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1 | was called as a witness, and after having been duly sworn,
2 | was examined and testified as follows:)

3 | **DIRECT EXAMINATION**

4 | BY MR. GRUBER:

5 | Q. Good morning, Mr. Arnold, how are you today?

6 | A. I'm awesome.

7 | Q. Can you please state your name, address, and
8 | occupation?

9 | A. My name is Greig Arnold, 560 Second Avenue, Post
10 | Office Box 43, Neah Bay, Washington.

11 | Q. What is your connection to the Makah Tribe?

12 | A. I'm a tribal member.

13 | Q. And how much of your life have you lived in Neah
14 | Bay?

15 | A. All my life.

16 | Q. What kind of jobs have you held?

17 | A. Twelve and a half years, elected official, Makah
18 | Tribal Council. Did work 11 years at the Makah Culture
19 | and Research Center as a director, general manager, worked
20 | in the planning office, fisherman.

21 | Q. Have you been involved in the Tribe's effort to
22 | exercise its treaty right to hunt whales?

23 | A. So my grandfather's grandfather, his name was
24 | 'Ćaqa-wił'. He was a treaty signer. My grandfather's

1 father, he was a whaler. My grandfather was a whaler. My
2 uncle was a whaler. I was a whaler. We have the next
3 generation that went hunting with us are whalers, so we
4 never broke this chain.

5 Q. Did you participate in the Tribe's hunts in 1999
6 and 2000?

7 A. I did, yes.

8 Q. And how did you participate in those hunts?

9 A. You know, we went through all the ceremonies.
10 We did preparation to get ready for them. It was quite an
11 experience to be with eight men that you entrust your life
12 with. But then you know that all their families are
13 behind them, so it was a big, tremendous support system.

14 Q. How have you -- have you been involved in the
15 Tribe's efforts at the International Whaling Commission?

16 A. I've been fortunate enough to go to quite a
17 few -- I went to the first IWC meeting in Scotland where
18 we withdrew our request to get whales. And I went to
19 Monaco, and we were successful getting a quota.

20 Q. On May 17th, 1999, when the Makah crew landed
21 the first whale in generations, where were you? Were you
22 in Neah Bay?

23 A. No, I wasn't. I hunted Friday. Saturday I was
24 preparing -- getting ready to go to Grenada for the IWC
25 meeting. I watched the activities on the water on the

1 news. It was really hard not to be with those guys while
2 they were hunting. Monday, they got the whale, and it was
3 a pretty exciting day for us.

4 Q. And you returned to Neah Bay after the hunt and
5 after the community feast; is that correct?

6 A. I did, yeah. They had a feast, and I got home
7 and there was a potlatch. I got there and I got right
8 back into the community. And for days, people would come
9 by and gifted me either blubber or meat prepared in all
10 different manner.

11 Q. Have you ever worked non-edible whale products?

12 A. Yes. I enjoy working with whale bone. It's a
13 really wonderful medium. I've made what we call chetoth
14 (ph.): the translation is it splits your face open. It's
15 a war club, about 2 feet long. Lots of pendants, combs,
16 bark shredders, whatever you can -- hair pins.

17 Q. Is the declaration that you signed on May 16th
18 of 2019, and which was submitted to the administrative law
19 judge, your written direct testimony in this proceeding?

20 A. Yes.

21 Q. Why is it important to have whale meat and
22 blubber and other whale products in the Makah community?

23 A. It's really important. It's who we are. It's
24 part of our belief system. You know, when I was young,
25 the best -- well, we had fish and seal. I never had whale

1 | until '99 in Neah Bay. And what a change, if people have
2 | it in their freezers and ready to go. I have oil ready.
3 | I have fish, dried fish right now. I go home and I'll dip
4 | it in my whale oil, and enjoy a healthy meal.

5 | Q. Are whale products part of Makah ceremonies?

6 | A. They are. You know, I think it -- well, we'll
7 | have the opportunity to, when we do our potlatches, our
8 | feasts, to provide whale for our guests. And we do that
9 | now anyway. There are family feasts, where we can --
10 | people bring out whale to enjoy. We had some visitors not
11 | too long ago that received some whale. It's really
12 | important for us. It's who we are. It's our identity.

13 | Q. Besides access to whale products, what other
14 | aspects of whaling are important to the Makahs?

15 | A. You know, whaling -- we just don't go kill a
16 | whale. People say that in the papers. They always say
17 | the Makahs are killing whales. That isn't the case. We
18 | go ask for the whale's life, that it surrenders its life
19 | to us. So with that is a whole series of ceremonies, and
20 | it starts at a particular time of the year when there's an
21 | event that occurs, and that is then when you begin your
22 | prayers and your bathing and those things get spiritually
23 | ready. And then, you get started physical training.
24 | You're in the canoe, you're getting stronger. And then,
25 | there's the emotional training.

1 You know, hunting a whale, getting in a canoe and
2 you're next -- you're closer than I am to this gentleman
3 here, this close to this gentleman. You could lose your
4 life that day. So emotionally, you have to be ready to
5 surrender yourself, and had you not done all your
6 ceremonies properly -- so you become really strong.

7 Q. Outside of the crew, when a crew's preparing for
8 a hunt, how are others in the community affected?

9 A. So, you know, you take one man in that canoe,
10 his family, the extended family, they're all involved.
11 And so, the way we do it, you know, it's just not one
12 person, but there are eight people. So that just makes
13 hundreds of people involved in this activity. And it's
14 really healthy. Young people can identify, oh, I know a
15 whaler; oh, my dad is a whaler; oh, my uncle's a whaler.
16 And then they begin to think, oh, I have responsibilities
17 to uphold.

18 Q. Are you familiar with NOAA's proposed limits on
19 the use of edible whale products off of the Makah
20 reservation?

21 A. Yes.

22 Q. And do you have an opinion about those?

23 A. I'm glad to hear that they're talking about
24 changing them, but, yeah, the way they are, it goes
25 against everything we've been taught as young people or

1 | growing up in Makah, that actually our -- the name, Makah,
2 | is from the tribe to our east. When they were negotiating
3 | our treaty, Q^widičča?a·tš' that's who we are, but they give us
4 | the name Makah. And that means generous with food.

5 | So we grew up in our houses knowing that, that
6 | as we're preparing for visitors, that we provide food for
7 | them. And for us to get a whale and not be able to
8 | provide it to our guests or to our families -- so I have
9 | families -- I have family here in Puget Sound, they're
10 | teachers. My son's wife is a non-member. My
11 | grandchildren are members. And for them not to have
12 | access to whale -- I'm sure I was going to go to jail,
13 | because there's nothing I can do. I couldn't -- my
14 | grandmother would be mad at me for not bringing whale to
15 | them.

16 | Q. Does this also affect you personally?

17 | A. Yes. My wife and I, we rent a house in Sequim.
18 | She's on the road a lot and she uses it as a stopover.
19 | Her back gives her trouble if she's in a car too long, so
20 | we do that for her health. And she's a non-member. She's
21 | from Long Island. And for me not to be able to go to
22 | Sequim and enjoy a meal of whale is insane to me.

23 | Q. Since it's been almost 20 years since the Makah
24 | Tribe last went whaling, what are your hopes for the

1 future?

2 A. My hope is that this continues and we get a
3 waiver, that we're hunting and we're hunting for the rest
4 of our lives. And as long as the Tribe can do it, that it
5 is so many for our children, and our children's children,
6 and our children's children's children. You know, I never
7 thought in my lifetime that I would ever get to do this
8 activity. And what I learned, I learned just a small bit
9 of what my great grandfather understood about life and my
10 -- and his father.

11 So it's a healthy lifestyle. It's a dangerous
12 lifestyle, but it's a very spiritual lifestyle. And for
13 our people to have that and our young people to have that
14 to grab onto and remind them that technology isn't the
15 only thing, to be out on the ocean, to be with those
16 animals is magical.

17 MR. GRUBER: Thank you, Mr. Arnold. I have no
18 more questions.

19 THE COURT: Sir, I just want to be sure, we --
20 there was an agreement, I understood, there will be no
21 cross -- that the parties did not wish to cross-examine. I
22 just want to be sure.

23 MS. IMAKI: That's correct.

24 THE COURT: Very good.

25 Thank you, sir.

1 MR. GOLDING: For the Tribe's next witness, the
2 Makah call Daniel Greene, Sr.

3 THE COURT: Please.
4 (Whereupon,

5 **DANIEL J. GREENE, SR.**

6 was called as a witness, and after having been duly sworn,
7 was examined and testified as follows:)

8 **DIRECT EXAMINATION**

9 BY MR. GOLDING:

10 Q. Good morning, Mr. Greene.

11 A. Morning.

12 Q. How are you this morning?

13 A. Doing great.

14 Q. Could you please state your name and address?

15 A. Daniel Greene, P.O. Box 202, Neah Bay,
16 Washington 98357.

17 Q. And what do you do for a living, Mr. Greene?

18 A. I'm a commercial fisherman.

19 Q. And does that involve exercising your treaty
20 rights?

21 A. Yes, it does. I fish for Pacific whiting. My
22 livelihood depends on exercising our treaty rights.

23 Q. And is the testimony you submitted on May 14th,
24 2019, does that constitute your direct testimony in these
25 proceedings?

1 A. Yes, it does.

2 Q. Are you a Makah tribal member?

3 A. Yes. I'm an enrolled tribal member. Resided on
4 the reservation my whole entire life. I live in one of
5 our five villages, Waatch. My great-grandfather, he was
6 born across the creek from where I live now. And the
7 remnants of his long house is still there, and it's lined
8 with whale bone. So, yeah, I'm connected with the Tribe.

9 Q. And was whaling part of your life and what you
10 learned as a child?

11 A. Yes, it was. It was deeply ingrained in our
12 childhood. It's, you know, like what I said, my great-
13 grandfather's house. Also, you know, growing up, you're
14 told stories of, you know, a great famine and how the
15 whale gave his life to us to feed us and nurture us. And
16 also, you know, my father was part of the chase boat crew
17 in '99. So --

18 Q. And were you, yourself, involved in the '99
19 hunt?

20 A. Yes, I was. I trained when I could. I was
21 young, too young to go out, but, you know, I trained when
22 I could with the crew, you know, being eager to learn, and
23 just wanting to absorb all that. So I trained when I
24 could, spiritually, mentally, physically. We spent a lot
25 of time bathing and praying together.

1 Q. And I've heard you and others mention bathing in
2 streams. I understand that there's only so much that you
3 can discuss in public, but what's the purpose for that and
4 can you talk a little bit more about it?

5 A. Yeah. Bathing and praying, yeah, it is -- each
6 individual family has their own practices that get passed
7 down, but to stay general about it, yeah, we -- in cold
8 streams early in the mornings, we go and bath and pray,
9 scrub with brush, different brush. And, you know, it's to
10 heighten your senses. It's to ground yourself to nature.

11 It's like Greig was saying, you know, you're
12 preparing yourself spiritually. You're not the biggest
13 animal on the earth, so, you know, things happen. So,
14 yeah, it's to heighten your senses and, you know, ground
15 you to the earth.

16 Q. And once the whale was landed, were you involved
17 afterwards in 1999?

18 A. Yes, I was. I helped pull the whale ashore. It
19 was a tribal community event. Everyone participated. You
20 know, I was involved in washing the blubber and process --
21 getting ready for the potlatch, the party, the
22 celebration. Also, in the following year, I was involved
23 in reconstruction of the whale skeleton that now hangs in
24 MCRC. We drilled holes in the vertebrae, and again, it
25 was a -- you know, our class was heavily involved in that,

1 | so there was a lot of unity there.

2 | Q. And then I understand, did you also train for
3 | the planned 2000 hunt?

4 | A. Yeah, I did. I trained in -- with the John
5 | Parker family in 2000-2001. That was intense training.
6 | We trained often 7 days a week, did a lot of physical
7 | training. You know, we paddled, we were on the water
8 | almost every single day. There was a lot of spiritual
9 | training also. Like I said, bathing, you know, in pools
10 | of water, and praying. Yes, I did.

11 | Q. And as part of that training or as part of your
12 | childhood, did you study gray whale behavior with your
13 | family?

14 | A. Yeah, so growing up on the ocean -- I grew up on
15 | the ocean. Fisherman my whole entire life. I fished with
16 | my grandfather, my father. And we fished near shore with
17 | commercial set nets. So, you know, you're taught -- when
18 | you see a whale you're taught about them. You're taught
19 | about the way they move. You're taught about their
20 | movements, the kelp lines they frequent. The shelves they
21 | like -- you know, they frequent to feed. And they taught
22 | about migration patterns, when whaling season is, and that
23 | sort of stuff.

24 | Q. And in your view, what are the benefits of the
25 | Tribe exercising its treaty whaling right to the Makah

1 | community?

2 | A. The benefits are -- you know, it's our right.
3 | It's something that was very important to us that we held
4 | onto. And I think the benefits of it will be, like, you
5 | know, eating more of our natural foods, really the
6 | subsistence lifestyle out there. Fishing's a big part of
7 | our diet. And the key thing there is it's part of our
8 | diet; the other part is marine mammals. And we've been
9 | eating those for thousands of years. Our bodies are used
10 | to digesting these sorts of things.

11 | Today's modern age, we eat a lot of processed
12 | meats and foods and that kind of stuff, you know, to
13 | supplement, you know, those kinds of things and our bodies
14 | don't do well with them. We have a lot of diabetes and
15 | that kind of stuff on the reservation. I think going back
16 | to our natural foods and exercising our treaty right will
17 | help that. And I think also our, you know, the unity it
18 | brings affects a lot of different families, you know,
19 | whalers. You know, kind of bring us back to who we are.

20 | Q. Thank you. And has the absence of a hunt since
21 | 2000 affected you and the Tribe?

22 | A. Yes, it has. You know, it's been heart-
23 | wrenching. It's a tough thing. So, you know, growing up,
24 | again, on the ocean. And, you know, that's our farm.
25 | That's our -- we know everything about the ocean. We're

1 | always learning. We're always -- you know, it's our
2 | livelihood. And so, when you're taught about whaling
3 | growing up, and you're told the stories and you're told
4 | about, you know, how to make different things for hunting,
5 | you're taught all these things, and then, to see it come
6 | to life in, you know, '99, and that life got breathed into
7 | our culture and our language, and have that yanked away,
8 | you know, it was heart-wrenching. It was tough. Tough
9 | thing to go through.

10 | Q. And today and in your written testimony, you
11 | talked about the benefits of youth training for the hunt
12 | and eating whale products and the community coming
13 | together. There's been suggestion that some of these
14 | benefits might be achieved without hunting, via whale
15 | watching or something else. And I'm wondering if you
16 | could speak to the importance of actual hunting to those
17 | benefits.

18 | A. Yeah, the importance of actual hunting is, yeah,
19 | we -- like I said, we don't just go -- we're not trophy
20 | hunters. We don't just go kill this animal. We ask for
21 | its life. And there's a lot of religious and things that
22 | are on the back side of that, you know, the post-hunt.
23 | And I can't go into detail about those, you know, a whole
24 | lot, but -- yeah.

25 | Q. Thank you. And in terms of the future, is your

1 A. I'm an enrolled member of the Makah Tribe, and have
2 been most of my life.

3 Q. Have you held any jobs with a connection to
4 Makah culture?

5 A. Yes. I started volunteering for the Makah
6 Culture and Research Center. And it eventually turned
7 into a job, and I worked with a lot of the artifacts from
8 the Ozette dig, and I spent a lot of time in the storage
9 facility where the majority of our whaling artifacts are
10 stored. And I did give several tours over the years at
11 the museum. The very beginning of the museum starts with
12 the whaling exhibit, and I think it just sets the tone for
13 the rest of how we portray our life to other people.

14 Q. Did you want to finish that thought? You heard
15 Mr. Greene refer to the skeleton from the 1999 whale. Is
16 that part of a tour at the MCRC?

17 A. Yes, it is. It's, you know, everything -- it
18 seems like when you're giving a tour there, that you spend
19 a really a lot of time at the beginning because it's about
20 our whaling, and a lot of people are, you know, very
21 interested, and I think there is very misunderstood facts
22 out there. And they're very interested to learn from the
23 people who, you know, got the whale, that they're very
24 interested and get more informed on what really happened.

25 Q. And besides the tours that you've led and your

1 | work at the MCRC, Makah Cultural and Research Center, what
2 | is your connection to the Tribe's whaling?

3 | A. Well, in 1999, I was in a relationship with
4 | Theron Parker, the harpooner. So it was my role to lay
5 | still while the men were out on the hunt, because it was
6 | our belief that the woman becomes one with the whale, and
7 | so if the whale is -- you know, if I'm eating, then the
8 | whale's going to eat, or if I'm moving around, that the
9 | whale would move around, and it would be dangerous for the
10 | crew. And so, it sounds like a really easy thing to just
11 | lie still in bed. For 12 to 14 hours a day, it is not.

12 | Q. Did you receive support in that role that you
13 | played?

14 | A. I had my brother who was there with me most of
15 | the time. It would be from 3 in the morning to like 6 at
16 | night where I couldn't get up, I couldn't eat, I couldn't
17 | drink. There was a lot of people who would come in and
18 | say prayers with me and take care of my children and my
19 | family.

20 | Q. Were you involved in the 1999 hunt after the
21 | whale was landed?

22 | A. Yes. After the whale was landed, Theron and I
23 | spent a lot of time on the beach taking care of the whale
24 | until about probably 3 or 4 in the morning. And then,
25 | afterwards, during that week, I spent the week up at the

1 processing plant cutting whale.

2 Q. Is the declaration that you signed on May 13th
3 of 2019, and which was submitted to the administrative law
4 judge, your written direct testimony in this proceeding?

5 A. Yes.

6 Q. How did people in Neah Bay use the 1999 whale?

7 A. A lot of people, like when we were up at the
8 filet plant, there was several people who cooked the whale
9 and the blubber in different ways. And they were very
10 excited, and they would all bring up what they cooked up
11 there to us. And, you know, we've kept it and froze ours
12 and used it during the year for different special events,
13 because, you know, it's a very spiritual food. It's not
14 just, you know, going to go get a hotdog or something.

15 Q. Do you have a favorite preparation?

16 A. Yeah, I like, instead of using chicken for
17 adobo, if you cut up the whale and put the blubber and the
18 skin, it's pretty good.

19 Q. And because you were in a relationship with the
20 harpooner, was there any ceremony or use of the whale
21 associated with that relationship?

22 A. Yes. Because he was the harpooner, he got what
23 was called the whale saddle, and that section of the whale
24 is specifically for the harpooner. And we did ceremony
25 with it for 4 days after the hunt. And on the fourth day,

1 he gathered people together at the museum and gifted them
2 parts of that. And he didn't keep any for himself. He
3 gifted to the people who had an important role in his
4 life.

5 Q. What is the importance to you of consuming the
6 whale meat and blubber or oil?

7 A. I think it's more than just food. It's a
8 spiritual need for our people. And my late aunt, Hildred
9 Ides, was very adamant at teaching us that we need to eat
10 our traditional foods, because she felt that that was the
11 reason that people are sickly, you know, in the village,
12 is because they don't eat enough of our traditional foods.
13 And she was very excited for the whale hunt. And she
14 passed away a couple of weeks before they got the whale,
15 but she was very adamant about our family to eat
16 traditional food and how important it was for not just the
17 nutrition, but for your spiritual soul to eat the whale.

18 Q. Did you experience the humpback whale that was
19 killed by a ship and towed to Neah Bay in August of 2018?

20 A. Yes, I was lucky enough to be one of the people
21 who were able to help bless the whale, because we treated
22 the whale the same way that we always treat whatever it
23 is. And we brought the whale ashore and it was given a
24 ceremony. And it was a very different atmosphere from the
25 '99 whale, because there was so much -- there were just so

1 | many people around, and this time with the humpback whale
2 | it was more like how we would be doing it traditionally.
3 | There was no one there. It was very calm. It was very
4 | peaceful. It was very spiritual. My children, my
5 | grandchildren were there. We were there until about 3 or
6 | 4 in the morning cutting the whale.

7 | And after we went home, my young son who had
8 | come home from -- he lived in Bellingham, and he was there
9 | with me all night cutting the whale. And he was there in
10 | '99 when the whale came ashore, but he -- we were sitting
11 | at the -- we were at the sink and we were cleaning and
12 | preparing our food and to get put away. And he looked at
13 | me and he said, Mom, I'm going to remember this day for
14 | the rest of my life, that I'm sitting here preparing whale
15 | with my mother. It just a little bit broke my heart that
16 | this isn't -- he shouldn't have to feel that it's a one-
17 | time thing. He should be able to feel that it's part of
18 | his life.

19 | Q. How did your cultural knowledge play a role in
20 | the 1999 hunt?

21 | A. My father and my late aunt, Hildred Ides, they
22 | always teach us everything irregardless if we're still
23 | practicing or not. And so, as a young woman, she went
24 | through a lot of the steps that would need to be done in
25 | the case that I would be in that role. And when I was

1 | young, I was like, wow, that's just a far-off dream that
2 | we could ever do that again. And so, when the time came,
3 | I was prepared to do what needed to be done because we are
4 | taught these from the time -- you know, even when they're
5 | babies in the womb, they're talking to them about what you
6 | need to do in your life.

7 | Q. What most stands out to you about the 1999 hunt
8 | of the many things you've already talked about today?

9 | A. It was such an incredible time. It was such a
10 | moving time for the whole community. It was -- I remember
11 | telling someone once it was do you know like, right now,
12 | that feeling at Christmas, how everybody gets happy. It
13 | was like a hundred times more than that in the community.

14 | But I think my greatest memory is when the whale
15 | was coming ashore and I was standing up above the beach on
16 | the top of the beach with my brother Spencer McCarty and
17 | my friend Joe McGimpsey and a couple of the other women
18 | who also played a role. And I was looking at the hundreds
19 | of people on the beach, and I had to get down for the
20 | whale to be blessed. And you could see, you know, it was
21 | so much buzz and excitement, but I could not see how I was
22 | going to get from here to there with the thousands -- you
23 | know, all of the people on the beach. And my brother
24 | looked at Joe and they just started chanting prayer songs
25 | and we just walked and the crowd just moved aside for us.

1 American Indian Studies departments.

2 Q. Did you prepare written testimony for this
3 proceeding consisting of a declaration, a report entitled,
4 *Makah Whaling: History, Culture, and Continued Relevance*
5 *Today*, and attached exhibits?

6 A. Yes, I did.

7 Q. What did you attempt to do in your written
8 testimony?

9 A. My goal was to provide an overview of Makah
10 whaling culture and history, with a particular emphasis on
11 examining the treaty rights the Makahs reserved for
12 themselves, the whaling rights, in the 1855 Treaty of Neah
13 Bay.

14 Q. Can you describe your education and experience
15 related to the subject of your written testimony?

16 A. Sure. I earned my double major in political
17 science and studies in the environment from Yale
18 University, where I wrote a senior thesis on the fishing
19 rights of western Washington tribes. That was probably
20 one of my first, kind of academic introductions to treaty
21 rights relative to Makahs. I also earned my master's and
22 doctorate in history with an emphasis -- a designated
23 emphasis on Native American Studies from the University of
24 California-Davis, where I wrote my dissertation about the
25 Makahs and their historic relationship with the sea.

1 After that, I published my book, *The Sea is my*
2 *Country: The Maritime World of the Makahs*, with Yale
3 University Press in 2015. And then, I have been teaching
4 on this subject within the larger kind of spectrum of
5 American Indian history and environmental studies at
6 places like University of Massachusetts-Boston, before
7 coming back home here to the University of Washington,
8 where I am currently an associate professor in History and
9 American Indian Studies, and a John Calhoun Smith Memorial
10 Endowed Professor of History. I also direct the Center
11 for the Study of the Pacific Northwest.

12 Q. What sources did you rely on in preparing your
13 testimony?

14 A. Pretty much anything that I could find that
15 dealt with Makahs and this history and culture. So, as a
16 historian, of course I delved into archival sources,
17 visited archives such as the University of Washington's
18 special collections, the Washington State Historical
19 Society archives down in Tacoma, the State Archives in
20 Olympia. Went up to the BC Provincial Archives in
21 Victoria, accessed documents in the Hudson's Bay Company
22 archives, Winnipeg. Went back to Yale where there were a
23 wealth of sources at The Beinecke Rare Book and
24 Manuscripts Library. And, of course, delved into both the
25 regional and national branches of the federal archives.

