much higher.

1:35:40

You know, the red surveys done in the penobscot aren't typically as extensive as like those that are done down East because they do have the accounts at Milford or Easy.

1:35:54

Thanks. All our pretty much addresses jeffords question about an increase in a row crop, right accounts.

1:36:03

So, hey, Dan, you might have Dan.

1:36:07

Tierney, you might have the stats on this for FY 21 smolts wrapping efforts across the board.

1:36:15

You, can you, can you handle that or even break it down to individual, shrewd coordinators.

1:36:23

I'm sorry, I'm accepts the question.

1:36:25

Slide 21: Smolts wrapping efforts.

1:36:28

Yeah, that's that's not me. Maybe someone else can help with that.

1:36:37

We can we can stick a pin in that and come back to it.

1:36:40

I can answer. And Paul can chime in.

1:36:44

Are currently small trapping efforts that BMR is doing in partnership with National Marine Fisheries is taking place in the river.

1:36:51

And also on the ...

1:36:54

and the ..., we have two locations, the typical index site and the little balls research station and the other one that we implemented two years ago or re implemented, I should say. nine to evaluate production in the upper layers.

1:37:11

Then BSF is running a trap on the East ... River at the usual location in Jacksonville as one more year to follow up on the I hope that answers that question.

1:37:30

OK, Paul trapping into penobscot.

1:37:36

Yeah, we did. We've actually already installed the trial for this year, we installed on this week. So they're actually running this tool home on the Santa Ana River New, Sharon.

1:37:50

The union Reconsidered occupied habitat, even at a low level.

1:38:00

You repeat the question max: Is the Union River considered to be occupied habitat even at a low level?

1:38:11

There there are a small number of fry that are placed there by school groups annually.

1:38:18

So yes, I guess you can consider that occupied.

1:38:24

But there's not really any major stock enhancement work. There's no rootstock for.

1:38:29

And the work is mostly focused on the other five rivers in the shrew.

1:38:36

OK, um, who is making the determination that all units connected down East are also suitable?

1:38:46

That's an ongoing process.

1:38:48

That figure that I showed that Scott Craig worked on, is a step in the right direction.

1:38:53

We also have the, the right at all Species Distribution Habitat Model, which was used in designating critical habitat and so on, so forth.

1:39:04

And there's a column in there that gives a value, or estimate the value of production possibility, several columns, actually.

1:39:13

There's other work going on.

1:39:15

Scott Craig has been working one of the key components to determine suitability as water temperature is undergone across the state within the DPI.

1:39:25

Habitats are getting water temperature surveys, looking at.

1:39:31

Stationary data from temperature loggers too.

1:39:36

Actually going out and monitoring the changes that are affected to a lot of water as you drift downstream.

1:39:43

So we're still getting that stuff up up and running.

1:39:48

It's an ongoing process.

1:39:50

And then there are other projects.

1:39:52

I know their students that aren't all that are currently working on examining primary production in these rivers and how that's affected by. The amount, of course, would deposition or other habitat features and stuff like that.

1:40:07

So the answer is, we're still working on it, but I would say the best indicator you have at the moment is the right species distribution habitat model that was produced all Gs.

1:40:20

That's over, 10 years ago, now, 12 years ago.

1:40:24

I think that's our best thing for the time being.

1:40:27

We also have, you know, we do have an actual physical survey habitat they're all geo reference to refer to.

1:40:36

The temperatures kind of a new tools will come online more recently, to help us better evaluate water temperature.

1:40:43

I think once we get that, a nice, strong understanding of that, then things go easy from there.

1:40:53

Is there any? Would somebody take a stab at the CCAR status and plans?

1:41:02

Update on that.

1:41:10

Let me see Danielle's on the line trying to.

1:41:21

Um, this is Oliver.

1:41:24

The question is, it just relates to the salmon for main rivers are bigger picture question. The question is CCAR, status implant question mark.

1:41:37

So, I can only speak to that from the small production that's being transferred from Green Lake.

1:41:43

Um, and will be, as part of the sound for main rivers were transferring 6500 penobscot small sense, um, 900 or so, uh, ..., they're here towards the end of April, and I'll be seeing them and holding them until, you know, late summer, early fall.

1:42:09

Beyond that, I had no information.

1:42:16

So, Dan, Tierney, Glasgow.

1:42:20

Can I follow up on the question about the Indian River? They've gotten some independent text from people that are in the audience.

1:42:27

Um, one thing is, I didn't have that as far as a question regarding occupation river.

1:42:36

They don't have that stocking data because the school stuff is a little bit we won't go into it but they didn't have that so that's not represented accurately. So there are a number of fish there that a low level.

1:42:48

The other thing is, the river does get Atlantic salmon returning annually. one thing that I should have mentioned back in my presentation, that's kinda cool.

1:42:58

Of the three adults that return to the ... River in 20 20, 2 of them were ..., which were, they were a clip. And then, that raised suspicion. And they were genetically and analyze and determine the company.

1:43:10

So, just. as far as representing that data.

1:43:17

OK, um, so we might come, I think, Casey Clark, he has his hand raised and may be pertaining to Zika, so I'm going to turn on his bike.

1:43:29

So go for it.

1:43:31

OK, Casey, that's going every day.

1:43:35

Yep. Yep. I just wanted to chime in a little bit, and I think that all around our state captured most of it.

1:43:41

Yes, we have planned or working with state cargo, hold those fish, and our plan or beta hold on until October so system.

1:43:47

So while they're at the, seek our facility, well, transfer them over to two different feed will get them transferred over into saltwater as well.

1:43:57

So we're doing a slow gradation while their accessibility that they're ready to go out into Rainwater is October.

1:44:04

And, whoever it is who asked that question, feel free to reach out to Danielle and myself, if you have specifics about it, or if you're curious and want to know more.

1:44:13

Thanks, Jeff!

1:44:14

Awesome. Thank you.

1:44:17

Although, the last question was, was actually, it was, Was cases, um, Where to go?

1:44:30

Forget tyranny. You address connectivity and productivity in terms of restoring fiscal habitat.

1:44:37

Do we know metrics for how much restoration has been completed of biological, ecological aspects of habitat, such as cobalt atoms, diet, and species?

1:44:50

Is there any reason to any reason why this is not included, even though it is in the restoration plan?

1:45:01

We're looking for metrics.

1:45:05

Metrics parallel.

1:45:08

I'm assuming that the productivity side of things. Restoration has been completed of biological slash ecological aspects of habitat.

1:45:21

I think we could report. And I think, in the 2020 report, Project share did report the number of large wind projects they've done, the number of pieces that have gone in.

1:45:31

I'm not sure if that's what the question is getting on.

1:45:35

Or how many habitat units have been improved to the point that they can support, or produce more smolts.

1:45:43

Um, I think a lot of those projects are still evaluations, trying to figure, that, answer those types of questions, But I'm not sure, I'm not entirely sure what the question is getting it.

1:45:55

Open the phone line to the person that asked the question. Yeah! It's: It's KC KC Clarks Question. So if you just open it back up.

1:46:03

You can.

1:46:06

Your mic back on. You want to ask that? Perfect, and thanks for taking a stab at. Dan. I apologize, I didn't want to tell them in the questions. I guess my question is.

1:46:18

Cobalt species are explicitly named in any restoration plan.

1:46:21

Is there a reason why we're not counting the number of habitats that same the restoration of those cobalt species to those habitat units and that sort of co occurrence.

1:46:34

We're doing that for salmon or we're doing, that's for restoration.

1:46:39

So the physical habitat of those critical habitat, we're not talking about whether or not those species are actually present, those.

1:46:50

Sure, I can take a quick stab at that at the end, if you would like.

1:46:53

So, go for it.

1:46:56

So, basically, we don't report on those metrics.

1:46:59

We certainly could, and, uh, we've been working on trying to get a better handle on our reporting of connectivity stuff, because there's so much going on on the landscape all the time. And it is one of the attributes that we're looking to actual report on. But we don't actually have, like, quantifiable goals for river hearing habitat or or or American Chad habitat per se. So it's hard to report and context of like, what our goals are for that. Basically, the way it's described and critical habitat, and it's like, Yeah, cool eyeball species are an essential part of recovery.

1:47:35

But we don't necessarily have goals for a low seats and those other species from a quantifiable approach. So we don't, we can't really report them on an autumn in that context.

1:47:45

But that said, we are looking to include, in future reporting, number of acres that have been opened up, stream miles. Which stream miles is great for all species, but for when we're looking at Atlantic Salmon, we're more looking at like habitat unit. So, we're also reporting on those treatments context, for other species, as well.

1:48:08

So, so, some of it's a work in progress, but some of it is like we just don't have goals for habitat, for, for River Herring, outside of what is already described in the State of Maine plan for the penobscot, Scott River, for example.