1 And so, from -- you know, for a complete list of
2 everything that I, you know, read and accessed, you can
3 certainly take a look at the footnotes or the 169 exhibits
4 that I filed with my report. But just to give you a quick
5 overview of some of these archival sources, they included
6 things like the diaries of James Swan, who lived out at
7 Neah Bay from about 1859 to 1866, then again from 1878 to
8 1881. I read all 14,000-plus daily entries in his diary.
9 That really kind of spoke to a lot of what he saw or heard
10 about Makah practices in the second half of the 19th
11 century.

12 I also spent a lot of time with Indian agent and
13 superintendent and inspector reports from about the mid-
14 19th century to the early 20th century that again captured
15 a lot of observations of Makah practices. And a lot of
16 time also with anthropological investigations, field
17 notes, publications, largely written in the early to mid-
18 20th century, trying to, and like anthropologists do,
19 capture a lot of details and information from earlier
20 times.

21 But I would argue that the most important
22 sources that I accessed were -- and engaged with were
23 Makah ways of knowing and remembering the past. As an
24 indigenous scholar myself, that was absolutely critical
25 for doing the type of history that I do. These sources

1 | included archeological reports and data to get a sense of
2 | material items, you know, especially related to whaling,
3 | but also Makah oral histories, many of which I conducted
4 | myself from 2005 on, or that Makahs and other scholars
5 | have conducted over time.

6 | Q. Thank you. Can you briefly describe the Makah
7 | Tribe's relationship with the sea?

8 | A. Yes. So, the Makahs are the 'Q^widičča?a-tx', the
9 | People of the Cape. And their relationship with the sea
10 | really defines who they are as that. They have lived
11 | around the larger Cape Flattery area for more than 4,000
12 | years, according to archeological data, and since the
13 | beginning of time. The waters around Cape Flattery
14 | provide them with a rich set of marine resources,
15 | including salmon, halibut, seals, and 'čítapuk (whales)'.
16 | There are many species that swim past Cape Flattery.

17 | Through their marine-oriented labor and
18 | practices, cultural practices like storytelling and place-
19 | naming of coastal and marine waters, they transformed the
20 | sea into their home. This is really kind of the subject
21 | of my first book. But they also have a long history of
22 | keeping the sea for themselves. And so in my research, I
23 | found that they fought non-Makahs for access to the ocean,
24 | for protection of their marine tenure. They specifically

1 | protected their rights to the ocean through the Treaty of
2 | Neah Bay, the 1855 treaty in which they reserved these
3 | rights.

4 | In post-treaty years, they regulated non-Makah
5 | fishing and hunting in their waters. From about the 1890s
6 | on, Makahs have been actively lobbying federal officials
7 | and seeking protections in courts to really affirm and
8 | protect those treaty rights. So, you know, it's absolutely
9 | central to who they are in that sense.

10 | Q. What is the role of the Tribe's whaling and
11 | whaling culture in the Makahs' relationship with the sea?

12 | A. So, as maritime people, whaling -- for the
13 | Makahs, whaling is firmly what defines them as the People
14 | of the Cape.

15 | (Audio problem.)

16 | THE WITNESS: Should I just not use this? I can
17 | speak loudly.

18 | THE COURT: Well, no, they're working on that.

19 | THE WITNESS: All right.

20 | So, whaling is really what defines them as the
21 | people of the cape. I believe that this is their most --
22 | kind of their most important aspect of their relationship
23 | with the sea. So, you know, Makahs have been a whaling
24 | people for 27 -- for at least 2700 years.

25 | MR. GRUBER: Maybe we could take a little break.

1 THE COURT: Just one second.

2 **(Off the record from 9:46 a.m. to 9:49 a.m.)**

3 BY MR. GRUBER:

4 Q. So you were talking about 2700 years of whaling.

5 A. Yeah. So Makahs have been a whaling people for
6 at least 2700 years, and they're widely recognized for
7 their skills and success as whalers. Their wide and
8 extensive knowledge of the marine environment allows them
9 to successfully go out to sea for up to 100 miles in
10 canoes. This is well beyond the sight of land, where they
11 can stay out for days at a time pursuing whales. So, you
12 know, when we think about kind of the centrality of
13 whaling to Makah culture and identity, it's absolutely
14 central to that. And it's this regular access to whale
15 products that were critical for subsistence and cultural
16 practices that defines who they are.

17 Q. How does active hunting fit into that?

18 A. Active hunting is absolutely central. It's, you
19 know, through these regular hunts, this is how they
20 demonstrate their relationship with whales. It's how they
21 engage in the constellation of practices that really kind
22 of, as I argue, compose the culture of Makah whaling.

23 You know, it's more than just, as some of the
24 other witnesses have testified, it's more than just the
25 simple or straightforward harpooning of a whale. Historic

1 and contemporary Makah whaling practices include ritual
2 preparations and ceremonies, indigenous knowledge and
3 technology. It provides a wealth of food resources and
4 whale products that are useful and absolutely critical for
5 feasts, for giving gifts, this includes to non-Makahs.
6 Hence, why it's important for them to have the right to do
7 that. And, of course, with trade. It also includes
8 artistic representations, songs and dances, property
9 names, and oral histories of prominent whalers are still
10 told today and will be for generations.

11 And as I found in my research, it's central to
12 their exercise of authority, governance, gender roles. As
13 we've heard from Polly, women play important roles in
14 successful whale hunts. And I would also like to
15 emphasize that there are intergenerational components to
16 it here. Unsurprising to see Makah youth sitting here in
17 the audience, because whaling is how Makahs transfer
18 knowledge and values from one generation to the next.

19 So, you know, hunting whales and actual active
20 regular hunts are absolutely central to Makah identity.

21 Q. What is the importance of whale products,
22 especially meat, blubber, and oil, to Makah culture and
23 subsistence?

24 A. So, you know, whales, of course, as one can
25 imagine, provide a wealth of food resources, blubber,

1 | meat, and oil. One of the archaeologists working at the
2 | Ozette dig estimated that there were between 78 to 88% of
3 | the faunal remains at Ozette were from whales. And this,
4 | as he pointed out was far more than could just be consumed
5 | there at the village, which also indicates that whales
6 | were critical for commercial exchanges, too.

7 | But whale, you know, eating and consuming so
8 | much of that meat and blubber really did shape and define
9 | their identity. James Swan, in 1860, described them as
10 | "the blubber-eating aborigines". For me, the more
11 | important piece of their identity is, and it also relates
12 | to their name, Makah, which comes from the S'Klallam
13 | peoples to their east. Makahs, as has been pointed out,
14 | means generous with food. Another gloss of it is you
15 | never leave here without being hungry. And whale products
16 | provided an important amount of that substantial food
17 | source that was gifted through feasts.

18 | Whale products themselves, particular parts of
19 | the whale also hold ceremonial importance. You know, what
20 | Polly was attesting to with the saddle, that's that piece
21 | of the blubber from about the head to the dorsal fin that
22 | belonged to the harpooner. One of the reasons was that
23 | the choicest oil comes from that large piece of blubber.
24 | But more importantly, the days of ceremony that were held
25 | to honor the whale, to honor the gift from this non-human

1 relation, part of their community that was critical to
2 show respect to the whale through these ceremonies with
3 the saddle itself.

4 And then, of course, there was the feast of the
5 saddle where the harpooner gave portions of that away to
6 the community. And with regular access to whales,
7 harpooners often provided a wealth of meat, blubber, and
8 oil for a range of potlatches and feast events, which
9 helped to -- you know, it was one way that they maintained
10 or exercised their authority. Many Makah whalers
11 identified the oil potlatch as the most significant of
12 these types of events. This was held after a particularly
13 rich season of hunting. There are many other examples
14 that I've provided in the testimony.

15 Q. I just wanted to ask you a quick clarification
16 on that gloss on the Makah name.

17 A. Yeah.

18 Q. So it was based on people who would visit Makah
19 and they always had the sense that they were -- when they
20 left, they were full?

21 A. Yes, yes.

22 Q. What role did whales, whaling, and the Makahs'
23 relationship with the sea play in the negotiation of the
24 Treaty of Neah Bay?

25 A. It absolutely dominated what Makahs had to say.

1 | So in the treaty negotiation that George Gibbs recorded
2 | pretty meticulously, actually, there were many Makah
3 | statements about the, like, literal property rights to the
4 | ocean, to marine resources. Many Makah authorities spoke
5 | time and again about the critical importance of whaling
6 | and fishing for providing for the health and prosperity of
7 | their peoples. 'Çaqa·wił' really kind of captured it best
8 | with his statement, "I want the sea. That is my country."
9 | He also argued that if whales are killed and floated
10 | ashore, that his people should have the exclusive right of
11 | taking them. And these were things that Governor Stevens
12 | acknowledged, to the degree that he promised federal
13 | government support for Makah whaling efforts and their
14 | industry.

15 | So, really, through the treaty, by signing the
16 | treaty, Makahs secured for themselves and their people in
17 | perpetuity their marine tenure, access to these marine
18 | resources in which they very specifically reserved for
19 | themselves and their people the right to hunt whales and
20 | seals and to take fish both on and off the reservation.
21 | Without those commitments and without the federal
22 | government's agreement, Makahs would have not even
23 | considered signing the treaty.

24 | Q. In your opinion, is hunting whales essential to

1 exercising the treaty right and the constellation of
2 cultural practices associated with whaling?

3 A. Absolutely.

4 Q. Why is that?

5 A. Well, it's really only through whale hunts that
6 Makahs can maintain their identity, their culture, their
7 health, their nationhood. You know, so the occasional
8 landing of a drift whale, if it's even still edible by the
9 time it comes to shore, that is simply inadequate. It's
10 no substitute. So it's through active whaling that the
11 Makahs can really secure regular access to whale products,
12 which are critical for maintaining their culture and
13 identity.

14 Q. In your opinion, could whale watching or non-
15 lethal ceremonies involving whales be an adequate
16 substitute for hunting whales under the treaty?

17 A. Nope.

18 Q. Why not?

19 A. Well, it just -- it's a complete violation of
20 those treaty rights. Makahs were pretty clear that they
21 reserve for themselves the right of hunting whales, not
22 the right of alternatives to hunting whales. So, you
23 know, it would be a violation of those treaty rights. It
24 would inhibit the Makahs' long relationship with whales
25 and the practices through which they show respect for the

1 | gift of the whale. And it would just completely deny them
2 | the ability to fully practice their culture.

3 | MR. GRUBER: Thank you, Dr. Reid. No further
4 | questions.

5 | THE WITNESS: Thank you.

6 | THE COURT: Again, no questions from any of the
7 | parties?

8 | All right. Thank you, sir.

9 | THE WITNESS: Thank you.

10 | MR. GRUBER: So we have the next witness as
11 | well. We're ready to call Jonathan Scordino.

12 | THE COURT: All right. We'll call Dr. Scordino,
13 | and we'll go for about a half an hour. And then we'll
14 | break, and then continue with Dr. Scordino, I imagine.
15 | (Whereupon,

16 | **JONATHAN SCORDINO,**
17 | was called as a witness, and after having been duly sworn,
18 | was examined and testified as follows:)

19 | **DIRECT EXAMINATION**

20 | BY MR. GRUBER:

21 | Q. Good morning, Mr. Scordino. How are you this
22 | morning?

23 | A. I'm doing well, a little nervous. This is a
24 | first experience, for sure.

25 | Q. Can you please state your name, address, and

1 occupation?

2 A. Yes. My name is Jonathan Scordino. Last name
3 is spelled S-c-o-r-d-i-n-o. I work at 150 Resort Drive,
4 Neah Bay, Washington. And I also reside in Neah Bay,
5 Washington. My occupation since 2007 is the marine mammal
6 biologist for the Makah Tribe.

7 Q. Can you describe your work that you do in this
8 position as the Makah Tribe's marine mammal biologist?

9 A. Yes. So I run the Marine Mammal Program for the
10 Makah Tribe, which is part of the Makah Fisheries
11 Management Department of the Makah Tribe. And the goal of
12 the Marine Mammal Program is to sustainably manage marine
13 mammal populations as important biological, cultural, and
14 subsistence resources of the Tribe.

15 To achieve this goal, I conduct scientific
16 studies and monitoring of marine mammal populations. And
17 I attend international and domestic meetings on the
18 management of marine mammals. And last, I engage in
19 reviewing any projects that could affect the management or
20 the treaty rights that regard marine mammals.

21 Q. Prior to your work with the Tribe, did you have
22 any experience with whales or whaling?

23 A. Yes. In 1999, I had the unique opportunity of
24 volunteering with National Marine Fisheries Service
25 because my father was working for them at the time. And

1 | so I observed the Makah whale hunt, and on May 15th, I was
2 | on the water observing the hunt. And then, on May 17th,
3 | when they had the successfully landed whale, my dad and I
4 | drove out, and I volunteered again and helped necropsy the
5 | whale and to butcher the whale.

6 | Then after I graduated college, I conducted -- I
7 | was a contractor for the National Marine Mammal Lab, which
8 | is part of the National Marine Fisheries Service in their
9 | Alaska Fisheries Science Center. And I conducted humpback
10 | and gray whale research as a couple of the job
11 | responsibilities I had in that position.

12 | Q. Can you briefly describe your educational
13 | background?

14 | A. Yes. In 2002, I graduated from the University
15 | of Washington with a bachelor's of fisheries science, and
16 | a bachelor's of wildlife science. I also earned a minor
17 | in quantitative sciences, which is essentially applied
18 | statistics. In 2004, I returned to college to the
19 | university -- to Oregon State University, where I earned a
20 | master's of wildlife science in 2006.

21 | Q. What research do you currently conduct as the
22 | Tribe's marine mammal biologist?

23 | A. I conduct a wide variety of research activities
24 | that are summarized within my testimony and in my CV. I
25 | think the research that is most pertinent to this case is

1 | the research I do on gray whales.

2 | Q. How do you conduct research on gray whales?
3 | What are your research objectives?

4 | A. So the research that we do is generally
5 | conducted from small boat surveys. I run a 22-foot rigid-
6 | hull inflatable conducting surveys on the coast of
7 | Washington through portions of the Makah U&A. So I survey
8 | -- the survey is based on seasonality. During the winter
9 | and spring, my surveys are conducted mostly in the off-
10 | shore components of the Makah U&A area, so my research
11 | effort is most focused from Cape Flattery down south
12 | through the Makah U&A and as far south as Sea Lion Rock.
13 | And during that time of year, I run my surveys more
14 | offshore. I'll run out to about 10 miles offshore and
15 | back in a zig-zag pattern down the coast, so I can get a
16 | good representation of how the whales are using their
17 | coastal habitat.

18 | And when I encounter whales, I photograph them,
19 | and I record their behaviors and their numbers and any
20 | other unique attributes that I might see with the whales.
21 | The photographs that I take are shared with Cascadia
22 | Research Collective. And the -- you know, probably the
23 | most important aspect of the research during the winter
24 | and spring is determining the proportions of the mixing
25 | ratio of the whales there of Pacific Coast Feeding Group

1 and Non-Pacific Coast Feeding Group whales.

2 During the summer and fall, my research
3 objectives -- or I have more research objectives that I
4 take on in addition to what I've described for the spring.
5 So, again, I'm photographing the whales I see for
6 providing photographs to Cascadia Research Collective to
7 compare to their catalog of known whales from studies on
8 the west coast of the U.S. and Canada. My surveys during
9 that time of year, during the summer and fall feeding
10 season, extend east as far as Sekiu Point and then west
11 out to Cape Flattery, and south as far as Sea Lion Rock
12 again. And I'm focusing the near shore during that time
13 of year, because the whales are generally observed feeding
14 between about 15 and 80 feet of water.

15 Q. Can I ask about how many surveys you've done?

16 A. Yeah, so since 2007, just me, on days that I've
17 been on board boats is 485 surveys that I've conducted.
18 So that's a lot of days on the water, more than a year of
19 time of my life I've spent out on the water outside Neah
20 Bay observing the whales and the behaviors in that area.

21 Q. Can I ask what type of analysis or work you do
22 with your photo IDs, photos in-house?

23 A. In-house, okay. So in-house are -- we review
24 our photographs, so first we get -- our photographs are --
25 when we send them off to Cascadia Research, they give us

1 back the identification numbers for the whales, which is
2 an important aspect for us to be able to uniquely identify
3 each whale in our studies, so when we're reporting aspects
4 of the whales we're making it relative to the unique whale
5 and we can compare it between time.

6 So I take the data that is provided back from
7 Cascadia and our photographs, and we review our
8 photographs to evaluate the body condition of gray whales.
9 My wife and I are currently working on a study that we're
10 hoping to submit for publication soon that evaluated the
11 body condition of gray whales from 1996 through 2012 using
12 not only Makah data but also data collected from the
13 National Marine Mammal Lab using their photographs. We
14 also pulled together a report recently where we evaluated
15 the whales during their first time they're observed in the
16 Makah U&A or the survey area, anyway. First time they're
17 observed, then when they're also seen for their first time
18 within the Pacific Coast Feeding Group range, and
19 determining if they're a calf or non-calf, to get a better
20 understanding of the roles of internal and external
21 recruitment.

22 And probably most importantly, my use of that
23 data is I did a very thorough analysis of how gray whales
24 utilized the survey area of northern Washington during the
25 summer and fall feeding season. So I was able to evaluate

1 | sighting data from 1984 through 2011 for that paper that
2 | was published in the *Journal of Cetacean Research and*
3 | *Management*. That paper had evaluated the movements and
4 | behaviors of 225 individual whales during the course of
5 | those years.

6 | Q. Is that publication you mentioned, the *Journal*
7 | *of Cetacean Research and Management*, a peer-reviewed
8 | journal?

9 | A. Yes. That one is a journal that is sponsored
10 | through the International Whaling Commission, and, yes,
11 | it's peer-reviewed.

12 | Q. Does your program also conduct biopsy sampling?

13 | A. Yes. So our -- during the summer, I should have
14 | mentioned that -- I said we expand our research efforts
15 | and what we do. So we do collect biopsy samples in summer
16 | pretty intensively from starting in 2010, that I really
17 | started focusing on that effort. And then, we also
18 | collect fecal samples in this last year, year and a half,
19 | and some vertical tows for evaluating prey.

20 | But getting back to the biopsy samples, I've
21 | shared the biopsy samples that I collect as part of a
22 | large collaborative project with Dr. Lang, who's sitting
23 | in the back here. And for two important studies. The
24 | first one was the study of the stock structure of the
25 | Pacific Coast Feeding Group as compared to a reference

1 population in the summer feeding grounds in the northern
2 feeding areas. That analysis was published in 2014 in the
3 journal of *Marine Mammal Science*.

4 We're also -- I've been, since that paper was
5 published and we finished the data collection for it, I
6 continued collecting samples for the goal of a relatedness
7 analysis, which is still ongoing. The samples I collect
8 I've also shared with university researchers, because we
9 try and make the most value we can out of every sample we
10 collect. And so, even though the goal was genetics, it's
11 really great that we're also able to share these samples
12 for university researchers, so we have a study of
13 contaminant load in the gray whales as well as a study of
14 hormones for looking at stress and pregnancy.

15 Q. You mentioned the journal, 2017 journal paper.
16 In addition to that, are there any papers on gray whales
17 that are published in the peer review literature?

18 A. So there's the *Marine Mammal Science*, but I've
19 also had a large number of papers, maybe 16 or so, that I
20 have submitted to the International Whaling Commission, as
21 well as contract reports to the U.S. Government.

22 Q. What international meetings on whaling have you
23 attended?

24 A. So, since 2007, I've been a member of the
25 International Whaling Commission Scientific Committee.

1 | And I've attended every annual meeting of the Scientific
2 | Committee since 2007, except for this last spring when my
3 | wife and I were expecting a baby.

4 | In addition to the annual meetings, I attend all
5 | intersessional meetings of the Scientific Committee that
6 | pertain to gray whales and gray whale management. So
7 | those would be, like the international -- the
8 | implementation review and the Rangewide Review of Stock
9 | Structure and Status. I've also attended a handful of
10 | subcommittee meetings leading up to the commission meeting
11 | of the International Whaling Commission. And I have been
12 | an invited participant to one meeting of the North
13 | Atlantic Marine Mammal Commission.

14 | Q. What has your role been at the IWC meetings
15 | you've attended?

16 | A. At the IWC Scientific Committee meetings, I
17 | attend the subcommittees of the Scientific Committee that
18 | relate to gray whale biology, to aboriginal whaling, and
19 | to stock definition. Within those subcommittees, I take
20 | the role, as well as the other members, of providing
21 | review of the new science that is presented and providing
22 | that into context of -- for a better understanding of how
23 | to manage the whale populations. And so, I'm also
24 | presenting my own papers that are part of that review.
25 | Sometimes I'm also asked to rapporteur during the

1 meetings, so then I am writing draft parts of the report
2 that are then reviewed by the whole Scientific Committee
3 together, and before becoming a final version.

4 When I'm involved in meetings that are
5 pertaining to Makah whaling, I'm often asked to provide
6 additional analyses or data to help address data gaps.
7 And so, for instance, I prepare papers, even with Randy
8 Reeves here, on bycatch and ship strikes of whales for
9 addressing the data gap for modeling human-caused
10 mortality within the Rangewide Review of the Gray Whale
11 Stock Structure and Status, and also mixing ratios of PCFG
12 and non-PCFG whales.

13 Q. Did you prepare written testimony for this
14 proceeding consisting of a declaration, written report and
15 attached exhibits?

16 A. Yes.

17 Q. Did you also prepare a second declaration with
18 attached exhibits as written testimony to rebut the
19 testimony of DJ Schubert and Margaret Owens?

20 A. Yes.

21 Q. What did you attempt to do in your written
22 testimony?

23 A. In my written testimony, I wanted to complement
24 what had been done in the draft EIS. I think NOAA did a
25 good job of pulling all of that together, but I -- you

1 know, I wanted to pull in some more recent studies since
2 that was published, as well as give a local perspective to
3 that data that was collected, because I actually conduct
4 the research in that area so I could reflect on what I see
5 there.

6 So, within my testimony, I gave a thorough
7 review of the research that has been conducted on the
8 Pacific Coast Feeding Group and the findings of that
9 research. I have looked at stock structure of whale
10 populations. I've looked at the analyses that have been
11 completed on the potential hunt impacts. Potential
12 cumulative impacts was another aspect I looked at. And I
13 also presented a brief overview of past Makah hunting
14 practices as well as projected future hunting practices.

15 Q. What scientific literature on gray whales and
16 other topics did you review in preparing your testimony?

17 A. So I have read every published and unpublished
18 paper I could find on gray whales, really with a focus on
19 Pacific Coast Feeding Group, of course. But on the papers
20 that were most relevant to the proposed regulations and
21 the Makah's waiver request, those were the ones that I
22 have read more than once.

23 Q. Did you incorporate your studies and
24 observations of gray whales in the Makah U&A and nearby
25 areas in preparing your testimony?

1 A. Yes. So, I think it's -- it was very helpful
2 for me that I have spent more than a year of time
3 conducting research within the proposed hunt area, that
4 when I'm reading these papers I can reflect on how does
5 that work here, and does it apply; does it not apply? How
6 is that visualized to work here? So then, it was also
7 very instrumental to look at the analyses and papers that
8 I've presented either through the *Journal of Cetacean*
9 *Research and Management*, or through the reports that I've
10 prepared for the IWC, because these provide direct
11 analyses of how whales are behaving and what they're doing
12 within the hunt area. So it was probably the most
13 applicable data to what exactly is occurring where we
14 expect the hunt to occur.

15 And there was one more aspect to your question
16 that I missed.

17 Q. It's okay. I'm sure we'll cover it at some
18 point. With respect to your testimony on the effects of
19 Makah hunt on gray whale distribution, did you form an
20 opinion?

21 A. Yes, I did. I do not believe that the hunt will
22 cause a change in the distribution and the availability of
23 whales in the hunt area and vicinity as compared to what
24 is observed in years past of how the whales use the area.

25 Q. Why do you think gray whales will continue to

1 use an area where hunting is taking place?

2 A. I think there's a few lines of evidence. The
3 first line of evidence I point to is the observations that
4 have been recorded based upon hunting in Chukotka, where
5 they're removing 100-plus in recent years, more than 120
6 whales per year.

7 So what they've observed there is that the
8 distance from shore that hunters are traveling to access
9 the whales, the minimum and maximum distance, have been
10 rather consistent by year. Or they've had some
11 variability, but in recent years have been as short of a
12 distance as in earlier years; whereas, you'd expect if
13 there was a real response by the population of local
14 depletion of the whales, that the whalers would have to
15 work harder and harder to find the whales and go farther
16 and farther from their hunting villages.

17 In addition, there was a study looking at the
18 whale distribution and how they utilized Mechigmsky Bay,
19 which is right outside -- which is the area where the
20 Village of Lorino, the hunters from there, utilize. And
21 this is the most active of the whaling villages in
22 Chukotka. And there was variability year to year in how
23 the whales were using the area, but not a functional
24 response that you would expect for whaling. Like each
25 year that more and more are removed, you would expect if

1 | there was a response that you'd have less whales using the
2 | area and they'd be using less portion of it or points
3 | further and further away from Lorino Village. And that
4 | was not observed.

5 | Q. Could you remind everyone what the level of
6 | whaling is in Chukotka, Russia, compared to the proposed
7 | Makah hunt?

8 | A. So the current proposed regulations are for just
9 | three whales in even years and one whale landed in odd
10 | years with a maximum of two strikes. So an average of 2½
11 | whales per year that could be removed compared to in
12 | Russia the current catch limit is 140 whales, of which
13 | part of that is given to the Makah, so it's about a -- if
14 | we're taking the whole limit, it would be about 137 would
15 | be allowed or 138 a year that they can remove.

16 | Q. Did you consider the effect of any previous
17 | Makah hunts in your analysis of the hunt's impact on whale
18 | distribution?

19 | A. Yes. So, in 2007, shortly after I was hired by
20 | Makah Tribe, there was an illegal harvest of a whale on
21 | September 11th. And fortunately, I had surveyed the
22 | whales in that vicinity right before the hunt and had the
23 | opportunity of surveying those areas right after the hunt.
24 | And again, I saw no functional response of whales avoiding
25 | that area afterwards.

1 And, in fact, what I observed of the whale
2 distributions there in the month prior -- so I kind of
3 compared August to September and how the whales were using
4 the site in that year and previous years, and it was, you
5 know, well within the normal of what we experienced. And,
6 in fact, I'll even point out that 2008 was the year we've
7 seen the most whales ever use that area. So in the next
8 year that was when we saw the greatest densities we've
9 ever observed of whales using the area.

10 Q. In your opinion, will non-lethal aspects of the
11 hunt, such as training, hunting approaches, or
12 unsuccessful harpoon attempts affect the abundance,
13 distribution, movement, or feeding of gray whales
14 generally in the PCFG or the PCFG specifically?

15 A. No. I do not think it will. So we've heard
16 testimony already from Dave Weller, and I reflect on some
17 of what he said. But first let's just say, we already
18 know from the Chukotkan hunt, that we didn't see a
19 distributional change that was observed from the data that
20 was presented. So if the removals -- the whales are going
21 to be approached, you know, some of them that aren't
22 actually taken, just like the Makah hunt. So they're
23 going to have some non-lethal activities in their hunt
24 just like we will. And we saw no data to show that they
25 had a functional response to whaling.

1 Within the Pacific Coast Feeding Group, when we
2 think about the whales' response here, I can reflect on my
3 observations as a researcher on how the whales will
4 respond to non-lethal activities. And so, when I approach
5 a whale, the whales will sometimes respond to my approach.
6 Generally, the approach -- the response is very short-
7 term. The whales will sometimes accelerate away,
8 sometimes be evasive. So, you know, you can't stick with
9 them, they're going to evade you. But generally the
10 whales are going to return to their behaviors that they
11 were exhibiting prior to the approach rather quickly
12 afterwards.

13 Q. Can I ask you, when you say rather quickly, what
14 kind of time frame are you describing.

15 A. So for an approach, it can be, you know, no
16 reaction, they're just maintain exactly what they're doing
17 to, say, within the next 10, 15 minutes. And then, I also
18 have within my survey area that I'm often going out and
19 back, like I'm traveling south well beyond where the
20 whales are and then coming back again. And I can see the
21 whales back in the same areas that they were foraging on
22 my return trip. So I know that even when I have
23 activities that have -- you know, I observe a greater
24 disturbance that the whales are returning back to their
25 normal activities.

1 Q. With respect to whales that are actually struck
2 and killed during the hunt, won't that reduce the number
3 of whales in the area?

4 A. I do not believe it will for, again, a number of
5 reasons. So, again, the Chukotka hunt, we didn't see any
6 functional response to the whales that are there. Within
7 the Pacific Coast Feeding Group, there's some unique
8 aspects of their behavior and how they use their
9 environment that I think, again, will contribute to not
10 seeing an observable effect.

11 First, the Pacific Coast Feeding Group whales, a
12 portion of that group moves broadly with inside the
13 Pacific Coast Feeding Group range, and they're feeding
14 throughout that range. Wherever they can find food,
15 they're stopping and they're eating. So, if you remove a
16 whale and that's going to allow a little bit of a prey
17 release for the prey that that whale was going to be
18 eating, another whale that's traveling through within the
19 Pacific Coast Feeding Group can utilize it.

20 The PCFG also has a unique dynamic in that
21 there's 27,000 whales that migrate through the Pacific
22 Coast Feeding Group range. We observe about 40 non-PCFG
23 whales or 40 new whales each year within the Pacific Coast
24 Feeding Group range. And of these, about half of them
25 recruit into the Pacific Coast Feeding Group and are

1 | observed in a future year.

2 | And what Calambokidis et al. have concluded is
3 | that when the whales are feeding for a longer period of
4 | time during the first year they're seen, if they're --
5 | what they're terming a minimum tenure, if there's a long
6 | period of time between when they're first seen and they're
7 | last seen, that they're more likely to recruit into the
8 | group. And they hypothesized that's a sign that they're
9 | feeding successfully in that system for a longer period of
10 | time.

11 | So, again, if we remove a whale out of the
12 | system and you have a prey release, then you would expect
13 | some of these whales that would have only visited the area
14 | and would have left, would have had the opportunity to
15 | find more food and to recruit into the group by finding
16 | more feeding opportunity and time to get used to the
17 | system. We also have the opportunity that with more food
18 | available with removal of one whale, then a female that
19 | maybe otherwise would not have attained the energetics
20 | needed to reproduce, will attain it by having more
21 | opportunity to feed.

22 | So there's a few lines of evidence to say that
23 | the whale -- there'll be replacement of new whales both
24 | within that year, immediately, of other whales kind of
25 | traveling in the area, but then, in long term, just

1 | increasing numbers of other whales that are recruiting
2 | into the group.

3 | Q. What evidence have you observed that links PCFG
4 | movements to prey availability, which you, in that
5 | response, mentioned a few times?

6 | A. Yeah, so I think for gray whales, we have to --
7 | I'll first answer this kind of broadly for gray whales,
8 | and then I'll go specifically into Pacific Coast Feeding
9 | Group. So, in gray whales, we have seen in their northern
10 | feeding grounds a vast reduction in the prey available in
11 | the Chirikov Basin, which was one of their prime feeding
12 | areas in 1970s and '80s. And following that, the whales
13 | distributed out of those areas. They moved to new areas,
14 | so researchers Barrow started seeing more gray whales
15 | appearing east of them in the Beaufort Sea, and
16 | researchers started seeing whales around Kodiak Island.

17 | And so, the whales moved away, found areas that
18 | had abundant prey, and established there where they could
19 | find -- you know, they moved from where they have had
20 | predictable prey to where they could find new prey. So we
21 | know that the whales can respond, they're not stuck into a
22 | single pattern of how to feed and where to go. When the
23 | environment changes, they can make a functional response
24 | to exploit new resources and find the new food.

25 | Within the Pacific Coast Feeding Group there's

1 | been some really good studies out of the University of
2 | Victoria where they have done some rigorous analysis of
3 | looking at the prey quantity and quality of their research
4 | area, and then correlating that with the gray whale use of
5 | the area. And they found very strong relationships to how
6 | many whales are utilizing the area. You know, when you had
7 | high use, it correlates the time periods of high
8 | availability of prey and availability of quality prey.
9 | And then, it would reduce when it was -- whale use would
10 | reduce when they had less prey. And Carrie Newell had the
11 | same findings in her study with an odd oceanographic event
12 | in 2005 causing reduction in prey. And she saw a
13 | reduction of whales using the area. So we know that whales
14 | are -- and then, you know, whales are back in the area
15 | when there's more prey. So we know that whales are going
16 | to respond to the prey.

17 | Q. Do any of your own observations of the Makah U&A
18 | inform that opinion?

19 | A. Yes. So I conducted the study I talked about
20 | previously where I rigorously analyzed the 225 whales that
21 | we observed in 1984 to 2011, and looked at how are they
22 | using the survey area, which you would roughly say is
23 | Makah U&A, but it doesn't fully encompass the U&A. And I
24 | saw an amazing amount of variability year to year.

25 | Some years it was a lot of use; other years it

1 | would drop way down. And I could see variability within
2 | years, where generally it was low use in the beginning of
3 | the feeding season, and the whale use would increase
4 | rapidly into late August and September.

5 | And so, in that, I was hypothesizing based on,
6 | you know, the reports I observed, I read from the
7 | University of Victoria and Carrie's paper, that this was
8 | driven by prey. And anecdotally, when I'm doing surveys,
9 | I'm observing everything I can in the system to better
10 | understand what is happening. And on my depth sounder, I
11 | can see signs of gray whale prey. The mysid, when they're
12 | available, which is a primary prey of the gray whales, and
13 | the primary feeding behavior we see is what looks like
14 | they're eating the mysid shrimp in the area. There's a
15 | scatter just over the bottom on the depth sounder plot
16 | when I've seen them. And when I see a dense scatter on my
17 | depth sounder, I often see that the whales are more stable
18 | in their behaviors. They're more likely feeding, and I
19 | consistently see that scatter for a period of weeks or a
20 | month, and the whales -- I get a much larger abundance of
21 | whales that I'm seeing in the area.

22 | Likewise, when I'm not seeing any scatter layer,
23 | I don't see whales in the area or I see very few. And the
24 | whales I do see spend a lot more time traveling and
25 | apparently searching for prey. They're not just sitting

1 | in one pattern where I can predictably know that they're
2 | going to be taking a couple breaths and diving back down
3 | for food. They're moving and looking for food, I imagine.

4 | Q. You mentioned a very long study that's currently
5 | still underway, not yet published, regarding body
6 | condition. Is there any information from that study that
7 | informs your opinion on this issue?

8 | A. Yeah. So it's not a direct line of evidence,
9 | but what we have observed is that when gray whales attain
10 | good body condition by the end of the feeding season, that
11 | they're more likely to come back to the survey area the
12 | next year. Whales that we observed in poor or fair
13 | condition were less likely to be observed the next year.
14 | And this really suggests to me that if they're there and
15 | they're finding food and they're getting the opportunity
16 | to eat that they will return again the next year.

17 | And I should mention that some of these whales
18 | that we see in poor condition, we may not see the next
19 | year, but we might see 3 years later or 5 years later. So
20 | it's not that they die. It's that they're -- they didn't
21 | do well, so they decide next year I'm going to go
22 | somewhere else.

23 | MR. GRUBER: Your Honor, it's about 30 minutes
24 | after we started. I do have more questions, but would
25 | this be a good time for a break.

1 THE COURT: I think it's a good time for the
2 break. So when you return, we'll continue, then we'll do
3 cross-examination. We'll take a 10-minute break.

4 **(Off the record from 10:33 a.m. to 10:46 a.m.)**

5 THE COURT: We're going back on the record.
6 Please take your seats.

7 BY MR. GRUBER:

8 Q. Mr. Scordino, do you involve Makahs in your
9 research?

10 A. Yes. So through the years, I've had some
11 technicians that worked for me that are Makah. I have
12 also had a lot of my co-workers who are Makah out on the
13 boat with us. But probably the most interaction I have,
14 right, I get to -- it's kind of a special interaction. I
15 get to bring out Makah youth with me, and I take -- each
16 summer, I run an internship program, and I have the Makah
17 youth. They range from anywhere between about 14 years
18 old and 21 years old. Take them out and part of what we
19 do during the summer is I take them out doing marine
20 mammal surveys. I've even had them analyzing marine
21 mammal data. One of them did an analysis this last summer
22 on our data on harbor porpoise. So it's been a unique
23 interaction that you get to share with them the knowledge
24 I've gained working on the water.

25 Q. Given your knowledge of whales in the U&A, will

1 | you continue to be involved in the Tribe's hunt efforts if
2 | it goes forward?

3 | A. Yes. So, already, you know, when the news came
4 | out that we were going to have the hearing, I had people
5 | already come to my office asking about coming out with me
6 | for surveys so they can get to know the whales better,
7 | understand their behaviors better. And so, I know that as
8 | we go forward, that I'll be heavily involved in the
9 | training, making sure that the guys are familiar with the
10 | behaviors to expect of the whales as they approach,
11 | understanding what are the danger zones after a whale is
12 | struck on how a whale will behave, you know, for their
13 | protection, and many other aspects of the whale biology.

14 | I will be directly involved with teaching them
15 | and sharing the knowledge I've gained through the years of
16 | doing research. I imagine, I'm pretty sure I will be the
17 | observer for the hunt in the future. And so, I will be
18 | able to combine the experience I had of observing the '99
19 | hunt as a baseline to go forward, but also the many years
20 | of research surveys to be able to conduct very efficient
21 | monitoring of the hunt activities.

22 | Q. And by observer, you're referring to the tribal
23 | hunt observer position that's provided for in the proposed
24 | regulations?

25 | A. Yes.

1 Q. I want to shift gears here a bit. Has there
2 been any scientific analysis to determine whether, as
3 restricted by the provisions and the proposed regulations,
4 the hunt would prevent the PCFG from achieving or
5 maintaining an optimum sustainable population?

6 A. Yes. We've heard testimony on this already, but
7 I will say it again for the record. The International
8 Whaling Commission did a very thorough review of the
9 proposed regulations through the Rangewide Review of Gray
10 Whale Stock Structure and Status. In this analysis, there
11 was an inclusion of all known sources of human-caused
12 mortality. We even had multipliers on those human-caused
13 mortalities to buffer our lack of knowledge on just how
14 extensive those mortalities are. And we monitored -- we
15 had a model for the entire North Pacific system.

16 So, if PCFG whales were for instance, farther
17 north than Chukotka or somewhere else where they could be
18 harvested or in southeast Alaska, where they might be
19 ship-struck. We had odds built into the modeling to build
20 in that maybe a Pacific Coast Feeding Group whale be
21 removed. A simulation was conducted over a 100-year
22 simulation period under a variety of trials that included
23 elevated rates of human-caused mortality or different
24 rates of biological productivity for the PCFG and the
25 other groups. And in all the trials, the Pacific Coast

1 Feeding Group was conserved underneath the -- well, met
2 the conservation objectives of the International Whaling
3 Commission and the MMPA.

4 Q. And did that IWC analysis have any bearing on
5 the determination that NMFS made under the MMPA that the
6 PCFG is not a stock?

7 A. Is not a stock. So, underneath the Rangewide
8 Review of the Stock Structure and Status, the model that
9 we developed said there was two stocks and the eastern
10 breeding stock and a western breeding stock. And within
11 that, we had a feeding group of whales within Eastern
12 North Pacific stock, the eastern breeding stock that was
13 called the Pacific Coast Feeding Group. And that was the
14 terminology used in every model evaluated, because there
15 wasn't enough evidence to say that that was a unique
16 stock. So, that was the working definition for them, that
17 they are a subgroup of the larger stock.

18 Q. Did the IWC conduct the same analysis and reach
19 the same conclusions regarding ENP and WNP gray whales?

20 A. Yeah, that was kind of the real beauty to me of
21 the Rangewide Review of the Stock Structure and Status is
22 that we were able to incorporate areas that human-caused
23 mortality could be affecting the whales from the Western
24 North Pacific and the far north feeding grounds all the
25 way down into the wintering grounds off Baja.

1 And so, the evaluation looked at with the
2 conclusion and with our hunt whether we have impacts on
3 these other groups. And across the simulations, the hunt
4 does not cause conservation impacts for the Sakhalin
5 whales that migrate over here or to the general larger
6 Eastern North Pacific population as well as the PCFG.

7 Q. Did your testimony include an analysis of gray
8 whale stock structure under the MMPA?

9 A. Yes.

10 Q. And with respect to the PCFG, what was your
11 conclusion?

12 A. So, my conclusion was that they are not
13 recognized as a stock both under the MMPA statutory
14 definition, which includes that it's a group of whales
15 that interbreed when mature and there's a very clear line
16 of evidence that the whales are interbreeding or are
17 breeding outside their group with non-PCFG whales in
18 genetic signature under the nuclear DNA.

19 And then, under the GAMMS, the philosophy is
20 looking at whether or not a group is demographically
21 independent. And they define that as a group that has the
22 population dynamics are more a factor of internal
23 dynamics, births and deaths, compared to external
24 dynamics, which is immigration and emigration. And there
25 are many lines of evidence showing that immigration and

1 emigration are occurring within the Pacific Coast Feeding
2 Group and that that is a significant driver of their
3 population dynamic. So, it doesn't meet the stock
4 definition under the GAMMS either.

5 Q. And did you also consider the stock structure of
6 the WNP or whales that you describe as Sakhalin Island
7 whales that migrate to North America.

8 A. Yeah, so the Rangewide Review I think is the
9 best science available on the stock structure of these
10 whales. And the Rangewide Review came up with the two
11 most plausible hypotheses being that the -- either the
12 western breeding stock is extinct and the whales as
13 Sakhalin Island that are often referred to as WNP whales
14 are a feeding group of Eastern North Pacific population.
15 Or that the whales at Sakhalin Island are a mixed feeding
16 stock, a mixed feeding group aggregation at that feeding
17 grounds, and that some of the individuals are migrating
18 south as far as the western breeding stock.

19 And so, you have that breeding stock exists, and
20 then those that migrate east are a part of the Eastern
21 North Pacific population. So, in the stock assessment
22 report, we saw that they listed these whales or they said
23 these whales were the endangered Western North Pacific
24 population. And those hypotheses don't agree with that
25 conclusion. The western breeding stock is the group that

1 | was called the -- that was protected as this endangered
2 | species.

3 | So, in both of those hypotheses, that group is
4 | not inside the hunt area. However, I think it's important
5 | to note that the whales that are coming through do have
6 | unique population dynamics and unique genetics for both
7 | mitochondrial and nuclear DNA. And it probably should be
8 | called stock, but they're not the same stock that was
9 | listed as endangered.

10 | Q. Did you, in your testimony, evaluate the
11 | potential impacts of climate change on gray whales?

12 | A. I did.

13 | Q. What conclusion did you reach?

14 | A. So, climate change is tricky. We don't exactly
15 | know what the future is going to hold. There's a lot of
16 | different processes that are occurring that could cause
17 | large-scale changes. But at this time, we don't know if
18 | they're going to be positive, negative, or neutral for
19 | gray whales. However, I reflect on what Dr. Weller said
20 | in his testimony that in the recent trend with global
21 | warming, that the gray whale population has been
22 | increasing and we have seen a lot of calf production. So,
23 | the current science would suggest that it's not causing a
24 | negative impact.

25 | Q. And what assurances do we have that the proposed

1 | hunt won't exacerbate the possible negative effects of
2 | climate change on gray whales during the 10-year waiver
3 | period?

4 | A. I'd say, first, for the Pacific Coast Feeding
5 | Group, there are really conservative rules in there to
6 | ensure that the hunt will not have an impact. For
7 | instance, I think probably most importantly, that if the
8 | population abundance level, the estimate of that
9 | population drops below 192 whales, the hunt is not allowed
10 | that year. And so, if the population's dropping due to a
11 | change in their environment, it's going to shut down the
12 | hunt regardless of hunt activity, so the hunt would not
13 | continue a decline if there's actually any decline below
14 | 192, would be purely driven by the environment.

15 | The other measures that are in there is that
16 | once the waiver is granted, NOAA has at least three
17 | opportunities to issue a permit, and each time they issue
18 | a permit, they'll have an opportunity of reviewing the
19 | current science of the gray whales and any huge impacts
20 | that maybe are occurring through the climate change. We
21 | also have the International Whaling Commission which
22 | reviews gray whale biology annually and does a very
23 | rigorous analysis of the gray whale biology, especially
24 | evaluating the impacts of the hunt every 6 years. And so,
25 | we're expecting the first one of those this next year, in

1 | 2020. And in 2026, there'll be another implementation
2 | review. And the IWC will call an emergency implementation
3 | review if they see a sign of something of concern.

4 | We also have to recognize that the Tribe
5 | conducts its own management. We will be granting permits
6 | for the hunt. And the Tribe is a careful manager of its
7 | resource. So, we have to remember, in the 1920s, the
8 | Tribe voluntarily ceased whaling. As far as a recent
9 | example, the Tribe has a ceremonial harvest for olive
10 | snails. And we observed a mass mortality event of the
11 | olive snails in 2014. And we decided to shut down all
12 | harvest of the olive snails until we had abundance
13 | estimates showing that the population had recovered from
14 | whatever had caused that mass mortality event. And I
15 | think it's a good example of how we're responsive to
16 | changes that aren't expected in the system.

17 | Unless -- the waiver's for a 10-year period.
18 | At the end of that 10-year period, the hunt plan will end
19 | and NOAA will have the opportunity to review any new
20 | information on how the hunt is performing and how the
21 | environment is affecting the whales before they issue a
22 | new waiver.

23 | Q. Thank you. Now, I want to turn to some of the
24 | rebuttal testimony that was filed in this matter on August
25 | 6th, 2019. Are you familiar with the rebuttal testimony

1 submitted by Carrie Newell, Stella Villegas-Amtmann, DJ
2 Schubert, and Margaret Owens?

3 A. All right.

4 Q. I'm going to begin with the Newell -- Ms. Newell
5 has testified that you overstated the importance of prey
6 availability and the PCFG whales return consistently to
7 the same location year after year. Do you agree with her
8 testimony?

9 A. No.

10 Q. With respect to the issue, first, of prey
11 availability, why don't you agree?

12 A. Well, as I reflected earlier, I've analyzed the
13 gray whale use of the hunt area very thoroughly with a
14 large data set from 1984 through 2011 as a thorough
15 analysis and some observations, of course, since then.
16 And the whale use would vary greatly from year to year, an
17 abundance of whales to, like last year, we only had nine
18 whales observed during the whole survey season. In other
19 years, we have more than 80 whales in the area. And I
20 believe, for the reasons I stated earlier that these are
21 driven by prey. And I think the studies clearly show that
22 gray whales in the Pacific Coast Feeding Group are very
23 responsive to prey.

24 Q. What about Ms. Newell's testimony that she has
25 observed PCFG whales returning to the same location year

1 after year?

2 A. I think when you want to analyze an animal
3 population and gray whales, you have to think in terms of
4 scale. Any time you're doing an ecological study, there's
5 a scale to what you think. So, you could look at an
6 animal for a day or two and make a conclusion, or you can
7 look at it over multi years and make a conclusion. You
8 can look at a small area and make a conclusion or you can
9 look at a very large area and make a conclusion. And
10 also, with the PCFG, we have to realize that there's a
11 large range in the behaviors of the individuals. There
12 are individuals that show stronger fidelity to smaller
13 areas. And then, there's individuals that show almost no
14 fidelity to any unique area. They're just kind of
15 bouncing through the whole Pacific Coast Feeding Group and
16 not -- range, and then not using it on a consistent basis.