1:48:24

Otherwise, the salmon, salmon contexts, we don't have goals for that, so.

1:48:31

Hopefully, that helps.

1:48:33

Yeah, that does help.

1:48:34

And I think that in the absence of goal it's just presenting on the number of critical habitat units, Whether they're migratory or rearing habitats, that have those cobalt species present versus those habitat units where they're still absent would be sort of a good measure, so we could start looking at where we're at.

1:48:54

But, yeah, that's a great That's a great point. Yeah.

1:48:57

So that's something Yeah, well, definitely consider and look into.

1:49:03

I'm reporting on that.

1:49:08

Dwayne's dancing, Is the Soco Falls Fish Way considered accessible in the maps presented today?

1:49:28

So Ernie, I think that would fall to you in regards to Cycle Falls in the pleasant. Is that right?

1:49:33

So, is that considered accessible habitat?

1:49:36

And I'm trying to recall if that is or not, Can you add to Ask the question again then?

1:49:44

This, Is ..., False, Fishwick considered accessible in the maps that were presented.

1:49:50

Well, that's a good question.

1:49:52

I believe it is.

1:49:55

May look at them that.

1:50:02

Yeah, the river is considered fully accessible.

1:50:07

Spider run down at the ... and soccer balls. Best way.

1:50:13

Oh.

1:50:16

Fine.

1:50:17

We do see a line examine open up in the upper reaches regularly, so they can get through the falls.

1:50:25

It's not Sample falls is really more of a limitation for River Herring.

1:50:35

Dan, I would just add that these maps are really course and that there may be places that where it needs to be updated, so if that falls under being partially accessible, then that can be changed as well.

1:50:48

It's mostly focused on dance.

1:50:52

I said I was aware of when I made this.

1:51:00

Any more questions? Now, that's all the ones that came in. We've, we've covered them all. A couple of a couple of good comments on the record that if anybody has any burning questions, maybe you wanna raise your hand or something to knock it out before lunch. But otherwise, that's all we've got here.

1:51:20

I think we're right up against the clock we're doing perfect on time. We have allotted 40 minutes for people to go grab their lunches and take a little break here. So, I think our goal would be to get back on at 12 30 here.

1:51:39

And, with that, I think, um, I think we're good.

1:51:46

Let's see, is there another, did I see another question pop up?

1:51:53

No, OK, So, why don't we take a little break here and we'll reconvene at 12 30, so, OK.

1:52:02

Thank you, everyone.

1:52:27

Just a couple more minutes for other folks to sign on. And, no, I see some people are still coming back.

1:52:33

So, we'll get started here in just just a minute or so.

1:52:42

Next up on the agenda is going to be Tim shank.

1:52:46

He's going to talk about Marina necessary stuff.

1:53:02

Before Tim launches, Dan, there was one question snuck in.

1:53:06

Before we took a break that was our all the state owned dams within the GPS accessible, OK?

1:53:20

Maybe I'm going to first start with Dan Tierney and but then we can go from there. Dan, would you happen to have an answer for that, or should we direct that to somebody else?

1:53:43

Dan may not be back with us at the moment.

1:54:09

Hey, Dan, I get back on.

1:54:19

Think I saw him talking Danna, maybe he was muted.

1:54:26

I think he's muted.

1:54:32

You still listed as the presenter, too, by the way?

1:54:38

Well, we can, we can hold off on that one. We're going to try to get the meeting starting now and we'll come back to it. And so, right now, I'm going to turn it over to Tim.

1:54:48

Uh, Tim, are you, are you ready to give your presentation, so.

1:55:07

Tell you, OK.

1:55:13

Dan, it looks like Tim called in and he's going to need to put in a phone pin for us to hear him, I'm gonna send that to him right now.

1:55:28

six, I'll send a message to see if I can.

1:56:10

Yes.

1:56:12

Yes.

1:56:21

OK, TEMS coming is trying to reconnect here.

1:56:28

All right, can you hear me nice to have you back to him?

1:56:34

You're up, so you can just share your screen whenever you are ready.

1:56:39

Hello, Dad.

1:56:43

Can you hear, click to mute yourself. Oh, man.

1:56:51

To.

1:57:06

Did we lose you, Tim?

1:57:11

Yeah, his audio went from computer back to phone, I'm having technical issues, apparently.

1:57:29

Can you hear me, Dan?

1:57:30

Yes, Yep.

1:57:33

Sorry about that.

1:57:35

Had my phone, and I don't think the pin had carried over when we started the meeting, though it was him to be dead in the water, and I couldn't get it going.

1:57:47

So now they need to share.

1:57:51

Oops, Sorry.

1:57:54

Uh.

1:57:57

Alrighty. Can you see my PowerPoint now?

1:58:01

Yes, we can.

1:58:04

It's so good to go.

1:58:08

Escape out.

1:58:10

It's truncated quite a bit. We're just seeing like, half of that.

1:58:15

Gee, this is awesome.

1:58:20

I'm really good at this stuff.

1:58:22

You might be able to start from, yep, do it from here.

1:58:27

That's good there.

1:58:28

Yeah, Is this good?

1:58:31

Yes.

1:58:33

Awesome.

1:58:34

Well, um, apologies, everyone. Sorry about that.

1:58:39

Thank you, Dan.

1:58:40

Dan and asked if I could just give a quick kind of overview update where we are on the estuary. Sorry.

1:58:46

The marine issues, Marine survival, ocean environment for Atlantic salmon.

1:58:52

So, I put a couple of slides together just to try and give an update of where things are.

1:58:58

Um, so what I want to talk about is just give a quick stock status.

1:59:02

What are the Linux has been doing across the North Atlantic: today, I wanted to go into leading hypothesis behind the recent decline. At multi decade of decline that we've been seeing. And I will caveat that the leading hypothesis according to me, I do think that there are some other ideas out there.

1:59:21

But I do think one of the most widely accepted, and the most mainstream, I kinda thought trained at this point. There are always, you know, single stock and single papers that are showing something different, but as a whole, I think we're kind of pointing in the right direction at this point.

1:59:37

I wanted to go over the US trends and see how we're fitting in with what we're seeing in other places and what according to those hypotheses, and then I want to touch a little bit upon upon the International View on Managing them, and in the ocean, There's been a few recent efforts, You know, it's the same struggles that we're having this ocean issue out there, and that's one of the primary drivers.

1:59:56

How are we going to manage around this, and then maybe touch upon some of my own thoughts, about a 10000 foot view of, you know, local management. What should we be doing, and what should we be considering?

2:00:09

So looking at stock status across the North Atlantic, we have a number of graphs here.

2:00:14

On the slide in the leftmost is the pre fishery abundance or growth stocks in the top left or ... or stocks in the bottom.

2:00:26

These would be pre fishery abundance, so this is the number of fish in the ocean before any fisheries have occurred. And this is for the Northern European countries as a whole.

2:00:33

You see over the time series, starting in the 19 eighties, to current time, there's been a decline in both the W, the growth stocks, as well as multi human stocks. We look in the middle graph, the same setup. The same thing for the southern European countries.

2:00:49

And again, we see a really large decline in the maturing one SW that growth. We see a large decline in the multi see winters as well.

2:00:56

And we see the time period in more recent decades for the multi sequences in Europe, became really hovering around in this lower abundance and really gone back up to what we saw in earlier times in the seventies.

2:01:10

When we look at the single graph, on the right hand side is both complex is put together, and this is for North America.

2:01:17

So we see the total is blue, and then we see the one at W maturing of the hollow circles.

2:01:24

And we see that you're bouncing around over time, but it's really not appreciably lower than where it was in the 19 seventies.

2:01:30

But we see the part that has dropped pretty significantly. the one at W ...

2:01:35

stock and needs to be, Again, it needs to be or to SW, Spawners coming home. And we see a large decline right around the late 19 eighties. This really low period, inconsistent period of low abundant.

2:01:47

Just for reference, whenever you see the dashed line, that's where we want to be. That's our spider escapement reserve. It's sort of like a conservation limit for the entire North American Stock Complex. And you can see that we've been below that level since the early 19 nineties. And we really haven't popped up above it except for maybe 1 or 2 years.

2:02:06

So things are kind of dropped across the North Atlantic.

2:02:09

If you look at North America, definitely drop more than what we're seeing in the European side, but it's been a relatively consistent drop across the entire ocean.

2:02:18

So, as folks know I've talked about before, the International Council for Exploration of the Sea As the Workgroup and Local and Examine every year, they get together, they

bring all the data, and they do a normal antic wide assessment. And I just wanted to pull out of the more, the most recent published report.

2:02:35

This is from 2022, you know, high level summaries of the status of stocks across across the North Atlantic and in North America.