17 So, I think Carrie used a very selective use of
18 data looking at individuals that showed a very unique
19 pattern of high use of the areas. But that was a very
20 skewed representation, because that was just a couple of
21 individuals that aren't very representative, I imagine, of
22 the whole. And if they are, that was for the Depoe Bay
23 area, not for the hunt area where the hunt will occur,
24 where I see a lot of variability year to year in how the
25 whales use the area.

1 Q. That description is actually the main thesis of
2 your published paper?

3 A. Yes, that the whales -- in my paper, the main
4 conclusion was that the whales are using a fidelity to an
5 area much larger than just the Makah U&A. They're -- when
6 they're in the Makah U&A, we see them for a portion of the
7 feeding season, and we see them for a, you know, a number
8 of years and then they disappear and they come back. So,
9 they're using a broader area. And based on the
10 conclusions in Calambokidis et al.'s papers, it appears
11 that larger area is probably the Pacific Coast Feeding
12 Group range.

13 You want a specific example, I think in Carrie's
14 testimony, she brings up a whale called Scarback that she
15 was saying was consistently there for a couple of months
16 this year. That whale's No. CRC204 in the catalog. And
17 that whale was hanging out in Washington these last couple
18 months. So, these whales move, and move around a lot.

19 Q. How do you respond to Ms. Newell's concern that
20 a Makah hunt would adversely affect the PCFG through non-
21 lethal disturbance of the whales?

22 A. So, I started talking about this briefly a
23 moment ago. So, there's a few different ways that non-
24 lethal impacts can occur. So, we have approaches, which
25 are, you know, just approaching within 100 yards of a

1 | whale is how it's defined for the monitoring. And then we
2 | have the unsuccessful harpoon attempts and the training
3 | harpoon attempts. I think it's important to note that in
4 | neither of those cases does the whale's skin get broken in
5 | any way. There might be contact of the harpoon with the
6 | whale, but it's not penetrating the whale. And the
7 | training is supposed to be using a blunted end to it so
8 | that there can be no penetration.

9 | But still, I think probably the best way to
10 | compare what we expect of those behaviors is to compare
11 | that to biopsy sampling. And biopsy sampling, we're
12 | shooting the whales with a biopsy -- a bolt from a
13 | crossbow that has a metal end to it that's hollow. And it
14 | shoots into the whale and it cuts out a plug of their skin
15 | and blubber and will bounce back, and we'll be able to
16 | collect it when it's floating in the water.

17 | Generally, the behavior of the whales when we
18 | biopsy it, we can see a greater amount of reaction than we
19 | do on the approach, although some whales react equally to
20 | either. Sometimes you see no reaction. You biopsy them,
21 | they're feeding, they just keep feeding. They're not
22 | going to change what they're doing. Sometimes you see a
23 | quick, short-term reaction, a tail flick or a quick
24 | acceleration, a startle response, and then they settle
25 | right back down. Other times, we might see a little bit

1 | more of a broader response. But my observations have
2 | been, if the whale's feeding, if they're happy with what
3 | they're doing, then they're going to go right back to
4 | feeding or very quickly go back to feeding.

5 | When they're traveling and I biopsy them, it's
6 | really hard to know if they change their behavior, because
7 | if they continue traveling, then were they disturbed to
8 | continue traveling, or if they stop traveling to feed, did
9 | they stop because I disturbed them and now they're
10 | feeding? Right? So, it's harder to assess that. But
11 | when they're feeding, they will go back to feeding. And,
12 | you know, even whales that are more strongly disturbed, as
13 | I said, my surveys go out and back that I'm traveling a
14 | long distance, like 20 miles of the coast. And so, if I
15 | biopsy an animal early on in the day, I will see that
16 | animal again as I return back to port. And they're
17 | generally in the same areas feeding, if that's what they
18 | were doing.

19 | Q. Thank you. Can you share your any -- relevant
20 | to the biopsies, how do approaches affect whales from your
21 | experience?

22 | A. You say relative to the biopsies how do
23 | approaches affect whales, so it's a more -- they have a
24 | stronger response normally.

25 | Q. I wanted you to talk about approaches.

1 A. Approaches, okay. So, approaches, generally
2 whales have a lesser response to approach, but they can
3 act evasive to an approach or they can change their
4 behaviors at times to an approach. And generally, if
5 you're not approaching the animal over and over again,
6 it's not going to have an impact. So, the hunt -- the
7 approaches are only limited to 353 approaches per year,
8 which is way less than I'm allowed in my research
9 activities. And whale watching is not even regulated on
10 the number of approaches that they're allowed.

11 Q. Now, related to your comparisons, the biopsy
12 sampling and approaches and your research, didn't Ms.
13 Newell provide counter examples in her testimony?

14 A. Yeah. She provided two examples. So, she
15 referenced in her testimony that we conducted research
16 together in 2010. That was on October 6th of 2010. That
17 I was in the middle of collecting the samples for the Lang
18 et al. publication in *Marine Mammal Science*. And we were
19 trying to get as many samples as we could of the gray
20 whales. And it happened that year that we got a big grant
21 to study the whales and get the samples that no whales
22 showed up in my research area.

23 And so, I went down to Depoe Bay after learning
24 that whales were there and contacted Carrie, and we
25 surveyed together. And we biopsied a few whales. And she

1 | noted that the whales had a strong reaction and left the
2 | area in her testimony. What she doesn't mention is that
3 | the sampling was in October and the time period of the
4 | year when she has said that the whales leave her area.
5 | So, it's uncertain if the whales would have left the area
6 | anyway, because that was what their normal behavior is.

7 | The other thing not mentioned is I actually
8 | surveyed the next day without Carrie. I was back out on
9 | the water trying to collect more samples. And we observed
10 | many of the same whales that we had biopsied the previous
11 | day. So, the whales had stayed in the same area feeding,
12 | and if it weren't for the fact that there was a storm that
13 | day, I probably would have seen more of them, because they
14 | were around. I just wasn't able to close on them in some
15 | of the areas that were unsafe for approaching.

16 | Q. And was there also an example related to fecal
17 | sample collections?

18 | A. Thank you. Yes, there was. So, she also
19 | mentioned a whale that was observed feeding in a very
20 | small area for a long period of time of consecutive days
21 | that was feeding in the one area, and that a researcher
22 | had approached to collect fecal samples, and that the
23 | whale had reacted and left this area that it was showing a
24 | strong relationship with, that it was using vigorously.
25 | And I think that that observation is -- it's hard to

1 understand if that whale left the area because potentially
2 did it not have as much food there? If you have whales
3 feeding in one spot for that long of a time, it's a large
4 animal that eats a lot of food, it's likely that it
5 depleted its prey. So, without taking the next step of
6 saying, so the whale left, is there still food there or
7 not, it's kind of uninformative in saying that the whale
8 left. We don't know why the whale left. The whale could
9 have left regardless.

10 Q. Did you contact the researcher who was
11 conducting that fecal sampling research you just
12 described?

13 A. I did. The researcher conducting that work is
14 Dr. Leigh Torres. She's at Oregon State University. The
15 objective of her research is looking at hormones in the
16 fecal samples to look at stress, stress caused by whale
17 watching and other activities. And she said, in over 200
18 scat collections that she's conducted that they only
19 observed a behavioral response from one whale that was
20 disturbed from their activities. And in that case, they
21 were accelerating to get to a fecal plume, which is -- her
22 success rate is amazing with getting 200 scat.

23 I'm doing the same process up north and we're
24 only at, like 40. You've got to accelerate quick to get
25 in the fecal plume, because as soon as they poop, then the

1 | poop will start dissipating down into the water column.
2 | So, to access it, you got to get on it quick so you can
3 | scoop it when it's available. So, while approaching into
4 | one of those fecal plumes, the whale turned around so it
5 | was going back through its fecal plume, as well, so they
6 | were set up into a head-on collision and they both reacted
7 | to each other and it turned away type of reaction. But
8 | she said that was the only behavioral response she
9 | observed in that 200 observations. And so, it felt like a
10 | -- yeah, it's not a common thing that you see a strong
11 | response of these whales.

12 | Q. Well, in light of this information, what does
13 | Ms. Newell's use of the Ginger -- Ginger was the whale who
14 | was involved in the fecal sampling and your biopsy
15 | sampling, indicate to you?

16 | A. I think it was a very selective and ill -- not
17 | very informed analysis. It wasn't looking at all the
18 | different whale's behaviors that you see. It was a very
19 | selective use of the data that she had, and it wasn't
20 | really analyzed as thoroughly as it could have been if you
21 | were to look at what other aspects could have caused those
22 | changes in behavior.

23 | Q. I want to ask you about Ms. Newell's concern
24 | regarding the potential effect of removing PCFG whales in
25 | a hunt. Do you agree with her concern that removal of a

1 | single reproductive female could be devastating to the
2 | PCFG?

3 | A. No, I do not. So, I'd referenced before that
4 | the International Whaling Commission did a real thorough
5 | review of the potential impacts of the hunt. What I
6 | didn't mention is that the hunt is assumed to take whales
7 | out of the population in equal proportion to the sex of
8 | male and female of equal proportion. So, the model is
9 | assuming that you're removing females, including
10 | reproductive females, and that simulation occurred through
11 | a 100-year period. And there was no sign in that that
12 | those removals would cause a conservation impact to the
13 | Pacific Coast Feeding Group.

14 | Q. Does anything in your general knowledge about
15 | PCFG whales inform your opinion on that issue?

16 | A. Can you repeat the question that preceded that?

17 | Q. Sure.

18 | A. Sorry.

19 | Q. So, do you agree with her concern that removal
20 | of a single reproductive female could be devastating to
21 | PCFG in light of your general knowledge about PCFG?

22 | A. Right, so, yeah, so as far as my personal
23 | knowledge, one of the things that kind of shocked me in
24 | our biopsy sampling and looking at the results was how
25 | many females are in the population, or in the group

1 anyway, that aren't reproducing. And I strongly suspect
2 that, you know, these whales that are females of the group
3 are going to start reproducing, showing calves in the
4 group as well. So, there's a pool of individuals that are
5 going to be recruiting in as these new reproductive
6 females in the group that are going to have calves. So,
7 that's on the population dynamics side.

8 And I think the other part that Carrie was
9 saying is that these reproductive females are really
10 important for the transferal of knowledge. One of the
11 things to think about is when do gray whales wean. And
12 according to Calambokidis et al., that was around July,
13 which means there's a large portion of the feeding season
14 that these whales are not with their moms. Once they
15 wean, we don't see them with their moms in in regularity.
16 So, what the whales are doing after July, August -- some
17 whales take longer to wean. They might wean in September,
18 but they are learning the habitat for themselves. And the
19 reason I mention that as important is that we see a large
20 shift in the whale movements in -- throughout the August-
21 September time period.

22 We see a large influx of individuals into my
23 survey area, a real turnover of individuals that use the
24 habitat. So, that behavior pattern has to be learned by
25 an individual after separation from their mom. So,

1 | they're learning a lot after they're separating. They're
2 | learning how to use their habitat. And we also see in the
3 | individuals that are non-calves that are recruiting into
4 | the PCFG, so these are individuals that didn't learn that
5 | habitat from their moms. They're coming there
6 | independently.

7 | Q. Is there a term that's commonly used to describe
8 | calves born to PCFG mothers, and then you said non-calves
9 | who enter the population?

10 | A. Yeah, it's matrilineal recruitment.

11 | Q. And is there -- what are the whales called that
12 | aren't matrilineally recruited?

13 | A. So, we have internal recruits and external
14 | recruits into the Pacific Coast Feeding Group.

15 | Q. And how do we know that external recruitment is
16 | taking place?

17 | A. There's a couple lines of evidence. Dr. Weller
18 | presented, in his testimony, in his oral testimony, the
19 | results from the genetic simulation study conducted by
20 | Dr. Lang and Martien showing that following a pulse of
21 | immigration of 20 whales in '99 and 2000, that the most
22 | parsimonious model to -- of correlating with the observed
23 | genetic data was that you have a recruitment of one to
24 | eight non-PCFG whales into the group each year with a best
25 | estimate of four.

1 The second line of evidence is from the photo
2 ID. Each year, about 40 whales are recruited into the
3 Pacific Coast Feeding Group, of which about half of them
4 are -- 40 are not recruited. Forty new whales are
5 observed in the area, of which about half of them recruit.
6 And I'm using the term recruit as meaning that they are
7 recruiting into the definition of PCFG, which means
8 they've been observed in more than one year.

9 Q. Within the PCFG.

10 A. Within the PCFG range and season.

11 Q. Do you have any observations of external
12 recruitment within the area you focus your research on?

13 A. Yes, in the paper I submitted to the *Journal of*
14 *Cetacean Research and Management*, we had roughly 10 new
15 whales observed per year of which, again, roughly half
16 were observed again in a future year. And then, I alluded
17 earlier when you asked about the different research I
18 conduct, that we conducted an analysis of our photographs
19 looking at the whales in the first year they were
20 observed, and evaluating if that whale was a calf or non-
21 calf. And in that analysis, we followed a procedure
22 developed by Dr. Bradford from her work at Sakhalin
23 Island, and this is a process that they continue at
24 Sakhalin Island to document if a whale's a calf or non-
25 calf. And the whales have unique pigment patterns and

1 shape, and as well as barnacle scarring patterns when a
2 whale is a calf or it's just a non-calf. So, a barnacle
3 normally establishes on the breeding lagoons and then the
4 whale, it grows on the whale through its life. And so, if
5 it's in that first year of life, it doesn't have the
6 larger bony plates around the side, and also it doesn't
7 fall off and make a round scar.

8 Anyway, so we could use those methods to
9 evaluate if whales were a calf or non-calf. And we found
10 through our analysis that 30 percent of the whales that
11 were observed on their first observation within the PCFG
12 were calves, suggesting that external recruitment was the
13 primary method that we're seeing new individuals become
14 part of the Pacific Coast Feeding Group.

15 Q. Is there a reason to believe removal of a PCFG
16 whale will lead to its replacement by a non-PCFG whale?

17 A. By a non-PCFG whale? Yes, there is. So, I
18 think I discussed this a little bit earlier that when a
19 whale is removed, you're going to have a prey release of
20 whatever prey it was eating. And that prey is going to be
21 able to multiply until another whale encounters that and
22 is eating in that environment. And with that additional
23 prey that's available, we have these whales that are in
24 the environment that are non-PCFG whales. And so, right
25 now, about half of those recruit, and that's the average.

1 | But in years when they can find a lot of food, we're going
2 | to have a larger proportion of those whales recruit into
3 | the group. So, that the removal results in the whale not
4 | eating in the area and more food for the whales. I think
5 | a larger proportion of those whales that would have left
6 | would stay.

7 | And I get to one other point on this, too, is
8 | that the whales of PCFG also emigrate at a rate that a
9 | colleague of mine, Dr. Jeff Laake, describes the Pacific
10 | Coast Feeding Group as a leaky bucket. You pour animals
11 | in and they pour out the other side. And you can see this
12 | through the estimates of their apparent survival rate.
13 | Apparent survival rate is what the term is used in the
14 | Calambokidis et al. papers. And it has a specific
15 | meaning. It's not a true survival, which is an animal
16 | dying. It's the animal's mortality plus animals that
17 | permanently emigrate out of the group. They're no longer
18 | seen in the group, because they're going somewhere else.

19 | And so, the whales are seen post-1999, where the
20 | first time they were observed to have a lower survival
21 | rate than those -- the general gray whale population
22 | estimates, like .93 for the post-'99 whales that are seen
23 | recruiting into the group, as compared to .98 that's in
24 | the Punt and Wade paper. And so that difference in
25 | survival is probably driven by emigration. So, if there's

1 | more food available, I think it's less likely that a whale
2 | will emigrate, is what I'll say. That's a long, round-
3 | about answer to you.

4 | Q. You volunteered it, so --

5 | (Laughter.)

6 | Do you recall that Ms. Newell testified that she
7 | has observed skinny whales this summer off the Central
8 | Oregon Coast?

9 | A. Yes.

10 | Q. Do you think that is an indication of whether
11 | the current gray whale unusual mortality event or UME is
12 | affecting PCFG whales?

13 | A. No, I don't. There's a number of reasons that
14 | you can see skinny whales or whales in poor condition, as
15 | I think it's quite betterly referred, that -- we've
16 | studied gray whale body condition in the Makah area since
17 | 1996. We have analyzed that data rigorously through 2012.
18 | And so, when we see skinny whales towards -- the whale
19 | body condition generally improves through the whole year.

20 | So, observations of whales the beginning of the
21 | year saying they're in poor condition is rather uninformed
22 | of how the whales are going to end up that year. We
23 | expect them to be in poor condition at the beginning of
24 | the year, because they're ending a fast through the whole
25 | winter when they're not foraging in the wintering grounds.

1 | But we see them generally improve body condition. And
2 | also, the whales that we see, we have to -- when we model
3 | our results, we have to separate whales that are observed
4 | with the calf, because a whale that has a calf and it's
5 | lactating and it's giving a lot of energy to its young,
6 | they're generally in poorer condition than the rest of the
7 | population, so you kind of have to model it in such a way
8 | that those results don't skew your interpretation.

9 | Q. Do you have any personal experience observing
10 | stranded whales?

11 | A. Stranded whales, yes. So, I run the Makah
12 | Marine Mammal Stranding Network. That's part of the
13 | regional -- West Coast Region Stranding Network that we
14 | are a contributing part. You know, I received grants for
15 | that work through the Prescott Marine Mammal Health Grant.
16 | And so, yeah, each year, I do monitor for strandings. And
17 | so, this year, we have had one floater whale and one whale
18 | on the beach.

19 | Q. So, the next question, have there been any
20 | stranded whales in the Makah U&A since the feeding season
21 | began in June of this year?

22 | A. Yeah. So, as I just referenced, we had one
23 | whale on a beach and one that was a floater. I don't know
24 | if they were the same whale or not. So, we had a floater
25 | that was observed in the Strait of Juan de Fuca by a

1 fishing -- a charter fishing boat. And they reported it
2 to me. And I went out to the area and we couldn't find
3 that whale that was floating. But then 2 months later or
4 3 months later, it was in, I think, late June or July, we
5 had a report of a whale on the beach almost, you know, a
6 couple hundred yards from where it was reported floating.
7 And this whale was in very decomposed condition,
8 suggesting it washed in well before we saw it there in
9 July. I don't know for sure if that'd be the same whale,
10 if it happened in June, you know, within the feeding
11 season or not. But so that was the one that we observed.

12 Q. Thank you. With respect to living whales in the
13 Makah U&A, what have you -- have you done any analysis of
14 body condition?

15 A. Yes. So, the -- we have the rigorous study we
16 conducted for the number of years from '96 through 2012.
17 We have not analyzed our data this year for body
18 condition. However, you know, I keep track when I'm on
19 the water, have a good feel of the whales that are in
20 good, fair, and poor condition as I see them. And there
21 are probably more whales than normal in this year that are
22 in a fair condition rather than already attaining a good
23 condition in my October and November surveys when I would
24 have expected them to have already attained a better body
25 condition. But I think what I'm observing is well within

1 | the range of body conditions that were observed in the
2 | larger study of '96 to 2012. And so, this year might be a
3 | little bit less than average for body condition, but I'm
4 | guessing not as bad as we observed in 2009 and '10.

5 | Q. Do you agree with Dr. Weller's testimony that
6 | whales in poor and fair condition can often survive, while
7 | whales in an emaciated condition are unlikely to survive?

8 | A. I absolutely agree with that that -- I mean,
9 | emaciated's kind of in the eye of the beholder, but we've
10 | seen some whales in the spring northbound migration that
11 | are extremely emaciated. You know, that they're -- you
12 | really see most of their bones along their back. And I
13 | imagine most of those whales will not make it. But what
14 | we're seeing in our studies of the Pacific Coast Feeding
15 | Group is a poor body condition, which generally just means
16 | that the area behind -- the subcranial region behind the
17 | whale's skull depresses and so you can kind of see the
18 | background of the skull and you can see it's scapula,
19 | because the blubber reserves are depleted down, and so you
20 | can see its body, its bones, in a greater detail.

21 | We do see the same whales that we've seen in
22 | poor condition in future years, suggesting that even
23 | though they're in poor condition, they do recover. And
24 | this is particularly important for your reproductive
25 | females that we often see them in poor condition through

1 | the feeding season, because they're exerting so much
2 | energy to their calf. And yeah, they're back again the
3 | next year. Or a couple years later I see them, or they're
4 | seen probably every year within the larger Pacific Coast
5 | Feeding Group area.

6 | Q. As somebody who studies issues related to body
7 | condition, does learning that a whale is quote, skinny,
8 | unquote, provide you with any significant or informative
9 | scientific information about the condition of that whale?

10 | A. Does knowing that the whale is skinny provide
11 | information on its condition? So, it's a little bit
12 | complicated on just looking at the body shape, because
13 | essentially, the shape is just like a glass, right? If
14 | it's really round, there's a lot of room for oils for the
15 | whale to -- the lipids to fill in that area. And so, a
16 | really fat whale, a really rounded whale, may not have a
17 | very high lipid content within that blubber. Whereas, a
18 | whale that's really skinny, really looks like it's in poor
19 | nutritive condition, could actually have a really high
20 | lipid content. So, it's not a definitive view of the
21 | condition of the whale and how it's doing. But it's an
22 | informative view, because it's just showing a second
23 | process of that vessel of how much room it has for that
24 | oil to gain or decline.

25 | Q. Are the conditions you are observing indicative

1 of the UME is affecting PCFG whales?

2 A. No. So, as I mentioned, we had one stranding in
3 my area. The normal baseline observations for Washington
4 and Oregon from 2000 to 2018 it's about three whales,
5 three gray whales die in the summer and fall feeding
6 season per year. And I'm not saying these are PCFG
7 whales. These are whales that are reported dead in that
8 area during that time of the year. And we see about 10
9 gray whales in total during that.

10 So, this -- what I'm citing to is a study that's
11 in prep. Amanda Warlick is the primary author and I'm a
12 co-author on that. And we're hoping to submit it this
13 next year, and it's a work that's summarizing the larger
14 results of the stranding network responsibility, for all
15 the different stranding networks through that area.

16 So, we've heard about this PCFG whale that died
17 off of Crescent City area, you know, like Jeff Moore
18 presented in his testimony. That's within the normal that
19 you expect. You're going to have some whales that die
20 each year. That's within the baseline. If we had a UME
21 that's specific to the Pacific Coast Feeding Group, we
22 would see an elevated amount of strandings that are
23 occurring during the summer and fall, which is something
24 that we're not observing at all. What we're observing is
25 that there's an increase, a massive increase in the number

1 of strandings of the whales while they were in migration
2 and down in Mexico, which is indicative of the full ENP
3 stock, and probably the behaviors of probably mostly the
4 whales of the far northern feeding grounds.

5 Q. Is the likelihood of detecting a stranded whale
6 greater now than it was during the 1999-2000 UME?

7 A. I think that's an important question. So, Andre
8 Punt and Paul Wade did their analysis where they reported
9 the recovery of -- or the reporting of dead whales
10 compared to the number of expected dead whales. So, since
11 that study, the '99-2000 event, the Prescott Marine Mammal
12 Health Program has started providing grants to stranding
13 networks up and down the coast from California up through
14 Alaska. With the funding, the stranding networks, a lot
15 of the effort in those networks, such as in mine, is in
16 increasing public reporting and telling people how to
17 report. So, with that, you get improved reporting from
18 the public.

19 You also have the stranding networks conducting
20 their own surveys of the beaches. And so, together, you
21 get a much better representation of the whales when
22 they're coming to shore and the floaters that are observed
23 in the water, because people know how to report, where to
24 report, and you have responders that are collecting the
25 data to verify that it is a gray whale and to collect

1 biological data off of that whale.

2 Q. I want to turn to one of the other rebuttal
3 reports. We've heard all testimonies in this case. Dr.
4 Villegas-Amtmann critiqued your reliance on studies of the
5 Chukotkan hunt in Russia, claiming that those studies did
6 not measure disturbance and did not track individual
7 whales year to year, and therefore, do not support your
8 conclusions. How do you respond to that?

9 A. I disagree with her. So, she's correct, that it
10 did not say how much of a disturbance it caused or -- and
11 it did not look at individuals. I think the issue at hand
12 for the waiver and for evaluating the impact of the hunt
13 is, are whales a functioning element of the local
14 ecosystem? Will they be disturbed and leave the area?
15 And I think that data clearly shows that whales, whether
16 or not the same individual or not, are still -- are
17 utilizing that area year after year consistently,
18 regardless of the hunt occurring. We're not seeing a
19 functional response in the distribution of whales or
20 distribution of the hunt practices. And so, I think that
21 -- she might -- we didn't talk about disturbance of an
22 individual, but as far as the population and it being a
23 functional element of this ecosystem, it still is.

24 Q. Your opinion was related more to population
25 level impacts versus individual impacts?

1 A. Yes.

2 Q. Dr. Villegas-Amtmann also suggested that there
3 may be greater impacts on the whales from hunt activities
4 that you describe. Do you agree with her testimony?

5 A. I do not. I think when she made that
6 conclusion, she was basing it on her studies on
7 bioenergetics of the whales. And she cited to a -- if the
8 energetics of the whales, if their energy budget has a 4%
9 deficit, that a female cannot carry a calf all the way
10 through weaning successfully. What she does not say
11 anywhere in her testimony, and I think Dr. Moore presented
12 on why well, is that she never concluded that the hunt
13 activities actually would cause a 4% energy deficit.

14 So, it would be a rather significant disturbance
15 to cause a whale to lose that 4% energy deficit for the
16 entire breeding cycle for that whale. For instance, she
17 says in her paper that a whale would have to lose 10 days
18 of foraging to encounter that energy deficit. And so, the
19 hunt will encounter PCFG whales while they're foraging. I
20 cannot see any plausible way that the hunt would cause a
21 whale not to forage for 10 days. I don't think that the
22 hunt during the summer/fall season, when they're hunting
23 during the feeding season, would even occur over 10 days.

24 The behavior of the whales is rather
25 predictable, making it easier for the whalers to approach

1 a whale to have a successful strike. And so, I think that
2 the hunt will occur over a shorter number of days than 10.
3 And the response to a non-lethal interaction, as I've
4 already described and Dr. Weller described, is likely to
5 be very similar to what we see the whale watchers and to
6 research. And if it were as strong as to cause a loss in
7 calf production, I don't think that we would be granted
8 research permits. I think NOAA would look on that rather
9 poorly that our research was causing a loss of calf
10 production.

11 Second, in her paper, she also says that the 4%
12 loss of energy that could lead to a female not
13 successfully taking her calf all the way through weaning
14 does not actually show any impact on the population
15 dynamics, if she puts that into a model, that loss of a
16 calf -- calving interval, increase in the calving
17 interval. To really affect the population dynamics, so
18 the number of whales that will be in the system in the
19 future, you have to have a 40 percent change in the energy
20 deficit for the whale, which would cause the death of that
21 female whale.

22 So, again, I can't imagine us getting to a 4%
23 energy deficit from the activities, non-lethal activities,
24 and certainly not as high as 40 percent.

25 Q. I want to turn to Mr. Schubert's rebuttal

1 testimony. You recall that in paragraph 30 of his
2 rebuttal testimony, Mr. Schubert raised questions about
3 your calculation of internal and external recruitment
4 based on the Calambokidis et al., 2017 paper.

5 A. Yes.

6 Q. Can you explain what information in that paper
7 you relied on in your testimony?

8 A. Yes. It was table 13 in the Calambokidis et
9 al., 2017 paper.

10 Q. And have you reviewed Calambokidis et al., 2019,
11 which has been introduced as NMFS Exhibit 3-101?

12 A. I did. So, DJ made two points in his rebuttal
13 on me. One was it's a long time series and maybe new
14 whales could be found. And I had included back to 1999.
15 And so, I looked at this again, and I looked and I said,
16 okay, let's just go to 2002. This is after the pulse of
17 immigration of individuals, and look at that forward from
18 there. And I redid the analysis with this new -- the new
19 data, so that would be tables 13 and 14 in Calambokidis et
20 al., 2019. So, if we look at the lines towards the bottom
21 under NCA, NBC, so that's Northern California to Northern
22 British Columbia that generally defines that's the PCFG
23 range.

24 Q. Jon, could I ask you, we're looking at a hard
25 copy there, what page number of the report -- it's

1 | about --

2 | A. Thirty. Thirty is the table 14, which shows the
3 | majority of the data. The table 13 also shows. You'll
4 | have to rotate it. Okay, so if we look at the very bottom
5 | line, it'll say calf: new resighted. And above that, it
6 | says, calf: new. And above that, non-calf: new and
7 | resighted. So, what this is doing is he's breaking out
8 | the fact that you see these new whales and whether or not
9 | they recruit into the population. So, I've been saying
10 | recruit, and in his parlance, he's saying resighted.

11 | So, I went through the data from 2002 through
12 | 2016, and to verify my statements on that the majority of
13 | the whales that are observed have been non-calves, and
14 | that's most likely external recruits, so I calculated a
15 | total of 144 non-calf recruits in 2002 to 2016, and 59
16 | calf recruits. So, that's a total of 203 whales recruited
17 | into the Pacific Coast Feeding Group during that time
18 | period. Some of which, 29 percent, were calves, which is
19 | actually remarkably similar to the finding I had of
20 | looking at just the photographs of the whales and looking
21 | at when the whale is first observed, is it a calf or non-
22 | calf.

23 | Now, I think DJ used a very selective portion of
24 | the data where he wanted to look at just 2010 to 2015 to
25 | say that the -- that internal recruitment is the main

1 driver. And I think he concluded that 70 percent -- it
2 was 70 percent internal recruitment, but I think there's a
3 slight arithmetic error there. So, what I observed 2010
4 to 2015 in the new data set, which was just a little bit
5 different than the 2017 paper, was 49 non-calves and 41
6 calves. So, we had 45 percent of the whales were calves
7 during that time period. And this was a time period --

8 Q. Can I just interrupt you to ask, that
9 percentage, is that external or internal?

10 A. The 45 percent would be internal. And this was
11 the same time period that Dr. Weller told us that we had a
12 very large spike in the production of calves in the ENP in
13 general, as well as the PCFG. They both increased at the
14 same time. And so, even in this very selective time
15 period use, when we had a lot of calves observed. The
16 data's still showing that non-calves are the normal whales
17 that are observed, suggesting that the external
18 recruitment is the primary pathway in which whales are
19 recruiting into the population.

20 Q. You also recall that Mr. Schubert criticized
21 your use of the longer time frame for doing this analysis?

22 A. I do. And so, I'll reflect back to the comment
23 I said about Carrie's rebuttal. We have to think in scale
24 that this is an ecological system. Ecologists, biologists
25 are always talking about I need a long-term data set,

1 | because things change, right? The environment changes.
2 | The processes around it, the amount of wind for upwelling.
3 | All these different processes are changing year to year.

4 | And so, I think it's better to use a long-term
5 | data set, because it captures the change that can happen
6 | in the population over a longer period of time to reflect
7 | better on the population, because right now, we have high
8 | calf production, but if you're looking at the table 14 up
9 | there, you could see that the number of new calves in 2017
10 | has dropped to four, right?

11 | So, we had a peak that occurred in 2014 of 19
12 | calves, but the numbers are dropping back down again. And
13 | so, we might -- in a longer term, we might see that these
14 | numbers go back to the low numbers that they were, that
15 | this was a short-term spike and maybe we'll see it cycle
16 | back up again. So, I think it's important to use long-
17 | term data sets when they're available.

18 | But if we want to just look at the more recent,
19 | if we look at the most recent 6 years following what DJ
20 | had done. Then we have from 2011 to 2016, we have 45 non-
21 | calves and 40 calves. So, again the proportion that are
22 | non-calves, the external recruits are over 50 percent.

23 | Q. Now, in the explanation you gave for the longer-
24 | term data analysis, you started in the first year of that
25 | was 2002. And I believe in your testimony the first year

1 that you recorded was from 1999. Is there a reason for
2 that difference?

3 A. Yeah. So, I think when I did it first, it with
4 1999, should have done later. I should have done this
5 2002, because there was a pulse of immigration that
6 happened in 1999 that could have skewed my interpretation.
7 There was a lot of new whales that came in during the time
8 period of the UME that we had a concurrent crash in the
9 gray whale ENP population. We had an increase of the
10 Pacific Coast Feeding Group. And so -- and then, the
11 other effect that you can have is a discovery effect that,
12 because the study was in its infancy, that whales that
13 were a part of the group we may not have discovered in our
14 surveys, and so, we are calling these new non-calves, when
15 really, they've been in that group for a long period of
16 time.

17 Considering that the population study started in
18 1996 throughout most of the range, and then 1998
19 thoroughly, I think by 2002, most of that discovery of new
20 individuals has occurred. And so, the new individuals
21 starting then should be the actual new individuals in the
22 group.

23 Q. Briefly, I had a couple of questions about
24 Margaret Owens's rebuttal, if you're up to testimony. Do
25 you consider whether the proposed hunt would affect the

1 | ecosystem in the western Strait of Juan de Fuca?

2 | A. I think the same conclusions that Dr. Weller
3 | made about the California Current ecosystem could be made
4 | for the ecosystem of the Strait of Juan de Fuca and Puget
5 | Sound. That is that there are large dynamic processes
6 | that are occurring that are the main drivers in the
7 | ecosystem. And with the small expected removals that will
8 | occur of gray whales, and as I've stated the expected
9 | recruitment of new individuals to replace those, that you
10 | would not see an observable effect to that ecosystem.

11 | Q. And does the proposed regulation allow for a
12 | removal in the strait?

13 | A. No.

14 | Q. Do you recall testimony last week about the use
15 | of a 20 percent error rate in the Rangewide Review for
16 | matching gray whales to the PCFG catalog held by Cascadia
17 | Research Collective?

18 | A. Yes.

19 | Q. Can you explain how that error rate, in your
20 | understanding, was determined?

21 | A. So, we'll be specific, that error rate was a
22 | potential for a false negative. So, an idea that a whale
23 | actually is a PCFG whale, but you do not document it as
24 | one. And it's important to think about the documenting of
25 | a whale as a PCFG, because it's documented as a PCFG.

1 | Then where did we have these other limits within the hunt
2 | proposal? Only 16 PCFG over the 10 years. Only eight of
3 | those can be female.

4 | So, the way that number came about was real just
5 | hand-waving, not so much an actual quantitative analysis.

6 | Part of that 20 percent was saying, what if it is a PCFG
7 | whale, but it's not yet in the catalog? Or it's in the
8 | catalog, but it's not yet called a PCFG whale, because the
9 | PCFG has a unique definition that it is observed in more
10 | than one year. So, if a whale was just seen last year,
11 | it's not considered a PCFG whale. So, we're saying, maybe
12 | that actually was a PCFG whale, but we're not calling it
13 | that for the management implications.

14 | So, when you input into the model, for a
15 | evaluating the impacts the hunt, a false negative rate of
16 | 20 percent. It provides an extra conservative level of
17 | analysis, because it's saying you're not shutting down the
18 | hunt when your impacts of PCFG are higher than your
19 | allowed rate. And so, when you model that out over the
20 | 100 years, you're actually taking more PCFG whales than we
21 | said you would, because the simulation is saying this is a
22 | PCFG whale, but you're failing to say it is a PCFG whale.

23 | I think the reality is, the other aspect of that
24 | 20 percent was Calambokidis, John Calambokidis, sorry,
25 | saying that we may not be able to get good ID photo on the

1 | whale. And I totally disagree with him on this. He's
2 | reflecting on that because of stranded whales and stranded
3 | whales often float in on their back. Now, they bloat and
4 | so their belly floats up, and so, when they come to shore,
5 | they're on their back within the area that you want a
6 | photograph for for the photo ID.

7 | Now, this is very different from a hunt, when we
8 | have the ability to manipulate that whale before we tow it
9 | onto the beach. And my expectation is that we're going to
10 | pull up the whales on their belly. And I think that this
11 | is important even in the cultural practices, so that they
12 | can spread the eagle down on the whale's back. So, there's
13 | a lot of reasons that we're going to make sure that the
14 | whale is belly down when we pull it up, which gives us
15 | plenty opportunity to take a good photograph of it.

16 | Q. You mentioned John Calambokidis. In your
17 | understanding, was he the person who came up with this
18 | estimate of the error rate?

19 | A. Yes. And so, I wanted to reflect on one more
20 | piece of that. So, I think the reality of the error rate
21 | is going to be much less, because we can flip them over
22 | onto their belly. We can get good photographs. And so
23 | the error rate of -- that Calambokidis and his crew, they
24 | do an excellent job of photo ID. That's why the large
25 | number of collaborators contribute our photos to them. We

1 | trust that they're doing a good job with it.

2 | And so, we can look at their catalog, and
3 | they've got 2,600-2,700 whales at this point. And there's
4 | only about a handful, five or six that were given a new ID
5 | number even though they are already in the catalog. So,
6 | this is a false negative that they should have identified
7 | in the catalog, but instead gave it a new catalog number.

8 | So, not only do they find those errors so they
9 | know that the error occurred, but it's over thousands and
10 | thousands of sightings that they're inputting. So, the
11 | error rate is just a fraction of a percent, probably, on
12 | the individual sighting basis.

13 | MR. GRUBER: Thank you, Mr. Scordino.

14 | I have no further questions, Your Honor.

15 | THE COURT: Okay. I now am going to start
16 | cross-examination. Does NOAA have any questions?

17 | MS. BEALE: We have a few questions. I don't
18 | anticipate would take too long, but we're also going to
19 | need a little break --

20 | THE COURT: We're coming up against -- so, my
21 | thinking is, I think what we'll do is we'll break a little
22 | early for lunch, and we'll start cross-examination after
23 | lunch, okay? We'll still start at 1:00, I guess. Thank
24 | you.

25 | **(Off the record from 11:52 a.m. to 12:56 p.m.)**

1 THE COURT: We're back on the record.

2 And cross-examination, we'll start with --

3 **CROSS-EXAMINATION**

4 BY MS. MORRIS:

5 Q. Good afternoon, Mr. Scordino. My name is Rachel
6 Morris, and I am one of the attorneys representing NOAA
7 Fisheries in this matter. How are you?

8 A. I'm doing well, thank you, Rachel.

9 Q. I would like to ask you some questions about the
10 subject matter of your declaration.

11 A. Okay.

12 Q. Last week, Dr. Brandon was asked about whether
13 we are able to make inferences regarding the ENP gray
14 whale stock ability to recover from the current UME based
15 on a single past documented UME. I'd like to ask you a
16 few questions about the same topic.

17 A. Okay.

18 Q. First, I'd like to show you NMFS's demonstrative
19 Exhibit 3, which is a time series of ENP population
20 abundance from 1967 to 2015. Do you see where the graph
21 indicates a decrease in abundance as a result of the
22 previously declared UME that lasted from 1999 to 2000?

23 A. Yes. That was -- and you've had a point at it,
24 but there's -- yeah, it's -- come on, Steve.

25 Now I have to do my part and figure out how to

1 use it. So in 1999, we have this event that when you
2 crash all of that.

3 Q. Thank you. And would you agree that the
4 abundance of ENP gray whales has recovered to high levels
5 after the 1999 to 2000 UME?

6 A. The figure looks a little bit off, but it looks
7 like '99 -- 1999 looks like a low on here figure. So,
8 sorry, the question was that whales recovered, yes. The
9 abundance of whales increased.

10 MR. SOMMERMEYER: I object, Your Honor, an
11 objection that I thought -- my understanding of the rules
12 was that cross was limited to issues upon which the
13 parties are adverse. So, in this case, it might be WNP
14 issues. This doesn't appear to be an adverse topic
15 subject to cross. More directed to --

16 THE COURT: There's also -- there's going to be
17 some help in understanding the issues. So, I recognize
18 that it's supposed to generally be adverse.

19 MR. SOMMERMEYER: Right.

20 THE COURT: And I don't know if there's any
21 differences between these two yet, so I'll let you keep
22 continuing. And if not --

23 MS. BEALE: Your Honor, I would just say --

24 MR. SOMMERMEYER: It just seems like more
25 direct --

1 MS. BEALE: -- per the hearing regulations, all
2 parties are considered adverse --

3 MR. SOMMERMEYER: Right, but the nature of the
4 testimony is -- it seemed like more in the nature of more
5 direct, so it's an issue in which NMFS is not adverse to
6 the Tribe. So, it seems you would parse it out.
7 Otherwise, it's just intended -- five different parties.

8 THE COURT: I understand where the rules come
9 and says that it'll generally be a party adverse, but
10 we've been also -- with the management plan, which has
11 been accepted and has already been deviated well from in
12 this one here. The APA generally allows such cross-
13 examination as is required to develop the truth. And this
14 is helpful. I will allow a little bit of this, just not
15 broad cross-examination by parties who are not adverse.
16 But I will allow some.

17 MR. SOMMERMEYER: Thank you.

18 MS. MORRIS: Thank you, Your Honor.

19 BY MS. MORRIS:

20 Q. Going back to before the 1999-2000 UME, would
21 you agree that the ENP gray whale population appears to
22 have suffered an even greater decline in the late 1980s
23 compared with the 1999 to 2000 UME?

24 A. Yes. So, we can see that, this large spike, and
25 then, drop following that. So, one thing we have to

1 remember with that data point, there's a lot of error that
2 comes around the abundance estimates. There's many
3 sources of error. And the error's not fully accounted for
4 in the abundance estimates. So, when the IWC uses this
5 data source, they actually will inflate the error
6 estimate. However, it's such a large magnitude of
7 difference that it probably really was a large difference
8 in that time period. This suggests that there was some
9 type of event that caused a large change in the population
10 size. And as we note, the population then, increasing
11 population, following that up through 1999.

12 Q. Would you agree that if we just look at the two
13 data points, 1987 and about 1999 to 1993, there was a
14 decline in the population?

15 A. Yes.

16 Q. And would you agree that the ENP gray whale
17 population abundance recovered from that decline?

18 A. Yes.

19 Q. And prior to around 1987, would you say there
20 are other periods of decline throughout this time period?

21 A. Well, I think we have to recognize that prior to
22 this time series was a major decline that in the 1910s
23 there are publications suggesting that the ENP might be
24 extinct. So, that's predating this. And we saw the
25 incline to go all the way through this time series to the

1 | increases that we see. We do see some other ups and downs
2 | within this time series that might be within the error of
3 | the abundance estimates that estimator, but it might also
4 | show a real change in abundance.

5 | Q. Would you say that the population abundance
6 | increased subsequent to the decline that we see throughout
7 | the time series?

8 | A. Yes. After every decline that has been
9 | observed, such as 1850s, '60s, there's a major decline in
10 | the gray whale abundance, and then, hunters, you know,
11 | weren't using them as much, and they recovered. And then
12 | were hit hard again in early 1900s, and then recovered
13 | again up to the point that, you know, we could see this
14 | time series. And so, yeah, after each time the population
15 | was depressed, that we do see a recovery.

16 | Q. And given this long history of gray whales
17 | showing recovery from whaling and increases and decreases
18 | of abundance, including the last formally declared UME, do
19 | you think it's fair to say that we know more about the
20 | population's ability to recover from a decline than what
21 | we learned from a single UME in 1999 to 2000?

22 | A. Yes, I would say we do.

23 | Q. And whatever this population may do over the
24 | next decade, do you think that the removal of 2½ whales
25 | per year over 10 years will have any detectable impact on

1 the ENP gray whale population's abundance?

2 A. I don't think you could see anything with the
3 range of error in the abundance estimates. Nor would that
4 amount of removal probably be of any biological impact to
5 the -- that large of a group.

6 MS. MORRIS: Thank you, Mr. Scordino, that's all
7 of my questions.

8 MR. SOMMERMEYER: Your Honor, I apologize. One
9 point of procedural clarification? Under 50 CFR 228.16,
10 the conduct of the hearing, it states that if there's an
11 objection made, "The transcript should not include
12 argument or debate thereon except as ordered by the
13 presiding officer." Is it possible to have the basis for
14 my objection in the record or how does that work?

15 THE COURT: You don't have to -- your objection
16 is part of the record. You don't need to do anything -- I
17 don't have to note an objection.

18 MR. SOMMERMEYER: Okay, thank you.

19 THE COURT: It's all part of the record.

20 AWI?

21 **CROSS-EXAMINATION**

22 BY MR. EUBANKS:

23 Q. Good afternoon, Mr. Scordino. This is William
24 Eubanks on behalf of AWI. How are you doing?

25 A. I'm doing well.

1 Q. So, you began working for the Makah Tribe in
2 2007, correct?

3 A. Yes.

4 Q. And can you describe that -- you explained
5 earlier that your father, I think, had done some similar
6 work. What brought you to work for the Tribe?

7 A. A job announcement, but --

8 (Laughter.)

9 -- I would say, you know, I worked in Makah U&A
10 when I worked for the National Marine Mammal Lab, so I was
11 already familiar the research area. And I worked with
12 Patrick Gearin, who worked for the National Marine Mammal
13 Lab. And they were asking him who's a good person to hire
14 for this opportunity, this job for them. And he had
15 suggested my name, knowing that I had finished graduate
16 school and that I was a knowledgeable person on the
17 subject matter and, you know, had already had the
18 interactions and knowledge of the Tribe from my previous
19 experience with my father in '99 and other trips I've made
20 out to Neah Bay with, like class projects. We had a visit
21 to Neah Bay, listened to storytellers, had, you know, a
22 tour of the museum. So, during my life, I've had many
23 opportunities to get to know the Tribe well, and, yeah, it
24 was a great opportunity I saw.

25 Q. Great, thank you. What's your current annual

1 salary?

2 A. It's around 60,000.

3 Q. And do you receive yearly or regular bonuses?

4 A. We do not do bonuses. I would like that.

5 (Laughter.)

6 Q. But they're here. They can --

7 (Laughter.)

8 Q. But I don't think that that's going to work. He
9 actually wanted me to ask that question.

10 (Laughter.)

11 Q. As a public interest lawyer, I can feel you.

12 I assume that there is no financial or other --
13 financial bonus or compensation that's tied to the outcome
14 of this hearing.

15 A. No.

16 Q. Approximately how much time have you spent
17 preparing your written and oral testimony for this
18 hearing?

19 A. So, I was hired in 2007 and it's 2019, so a
20 little over 12 years.

21 Q. But in terms of actually preparing the written
22 testimony and for this oral testimony.

23 A. So, it's all cumulative, right?

24 UNIDENTIFIED SPEAKER: Yeah.

25 A. I've been reading papers. I knew when I was

1 | hired, that this was part of the process, eventuality that
2 | if NOAA proposed regulations, that we were going to be
3 | here. If they didn't propose regulations, there would
4 | probably be a lawsuit from the Tribe, so either way, I had
5 | to know the material well. So, you know, from the time I
6 | was hired, I started reading material and I started
7 | conducting the research, addressing data gap, presenting
8 | my research, so I would say a little over 12 years.

9 | BY MR. EUBANKS:

10 | Q. And what do you view to be your role in this
11 | hearing?

12 | A. My role is as an expert on whales, and
13 | especially someone with a local expertise to the whales in
14 | the area, to provide input to help the judge interpret
15 | what we are viewing today, what the proposed management
16 | plan means and what potential impacts it can have.

17 | Q. And has the Tribe or its counsel ever suggested
18 | that your role in this hearing is to help them advocate
19 | for or obtain the waiver?

20 | A. Luckily, I don't have to, because just
21 | presenting the science is as much advocacy as needed. The
22 | science is strong. The science really shows that the
23 | hunt's not going to have an observable impact. That's
24 | what the IWC has shown. And the analyses are thorough.
25 | So, there is no need for me even to consider advocacy.

1 | It's just a presentation of the science that's understood
2 | today.

3 | Q. And as an employee of the Tribe, which I think
4 | we all know has a vested interest here, does your
5 | employment status affect your ability to present objective
6 | testimony?