2:02:46

So, the first one is exploitation rape and Atlantic salmon continued to be among the lowest in the time series. So that whole fisheries mixed fisheries are all amongst the lowest in the time series For all stocks across the North Atlantic. There have been dramatic decline in fishery, dramatic restrictions the fishery so, fisheries I have been the one tool that we've been able to touch upon in the marine environment. And we've been battling that back pretty significantly compared to historic levels.

2:03:13

I'm the second bit: Is continued low in declining stock abundance the same effects across North America. So, again, this is for North America owns, it strengthens the conclusions that back to the acting on survival in the first and second years, at the at both local and brought ocean skills are constraining. abundant. So this is really pointing that's a pretty consistent conclusion for a number years. Within this working group, is pointing the ocean and the dynamics in the ocean are primary drivers stock abundant across the entire North Atlantic. The life cycle is divided into two parts, But Marine Park has a disproportionate influence on the overall productivity Atlantic salmon. So this is coming from the ... level.

2:03:53

What's going on behind that?

2:03:55

These are a number of graphs, and folks have seen, I've talked about a number over a number of years, but again, trying to give up a high level overview of this.

2:04:03

Top graph is, from some work by Girod shampoo, and a bunch of co-op is back in 2012.

2:04:10

What this did is I identified this regime shift or really change and ocean productivity for Atlantic salmon and that regime shift is right around that 1990 period.

2:04:20

So the graph that we see here, it's a relative index of marine productivity and it's really an estimate of the number of fish in the ocean for each farmer.

2:04:29

So if you look at pre 1990s, you all the points, much higher up.

2:04:33

It had an average of about 5.6 ocean fresh per marine, excuse me, And then right around 1990, it just dropped. And we've been stuck in the low level of productivity ever since then.

2:04:44

And we're estimating about to ocean fish for Spanner.

2:04:48

And again, it's a relative index, but just to get rid of feel for what's going on. So we had a very dramatic drops. And that's how you characterize as regime shift. There wasn't a slow decline, something changed in the ocean. And things, um, you know, we're in a different state after that.

2:05:03

So shortly after that, Kathy, most of the Dopamine Research Institute, then a bunch of co-authors had a really nice paper that basically looked at what was going on behind the team to driving this regime shift. And, you know, loading that we have this coherent declines in productivity across all of the stocks in North America, Labrador, and Quebec, Gulf Region USA Scotian funding.

2:05:25

And once you started bringing in a lot of these ecosystem variables, what you saw with the timing was lining up really tightly. Increasing T-shirt with temperatures, which we're changing the timing of phytoplankton blooms. The changing of the phytoplankton blooms with changing the composition of the plankton populations in the ocean. And then the change in the zooplankton population kind of manifest itself and changes in not only Caitlin length, So capable, which is an important species for Linux, and we've got a lot smaller. Also change the distribution of Caitlin. So, they weren't in their traditional places that are moving off shore, and can people waters. And when you put all of this together all the time, and they all make sense, and they, all of the parameters are somehow either directly or indirectly related to Atlantic salmon productivity.

2:06:09

So, ocean conditions are changing. Phytoplankton that change and they'll plankton and changing crayfish and it seems to be manifesting itself in Atlantic salmon productivity in the ocean.

2:06:20

So, a little bit further work.

2:06:23

Again, we've talked about this before. This is Marc Records and a bunch of authors back in 2015.

2:06:28

to Kathy's work a little bit further looking at some diet work that was being conducted for salmon cotton, Greenland in part of those investigations, what we felt was right around 1990. And again, it's not the greatest dataset that we have.

2:06:43

But, right around 19 90, we had a significant drop in the energy density of Caitlin, and keep them being the primary food source for Atlantic salmon agreement, a whole rhythm, in my opinion, why they're going up to Greenland and migrate up there, a whole bunch hate. When they get there, they get that. They go and they come home and spawn. So, pre 19 90, by combing the literature, what we saw is that on average we had about 6.5 kilo Joules per gram of Caitlin.

2:07:09

So if you type your grandma Caitlin took it out of the fish, put them into machine, rendered it down, get an estimate how much energy within there you would get about 6.5 kilo Joules of energy.

2:07:18

But if you did that same thing post 990 you down to about four kilo Joules of Energy.

2:07:24

So the significant about 30% drop in energy content, which means if you eat Grandma Caitlin in pre 19 90 versus the Grandma Caitlin, post 10,890, you getting 30% less energy.

2:07:36

So, if you had some threshold of energy that you needed, you need more Kaitlin just to meet that threshold because of this change. So, it wasn't that we have you can eat 10 Kaitlyn today. Now, we have 13 cable in a day, or, you know, some math like that.

2:07:50

I'm just interested in if you think that all lining up together, the Timing's all pointing right around that regime shift in 19 90, and as we started digging into that paper a little more, what we saw was there's evidence of these changing energy dynamics of important prey species, throughout the entire globe. You see him in the north-west Atlantic, north-east Atlantic Pacific, the Southern Ocean, the Great Lakes.

2:08:12

We see various papers out there.

2:08:14

They're identifying changes in productivity associated with these changes of energy density, Atlantic Salmon, bluefin tuna, Whole bunch of Seabird Literature out there.

2:08:23

A bunch of seal literature out there, even polar bears polar bears feeding on paper and directly. But polar bears are eating seal. Guilty Kaitlyn.

2:08:31

Seals are having a lower productivity, so we're seeing how the changes in the forage based are manifesting them up into the predator productivity.

2:08:41

We are in southern right whales with changes in zooplankton distribution and energy density sorry, LinkedIn was altering the productivity of Southern right whales and we even see it in the Great Lakes with alewife. So, changing energy density and a large freshwater system to also affecting productivity fish species.

2:09:00

And, again, I'm focusing on this, kinda, the orange space.

2:09:04

In particular, Caitlin, you know, cable for Sam and cable, to put a lot of the cheaper, but, we're seeing similar dynamics for banana carry spratt, which is another really important for each species in the north-east Atlantic. Sand. Lance: which again, is important in the north-east Atlantic, as well as your pods, part of the zooplankton mix. So, you know, these, these large-scale ocean changes, The global changes are manifesting themselves, large-scale ocean changes. And you know, wreaking havoc a little bit with the space. You know that, those fish are still there if they haven't moved to a distribution, but they're not the same energy content. So you're not able to get the same energy that you were prior to this large ocean scale change.

2:09:45

one of the questions is, you know, we do have these large scale changes. We have this idea of this energy density, you know, changing and that might be affecting Linux and productivity.

2:09:55

But there was another study that looked at kind of a nice way, a different way.

2:10:00

And this is some work done by maksim almost back and published in 20 19 as part of his dissertation, stupidity, further develop this very large scale life cycle model of Atlantic salmon. So what he's doing is, he's looking at stocks on the European side, as well as the North American side. And he's building a life cycle model where returns are coming back. Spawners, they're laying a producing fisher go out in the ocean. And so on, and so on.

2:10:27

The bottom line is that once you have that model, it's a really nice tool to start looking at some of these large-scale drivers.

2:10:34

one of the questions was, is it a local thing that's happening? so as the Gulf of Maine, getting too warm in seven o'clock in the US to doing that, or, you know, the Norwegian coast and things going bad there? And so, we weren't really sure if it's local or global, and, you know, what is the more important driver here.

2:10:52

So by building this life cycle model, by throwing in a whole bunch of environmental variables in it, you know, the bottom line conclusion, I just took one sentence, summarizes the point that I wanted.

2:11:01

But these findings support the hypothesis of a response to similar population to large scale or large climate induced changes in the North Atlantic, simultaneous but acting on populations from distant continental habitat. So this is the big picture, ocean, no driver, that why would have coherent trend in abundance across North America and across North America and Europe. There's something in the ocean that's fundamentally different, and it's changing.

2:11:27

And that's the primary driver behind these large-scale changes. There are things going on in freshwater, There are things going on in the near shore environment.

2:11:36

But the largest driver, the thing that we can detect, is something happening in these common marine areas that are driving Salmond Abundant across the North Atlantic.

2:11:45

And if you look at the right map on the right hand side, it's a little busy here, But essentially, the Global Driver Studies tie, you can see the green boxes in the Labrador Sea.

2:11:56

as well as the Norwegian Sea, Those are the areas that fish from all of these started congregating. And when you look at those variables, those variables a lot tightly, much

more tightly aligned with the declines in Salmon abundant that we're seeing across the North Atlantic And what we're seeing in those small individual areas adjacent to each stock complex. So again, this is pointing to these large-scale global drivers.

2:12:18

So where does that put us? In terms of the US?

2:12:22

This is a time series of US adult returns. This is the full range of Atlantic salmon.

2:12:27

We see the government DPS, and the Green Center to New England and the Blue and Long Island in the red.