7 | A. No. You know, I think the way I presented
8 | testimony was to present that there's a range of behaviors
9 | of PCFG whales, right? I could have gone the way of some
10 | of the other witnesses and taken selective slice out of
11 | the data set and just presented, you know, there's no
12 | fidelity of the whales to the area. There's, you know, I
13 | could have presented in such a way to be only showing the
14 | positive sides to the Makah Tribe.

15 | But I think I tried doing a very good job, a
16 | very thorough job of being fair in how I'm presenting all
17 | aspects of it to show the positives and negatives that can
18 | occur. And I would say my research has been the same way,
19 | that, you know, I've taken on some research activities
20 | that the Tribal Council or others might have seen as a
21 | threat to the continuation of whaling.

22 | So, for instance, I took on the effort of
23 | reviewing how much human-caused mortality is occurring,
24 | and documented that it was, you know, that there was a bit
25 | of mortality that occurs. And so, people could have used

1 | that in a way to be to the detriment of the Tribe. But I
2 | think the important thing was to get the science right, to
3 | make sure that our models that we incorporate in the IWC
4 | were as accurate as can be so that they were as defensible
5 | as can be. Nobody can come back later and say, this data
6 | gap, you guys left aside and didn't address. And if you
7 | had addressed, you know, you guys maybe wouldn't have come
8 | up to this.

9 | So, I always felt it was best to do a thorough
10 | analysis and I had the backing of the Tribal Council to do
11 | accurate science. So, don't worry about what the results
12 | might be, you know, apply for the grant regardless of --
13 | you know, the grants require public disclosure of my data
14 | and my results. And, you know, I could take on any of
15 | those tasks without fear or anything else because, they
16 | said, well, just make sure it's the best available
17 | science.

18 | Q. Thank you. Would denial of the waiver, do you
19 | think that would affect your employment in any way or
20 | would you -- it sounds like, you know, if the waiver was
21 | denied, there might be litigation, and I assume you would
22 | be involved in helping with that process.

23 | A. Yeah, so, maybe gives me job security, I don't
24 | know. Because it would continue where we're at right now
25 | with just the Tribe is trying to make sure that their

1 | treaty rights are being recognized. So, I don't think in
2 | any way the outcome of this affects my future employment.

3 | Q. And when you've attended meetings of the IWC
4 | Scientific Committee, have you done that as an independent
5 | scientist or as a Makah employee?

6 | A. So, when I attend, I'm part of the U.S.
7 | delegation, so as a U.S. citizen or a U.S. scientist, but
8 | I always announce that I work for the Makah Tribe.

9 | Q. And you mentioned earlier and you said also in
10 | your written declaration that you often work to fill in
11 | data gaps. Are those gaps that you're identifying that,
12 | you know, the Tribe is identifying? Who is the one
13 | identifying those gaps?

14 | A. So, it could either be internal, me looking at
15 | something like the mixing rates. When I first started, I
16 | looked at them and thought, there's no way they could be
17 | that high. I need to do more research to get that number
18 | verified, to get a better data set. So, to me, that was a
19 | data gap that I addressed internally.

20 | Others, such as the human-caused mortality, that
21 | was an issue that, through the implementation review, we
22 | first said, you know, we're not really certain about
23 | what's going on with human-caused mortality. We need a
24 | better data set. And then, I did a more expansive review
25 | of that for the Rangewide Review of Gray Whale Stock

1 Structure, and Status. That incorporated all sources of
2 known human-caused mortality throughout the range.

3 So, Mexico, U.S., Canada, Russia, Japan, Korea,
4 everywhere I could get data to address that data gap for
5 the range wide so that we could have a very thorough
6 review.

7 Q. And since the 1990s when the ENP gray whales
8 were delisted from the Endangered Species Act, what's your
9 best guess on the amount of money that the Tribe has spent
10 on biologists, counsel, and others in pursuit of this
11 particular waiver?

12 A. Too much. It's a legal -- it's a treaty right.
13 They should have been able to just do it. So, too much
14 would be my ballpark figure.

15 Q. But do you have -- I mean, do you have the
16 knowledge to place an approximate dollar figure on that?

17 A. My knowledge would be, like -- now, what source
18 were you asking for the funding?

19 Q. Well, I was just curious about ballpark estimate
20 that's been spent over the last 25 years on lawyers, on
21 biologists, other experts you all have worked with?

22 A. I don't know. I bet it could range into the
23 millions. I really don't know.

24 Q. And do you know what the source or sources of
25 that funding would be?

1 A. I cannot answer for everything. That's -- I
2 just can't. And I'm not knowledgeable. For my program,
3 we did funding through the Bureau of Indian Affairs,
4 litigation support money, and I think some of that money
5 has also gone for attorneys. So, that money helped
6 establish our marine mammal program. Then we've had money
7 from competitive research grants for my program, end-of-
8 the-year funds from the Bureau of Indian Affairs.
9 And in the last 3, 4 years, I've had some of my salary
10 supported by the Tribal Council, because, you know, like
11 preparing for this hearing, it's not something I can
12 defend as a research -- under a research grant. So, you
13 know, for getting soft money funded activities, you have
14 to have a funding source to apply to.

15 Q. Do you know if any funding for your department
16 or your position is coming from NOAA?

17 A. Yes. Yes, I receive competitive research grants
18 from NOAA. One of the larger sources of my funds over the
19 last 9 years has been through the Species Recovery Grant
20 to Tribes. And so, I've either applied for my money to
21 research the gray whales directly. The Species Recovery
22 Grant to Tribes allows research for candidate species,
23 listed species, and recently delisted. And so,
24 when I reviewed the proposal information in 2010, I said,
25 the only delisted species of -- that are managed by NOAA

1 | were the Caribbean Monk Seal, which was extinct, and the
2 | gray whale. So, obviously, if they wanted a recently
3 | delisted -- the only one that's recently delisted in that
4 | category would be gray whales. So, it worked and they got
5 | that funded. I was a little surprised. And so, I've had
6 | a couple grants that funded gray whale activities, and
7 | then, I had another one that funded Steller sea lion
8 | research.

9 | And so, I'd mentioned a couple times that my
10 | survey area would extend through Sea Lion Rock. That used
11 | to be a major Steller sea lion haul out and recently
12 | established rookery. And so, by doing research on the
13 | Steller sea lions, I'm able to get the time on the water,
14 | since they're in the same vicinity of where the gray
15 | whales are and continue the research activities.

16 | So, some ways, I have been a little bit
17 | inventive to keep up the research, you know, dollars and
18 | how they're useful. I have a number of other grants
19 | through NOAA. I get money through the Prescott Marine
20 | Mammal Health and Rehabilitation Grant, something like
21 | that. I've been funded by that for maybe 6 or 7 years.
22 | I've got grants through the Saltonstall-Kennedy Grant
23 | Program for some fisheries bycatch through the Bycatch
24 | Reduction Engineering Program and through Cooperative
25 | Research Program with NOAA and a grant through the

1 Preserve America, NOAA Preserve America grant, which I
2 felt good about getting, because that was one I definitely
3 made a big reach on.

4 Q. And I think you touched on this earlier, but if
5 the waiver is granted, is it your understanding that the
6 Tribe would continue to seek additional waivers in the
7 future once the initial 10-year period is complete?

8 A. That's their treaty right is to whale. I can't
9 imagine that they would get through a waiver and say that
10 they no longer want to use the treaty.

11 Q. Earlier, you mentioned Calambokidis several
12 times. I just wanted to ask you if you could describe who
13 Mr. -- Dr. Calambokidis is and sort of your view of him as
14 an expert in this field.

15 A. Yes. John Calambokidis, I think you said
16 doctor. He's not a doctor. He has a bachelor's degree,
17 but no advanced degree. He has run the Cascadia Research
18 Collective since they established it in the 1970s, I
19 think. And so, he's done a lot of different whale
20 studies. So, they maintain -- they started and maintain a
21 catalog for gray whales.

22 They also did the coordination of all the photo
23 ID and the catalog for humpback whales in a study called
24 Splash. They have a large catalog of whales for blue
25 whales as well. I think they got their start with, like

1 | contaminants in harbor seals or some harbor seal activity.
2 | So, they've branched into a lot of different things. I
3 | commonly work with the staff on strandings as well. He
4 | and I worked together on large whale disentanglements.
5 | We're both large whale disentanglement responders for the
6 | region's whale disentanglement program.

7 | So, he is very well published, and I think part
8 | of that is he's had access to a lot of data through
9 | collaborators present a very -- you know, we talked about
10 | scale earlier, broad scale analyses in ways that he
11 | wouldn't have been able to do with just his own
12 | independent research. So, he's, yeah, he's a very
13 | established researcher in this field.

14 | Q. You would consider him a leading gray whale
15 | expert?

16 | A. He's one of the people that are. There's a
17 | number of them. We have a few in this room. But, yeah.

18 | Q. In your declaration, you state that you have
19 | concerns about some of the direct testimony NMFS has
20 | submitted. Can you, to the extent you haven't already,
21 | can you please summarize your primary concerns with the
22 | scientific evidence that you were referring to here?

23 | A. So, I think I was referring to the Western North
24 | Pacific in general. I thought they could have depended a
25 | little bit more on the Rangewide Review of the Gray Whale

1 Stock Structure and Status. It's a mouthful. But I think
2 what they did is they depended on their stock assessment
3 report, which reviewed that. But it was their way of
4 analyzing that.

5 I can't remember what other -- do you have
6 specific examples? Because I think that was the main one.
7 So, I took objection to them referring to the whales that
8 are migrating from Sakhalin as the endangered population,
9 because within the delisting of the Eastern North Pacific
10 whales, they stated in their report then, that the Western
11 North Pacific was a reproductively isolated population
12 that was on the west side in the Western Pacific breeding
13 and calving in Asia.

14 And there was a major leap of logic, I think, in
15 the stock assessment report that was carried through in
16 the EIS and into their proposed regulations that those
17 whales that are now migrating from Sakhalin to -- well,
18 past the hunt area, even though there's actually -- I
19 guess one thing I took objection to was them saying that
20 there was any sightings of the whales at Sakhalin inside
21 the hunt area that their track lines were -- it's not like
22 tagged whales. There was no detection within the Makah
23 hunt area. There was detections north and south and they
24 kind of inferred that they went through it. So, I took a
25 little exception to that, because you don't know for sure

1 | what's happening between detections. But the main thing
2 | was the -- how they made that leap of logic.

3 | Q. And so, if we were to limit it to those two
4 | objections you just noted, would you say at least in those
5 | respects in your view, that NMFS failed to rely on the
6 | best available science?

7 | A. No. No. Just as I said, I think they reviewed
8 | on this stock assessment report, which is what made the
9 | original leap in logic, but that was the best available
10 | science for them to do that. So, they reviewed that. And
11 | the other thing about that, best available science is
12 | interpretable, right? And different scientists will have
13 | different interpretations of how that is done. So, I
14 | would say that they used the best available science. I
15 | would not interpret it the same way, and I think that one
16 | of the documents they used made a leap of logic.

17 | Q. You'll have to bear with me. Some of my notes
18 | here are handwritten. I have to see if I can decipher
19 | them. Did I understand you correctly during direct
20 | examination, you said you would serve as an observer on
21 | the boats as part of the hunt?

22 | A. I would serve, probably as the hunt observer on
23 | the (indiscernible) boat that's independent of the hunt.

24 | Q. Not on the -- not the canoe?

25 | A. Yeah. That'd be challenging.

1 Q. And are you personally able to tell the
2 difference between ENP, WNP, and PCFG whales by sight?

3 A. Some of them. Some of the PCFG whales, you
4 know, I've been researching that area for a long time, and
5 they have very unique patterns on their sides. And so,
6 even at a distance, I can ID them separately. If I wanted
7 to, I could really get myself familiar with the Western
8 North Pacific catalog and do the same. But the hunters
9 aren't going to have that opportunity. So, whether or not
10 I can is really immaterial.

11 Q. But it sounds like it's unlikely to assume that
12 you would know which of the three groups it is on a --

13 A. On a normal basis, no. It would be the extreme
14 example where I know an animal.

15 Q. And during your small vessel surveys of the
16 Makah U&A, have you ever photographed a PCFG whale?

17 A. Was that a question? Was it tongue in cheek?
18 Or --

19 Q. I assume that's happened pretty frequently,
20 correct?

21 A. Yes. All surveys, you know, summer feeding
22 season, we're expected to see them, yes.

23 Q. Have you ever photographed a WNP whale in the
24 Makah U&A?

25 A. So, define WNP.

1 Q. A whale under, you know, the current stock
2 structure the way that it's designated, what we understand
3 to be a WNP whale.

4 A. So, you're talking about whales coming from
5 Sakhalin Island?

6 Q. Correct.

7 A. We have not observed any whales from Sakhalin
8 Island.

9 Q. And have you ever obtained genetic samples from
10 your biopsy work that was from a WNP gray whale regardless
11 of where that was located?

12 A. I have no idea. So, the biopsy samples I've
13 conducted can be compared to the WNP database of samples.
14 I think the last time the WNP whale catalog was compared
15 to the PCFG, so for us to really be able to evaluate
16 whether or not I biopsied or even seen WNP was 2012 or
17 '13. So, it doesn't have all of the recent sightings and
18 biopsies. So, I'm not sure if the biopsy I have was of a
19 Sakhalin whale or not. But time will tell when those
20 studies are complete.

21 Q. And from the samples you've obtained from gray
22 whales in the Makah U&A, what if anything has been learned
23 about contaminant levels in their blubber?

24 A. So, there's been a number of years that
25 contaminants have been examined. There was some early

1 | work by Pat Gearin and Merrill Gosho with collecting the
2 | samples, and they're analyzed by Gina Ylitalo. And we
3 | had, I guess, relatively high levels of contaminants. The
4 | recent samples were analyzed by Kia Hayes at Texas Tech
5 | University, in collaboration with Gina Ylitalo. And the
6 | contaminants, you know, across the board were declining
7 | between the two data sets, which is not too surprising
8 | given that some of the main contaminants that are in the
9 | system that are really a concern, things like DDT, which
10 | were banned for use in the 1970s, PCBs, which were banned
11 | for use in, you know, the late 1970s, early '80s. So, not
12 | surprisingly, these are all on a downward trend.

13 | MS. BEALE: Your Honor, just for the record,
14 | we'd like to object as to relevance. It's kind of
15 | speculative as to --

16 | MR. EUBANKS: As far as we're concerned, it's
17 | within the scope of the direct testimony.

18 | THE COURT: You mean whether or not there's
19 | contaminants in the whale?

20 | MS. BEALE: Just for the record, that we would
21 | make (indiscernible) --

22 | THE COURT: I have -- right, I think that's --

23 | MR. EUBANKS: We think it's relevant to the
24 | health of the population.

25 | THE COURT: All right.

1 MR. EUBANKS: Populations that are being
2 discussed.

3 BY MR. EUBANKS:

4 Q. Just one last question on that and I'll move on.
5 Has anything been learned about toxic algal blooms?

6 A. Yes. That's an interesting question. I don't
7 know if you've been looking at my research grants or my
8 wife's. (Laughter.)

9 So, the fecal sampling that I've been conducting
10 was at my wife's request that she got a grant. So, I
11 guess I reported the grants I had for -- I'm not even sure
12 which funding source she got for this. We've been taking
13 fecal samples as well as samples of gray whale prey,
14 looking at the harmful algal bloom toxins that come from
15 -- that cause paralytic shellfish poisoning or amnesic
16 shellfish poisoning, so, generally, what you think of as
17 red tide. Looking at the loads in the prey and in the
18 whales to better understand how the toxins are moving
19 through the ecosystem. And this is a follow-up study to
20 one that we conducted previously in their species recovery
21 grant where we looked at Steller and California sea lions.
22 We looked at their scat and we analyzed the levels of
23 toxins observed in their poop and then compared that to
24 what they were eating.

25 And so, now in this new study, we're also

1 | looking at the fish species that the sea lions are eating,
2 | to look at how the toxins are going in there, gray whale
3 | prey, gray whales, so we can get a good understanding of
4 | how the toxins are going through the ecosystem, especially
5 | since there's a possibility that, as climate changes that
6 | we're going to have more frequent algal blooms.

7 | Q. So, I wanted to ask you a question about the
8 | Russian aboriginal hunts of gray whales. Do the Russian
9 | scientists, as far as you know, do they assess the impact
10 | of the hunt on individual whales or, as you were sort of
11 | suggesting earlier, has the focus always been at the
12 | population level?

13 | A. So, the way they've assessed it has always been
14 | on the population level. Dennis Litovka has been working
15 | on developing a catalog of whales that use the area. But
16 | there's so many whales that are using that area and the
17 | turnover sounds like it's quite rapid, that it would be
18 | hard to do a, you know, a good photo ID study there,
19 | because you just have -- it's more challenging to match,
20 | the more individuals you try to match to.

21 | Q. And so, is there any evidence to suggest that
22 | the same individual whales are returning to the same hunt
23 | areas year after year?

24 | A. Dennis hasn't told me that. They haven't
25 | presented that data at the IWC. So, whether or not there

1 is or is not evidence, I'm not aware of it.

2 Q. And I believe you mentioned the 2007 illegal
3 hunt. And I think you mentioned that you observed two
4 whales in the vicinity of where the illegal hunt occurred
5 a couple days later; is that correct?

6 A. No, I didn't say two.

7 Q. Okay, I thought that was --

8 A. I said I observed whales in that vicinity. We
9 observed a few whales in that area.

10 Q. Thank you for the clarification.

11 A. Yeah, I don't remember an exact number, so I
12 wouldn't say that.

13 Q. And do we have any knowledge of whether the
14 whales you observed afterwards were traveling with or
15 feeding with the whale that was killed?

16 A. I think you're alluding back to a big
17 misconception that people have with whale, right? You get
18 this generic understanding of whale. People think all
19 they -- they all operate in a pod. They're all the
20 biggest animals on earth. They're all -- people mix all
21 these attributes of dolphins and blue whales and other
22 things. Gray whales are -- they live independently.
23 They're independent critters except for mom and calves.
24 There's not a, you know, behavior groups that are doing
25 activities together and, you know, they're not humpback

1 | whales. You don't see cooperative feeding behaviors of
2 | bubble netting and other activities like that. But, you
3 | do sometimes see whales together.

4 | I'm not saying they don't join up together, but
5 | they seem to just join up together in the same areas where
6 | there's dense prey. So, your question's alluding to the
7 | idea that the hunt would have disrupted a behavioral
8 | group, a pod of some nature. And I think that represents
9 | a little misunderstanding of the biology of gray whales.

10 | Q. So, based on what we know, it's possible that
11 | the whales that were seen afterwards were traveling with
12 | or they joined up with, but it's also entirely possible
13 | that they were moving independent from each other.

14 | A. I think I answered that thoroughly before, and
15 | I'll just say it again. They're independent animals. The
16 | only ones that operate together are mother/calf pairs.
17 | None of them are mother/calf pairs. I would not say that
18 | any of those whales moved in with or traveled with. If
19 | they happened to come in with, that was happenstance, just
20 | like if you and I were driving down on 5 next to each
21 | other, not necessarily that I'm there because I have a
22 | relationship with you. We're just driving down the same
23 | road.

24 | Q. All right. You state in your declaration that
25 | "Sometimes whales react to the presence of the motor boat

1 on the first approach for photographing, making it
2 impossible to approach subsequently for additional
3 photographs or to shoot with crossbow for a biopsy
4 sample." Do you remember making that statement?

5 A. Yeah. That's what I was talking about when
6 Brian asked me about approaches having an effect. And
7 that's where you see whales that sometimes just get very
8 evasive. And so, you know, when you're -- especially when
9 you're doing the close approaches that you have to do for
10 biopsy sampling, you really want to be successful on your
11 first approach.

12 Q. And you've already described some of those
13 behavioral changes that can occur. I wanted to ask a few
14 questions about that. How often, in your experience, does
15 a whale flee, you know, flee from the area, you know, sort
16 of go in a different direction to avoid the approach that
17 has just occurred?

18 A. For in terms of approach, it's a small
19 percentage. I couldn't say an exact number, because I've
20 never analyzed the data for it. The general behavior, the
21 vast majority is they stay in the area and they're pretty
22 easy to stay on and to photograph.

23 Q. And do you have any sense as to whether other
24 behaviors, such as diving more frequently or staying under
25 water for longer periods of time are resulting on a

1 regular basis from these types of approaches?

2 A. Yeah, that's where I was talking about where you
3 have an individual set, have the basic behaviors, right,
4 where they stay under water. Keep in mind that when
5 you're talking about for approaches, we have a limit of
6 353 approaches in a year, which I actually -- that's one
7 of the things I object to.

8 I think that's rather limiting, especially when
9 you compare it to whale watchers that are going out on the
10 same whale multiple times a day, you know, and each day of
11 the week. So, they can be an impact of, you know, some
12 animals becoming evasive or showing a behavior or
13 response. The hunt is not going to be something that's
14 happening every day after day. Where you actually see
15 some impacts of these type of behaviors would be in whale
16 watching operations. There've been some examples in the
17 literature where repeated whale watching causes behavior
18 reactions for dolphins and I think it might have been
19 humpback whales as well.

20 Q. And so, whether we're talking about whale
21 watching activities or other types of approaches for
22 photographing or otherwise, it's fair to assume that even
23 if you're not getting one of the more significant
24 responses that you've talked about, it's at least speeding
25 up heartrate, causing potential breathing changes and that

1 | sort of behavior, correct?

2 | A. So, as far as detectable change, right,
3 | something that I could actually measure, I don't think
4 | you're seeing anything on a normal interaction. And if
5 | there were, then, you know, whale watching should be
6 | illegal.

7 | Q. And do you have a federal permit for the
8 | research activities that you conduct?

9 | A. Yeah, I have a number of federal permits. So,
10 | on my gray whale photo ID and fecal sampling, I do that
11 | under a general authorization permit, which I think this
12 | week I need to send in a report for, if I remember. Then
13 | I have a separate permit that I'm a co-investigator on
14 | there for southern resident killer whales. I have another
15 | permit under a Calambokidis, his permit. I'm a co-
16 | investigator under for my more invasive interactions with
17 | gray whales, so biopsy sampling, and for endangered
18 | species that are not covered under my general
19 | authorization permit.

20 | Q. And what is your understanding as to why you
21 | need a permit to conduct the type of research activities
22 | that you're conducting?

23 | A. The activities can cause a response that
24 | constitutes a take under the MMPA. So, to have a legal
25 | take, we have to have a permit to conduct the activities.

1 And so, NOAA has a process that thoroughly evaluates our
2 proposal, so I have to tell them what do I plan to do?
3 How many whales do I expect to take? How many approaches
4 do I expect to have? And so, that way, they can evaluate
5 all of the potential impacts of research and other
6 activities on the populations that they're managing.

7 Q. And you referred to whale watching activities
8 several times. Is it your understanding that there are
9 MMPA permits available for whale watching activities?

10 A. I don't understand why, but whale watching is
11 not governed by that, so that you guys have asked a few
12 times for different witnesses what is a take, and what are
13 the regulations. You know, there are no regulations that
14 say you can't approach close to a whale. There's general
15 guidelines given saying you shouldn't approach within 100
16 yards. But really, a take is when you say you caused a
17 change in their behavior. And, yes, so whale watchers
18 watch from shore and other ways that generally they often
19 get much closer than 100 yards when they're doing their
20 activities.

21 Q. And you understand that there are enforcement
22 mechanisms if, you know, someone were to engage in
23 activities that NMFS believed to be illegal under the act,
24 correct?

25 A. So, how do you enforce some of those things is

1 | the challenge. So, you might have a mechanism that is
2 | defined, but implementing it to say that you actually
3 | caused the change in behavior and it wasn't that the
4 | animal just did, is a totally different story. So, there
5 | might be a mechanism, but it's really hard to enforce
6 | those on whale watchers. I think the only times I've ever
7 | read of it was when whale watchers have hit whales with
8 | their boats and other activities that were very blatantly
9 | -- I think one lady feeding whales. So, there's only been
10 | a couple of cases where it was just so blatantly obviously
11 | wrong that there's ever been enforcement action.

12 | Q. But you understand that if unauthorized take
13 | occurs, there are mechanisms for addressing that in the
14 | law.