2:12:33

We're talking about earlier adult men had 17 oh 5 return. In 20 20 potential New England had 10 returns and have zero. You can see the complete PTO off of the central New England ally on BPA in the last few years where you know, almost 100% of our returns or a compliment DPS right now.

2:12:52

Now what we have here is so we see the building up of the US population from fairly low-level, starting in the late sixties, a crescendo, so to speak, or in the late eighties. And then, the red dotted line is in 19 90 period.

2:13:05

And again, it's never, never perfect, but you see a pretty significant decline in the US stocks.

2:13:12

US adult returns from that 19 90 period, co-signing with what we're seeing in Europe, what we're seeing in Canada, and what we're seeing from all these various modeling and investigations going on in the ocean. There is variability at the 2011. Right.

2:13:25

But overall, things are a lot lower than they were prior to 19 90.

2:13:29

This, getting in, you know, this idea that regime shift in 19 90, and a, little more information that was originally intended to show, but I think it was pretty neat. And I just wanted to bring people's attention to it.

2:13:41

If we look at the, the top left-hand graph, what we have is a time series starting in 19 90 of the numbers are small, dark, and light blue.

2:13:51

And an estimate of the number of post-mortem, basically making it to the ocean. And what we've done here is basically work on it.

2:13:59

Mimicking or.

2:14:02

Following up. Sorry, furthering work done by Justin, Stephen and a bunch of co-authors in 2019 and it's also been updated in the latest report, the US Atlantic Salmon Committee.

2:14:14

And what this is doing it for the penobscot marine survival, a marine return time series, what it is is we put in X number of the slope, an X number of don't come back, We divide them and we get a return rate. For most stocks, fish.

2:14:31

We know that a lot of fish die in freshwater, We know a lot of this died. At Dance.

2:14:35

We have a lot of work against digital, showing how the mortality rates in yesterday.

2:14:42

So, what Justin did and his co-authors was, basically develop a model that will adjust on an annual basis and produce an estimate of what we thought £500 of fish for, how many fish made it to the ocean, how many fish, you know, pass Verona today to the Gulf of Maine.

2:14:58

So, what we see here, the difference in the top left-hand graph is you see the light blue bar, light blue points which is the number of fish stocks. But when you go in and you look at the details of the stocking, where they occurred, the flows, how many dams fish and the paths, you can then it jumps to the number of fish that actually made it to the ocean.

2:15:15

And you can see in the beginning the time series, So two points are pretty close together.

2:15:20

It's an indication that most of the talking with occurring low in the time series, low in the river, excuse me. And then you see, in the last few years, 20, 16, 17, 18, you see those points are getting really close together, because most of the talking is occurring alone.

2:15:36

And in the middle, period, when it gets really variable, and there's a lot of space in between the light, blue and dark blue, because a lot of fish were dying before they even get it to the ocean.

2:15:43

So, that's, I just wanted to plug justice work. I think it's really great, get much better ability to now estimate marine survival for the Penobscot population, because we have a better estimate of the number of fish entering the ocean, as opposed to the number of recipients dumped into the river.

2:16:00

So if you go to the bottom left-hand graph again, the light blue, if you calculated a return rate, but to SW fish only based on the number of fish stocks versus the dark blue is when you calculate two SWT return rate based on the number of fish we think are making it to the ocean.

2:16:18

So you can see, again, a big difference in a lot of years between those two points, and it's a much more, in my opinion, a much true representation of a return rate for an option of fish.

2:16:28

So we go to the graph on the right-hand side, it looks simpler.

2:16:32

Again, it's just the two SW return rate but it's the pulse mode two adult return rate. So again, we're using that adjusted number, and lo and behold, if you look at pre 19 90, we had to return rate of about 1.1%, Pretty variable.

2:16:45

I'll give you that, but it significantly higher than what we see post 990. So, post 19 90, we have a return rate of 0.4%.

2:16:53

So again, our own penobscot data is showing this sort of sum regime shift and a pretty significant decline in ocean productivity for this one stock.

2:17:04

We do have a couple other rivers that we can look at, because we're starting to get longer time periods embedded time periods of adult returns. So what we have here on the left-hand side, is the two SW return rate.

2:17:15

We see the Penobscot which is the one I just showed you.

2:17:17

Then in gray we have the Sheeps good.

2:17:20

We have the greatest time series and our orange and then we have the newest time series which is essential.

2:17:24

In the more recent lasts for six years, I think slide over this is the full time series.

2:17:31

Unfortunately, for those laughed as she's gotten our great, can you switch highs? We don't have anything prior to 19 95.

2:17:37

Unfortunately, the perovskite is our best time series, and we're going to look at a longer time period, especially the pre and post 990, but be that, as it may, it is what it is.

2:17:46

So we switch over to the right-hand side, and we're looking at just 19 95 through the most current estimate. And we see the lowest estimate on average is penobscot, and that's about 0.35%.

2:18:00

She's got a low higher of zero point five seven.

2:18:03

Now, Greg is almost 1%, and then you switch on it, estimate is getting close to 2%. Again, you see a lot of variability across the timeshares available. But on average, we see this increasing, in my opinion. I'm missing some details here.

2:18:19

But in increasing Murray's survival rate as we're moving away from salt stocking to more naturally rearing and potentially better capture your product, is a combination of how to product.

2:18:31

As well as wild spawning, except for the penobscot pronounced that is that small star estimate but again, you're seeing and increasing marine productivity fish that have been removed then the hatchery, longer. For I-stock fish maybe I play a thing and then we get it to the ballpark and then the the pedigree ballpark.

2:18:52

So, there is some kind of improvement and ability to influence return rates based on hatchery product and approaches that we've taken.

2:19:02

So, as usual at the end of my talk, you know, doom and gloom like, no, that's great, know. The oceans, you know, not supporting family, like we said, but what should we do?

2:19:12

So this is not unique to your managers, or scientists or conservation. Is there anything that they international issue? As we showed in one of the first graphs, doctor going down across the Atlantic, the primary driver is marine survival, and people are just scratching their head, and they don't know what to do. So, a couple of years ago, this is 2009 teen, I believe.

2:19:34

I'm not going to put on A Um, a symposium, great, great symposium, couple of days, really well attended, and it was asking the question, or the topic of Managing Atlantic salmon in a rapidly changing environment. You know, what are the challenges, and what can we possibly do? So, typical, with an upper like this, you get a standard report that comes out. It's available. I can certainly forward it to people if they're interested.

2:20:00

And there was a number of recommendations that Nasco said promoted, you know.

2:20:05

Concluded going back to the larger, the larger attendees and people interested. And of the, I just wanted to touch upon what they were suggesting this is our first attempt that looks like what do we do about the ocean?

2:20:18

Sami management. So the person that they were pushing was promoting strong, healthy, and resilient population of local, wild moments. So you want to protected generic integrity. You want to work and habitat, protection, quality. And that focuses really that wild. If you can get to wild, natural, the grid population, that's where you want to go.

2:20:37

They finally acknowledging more efficiently that the management approach is that it has to evolve away from this focus on harvest and stocking to more of an ecosystem view.

2:20:48

So we have to get away from just managing fisheries and just talking fish but start paying attention to the other part, the other important features of the family life big thing for many countries is preventing aquaculture escapes and negative impacts and sea lice associated with commercial aquaculture. So again, they petabytes talking a little bit.

2:21:10

Really strong. And what they were saying is, it really should be a last resort not gonna get you out of the hole that you're in, but it should be a last resort. After all, your other conservation efforts have been spent.

2:21:19

What you want to do is you want to minimize the negative effects of trying to maintain your genetic integrity. We heard a lot about that in the first presentations this morning. You know, whenever possible, using local wild fish. Stock pitch early, you want to minimize atomic activity, and again, I think we're seeing some of that in some of our results such especially for marine survival, marine return rates and productivity. And they also are a big proponent of them do some work, you need to really evaluate it. You need to get serious about your evaluation and that might entail tagging really a fish. So you need a really comprehensive plan, how are you going to evaluate how effective the efficacy of your hatchery program.

2:21:57

Touching upon invasive species management, you know, obviously discourage introductions and eradicate whenever possible.

2:22:03

And having a healthier population is one of your best bet. If those species or they are having a healthy population, is your best bet against mitigating against any negative impacts?

2:22:13

So, and this is something that, no, I want to go back to a number of years earlier.

2:22:20

Sayles 2005 was in 2005, 2012. I can't remember, but it was another symposium, and it's really one of the first time I remember being involved in the conversation. What do you do about the ocean? And, you know, one of the clear messages that came out of that salmon, some photos call about Symposium, was the best thing you can do to ensure that the highest number, while it's mold, in the best condition possible, leaving from the rivers and into the ocean. So, there doesn't seem to be a lot we can do about

the ocean at this point, but what we can do is put up more smoke and more small to equal more adult returns.

2:22:56

And it's a really simple equation, because we're not reaching carrying capacity of the ocean, but the number of symbols that we're putting into it.

2:23:03

So, the big pusher for continually work to understand the magnitude and causing the marine mortality, and they're really big pushes up. There's a lot to be learned from each other, and we're kind of all in this together, so positively.

2:23:20

Hold on a second.

2:23:24

Possibly, we can learn from each other. and we should continue both domestically as well as internationally to exchange information on our science and management actions, views, results, et cetera. And they're also really big proponent of, you know, human dimensions. It's really critical part of the conservation process. And we can't forget about that. We can't be so focused on the fish that we forget about the people, too. So that's what an Apple came from.

2:23:48

Typical fashion that you know, a lot of work was put into the Symposium.

2:23:51

And there was a few people in the community got together, and sort of wanted to do something more. So, they took a more in-depth view of what the National Symposium basically work towards. A peer reviewed manuscript, which again, is a little more detail oriented, and provide a little more information. But it led by, she's a wonderful, wonderful statement by all Norway. And there's a number co-authors, this paper was actually just picked up in about a week ago. So it should be out sometime in the next few weeks a month. But again, I wanted to just touch upon a very, fairly similar, but these are somewhat two independent efforts, with some critical thinking going on in the company. Very similar conclusions of how we handle this issue.

2:24:29

So, one of the main points in the paper, you know, we actually know what many of the freshwater estuarine threats are, and management are options that are available.

2:24:38

Know, we can we can fix things and fresh water. A lot of habitat work going on. You know what to do there.

2:24:43

And the issue is the Global Scale at Climate Change and Alter ecosystems is really difficult to address, which is why we have to be symposiums and firstly, don't. But recognized in this climate change, you know, across much of the species range or conditions in freshwater and in the ocean are projected to deteriorate.

2:25:01

And, you know, there is a global response needed.

2:25:04

That is well beyond fisheries management. This isn't the same. A biologist, getting together a fixed on climate change obviously is a much larger societal issue that we need to deal with. So, in the interim, what they're really pushing forward, the idea that climate perspective must be incorporated into the same investment and, you know, taking this holistic view of actually thinking about climate and how it's impacting salmon, and using that across sectors, the government borders internationally and domestically is our best bet to reduce. this human induced pressures were the ones that are causing this.

2:25:37

Right now we cannot contract pulmonary survival. We don't have the tools, we're not even 100%, sure of the exact mechanisms are getting a lot closer, but, you know, given that we just need to focus on freshwater again, we need strong, healthy and resilient salmon populations are the optimal approach to reduce climate impacts.

2:25:53

You know, having a wide, diverse population gives you the material to potentially no counter and deal with and evolve with a changing planet. What we wanted to do is we need to optimize productivity. And we need to ensure that the highest number. Well, it's more in the best condition that we're entering the ocean again. It's very similar messages here. And one of the ways that we can do that by improving maintaining a habitat quality, working on connectivity, issues, working on freshwater, ecological functions, water, quality, et cetera. All of these things and what we need to be doing now today. To try and counter that marine issue that with the elephant.

2:26:31

We also want to maintain genetic integrity diversity. Again, touch upon that a little bit earlier today and that's one of the focus here, not only you're talking about wild populations, but it also is applicable to the hatchery population.

2:26:43

But in this context, I'm talking about, you know, Farm Escapees, poorly planned stalking in reducing the impacts low abundance.

2:26:50

So, some of these things, again, I'm thinking about and dealing with more fit more efficiently in the last few years, I would say.

2:26:58

So, you know, sending that up, the lack of evidence, there is a lack of evidence for compensatory marine mortality. So it's very simple. If you put more smoke in the ocean, you should see an increase of an adult return. So it's just simple math at that case.

2:27:11

And again, getting back to the human dimension of these problems like human induced. So we need to work on the human side of this aspect. It isn't just freshwater habitat stocking, counting, fish.

2:27:26

Moving on just a little bit. It didn't fit in.

2:27:29

Well, there we go. So, this is more of the local. So what can we do?

2:27:34

These are the international, you know, a lot of people thinking about and talking about these things, worrying about what's going on in the ocean, hope you're kinda erratic counter arctic. But looking at it locally for what can we do within the US?

2:27:45

First and foremost, it's pretty obvious thing. We need to do our due diligence and aquaculture monitoring. You know, our industry is a lot smaller than it was, it still does pose a threat to Atlantic salmon, and we just have to stay on top of it and make sure that we're, you know, minimizing that threat to the greatest extent possible.

2:28:01

And then the other thing is, I think it's really simple There's two things that we need to do. I think, first of all, we need to grow more, small, to survive better, and a lot of the work that we've heard about habitat improvements to try and increase production in our rivers.

2:28:15

The other, because of where we are in our abundance, And, you know, low population seem dangerous species, that we have to make more smolts that survive better.

2:28:24

We are wholly reliant on a hatchery programs, what we need to do.

2:28:28

Be innovative and work to make better smoke.

2:28:32

And we need to close that how to wild marine performance gaps. It's no wonder that the time series has the lowest marine return rate, those are the fish hatchery, the longest, no accelerated growth. one plus, We're not making small as good as we can. And possibly, some, outside the box thinking can, you know, pushes to think of things that are doing it better? I do think we have a few examples of that. And it's encouraging and something to talk about, think about. And how can we do more of that.

2:28:59

We have a tremendous amount of vacant habitat that possibly can get used a little better.

2:29:03

Actually get youth, excuse me. In order to do that, I do recognize that we need additional capacity, but also I think we need better released games. I think we need more comprehensive and well thought out, home adopted spatial temporal management plan. You know, we talked a lot for the Penobscot Show coming up in the stocking plant, it's absolutely needed that we need to change from if you look back to that. You know the penobscot stockings, and how the gap between the numbers start, and the numbers out in the ocean greater, at some years, and then narrower and then greater. That's because it changing management.

2:29:36

And we haven't been really consistent, We haven't set consistent plan that we follow for a number of years, no more than the damage generation, so we can evaluate the effectiveness of whatever we're taking.

2:29:47

And then again, it gets back to that improvement. Same thing, you know, for a hatchery rivers, as opposed to I'm naturally reared there's a lot of work in freshwater systems that we can do to hopefully make them more productive for limits.

2:29:59

So that was my soapbox kinda. You know, what can we do locally? I'm happy to take questions when it's time.

2:30:05

I think, then, we'll also have a posting of this presentation, and I just wanted to provide a listing of all the, all of the references and papers that I did, at least for this specific talk. And, obviously, at any point, I'm always happy to talk to anyone, has any questions, or go over any of this in further detail, so, that's all I have there.

2:30:26

Thanks, Tim. Given the amount of information you presented on, there's a lot there.

2:30:32

It just, I do want to give people the opportunity now to ask any questions, if they have any, before we move on. And then we'll also do the same for our talk about deferred projects.

2:30:44

So, so if anybody, I'll start Max, do you have anybody that had any questions?

2:30:52

Yep. Twain's got two questions, the first one is, can you describe the fishery and how it is managed?

2:31:01

I'm sorry.

2:31:03

The two important words I think, cut out, right when you said that history blank and blank, you fill it in the DVD fishery, how I would describe it? And it's a management.

2:31:16

Yeah. So the kicker is an interesting thing, and it depends on where you want to look. I'm not an expert.

2:31:22

I know a number of years ago we looked into we started having some conversations.

2:31:27

Convey Miranda was a big question of this with nafo, which is the Northern Atlantic Fishery Organization.

2:31:34

And basically, it, Kaitlyn, an interesting species that sort of evolve in recognition of the importance of this forage based to essentially commercial fisheries.

2:31:47

And at that point, Katelyn, receiving the highest protection that the stock, Ken, So harvest relatively minimal is not very aggressive.

2:31:56

The Labrador Sea Caitlin, the fishery, I think is relatively small.

2:32:00

Kate Greenland has a quota for it and I actually think they give it to another country. They don't even Fischer.

2:32:06

I do not think the cable fishery is, again, I'm not an expert. But my impression is that it's really, really low compared to what it was historically.

2:32:15

And it's not a lot of fishing pressure on it.

2:32:20

Well, that's good to know that there's a there's there's plenty of them out there for for salmon to eat Denis Le Duan.

2:32:27

Second question, Is there evidence to suggest that the exceptionally cold down east coastal current is of particular significance or advantage to the downy shrewd, compared to the other coastal current, associated with the other truths?

2:32:47

That's interesting, again, not being an Oceanographer, not not being an expert.

2:32:54

I That was going to take a guess I would probably lean towards, no, because one of the issues that we're seeing locally is the exceedingly high warming rate, that the Gulf of Maine is experiencing compared to, you know, greater than 90% of the rest of the world's oceans.