15 | A. Right, but it's very challenging to implement.

16 | Q. If the proposed hunt goes forward, if the waiver
17 | is granted, do you think that every single whale that is
18 | approached, whether during training or during a hunt, will
19 | be able to be photographed prior to any attempt to strike
20 | the whale?

21 | A. You said every whale, in training and in
22 | hunting?

23 | Q. Yes.

24 | A. Part of it comes down to the answer would be how
25 | is approach going to be defined under this? And I'm not

1 | totally certain how that's going to be implemented. I
2 | think it would be really challenging to photograph every
3 | single whale for an approach. When it comes down to an
4 | unsuccessful harpoon attempt or a strike, you know, that's
5 | going to be the center of focus for the observer and the
6 | other people on board the boat working with cameras.

7 | Because the other stuff is really periphery, and
8 | you don't want to lose focus on what's happening with the
9 | whaling canoe and the potential whale, that actual strike
10 | that can cause a mortality is occurring. So, I think in
11 | those cases, there might be instances where your boat
12 | position causes you to be blocked in your view from the
13 | whale, which would make it hard to document who the whale
14 | is.

15 | Now, if we have 1999 as an example, there was,
16 | what, two or three helicopters over the hunt every single
17 | day. There was a press boat. There was many sources of
18 | cameras on the water and cameras above the water, other
19 | sources that could be used for photo ID. So, even if the
20 | hunt observer misses a photograph, there's many other
21 | potential sources that can be utilized. So, yes, there's
22 | probably some that did get missed, but it's probably going
23 | to be a low proportion, especially for those that are
24 | going to be struck and lost or struck and landed.

25 | Q. In your direct testimony, you mentioned some

1 modeling trials or looked at scenarios over 100 years,
2 correct?

3 A. Yes.

4 Q. Were those models developed and run prior to the
5 current UME?

6 A. So, you're asking if the process of how that's
7 done is developed prior to 1999?

8 Q. Sorry. Was the model that you were referring
9 to, was it developed prior to the start of this current
10 UME that we're in right now?

11 A. Oh, yes. But you know what's the really cool
12 part about that modeling is that it incorporated a major
13 mortality event occurring within it. That was -- we just
14 said, well, we've observed this in the past. We expect it
15 to happen at some point in the future. So, there was an
16 odds put in that modeling that a major mortality event
17 would occur within that scenario. So, even though we
18 weren't modeling with this current event, we did model it
19 assuming that events would occur. So, it incorporated
20 within the modeling the possibility of what is being
21 observed now was observed.

22 Q. And to your knowledge, no one has gone back and
23 recalibrated or rerun that model by inputting any of the
24 new data related to the current UME, correct?

25 A. You could only recalibrate it once we get the

1 new abundance estimates. Otherwise, it's within the
2 parameter space that was modeled. The modeling
3 incorporated an unusual mortality event occurring, and so,
4 it's already modeled and already evaluated to say that the
5 conservation objectives of the IWC and the MMPA were met.
6 Now, we have implementation review this coming spring. I
7 think it's going to be a little too early for the
8 abundance estimates to be available. If we get these new
9 abundance estimates in from Dave Weller and colleagues,
10 and we see a major decline, and there's probably even
11 emergency implementation review. That's the process of
12 how it's done. And they're going to incorporate that in
13 the modeling. And they're going to evaluate how does that
14 change the projections. And I would expect that it
15 wouldn't, because we've already, you know, incorporated
16 that within our modeling.

17 Q. You referred in your written testimony to
18 ongoing genetic research between the Makah Tribe and Dr.
19 Lang.

20 A. Yes.

21 Q. What's the status of that research? I'm sorry,
22 can you first tell us a little bit about that research and
23 then describe the status of it?

24 A. So, it's a long-term collaborative project that
25 I was able -- in 2010, I was able to write some grants

1 | that got as funding for collection of biopsy samples, not
2 | only in my area, but in -- I was able to fund -- I think
3 | in 2010, I funded Cascadia Research Collective, and then
4 | they sub-funded out other research groups. And I got
5 | another subsequent year of funding where I was able to
6 | directly fund other researchers, like Jim Darling and Jeff
7 | Jacobsen to collect samples in areas that were poorly
8 | represented in our original data set.

9 | So, this project's been going on now for 9
10 | years. I just actually was refreshing my memory with Amy
11 | that it was -- we're right about 200 samples of unique
12 | individuals within this study that we're at right now.
13 | And so, those samples are being analyzed for mitochondrial
14 | DNA and for the microsatellites. I think it's over 20. I
15 | don't remember the exact number. And I think that they're
16 | going to be looking at SNPs as well, that they were
17 | developing a panel at Southwest Fisheries Science Center
18 | for looking at the single nucleotide -- anyway, SNPs.

19 | Q. How are WNP gray whales currently listed or
20 | designated under the Endangered Species Act?

21 | A. They're currently listed as whales that are
22 | breeding in the -- or are wintering in the Western North
23 | Pacific and are geographically isolated from the Eastern
24 | North Pacific. That was the last time, so it was written
25 | in 1984, and the paper was Reilly. I'm not 100 percent

1 | sure. I think that was Reilly, the one that was with it
2 | when it occurred. Was that '94? I don't recall.

3 | Q. I can make it simpler for you. Would you agree
4 | that WNP whales are listed as endangered under the
5 | Endangered Species Act at present?

6 | A. The Western North Pacific breeding stock of gray
7 | whales are listed as an ESA listed species.

8 | Q. Have you or anyone else with the Tribe sought to
9 | delist the WNP breeding stock from the -- under the
10 | endangered species list?

11 | A. We would have no reason to take that type of
12 | measure, mainly because it's my opinion, and I think of
13 | other experts, that the western breeding stock is not in,
14 | you know, the hunt area. And I think there's some
15 | evidence that there are whales that are utilizing the
16 | Asian migratory routes and wintering grounds, suggesting
17 | that there is a population over there that still qualifies
18 | under that definition. And if there is, it's rather small
19 | and it should be protected.

20 | MR. EUBANKS: I have no further questions, thank
21 | you.

22 | THE COURT: Before you begin, I just want to
23 | expand on my -- on your objection. I just want to note
24 | that under the rules, for NMFS, it is considered adverse
25 | to all participants.

1 MR. SOMMERMEYER: Yes, I understand that.

2 THE COURT: Okay.

3 MR. SOMMERMEYER: I was just saying, my point,
4 sorry, Your Honor, was that the actual testimony that was
5 being discussed was not adverse, because NMFS and the
6 Makah Tribe agree on those points. It was just
7 reiterating direct testimony. It wasn't an adverse issue.
8 For example, the WNP issue appears to be an example of an
9 adverse issue.

10 THE COURT: Right.

11 MR. SOMMERMEYER: So, it doesn't seem to be
12 serving the purpose of cross-examination.

13 THE COURT: All right, very good. They have the
14 right to question the cross.

15 MR. SOMMERMEYER: Thank you.

16 MS. BEALE: Your Honor, just for the record, I
17 would just reiterate that under the hearing regulations,
18 all parties are considered adverse to NMFS.

19 THE COURT: Right.

20 **CROSS-EXAMINATION**

21 BY MR. SOMMERMEYER:

22 Q. Good afternoon, Mr. Scordino. Brett Sommermeyer
23 from Sea Shepherd. You seem much more relaxed now.

24 A. Good.

25 Q. So, have you personally been involved in

1 monitoring of the Chukotka Native ASW hunts?

2 A. Only through the International Whaling
3 Commission where we're providing critical review based on
4 what they're providing to us. So, that is the extent of
5 my interaction with it.

6 Q. And that would not include observations in the
7 field or the research?

8 A. Nope. No field observations in Chukotka.

9 Q. So, do you base your opinion that the Chukotkan
10 hunts do not cause shifts in gray whale distribution or
11 abundance solely on the reports filed with the IWC by the
12 Russian researchers?

13 A. Like all other studies that I have presented,
14 it's based on the published results that were presented by
15 the researchers in those areas. So, yes, I give them the
16 same credibility as other sources.

17 Q. So, the answer is yes.

18 A. I can give you the whole thing again if you
19 want.

20 Q. No, that's fine. I think we covered this
21 already with --

22 MR. SOMMERMEYER: It failed. I can speak
23 loudly. Do you want to wait a second?

24 THE COURT: Just wait one second.

25 MR. SOMMERMEYER: Sure.

1 Thank you.

2 BY MR. SOMMERMEYER:

3 Q. Not to repeat what counsel for AWI covered, but
4 isn't it true that the reports, the Russian investigative
5 reports, do not document the same individual whales
6 returning to the Chukotkan hunt area each year?

7 A. So, you want to cover the same material. Should
8 I give the same answer?

9 Q. If it's the same answer, the answer is no?

10 A. No. What I said was that they are starting to
11 do photo ID work. And as far as I know, that has not been
12 reported yet. But I can't say they don't. So, same
13 answer I gave earlier.

14 Q. Thank you.

15 A. Okay.

16 Q. Isn't it also true the reports do not contain
17 any specific information about the actual effects of the
18 hunt on the whales? Isn't that correct?

19 A. No.

20 Q. Why is that not correct?

21 A. They do talk about the behavioral response of
22 whales that are hunted, that are struck, and it's not a
23 very descriptive report. It generally says, like 40
24 percent of the whales were aggressive, is about the extent
25 of what it says. So, it does have a behavioral response

1 within it, but that's for whales that are struck.

2 Q. We'll return to that in a second, but do the
3 reports say the gray whales, for example, are undisturbed
4 by the hunts? Do they state that?

5 A. They make a conclusion in two of the papers
6 talking about the whales are maintaining use of the area.
7 So, you can infer from that what you will.

8 Q. Nor do they state that the whales do not
9 actually react to the hunts, correct?

10 A. Except as I just noted, when they get struck,
11 that some whales will be aggressive to the whaling team
12 and crew.

13 Q. Do you happen to recall, as you sit here today,
14 what -- which of the reports provides any information
15 about how they reacted to the hunt?

16 A. There's a number of reports. They're documented
17 in my testimony.

18 Q. Right.

19 A. You can -- I have it here. Do you want me to
20 find it and I'll tell you --

21 Q. I can put them on the -- yes, the screen, we can
22 go through and figure it out, because I don't recall that.

23 A. Okay.

24 Q. Yeah, so we start with Exhibit 21 to your
25 declaration, your first declaration.

1 MS. OWENS: I have it. I know what it is.

2 A. So, page 23 is talking about some of this
3 information.

4 BY MR. SOMMERMEYER:

5 Q. I'm sorry, I have for mine, I see -- I had an
6 excerpt from you -- so I had page -- if you use the pages
7 on the bottom, 2 of 4, 3 of 4, that'd be helpful. See
8 what I'm talking about at the bottom?

9 A. No. I don't see that. My printout just says
10 page 23.

11 Q. I took this particular one --

12 MR. SOMMERMEYER: Page down a little bit there,
13 please.

14 A. Oh, so you're talking about the exhibit?

15 Q. Yeah, Exhibit 21, sorry.

16 A. Exhibit 21, I don't have that. I don't have
17 that whole -- I quoted 2-, 300 papers. I don't have all
18 those sitting here.

19 Q. Okay.

20 A. I just have -- I have my testimony here. So, if
21 you asked me which ones I referenced, I could tell you it
22 was Blokhin et al. (2012); Blokhin and Litovka (2011); and
23 there was a range of other ones. Ilyashenko and Zharikov.
24 There's a lot of them, right? There was each year there
25 was an update on some of the behaviors or some of the

1 | distributions of the hunt.

2 | BY MR. SOMMERMEYER: Is there a way to get this
3 | clear on the screen?

4 | (Discussion about exhibit display.)

5 | BY MR. SOMMERMEYER:

6 | Q. You want to just page -- the most helpful way to
7 | do this here is page through it, and can you see it on
8 | your screen sufficiently now to read through? I just want
9 | to -- if I missed something --

10 | A. Which paper is this one?

11 | Q. This is Exhibit No. 21 to your first
12 | declaration. So, it's these --

13 | A. What's -- can you go to the top so I can see --

14 | Q. -- the results of the gray whale monitoring
15 | research.

16 | A. Go to the top, so I see what page this is. So,
17 | this is Blokhin et al. Okay.

18 | Q. Do you recall reading this paper?

19 | A. Yeah, I know I've read it.

20 | Q. Can you direct me to where in there it talks
21 | about reactions to the hunt?

22 | A. I don't see that I cited this one.

23 | Q. It's Exhibit M-0021 to your first declaration.

24 | A. Okay. So, I see it here. So, I had -- I said,
25 | I agree with their conclusions, but there is no evidence

1 to show Chukotkan hunts caused shifts in gray whale
2 disturbance or abundance -- distribution, excuse me,
3 distributions or abundance. So, I made no call to saying
4 that it caused disturbance or didn't cause disturbance.

5 Q. Right, but you were just saying that the reports
6 include information about effects of the hunts on the
7 whales.

8 A. I said in my testimony that this paper shows
9 that it talks about the distribution and an abundance of
10 the whales.

11 Q. But you also -- so, my question was earlier, is
12 there anything in the papers that indicates that there was
13 a -- that documents the effects of the hunt on the whales.
14 And you said there was. You gave an example of if it's
15 struck, it's aggressive, but --

16 A. Yeah, this is not the paper that shows that.

17 Q. Can you tell me which one?

18 A. It's a series of papers, updates each year. I
19 think it's the Ilyashenko and Zharikov papers. So,
20 there's a 2013 one, it's Exhibit M-0133, M-0134, M-0135,
21 M-0136, M-0137. Any one of those would be the ones that
22 document that. Even though I don't think they said it in
23 every single year, so it's definitely documented in some
24 of those, but offhand, I can't tell you which ones they
25 talk about that. I didn't even really discuss that action

1 of their behavior response of being aggressive in my
2 testimony.

3 Q. Okay, right, but so just to clarify then, the
4 papers here, 21 -- so we had No. 21 doesn't say anything
5 about the whale behavior in response to hunt, correct?

6 A. Twenty-one says, the conclusion they came with
7 was that shifts in gray whale distribution and abundance.
8 That was how I used that paper. That was what their
9 conclusions were about. So, again, that's population
10 level discussions, right? You're asking me about
11 individuals. I am telling you their analysis was about
12 populations.

13 Q. Would you agree that the reports -- when I refer
14 to reports, I'm starting with the ones that are numbered
15 21 through 24 to your declaration? Those are the exhibits
16 that have the Blokhin reports that were submitted to the
17 IWC.

18 A. Okay, what is your question in regard to those?

19 Q. So, would you agree that those reports do not
20 include observations of the actual hunt areas?

21 A. You're asking if Mechigmsky Bay is not in the
22 hunt area?

23 Q. No. What are the observations in the bay where
24 are the hunt areas?

25 A. Yes, it's right next to Lorino, which is one of

1 the most active hunt village sites.

2 Q. So, they could see into the hunt areas with no
3 problem is your testimony.

4 A. My understanding is that Mechigmentsky Bay is the
5 hunt area for the Lorino village.

6 THE WITNESS: That all looks like Russian.

7 (Laughter.)

8 MR. SOMMERMEYER: Yes, that was one of the
9 problems.

10 BY MR. SOMMERMEYER:

11 Q. So, this report states -- this is No. 23 to your
12 first declaration, "We observed the animals from the coast
13 that was 25 meters, 82 feet high above the sea. From that
14 viewpoint in normal weather conditions, a whale blow could
15 be seen at a distance up to 10 kilometers, 5.4 nautical
16 miles. Thus only a small part," I'll probably slaughter
17 this word, "Mechigmentsky Bay coastal waters within a
18 radius of 10 kilometers was observed." Is that accurate?

19 A. Yes, that's what you read, yes. You read it.

20 Q. Let's go to page 4. Do you recognize this
21 diagram?

22 A. Yes. I think it shows in here that the
23 observations look to be in that center point and those
24 five areas going around it were at Lorino, so I mean, I
25 imagine that the hunters are acting like a central place

1 forager, just like a sea lion from a haul-out. And hunt
2 activities are going to be closest to the village site.
3 As soon as they encounter a whale, they'll hunt it, right?
4 So, you asked me, does this show the hunt area? Most
5 likely it's showing where a lot or, you know, most of the
6 hunt activity is occurring.

7 Q. So, just to clarify, the one, two, three, four,
8 five or the eight areas the observers could view from that
9 shoreline, that's what we described earlier.

10 A. I think that was the description, if I go up to
11 the figure caption, and it would say more clearly, but I
12 think you said it correctly.

13 Q. And then what then are the C, W, and E rectangle
14 or polygons?

15 A. Maybe go back down to the caption, it says it.
16 It says they're regions of the harvest.

17 Q. So, is that the hunt areas? Those are the hunt
18 areas, correct?

19 A. I have not observed the hunt there, like you
20 guys said that discussed, so I'm not sure exactly if
21 that's the only areas they hunt in or if that was, you
22 know, some schematic representation or if they actually
23 are limiting their hunts to those three zones.

24 Q. I asked you, you said you reviewed this report
25 just prior to -- you work for the subcommittee for the

1 ASW?

2 A. Yes.

3 Q. And then, you understood the reports. I just
4 want your understanding if those are the hunt areas.

5 A. I did not look at that detail.

6 Q. Would you also agree that if you cannot observe
7 the hunt areas, it would be difficult to assess the effect
8 of those hunts on the whales?

9 A. I guess I don't know that those hunt areas are
10 an accurate reflection of where hunting occurs. And I
11 don't know if anybody in this room would be more
12 knowledgeable than I am on that either, if somebody could
13 answer that. But, you know, people are -- human behavior,
14 you're going to be in a central place for a period. If
15 you encounter a whale on your way to that area, that'd
16 probably be where the hunt occurs, unless there were
17 specific regulations that there were regulatory
18 requirements given that they, in their report, said report
19 a minimum distance and a maximum distance from shore, it
20 seems kind of silly to think that you'd have these
21 regulated areas, because then it would always be within
22 the regulated area that you would have your minimum and
23 maximum distance.

24 Q. This is speculation on your part, isn't that
25 correct?

1 A. Yeah. Just like saying that that's just the
2 hunt area. It's kind of how it states, but, yeah, I'm not
3 sure what it entirely means of what they wrote.

4 Q. I'm glad you raised the maximum and minimum
5 issue, because I wanted to talk about that one next. Do
6 you recall in your direct testimony in your first
7 declaration regarding the Russian reports that document
8 the maximum and minimum distance from shore that whales
9 are hunted in the Chukotka region?

10 A. Yes.

11 Q. So, page 23, you can go to page 23 of your
12 declaration, first declaration. So, I'll just read the
13 relevant language I wanted to focus on. So starting with,
14 "During the period from 2012 to 2016, the maximum distance
15 from shore whales struck range from a high of 49
16 kilometers in 2013 to a low of 30 kilometers in 2015. And
17 the minimum distance from shore ranged from .2 to 1
18 kilometer. Based on these observations, there is no
19 evidence that the whales moved farther offshore in
20 response to much more hunting pressure than is
21 contemplated in the Makah hunt. To the contrary, whales
22 continue to be found within one kilometer of shore
23 throughout this period, and the maximum distance traveled
24 by the Chukotkan whalers was shorter in 2015 than it was
25 in 2013."

1 A. Yeah.

2 Q. I just want to get some context.

3 A. Right.

4 Q. So, isn't it true that an exact distribution of
5 the whales is not stated in the reports? For example, the
6 reports do not explain how many whales were present at 49
7 kilometers. They just say a whale was hauled in from 49
8 kilometers; is that correct?

9 A. That's why in my testimony, I gave background of
10 the other paper that talked about Mechigmsky Bay, too,
11 right? They are complementary data sources.

12 Q. But these -- the reports you refer to don't
13 actually tell you how many whales are in each area.

14 A. They don't. That's why it was important to
15 review both data sources.

16 Q. Right. And how does the other data source
17 assist?

18 A. Because it's showing how the distribution
19 changes through time in those areas.

20 Q. And did you match that up with these numbers for
21 maximum?

22 A. You can't match them up to those numbers, but
23 they kind of -- it's a weight of evidence more of a thing,
24 if they're showing the same picture.

25 Q. So, as a crude example, sorry, and I'm not a

1 | scientist, but if you had 30 whales in year one, for
2 | example, that were within a kilometer of shore, and one
3 | whale that was offshore, say 39 kilometers, and there was
4 | a hunt. And then, in year two, you now had one whale at
5 | less than one kilometer, and you had the other 29 went out
6 | to 30 kilometers, 39 kilometers. Would this data reflect
7 | that change in distribution?

8 | A. No. That's why you have to review both data
9 | sources and get a weight of evidence among multiple data
10 | sources by using all that's available. And that's what I
11 | did.

12 | Q. So, for the years 2019-2025, the IWC has limited
13 | the number of gray whales that may be killed to 140 per
14 | year; is that correct?

15 | A. One hundred forty Eastern North Pacific whales
16 | per year. Let's be accurate.

17 | Q. I appreciate that. So, under the -- under an
18 | agreement between the United States and the Russian
19 | Federation, 135 gray whales per year are allocated to the
20 | Russian Federation, and five to the United States; is that
21 | correct?

22 | A. It's not fully correct. It's that the U.S. has
23 | a portion that's up to five and if they're not using it,
24 | then that quota goes back to Russia. So, it's a little
25 | bit more nuanced than the simple explanation you gave.

1 Q. So, you're saying that there actually are more
2 than 135 whales allocated to the Russian Federation?

3 A. No. I said there's 140 allocated to the stock,
4 right? And that is split between the two. So, in this
5 year, when there's no Makah hunt, then, yes, it's more
6 than 135.

7 Q. So, in 2016, the Chukotka Native hunters killed
8 around 120 gray whales, ENP gray whales; is that correct?

9 A. Don't know.

10 Q. As part of your work with IWC, you haven't seen
11 that?

12 A. I don't know the exact number.

13 Q. Does that sound reasonable?

14 A. I can't say yes. I don't know. It's probably
15 in the ballpark, right, but I don't know what the exact
16 number was.

17 Q. And so, you wouldn't know as to about the same
18 number in 2017? You wouldn't know that?

19 A. I don't know what the number was in 2017.

20 Q. But your testimony is that preventing the Makah
21 hunt will not eliminate or reduce strikes on ENP whales,
22 because any whales not used by the Makah, who share a
23 catch limit with Russia, will be utilized by the Chukotka
24 Natives, but you don't know how many have been taken each
25 year?

1 A. So, I think you're a little misleading in how
2 you're asking that. So, you're asking me about a quota
3 that goes into the future that was different than a quota
4 in the past. So, the quota in the past had, was it 720
5 whales over 6 years. It was -- and it had a maximum
6 number in any given year.

7 So, they were exceeding the average that they
8 were allowed in each year in recent years, which made it -
9 - it's a little bit misleading in how you're saying that.
10 So, yes, I think the Russians would utilize any portion of
11 the quota that's not being used. This is especially true
12 going forward, because we're looking at, in the IWC, a
13 carryover provision for strikes that are unused.

14 And so, if in year one, you don't use those
15 strikes, you're allowed to use that unused portion in year
16 two. Now, any time you try to manage a fishery and you're
17 trying to manage it to an exact number, it's challenging,
18 right? You need really good communication. Russia, the
19 Far East, is not an area known for good communication,
20 right? There's a lot of challenges in that work
21 environment there.

22 And I think that they're probably conservative
23 in how they manage their fishery of whales to not exceed
24 their quota. If they're able to know that a portion of
25 their quota that's not used in this year can be used in

1 | this year can be used in a future year, I would expect
2 | that there's going to be a more efficient use of the quota
3 | in years forward. So, I would expect 100 percent use of
4 | the quota in future years, because there's definitely a
5 | need in those communities that they have expressed and why
6 | the limit of per catch was increased, even though many
7 | countries object to increases in limits. There was enough
8 | of an expressed need by Russia that it was accepted.

9 | Q. Isn't it true since 2001 that the average 124
10 | gray whales have been killed per year?

11 | A. And I think that's the limit they're allowed on
12 | average per year.

13 | Q. But the limit they're allowed now is 135.