2:33:11

I'm not saying isn't important. But I think from a regional perspective, the Gulf of Maine is the particular interests because of the warming that we're seeing there. It doesn't mean that all currents are now going to be hot water currents, or whatnot.

2:33:24

But I don't know that the down these current will provide a significant advantage, shut down these fish.

2:33:32

Once they get out of that current and they enter into the same, you know, dopamine region, Scotia fungi, Scotian show up and then up into Labrador Sea.

2:33:42

But that level of detail, far beyond kind of my comfort level, don't tell them out there to think about and chew on.

2:33:55

That's the only two that came in, Dan, so if anybody wants to get a raise your hand or open up the phones wherever you want to do OK, well, if no one else is out there, then we'll move on to our next presentation so I'm going to turn it over.

2:34:12

I need some help here. Matt, or Jeff? Switch, one of you want it? You can just speak up.

2:34:19

As Matt, you can take it to me.

2:34:22

OK, hold on for a second, let me just turn it over to you.

2:34:29

Scott, Greg had his hand up.

2:34:32

Oh, OK, we can just quickly take Scott's question on the phone.

2:34:37

Um.

2:34:40

Say, I'd have to turn the mic over to him. Hold on.

2:34:53

Yeah.

2:34:56

Give me a second here. I'm getting there.

2:35:08

Sorry, Scott, I can't find your name on the last, you can have to give me a second here.

2:35:14

Here we go, can you hear me?

2:35:16

Yeah, OK, good, thank you. Tim, great talk.

2:35:20

Say, I got a question kind of in line with Dwayne's talked about, But is there any empirical evidence that stocks that are at higher latitude are doing better than the ones in the southern one and, you know, get into the energy density question, And you know, the ones in the southern have to travel further.

2:35:40

So, is there any data on that subject?

2:35:44

Thanks. Yep, yep.

2:35:46

Can you hear me?

2:35:51

Awesome, awesome. Yeah. That's a great question. I don't know that we have, you know, proof.

2:35:58

It's actually something that we're looking at, honestly, looking at right now, working with a colleague here and just gathering all the survival dataset. You start trying to look at them by latitude and see if there are some trends. I think when you eyeball it does seem that the higher the more northerly you go, the better off you are, the higher your return rates are. So our lowest return rates are in the southern region. And to be honest, when you look at it from a North America, European side, the European stocks tend to do better than the American stock. So, you know, being in Southern North America, is kinda the workplace we can be.

2:36:33

When you also look at the, so I'd mentioned Kathy Millwork, had looked at North America only.

2:36:41

And, you know, she found some really, really strong coherent decline in productivity and abundance for the stock complexes. And everyone was declining, and everyone was going down into similar rate. But the two that were slightly different were in Newfoundland and Labrador Stocked, and those are two of the most Northern. Most adults are very interested in.

2:37:02

No.

2:37:03

Particularly interesting because it's primarily growth stocks, small number of multi see winter. Foreigners come in. But those are the two that we're doing slightly different ones, you know, kind of all within the middle of Elaborative C one is the furthest north. So, I do think that there is some evidence there, but I don't think that there's crystal clear. no black and white evidence as to, you know, they do better, and they do better by this much per latitudinal degree, or anything like that. But I think there is something there.

2:37:40

OK, thank you Tim. So now we're gonna turn it over to Matt ... and he is going to give us a fork update.

2:37:52

On Mat, it's coming your way. You should have it here.

2:37:58

When you're ready.

2:38:01

And here you are.

2:38:11

For what it's worth, Nick had a great question regarding the dam survival upstream, uh, and I think it's a great, great segue for Matt Jeff, so we'll sit down for a minute.

2:38:25

Thanks everyone, I think everyone knows me, but my name is Matt via File, Sara Recovery co-ordinator for the May Meeting petrou Maneuver no Office.

2:38:39

Probably the surest way to play, just leave this talk about for projects right after lunch.

2:38:43

But we'll go ahead, and we just wanted to give you a basic status of, uh, of some of the current projects.

2:38:53

That we work on, and a quick update as to where things sit on various, on various projects.

2:38:58

Um, note that this will be exhaustive.

2:39:05

I'm just making sure that my slides are events, and this won't be exhaustive list of all different projects within the watershed, most or I will mostly focus on updates on projects within designated critical habitat.

2:39:19

So, we'll go ahead and get started with the Kennebec River, we'll start with the main stem, um, therefore, depends on the kind of a river. First, four dams that kind of record are owned and operated by renewable and its subsidiaries.

2:39:36

And, as I say, this, a lot of these four projects are mostly, kind of all sitting in a in a similar position in front of her.

2:39:44

Starting at first, Amulets shim Lockwood, the Intro to Species Protection Plan expired on December 31st, 2019.

2:39:54

Right now, we are awaiting a comprehensive proposal. You know that we've been kind of terminal final SPP park that we expect will include the also the also include the hydrophobic kinda can lessen projects.

2:40:09

And once we get that proposal from Burke, we expect that we'll be initiating or needed species at consultation.

2:40:19

Its expectation or hope that that proposal include measures for the safe, timely and effective passage of juvenile and adult salmon.

2:40:29

Um, the next upstream is a hydro candidate project.

2:40:34

There was a recently completed upstream fishery there, a lift.

2:40:39

Um, again, similar story on the IPP expire.

2:40:43

This facility on December 31st, and in conjunction with ..., we're reading that comprehensive proposal from Burke to proceed with EASA Consultation.

2:40:56

Next upstream is shawmut, as with the others, the SPP expired on December 31st, 2019, summit's a little bit different in that It is currently undergoing for licensing, agencies, and stakeholders submitted address prescriptions and recommendations that can August.

2:41:18

And now we're waiting for ... to issue its draft NEPA document.

2:41:25

Critic schedule indicates that we should expect that this month.

2:41:30

So the next step after that will be comments on the draft EA, and depending on for its title and it could be anywhere from 30 to 60 days after they submit there.

2:41:39

The NEPA document terms of the ESA consultation, we originally had a meeting with ferric. ...

2:41:47

indicates that it intends to consult on this project separately from the other three and in the context of our licensing.

2:41:57

Then our experience for typically gives us a proposal, and it's in its NEPA document.

2:42:04

So, so, stay tuned.

2:42:10

Last but not least, is Weston, as with hydro kinda Lockwood.

2:42:16

The SVP expired and December 31st.

2:42:19

And, and, like I said, it's been an indication for, for that that might be expecting some sort of comprehensive proposal that will be combined with blackwood and Joe Kennedy.

2:42:38

Terms of what's on the horizon the the two main stem kind of facilities upstream of, of Western or ..., which are owned and operated by Eagle Creek, Renewables.

2:42:53

You know, it's generally our expectation that, you know, any projects that that salmon could access, that, that they be in consultation with us.

2:43:02

And then develop a species protection plan so that, you know, we're not caught flatfooted.

2:43:10

When when the recovery kind of starts to happen, we started seeing fission of these projects, similar situation with the Baton Falls project, although it doesn't align in critical habitat, you know, it's an area that Senate could kinda find themselves accessing. So we've been in touch with dealers that facility to just start developing a species protection plan there.

2:43:37

So I'll move to Androscoggin River Watershed now.

2:43:45

The story of ... River Watershed is Ferric Brown Checks. There are 32 ... licensed hydro facilities within the watershed.

2:43:54

18 of those projects have licenses that expire before 20 30.

2:43:59

In terms of my agency's involvement, we're involved, or plan of all minutes, seven projects.

2:44:06

The projects that are, then critical habitat, and most of all, is actually added by accident here. It's just on the edge, but, uh, Brunswick, but

2:44:16

And then projects that are not within critical habitat that are within the Gulf of Maine GPS include lower Barker upper bar, and I can know sounds a little and are stagnant.

2:44:30

Said Brunswick. Similarly, the SPP there expired on December 31st, 2019.

2:44:38

Right now, we're awaiting a proposal. Final SPP from Burke.

2:44:47

Jeff Scott: next facility upstream that one has the species protection plan in place. It will expire on the expiration of current license.

2:44:57

It's currently undergoing forever licensing indicated that we should be seeing a ready for an environmental analysis soon, so that that's a good reminder for, you know, any folks that are interested there, that the next step will be agency and stakeholder prescriptions and recommendations upon for expanding that array.

2:45:25

Well, Rambeau, which is an Eagle Creek facility, once again, we have a species protection plan for Atlantic salmon that's in place until the expiration of that license relicensing. That facility just kicked off.

2:45:40

So, the next step to pay attention to are for study planning. There should be a series of meetings starting this June, I believe.

2:45:50

So, pay attention to those. You know, if you're able to participate, you know, any parties, stakeholder participation is really welcome.

2:46:00

And in terms on the rise and for Andrew projects, you know, like I said, the, the, the mantra for Andrew ... for licensing, so we're expecting relicensing to kick off that list and falls sometime this fall.

2:46:17

Then Brunswick will be the next Minnesota project, undergoing the licensing in and around winter of 2024.

2:46:26

And, you know, again, I've been focusing on the, the, the projects and critical habitat.

2:46:33

But there are a couple of projects undergoing relicensing right now in

2:46:40

So lot a lot, a lot of our processes in an endoscope.

2:46:46

So that concludes my kinda quick update for those two watersheds.

2:46:51

I'll go ahead and advance slides for Jeff next, as he talks about, ..., will wait until that point to take any questions.

2:47:16

Think it looks like it will.

2:47:21

Yeah, hold on for a SEC.

2:47:23

Yes.

2:47:33

Talk now. And I know that was tough decision deciding whether to give me a nice. Ted
Talk this question to the day. Hey everyone.

2:47:45

Jeff Murphy for us I hope you all well.

2:47:48

It's been a heck of a year end hopefully things can return to more normal this summer
or fall. So yeah I'm Jeff Murphy. Similar to that I work with ... licensees to minimize
their impact subtly unexamined.

2:48:03

I primarily work in a watershed.

2:48:07

In today I just wanted to give some brief updates on the projects that we're working on
in critical habitat. So there for six ... dams along the main stem Penobscot River in
Critical Habitat ... Project.

2:48:23

A lot of people call that The Welding Project West Edit fields Milford Stillwater in RL
you know, the ...

2:48:32

River, the Brown Smells Dam, which is the second dam on the ... upstream of Holland.

2:48:42

Next slide, that, thanks to our work in this.

2:48:44

Let me, This is just not a very good map, but it depicts, in green areas are designated critical habitat. Scott River in India. It's a daydream app. Obviously he's no longer with us, thank God, in India, but that's just shows you gives you a general sense of the scale of the penobscot and the projects we're working on.

2:49:08

Yep.

2:49:09

So the ... Project for just in February issued the new license for ..., I believe. It's a 40 year license.

2:49:19

We, I think we engaged in that re licensing for some nearly over six years.

2:49:25

And we got some very significant improvements for Atlantic salmon and other anatomy species, including they have to achieve 95% survival for upstream migrating adults in 96% survival.

2:49:42

For downstream, migrating Smolts and Celts, they're required to install a new upstream fish way at

2:49:51

The current fishery MSCI was designed pretty much just to pass Atlantic salmon, and we know it doesn't pass a low scenes river hair and eyes, or America shed very well or at all.

2:50:04

So, in 15 years, you'll be required to install an additional fish way, which will be designed to pass the entire database suite, including LLCs S, A very significant, I think, Cheesman, Um, this year, in addition to operating their existing downstream fish ways, they will be providing additional spill through a log sluice gate, which is adjacent to the power. To provide additional protections for downstream migrating fish. Is part of the new license. I think it will be next year. They will also be installing a new closely spaced rack, at the Bauhaus, which we hope should reduce entrainment of Linux salmon.

2:50:51

And lastly, this is pretty significant, as well. For a field, will study in minimize impacts on smells that are being lost and the empowerment. That's probably the first project along the East Coast where we've we've asked the licensee to employ protection as yourself. So a lot of things are gonna happen in the next several years, and we're pretty excited about it.

2:51:17

Um, next slide, Matt.

2:51:21

West End Field Rate: in the midst of Relicensing, caring, license expires in 20 24.

2:51:31

This year the licensee will be doing their second study season.

2:51:36

As part of the relicensing, currently there, they operate for the to protect Atlantic salmon at the project. And similarly to West Stanfield, currently, they must achieve 95% survival upstream, 96% downstream.

2:51:57

Brookfield's inset has implemented a spill program at Less Than field, as well as the other projects we'll talk about is currently in process, I think they implemented spillage. Monday, temperatures the perovskite hit 10 degrees, which is an indicator that smells moving downstream.

2:52:14

So, they must maintain spill of between 30 and 50% of total where the flows at the project. To avoid turbulent train and reduce delays.

2:52:24

Um, we've had four years of studies, or five at West End Field for Smolts. I think two of those years, they've achieved 96% and then the third year they just missed it. So we're having conversations Brookfield, now, by repeating some studies there.

2:52:42

Overall, we estimate that the spill program at West Enfield has improved small survival at West Enfield by about 15%, that's pretty significant.

2:52:53

I think I already talked about the Relicensing Weeks but we're hoping that fulfill, we'll do some more studies this summer and we plan to request those shark including studies involving ...

2:53:09

an American eel.

2:53:11

All right.

2:53:14

Next slide, Matt.

2:53:17

Still water, or no decent projects in the lower Panofsky River, their licenses don't expire for 20 or so years. But in 2012, as part of our species protection plan, they also have to achieve 96% downstream survival.

2:53:36

There are no upstream facilities that or no.

2:53:42

Sorry Milford exist to fish ways the primary upstream passage route.

2:53:50

The projects again are required to spill 30 to 50% of river flow, They're doing that currently.

2:53:55

And we estimate, since they've implemented that measure, we've improved survival in Stillwater by about 22% and 9% respectively at Orono for for slots.

2:54:11

OK, I think there's one last slide Milford.

2:54:15

No, for it's the first Burke project on the main stem Peyote Scott River, non-stop Advocacy, or Demers, extremely busy.

2:54:24

License doesn't expire until 20 38. Again, they are, They're operating under the current 2012 species protection plan, which requires 95, 96% survival.

2:54:36

They also are still, and even as we speak today, to protect Linux in smelting calcined in the spring, based upon three years of studies they have achieved. Survival ..., I think I should have mentioned. They did achieve the survival standard at Stillwater as well.

2:54:54

We estimate that because of the spill program live in survival smolts by 7% at Milford. So, make sure for obviously as well.

2:55:09

I think this actually has one more slide I believe Magic: the Brown Snails Project by Krueger, Second Main stem project on static this river.

2:55:21

It's exempt from ...

2:55:23

Relicensing, which means that the Clark issued the original license, I think in 19 eighties, is licensed in perpetuity, um, but nevertheless, they still have to comply with the Endangered Species Act. So we've worked with them to develop a species protection plan.

2:55:40

We initiated consultation, but we decided to spend that consultation, and we got some additional information for, from the upstream telemetry study, that University Main conducted last year to give us more information on the effectiveness of the existing upstream facility.

2:55:57

Similar to the main stem projects, they will have a downstream and upstream survival standard for Atlantic Salmon, 95 and 96%, based upon University main Studies is extremely high. Survival of Brownsville is 100% of smiles. We have seen some delay issues which we still need to address there. So.

2:56:21

We hope to re commence consultation on that project probably summer or fall of this year.

2:56:30

And I think that's, I don't have the data map.

2:56:37

Yes, sir. Next slide.

2:56:39

No, that's just, should have put it on the horizon in the horizon would be, OK, we'll get back to normal from this covert stuff and I hope you well, if you have questions, I'll do my best to answer them. Thank you.

2:56:54

Thanks, guys. Much appreciate it. We do have a couple questions in here.

2:56:59

Um, one came in from, I think it was directed to you, Matt, mainly because it's trying to find the timing on this. So, he asked why you do not mentioned upstream survivalists dams in your presentation.

2:57:15

I think, why I don't mentioned, I'm sure mister Lessons?

2:57:19

Yeah.

2:57:21

Well right now for the candidate, the only upstream passage exists at the Laughlin facilities where there's a Trap and Track program.

2:57:32

On the, on the androscoggin facilities, we don't have that information, because we haven't had enough returning adults to perform good studies.

2:57:47

OK?

2:57:54

Oh.

2:57:56

So, Nick, just chime back in, and he, yes.

2:58:01

He says it was directed to Tim. My apologies for that, so.

2:58:07

So, Tim, I'm not sure, are you still out there?

2:58:13

Yeah. I'm here, Dan.

2:58:16

OK.

2:58:17

Maybe I'm gonna, I'm going to turn Nick on. So, maybe you can elaborate on this question a little bit.

2:58:26

Just just give me a minute.

2:58:33

My helper.

2:58:37

two. X, OK.

2:58:43

Yeah.

2:58:45

Next. To him, he talks about the ocean, but he didn't mention that. Just to get to where they can say. Yes.

2:59:09

Yeah, I'm sorry, I couldn't hear the whole thing.

2:59:12

I think you are asking why I didn't talk about getting more adult upstream as opposed to at in addition to getting more small downstream, is that correct?

2:59:26

Yeah, it is.

2:59:27

Yeah, well, I didn't know.

2:59:30

The reason or purpose.

2:59:32

You know, however, we get small coming downstream, whatever origin they're coming from, that's what we need to try and maximize.

2:59:39

So, you know, if we want, obviously the best thing we can do is have natural reproduction. For all of the benefits that go along with that. And in order to do that, obviously, we need to get it upstream.

2:59:51

So that is absolutely one part of a relatively complicated equation once you start getting into the details of it, but, you know, whatever way we can figure out are getting more downstream into the ocean is what we need to do.

3:00:05

And, not just finding is one of those, talking is another docking at various life stages with another, you know, better survival within the river, for stock, Android, wild products. I mean, those are all factors that are gonna go into that small production and eventually getting those things out into the ocean.

3:00:22

So, certainly wasn't a purposeful at all, OK, yep.

3:00:34

OK, the next question, pertains to the Ellsworth Dam, and I think this was a question more.

3:00:42

Are relevant for Dan Tierney, to, to address maybe.

3:00:45

So, Dan, Dan, if you're still out there, the question is, Do we have any updates for the union over projects on the Ellsworth Dams, new information?

3:01:08

Now, maybe Dan had to step away for a moment. I don't know, is there somebody else out there that might be able to address that question in regards to updates to the Ellsworth dams?

3:01:20

Hey, Dan is, Jeff, can you hear me?

3:01:24

Nodding Entirely, sure, but I still think maybe he still has an issue, The 401 water quality certificate for the project? So, I don't think we can issue the license until till that is completed. I think that's the status.

3:01:44

OK, thanks.

3:01:48

Hmm.

3:01:51

Now, let's see.

3:01:56

Here's a question for Max.

3:01:58

Didn't nymphs DMR in the US Fish and Wildlife Service aspirin, EIS pursuant to the summit? relicensing is? So why is planning to issue only an EA?

3:02:11

Yeah. We we we absolutely requested an EIS as to why for decided not to comply with our request. Only for knows. Unfortunately, I will say having some experience with

3:02:27

No.

3:02:29

There aren't you know, for a lot of agencies there might be some kind of just drastic differences in terms of what an indie wouldn't eat an EIS look like in that and that kind of form the analysis takes in each of those documents.

3:02:44

You know, at first. There really is no difference in terms of the form of the analysis.

3:02:52

So you can take some comfort in that But you know, obviously I know there are other reasons why, you know, um, folks out there might want to see an EIS.

3:03:13

OK, it's good if I turn my back on.

3:03:16

Well, thanks, everyone.

3:03:17

I think every all the questions have been answered at this point. So, the next part of.

3:03:25

This pretty much brings us to the end of our agenda. The last time we have left a software that's allowing folks the opportunity to provide any news or announcements

that they wish to. We had a couple people ask, one of the people is not online but we had had a request from Duane Shaw.

3:03:43

Uh, I have a few minutes, and I think Duan had to leave.

3:03:49

But, he was going to.

3:03:55

Let's see.

3:03:58

Zach, is going to be able to provide an update.

3:04:01

So, I'm going to, if we can turn off, turn on Zack For this part.

3:04:16

Some reason, I'm not able to turn you on, Zack.

3:04:22

About that. Can you hear us? Yes, again, thanks Dan.

3:04:29

So, I have a list of things from the way now. I'll just try to speak to some of them.

3:04:36

First, you know about the part, I'm the hatch Amanda for ... Federation.

3:04:40

Operate the Power Project, and we wanted to thank everyone that is partner on that project to include US Fish, DMR, Noah, and others.

3:04:51

We actually recently got a matching grant from US Fish to expand the power project. Message into the ..., which Ernie touched on earlier.

3:05:00

And wanted to dimension the down ensure your Stocking plan done by that CMS group, which actually shoots towards Ernie can speak more to it later if needed.

3:05:13

But as opposed to Fry Socking, everything goes more to whisk base stocking strategy, so putting Unfed Fry and the smaller width classes, the ... class.

3:05:24

Your headwater streams and stocking, everything else will fall par.

3:05:28

And a lot of the data was that was pulled from The ...

3:05:31

Project, which has been gathered over the most recent years.

3:05:35

Um, and the interesting thing about that stocking plan is it would take some, perhaps re-adjustment of resources, but using resources that are already in play.

3:05:49

You could use that strategy to stop the entire downey's shrew, all the habitat, including the union.

3:05:57

And the basic gist of what we found with the ballpark socking is, um, produce about a smoke per unit stocked.

3:06:06

So, if you can increase your unit stocks by 5 or 6000, you just increase the number of small by 5 or 6000 out of the Shrew.

3:06:16

Obviously that there's a lot of variables there but that's the general peace which would increase freshwater smoke production, which, as Tim mentioned in his, helps to increase return rate or return numbers.

3:06:30

Um, since the park project works, we also hope to look at no co-operative funding to expand the Pleasant River hatchery to grow Par for that river as well is looking at other avenues to grow.

3:06:43

Par for the Rivers Down East, and also just highlight for people in the penobscot meeting base yours, that it potentially is a strategy that could help, uh, torts, de listing of salmon in those shoes as well.

3:07:01

The other thing is, the way I wanted me to mention was, no, Congress just pass something to allow more discharges into double AA waters and that pertains to like Water chemistry projects like liming that we've been doing with DP.

3:07:17

Um, there's plans for You would like more large wood project planning for private lands in the lower and Eric ... continued Rabanne: Riparian Buffer Zone Acquisitions.

3:07:33

Perhaps some work on a stocking plan for the Union River.

3:07:38

Discussing seek more utilization of C Car. From Rootstock.

3:07:43

Um, More discussion or working group around invasive species control and its impact on Atlantic salmon.

3:07:54

Um, the NGO Coalition working in place atlantic's salmon on the state, endangered species list, um, continued working groups around commercial fishing methods for river haring in rivers that has endangered species like atlantic's salmon.

3:08:14

And working with us, Tamara and I F and W, to create a model around state owned dams that don't currently have fish passage for places like the two dams in Orange River that are in critical habitat.

3:08:32

And, let's see, the other thing on the list.

3:08:37

The ASF, of course, is involved in the chair, you feel nice control dam process, as well as the Union River processes.

3:08:44

So, continued talks around solutions for Lenard, like, **** in the Union River.

3:08:51

I think that's about the Listy had.

3:08:55

Sorry if I missed anything.

3:08:58

Excellent. Well, thank you very much, sac.

3:09:02

So, that's all we had on the list, but we did have another question.

3:09:08

Gonna put Steve ... on to talk about the Atlantic Salmon Forum.

3:09:13

Just really quickly, I can find them on the list.

3:09:23

Troubles turning them on.

3:09:24

He's got a way.

3:09:26

Yeah. He should be able to mute unmute himself now.

3:09:29

Steve, do you want to try to unmute yourself?

3:09:34

Yeah, I just wanted to, Can you hear me?

3:09:38

Yes, we can.

3:09:39

OK, just want to mention that we just had a conference a year ago, but the next one, the Committee, is already starting the plans for it.

3:09:49

You save the date, e-mail has gone around.

3:09:52

There'll be January 11th and 12th, same location on the Oriental campus.

3:09:57

Um, We are planning that We're hoping that, we will be able to be passed covered restrictions.

3:10:07

But at the same time, we can't count on that. Plus, we also don't count that.

3:10:11

Um, even if we do have any in person, that everybody's going to be comfortable.

3:10:16

So, we are working to have the capabilities to have it.

3:10:22

Video attendance for those people that aren't comfortable being in that kind of setting, but to make lemonade out of lemons it's also rides the opportunity that people from the West Coast, or wherever.

3:10:40

Can participate, without having to deal with travel in January.

3:10:43

So, it's underway, Start your plans for what you want to talk about at the forum, and hopefully, we'll see you there.

3:10:51

Excellent. Thanks.

3:10:54

Um, so, that's all we have for today. Thank you very much for all your participation. We had, at one point over, around 80 people participating in this form, which was excellent.

3:11:08

Just two, know, right now, we're nearing the end of year end of Year two of the CMS. And like we had, like Julia Had mentioned earlier on in today's meeting, We're going to try to figure out, like, how are we doing? Where are we making progress? Where can we still Where's there's still room for improvement, or other places that were actually falling behind.

3:11:31

So, we're going to have this survey come out probably later this summer, to try to get at some of those questions, and we're considering the possibility of having another public meeting around the time of September.

3:11:43

Um, we'll be able to look at the results from that survey, maybe hopefully have a more open dialog with folks, and maybe we'll do this face-to-face. We never know. It was, again. Same with salmon farm. It's a matter of where we are with cycles in 19 restriction. So, anyways, just closing remarks.

3:12:06

Thank you very much for your participation, and have a good day.

3:12:13

That's the end of the meeting. Thank you.

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