14 | A. The limit for the stock is 140 whales. If the
15 | Makah Tribe were removing 5 in that year, then they'd be
16 | limited to 135. But if they're not removing it, then,
17 | yes, the limit is 140.

18 | Q. But you don't know whether or not they used
19 | their quota in 2016, 2017, 2018?

20 | A. When we reviewed the data at the IWC, it looked
21 | like they were going to go over their quota if they
22 | continued at the rate they were harvesting. As I
23 | mentioned in my summary, I did not attend this year,
24 | because my wife and I were expecting a baby. So, I wasn't
25 | part of those discussions this year to look at what was

1 | mostly recently reported.

2 | Q. So, for example, if the number 120 whales in
3 | 2016, are you saying that they met their quota that year?

4 | A. I'd have to be reminded what is the actual
5 | quota, what was the average on the quota during those
6 | years. So, if you could pull up those numbers, I'd
7 | appreciate it, because I don't remember the exact numbers.

8 | Q. My understanding, though, the annual quota was
9 | 135.

10 | A. No.

11 | Q. It was 125?

12 | A. I thought 124 was the average on that. I don't
13 | remember the exact -- I thought it was 124. So, in that
14 | year that you said it was four less than that, you have to
15 | also incorporate strikes. So, how many struck and lost
16 | did they report. So, they reported 120 landed, how many
17 | struck and lost did they report? You got to think of all
18 | those aspects into it.

19 | Q. As clearly defined by -- oh, sorry.

20 | THE COURT: I'm sorry. I need to make sure I've
21 | got something -- a fact here.

22 | MR. SOMMERMEYER: Sure, go ahead.

23 | THE COURT: I'm only going to get the facts
24 | here.

25 | MR. SOMMERMEYER: Please.

1 THE COURT: As I understand it, the IWC for the
2 last reporting year said the Russians had 127 whales. Is
3 that landed, struck? Everybody -- we had figures here
4 brought yesterday that the IWC says the Russians have been
5 taking 124 to 127 whales a year. I know that the
6 authorization is 135 plus the 5 that keep getting rotated
7 back. But does that include or not include struck and
8 lost whales?

9 THE WITNESS: So, it gets confusing right now,
10 because we're changing the quota period, and so the limits
11 changed just recently here. And it was a landing limit.
12 I think all those reportings were on landings and not the
13 strikes as well. And in the reports, they report one or
14 two struck and lost whales a year. But that's why I'm
15 asking for the nuances of it. I don't have the numbers in
16 front of me with that. And so, you're asking things that
17 I can't verify or not. And you're not presenting me the
18 actual numbers to work with or the paper showing me it.
19 So, it's really hard to respond to you.

20 BY MR. SOMMERMEYER:

21 Q. I was asking -- you testified earlier that you
22 go to the ASW subcommittee meetings and you review all the
23 reports for IWC on this topic, so I assumed you had
24 expertise on it. That's why I was asking you.

25 A. Expertise and a photographic memory of the

1 numbers are not the same thing.

2 Q. Okay.

3 A. Thanks.

4 Q. So, it's currently defined by the IWC the range
5 of the PCFGs does not extend into the Chukotkan waters; is
6 that correct?

7 A. So, the range of the IWC from 41 to 52 degrees
8 north, is an area that incorporates where the majority of
9 the population surveys are occurring, photo IDs surveys
10 are occurring. So, you can make a conservative abundance
11 estimate for the PCFG. However, we know that the whales
12 of the Pacific Coast Feeding Group use an area beyond that
13 range. We know that -- I think it's 57 percent of the
14 whales in southeast Alaska are parts -- you know, are
15 known members of the Pacific Coast Feeding Group, and 17
16 percent of the whales in Kodiak. We also know that of
17 nine photographs in Barrow that were taken there, that one
18 of them proved to be a PCFG whale during the summer
19 season.

20 So, we know that these whales are using a
21 broader area. It is possible that these whales are
22 traveling in Chukotka even, right? That's a number,
23 that's an area within gray whale range that they could be
24 utilizing. And I think that's why in the Rangewide Review
25 we even had possibilities built into that of a mix of

1 Pacific Coast Feeding Group whales into that area.

2 Q. Are you aware of any PCFGs that have been
3 sighted in in the Chukotkan -- areas of the Chukotkan
4 hunts?

5 A. So, the only photos that I'm aware of from
6 Dennis Litovka have not, to my knowledge, been compared to
7 a catalog of PCFG whales. So, there's no photographic
8 evidence, to my knowledge, of PCFG whales there. But
9 despite that, the IWC modeled that just as a possibility.
10 That was one of -- within some of the trials. So,
11 something that was incorporated as an uncertainty. You
12 know, the IWC modeling is a really complex process of
13 taking any possibility of management implications and
14 evaluating it to make sure that the whole parameter space
15 of possibilities are included.

16 Q. Thank you. Let's shift slightly. Site
17 fidelity. So, regarding site fidelity, you testified that
18 Lagerquist et al., 2019, supports the conclusion that PCFG
19 site use behavior is extremely variable, correct?

20 A. Yes.

21 Q. But you also acknowledge in your first
22 declaration, at least one limitation of the study, and
23 that is that the study was temporally limited to the fall
24 portion of the feeding season, am I correct?

25 A. Yeah, so if it were through the whole feeding

1 | season, we'd probably expect actually an observation of
2 | even broader use of the areas, because we'd be getting
3 | their behaviors throughout the whole feeding season rather
4 | than a small portion. Even in that smaller portion of the
5 | feeding season, we were able to still confirm the results
6 | of Calambokidis et al. So, it's pretty impressive that
7 | even just a more abbreviated look at it, you're still
8 | showing those results.

9 | Q. I'm sorry, but the Lagerquist study itself said
10 | -- acknowledged that they were limited to the fall portion
11 | of the feeding season.

12 | A. Right.

13 | Q. And you're saying that's significant even if
14 | though it's only in the fall portion.

15 | A. Yes. So, you're asking about the site fidelity
16 | and the fact that I say it supports Calambokidis et al.
17 | What I'm getting at is --

18 | Q. You're saying that Calambokidis support
19 | Lagerquist in their --

20 | A. No.

21 | Q. Okay.

22 | A. They come to a similar conclusion that the
23 | whales are using a broad area within the Pacific Coast
24 | Feeding Group range that the majority of individuals use
25 | an area beyond, you know, 60 nautical miles, one degree of

1 latitude. And so, they're documenting, even though they
2 mostly have their samples in the fall, but don't forget,
3 some of those tags worked into the summer, so you have
4 those sampling, too.

5 Even though you're only seeing a small portion
6 of the feeding season, you're only representing a small
7 portion of all the behaviors that they exhibit in the
8 summer, you're still exhibiting the movement behavior that
9 Calambokidis is getting out of photo ID. And I would
10 imagine that if you had the full data set, and if they had
11 tagged them on June 1st, they would actually show a larger
12 range of movements of those individuals, because you'd be
13 picking up all the different activities they did
14 throughout the whole feeding season for all the
15 individuals.

16 So, I think the conclusion's even stronger if
17 you think that it's just a small portion of the feeding
18 season that you have the daily monitoring of the whales'
19 movements.

20 Q. That's a speculative extrapolation you're making
21 from the Lagerquist study, which was limited to a certain
22 data set; is that correct?

23 A. It does have -- it goes into the summer, as
24 well. So, you're assuming it's totally limited. It does
25 go into the next year. So, it does have those data

1 | points, and we do see the movements that are going in
2 | that. So, it's a logical extrapolation of that. I
3 | wouldn't call it so much a speculation as a logical
4 | extrapolation.

5 | Q. I can pull up the document if it's more helpful,
6 | but I can also just read what the authors stated. They
7 | say that that -- "So the tagging dates range from the 2nd
8 | of December to" -- "2nd of September," excuse me, "to the
9 | 3rd of December of each year, and most whales were tagged
10 | off northern California from October to December." The
11 | authors further state that "Consequently, the results were
12 | weighted toward fall and winter feeding area movements.
13 | Spring and summer movements could only be described for
14 | whales whose tags lasted beyond their return migration
15 | into the study area."

16 | A. Yeah, that just confirms what I just said, that
17 | there are whales that were monitored into the summer from
18 | that study. And because you only have a small portion of
19 | the feeding season, you're only representing a small
20 | portion of their movements. And yet, they still
21 | documented the range of movements that Calambokidis et
22 | al., were documenting from the photo ID, kind of showing a
23 | similar if they're using a large range within the PCFG
24 | that the normal individual is.

25 | Q. Did they reference the Calambokidis study in

1 | that paper?

2 | A. I don't have it here. I could pull it up. You
3 | want to pull it up, and we can look at the literature
4 | cited. I don't know. I think they did. In fact, I think
5 | they compared to the interquartile range data. But again,
6 | I don't have a photographic memory on it.

7 | Q. It would be helpful for all of us.

8 | A. It would.

9 | MR. SOMMERMEYER: Your Honor, really just one
10 | second please.

11 | THE COURT: All right.

12 | MR. SOMMERMEYER: Thank you.

13 | Exhibit 171 to Mr. Scordino's first declaration.

14 | BY MR. SOMMERMEYER:

15 | Q. So, do you recognize -- this is the article you
16 | were referring to as the 2019 Lagerquist.

17 | A. Yes. Yeah, just stay on the page instead of
18 | running around.

19 | Q. Okay.

20 | A. Yeah, you can see the Calambokidis et al., 2012
21 | update. So, not the most recent update in there, but,
22 | yes, a 2012 update that we'd reported the same figures
23 | that we could see in the 2019.

24 | Q. But in your testimony in your declaration, you
25 | refer to the 2017 Calambokidis study, correct?

1 A. Yeah. I think it's always best to refer to the
2 most recent data source when doing that, especially when
3 it's an updated analysis.

4 Q. But isn't it true that most PCFG whales actively
5 feed through the end of May through mid-September, in your
6 experience?

7 A. They feed through the entire feeding season for
8 one thing. So, not mid-September. In fact, whales --
9 okay, let's take a step back. There's a continuum of
10 behaviors of what you're going to observe. It's not --
11 you can't just do a paintbrush stroke and say everything
12 is May to whatever. I see individuals feeding anywhere
13 from January, February, all the way through December. The
14 PCFG whales themselves, I think I've seen, you know, as
15 early as March, April, feeding in the area and as late as
16 December. So -- but that's individuals. That's a range
17 in the behaviors that are observed. The majority of the
18 individuals that are feeding, I would define it's the
19 feeding season of June to November.

20 Q. The majority is June to November?

21 A. That'd be my -- even though I know there's a
22 stop-off of individuals that seem to be utilizing northern
23 California or Crescent City, there's a lot of individuals
24 that do that in -- of PCFG whales in December, even. But
25 it's generally -- if you want to do broad brush stroke, as

1 | you said, let's just say that the feeding season is June
2 | through November, and use the same terminology they use in
3 | Calambokidis et al.

4 | Q. Do you see more PCFGs feeding in certain parts
5 | of that range of dates you're talking about or --

6 | A. Yeah.

7 | Q. And what is it? What's the heaviest feeding
8 | time?

9 | A. During feeding season, June through November.

10 | Q. So, you have the same -- so it's your testimony,
11 | the same number of whales in November as you do in June in
12 | that range.

13 | A. In the Pacific Coast Feeding Group or in --

14 | Q. Yes.

15 | A. -- the survey area of mine?

16 | Q. Pacific Coast Feeding Group, yeah.

17 | A. I could not say for the entire Pacific Coast
18 | Feeding Group on how the numbers change. Part of that's
19 | based on effort. The effort isn't totally consistent
20 | through the year, like November's a really hard time to do
21 | surveys with the early sunsets and rough conditions that
22 | can occur. So, it's really hard to say that you have the
23 | same numbers through that, but maybe. So, I'm not going
24 | to -- that would be absolute speculation to say anything
25 | more than --

1 Q. Yeah, you don't know.

2 A. No. I could tell you what happens in my survey
3 area where that data is broken out that way, but I can't
4 tell you for the whole Pacific Coast Feeding Group.

5 Q. So, in your survey area, do you see as many
6 PCFGs in June, July, as you do, for example, in November?

7 A. We see in the Strait of Juan de Fuca, a peak in
8 whale use in October, and in the northern Washington
9 survey areas off Cape Flattery down to Sea Lion Rock, the
10 peak occurs a little bit earlier into, like September is
11 when we see a peak use of the area.

12 Q. When you say whale use, do you mean PCFGs
13 specifically, or whale use?

14 A. Whales, I just had analyzed that data as whale
15 observations. So, whale observations per survey. And
16 that's not specifically saying PCFG; however, the majority
17 of sightings during that time of year are PCFG, so I think
18 it's correct to say that the PCFG have that range of
19 behavior.

20 Q. But during that time period, say, October, don't
21 you also have ENP whales, larger ENP stock migrating
22 southward toward the breeding lagoons?

23 A. So, generally when you're seeing southbound
24 migrants, they're really farther offshore. But I don't
25 see that type of, like dedicated traveling behavior in

1 | October, for example. During that time of year, that's
2 | the feeding season. That's when the whales are feeding.
3 | And we do see non-PCFG whales in the area. They make up a
4 | small proportion of the sighting, but they're in there
5 | through the entire feeding season.

6 | Q. Do you disagree that during the time of the
7 | Lagerquist study, they were capturing mostly whales
8 | migrating to the south, down the southward migration, ENP
9 | whales?

10 | A. That they were biopsying -- that they were
11 | tagging ENP whales?

12 | Q. Yeah, let me restart and repeat that. Do you
13 | disagree that during this, the time period covered by --
14 | the primary time period covered by the Lagerquist study,
15 | that they are actually capturing whales, ENP whales, PCFGs
16 | that were migrating southward, meaning the southward
17 | migration?

18 | A. You have the paper here so you can look at -- I
19 | thought all of their whales were photo identified as PCFG
20 | whales, so they evaluated that based on photo ID. Their
21 | goal was to look at migration south. Their real goal was
22 | they wanted to tag whales off of Sakhalin, Russia. And
23 | they wanted a proof of concept to show that their tags
24 | would collect the data and in an efficient manner.

25 | And so, that was the impetus of that study, to

1 document that in a representative population, that you can
2 collect good data of the migration so you can, if you
3 tagged the Sakhalin whale, determine its breeding grounds.
4 So, that was a proving grounds that they utilized. But,
5 yeah, they tagged in the late fall so that during the
6 battery life of their tag and during the timing that the
7 implant of that tag would stay in place was most likely to
8 pick up the southbound migration and use of whaling
9 grounds.

10 However, it gathered a lot of great information
11 about, not only that short time period that was their
12 interest, the proof of concept, it documented very well
13 what the whales were doing in the fall when they're
14 feeding. It documented the northbound migration, which we
15 found out some aspects of the Pacific Coast Feeding Group
16 biology that we probably didn't know, such as that many of
17 the whales migrate north past the Pacific Coast Feeding
18 Group range in the spring northbound migration. And they
19 utilize areas like Icy Bay. And the individuals that went
20 up there, their tags quit transmitting. It's possible
21 that they're even going farther north, that there's more
22 evidence that they're very intermixed in the Eastern North
23 Pacific.

24 But we, you know, tags stopped transmitting, so
25 we couldn't get that piece of the analysis. But and then,

1 | it has the data of the whales coming back, the whales that
2 | went north. Some of them came back within the PCFG range.
3 | Some just stayed within the PCFG range. But it gave a
4 | great data set on how whales utilized their habitat that
5 | time of year, a way that photo ID can't. Where photo ID,
6 | you're only accessing near the ports where researchers are
7 | doing the activities. This gave us the activity daily,
8 | even in areas that the research activity wasn't available
9 | to do photo ID. So, it's a great data source, and like I
10 | said, it confirms the movement data that Calambokidis
11 | showed.

12 | Q. But the tags that stayed in effect for the
13 | spring and summer movements, after the initial tagging,
14 | there were only a few, like I said, for the limited set
15 | that actually were still functioning.

16 | A. So, in studies, you -- sample size is always an
17 | issue, right? Sample size that you're getting at, right?
18 | It's like, how do you know that this is the number of
19 | individuals that represent that. And so, we have two
20 | complementary studies. We have a photo ID study that
21 | utilizes a huge data set of many individuals, right? And
22 | how you access it is minimally invasive. It's just a
23 | photograph.

24 | And we have this highly invasive process of
25 | shooting in a tag that's about this big around, an inch

1 and a half in diameter, about 6 inches into their flesh.
2 It shoots in there and barbs and holds in place, invasive
3 process. Great data, daily movements, what is that whale
4 doing every day, right? And so, what I did in my
5 testimony was taken those two data sources, which one had
6 a more limited sample size and one has a really amazing
7 sample size. And they're showing a similar result.

8 I don't know where you're trying to go with
9 this, but they showed the same general finding that whales
10 in the PCFG, the normal whale, you know, don't think I'm
11 skewed one end or the other. The normal whale is moving
12 broadly within that Pacific Coast feeding range to at
13 least the range more than, like you say, one degree of
14 latitude would be represented in their home range.

15 Q. What I was asking really, was whether the study,
16 a lot of the study seemed to me to mainly target whales
17 that were -- most of the data points concerned southbound
18 migratory whales. They were caught in there, they were
19 tagged, and the data concerned southbound traveling whales
20 in that time period.

21 A. So, like you said, that was their main target.

22 Q. Right.

23 A. But, you have a sample set of amazing data,
24 daily accruing data through the other parts of the feeding
25 season of the whales that returned in the spring and

1 | summer season, the whales, you know, in the late fall,
2 | early fall, that depending on when they tagged them. So,
3 | it's an amazing data set to look at how whales utilize
4 | their habitat, and Barbara did a great job of synthesizing
5 | that data.

6 | THE COURT: You've got a lot to go, right? We
7 | could take a break now and come back?

8 | MR. SOMMERMEYER: Sure. That's fine.

9 | THE COURT: We'll take a 10-minute break and
10 | then resume. Thank you.

11 | **(Off the record from 2:39 p.m. to 2:56 p.m.)**

12 | THE COURT: Let's come to order.

13 | BY MR. SOMMERMEYER:

14 | Q. I just want to go back briefly to the IWC quota.
15 | So, this document was obtained from the IWC website
16 | showing the catch limits and catches taken for ASW. So,
17 | this document shows that the total catch for the years
18 | 2013 to '18 was 744 whales. Is that your understanding of
19 | that time period that the total catch was?

20 | A. The total catch was 744? This says the total
21 | catch allowed is 744. Not that that was the catch.

22 | Q. So, it's allowed for the year 2013 to '18.

23 | A. Yes, a total of 744, so an average of 124 a
24 | year.

25 | Q. So, the next document's also taken from the IWC

1 website showing -- I wish it was clearer, showing the
2 number of whales that were taken by various groups. So,
3 would you look at the years 2013 through 2018, that's the
4 catch limit we just referred to of 744 in those 6 years?
5 So, in 2013, it shows -- no, that's 2012.

6 A. That one's kind of interesting. It looks like
7 they exceeded their limit in 2012.

8 Q. And that was the one time they did. Thank you
9 for pointing it out.

10 A. Well, thank you for putting it up there for me.

11 Q. You're welcome. So you see the outlier, but
12 thank you for pointing out the outlier. Okay, so 2013, it
13 says 127.

14 A. Right. Again, they're allowed an average of 124
15 a year, so if you take more than that average, like they
16 did with the 143, and in this case 127 is more than 124.
17 Then, your last year of a quota period, you may not have
18 enough whales to satisfy the needs of your community. So,
19 yeah, so this year, they exceeded their average as well on
20 average for what they're allowed.

21 Q. 124, okay. And then, 2015?

22 A. Exceeded their --

23 Q. 125.

24 A. -- their average of what they're allowed, again.
25 This is going to take out a last year that they can

1 harvest, whereas they'll exceed their overall quota and
2 not have enough whales to meet the needs of their
3 community if they mismanage it.

4 Q. Thank you. So, 2016? It's another one that's
5 below, correct?

6 A. It's below, and, you know, as a good manager, it
7 probably should have gone a little bit more below to make
8 sure they had enough whales for the last year of the quota
9 period, because, again, if you take too many, your people
10 will not have the subsistence needs that they depend on.

11 Q. Do you know whether that's the reason why they
12 caught 120 whales that year?

13 A. No, but that what I said, a good manager would
14 reduce it to make sure that they're not exceeding their,
15 you know, overall block quota period.

16 Q. But that's your pure speculation, correct?
17 That's the number --

18 A. No.

19 Q. So, you know --

20 A. That's called wildlife management. I think
21 that's --

22 Q. As you're sitting here today, you saying you
23 know 120 was done, they killed 120, because they were good
24 managers.

25 A. No, that's not -- I'm not saying that.

1 Q. Okay. Thank you. 2017, 120?

2 UNIDENTIFIED SPEAKER: 119.

3 Q. Oh, I'm sorry, it's (indiscernible) 119. So,
4 it's under. And then, 2018, 107.

5 A. And how many is that all added together?

6 Q. So, if you'll take my word for it,
7 (indiscernible), it's 722 when the quota was 744.

8 A. Okay, and like I communicated earlier, when
9 you're doing resource management, so fisheries or whatever
10 it might be, I can use, you know, our fisheries and the
11 tribal allocations as an example. You have to communicate
12 among the Indian Treaty Fishing Tribes to make sure that
13 the amount you take doesn't exceed the quota.

14 And so, you have to have a lot of communication
15 among the different tribes. In this case, you're going to
16 have to have a lot of communication among the villages.
17 So, it's challenging to meet a quota without exceeding it.

18 So, I don't know the reason for sure why they went lower
19 that year. But it might have been a management response.

20 Q. So, let's switch entirely. Let's talk about the
21 unauthorized (indiscernible) hunt.

22 A. Okay.

23 Q. So, you testified that a survey that you
24 conducted after the September 8, 2007, unauthorized hunt.
25 Do you recall that testimony?

1 A. Yes.

2 Q. So, you conducted the survey 3 days later on
3 September 11th, 2007, correct?

4 A. Yeah, I think that's correct.

5 Q. Until we get to a point where we disagree, and
6 we'll have to look at your testimony. Say it anyway. You
7 further testified on that day, 3 days after the hunt, you
8 observed two gray whales within one kilometer of the hunt
9 area, and the whales, "exhibited normal feeding behaviors
10 and showed no escape behavior or agitation" when
11 approached. Is that accurate?

12 A. Yeah. That would represent a good density of
13 whales for that area.

14 Q. There were two whales.

15 A. Yeah.

16 Q. But do you know where the specific whales were
17 located at the time of the hunt?

18 A. No. I did not participate in the hunt that
19 you're --

20 Q. But isn't it possible those two gray whales were
21 not anywhere near the hunt when it occurred?

22 A. Yes, and that supports what I was saying earlier
23 that you can have replacement of individuals within the
24 PCFG that move through their range and can replace the
25 removal of an individual in an area, such that you're not

1 | observing a change in the abundance of whales in that
2 | area.

3 | Q. Do you know if those were PCFG whales?

4 | A. The whales that were photographed that day?

5 | Q. Yeah, that day.

6 | A. Without, you know, look at the data, I bet you
7 | they were, but I don't have the data in front of me to
8 | confirm that they were. But I would feel very comfortable
9 | making a large wager for that, yes.

10 | Q. Okay, thank you. You also testified that
11 | determining -- to determining, sorry, that gray whales use
12 | of the area in which the unauthorized hunt occurred did
13 | not change following the hunt compared to the 3 years
14 | preceding the hunt, correct?

15 | A. Right. Yeah, I did an analysis comparing August
16 | to September abundances in the previous years compared to
17 | the year of the hunt, and did not see an observable
18 | change.

19 | Q. But in your September 11th report concerning the
20 | unauthorized hunt, which is Exhibit 253 to your
21 | declaration, your first declaration, you concluded that
22 | the data underlying this conclusion was, "Not sufficiently
23 | robust to determine if statistically significant changes
24 | in the whale headcounts occurred in the vicinity of the
25 | September 8th whale hunt." Isn't that correct? Is that

1 | your conclusion?

2 | A. It was a small sample size, but I don't remember
3 | making that conclusion. So can you tell me what page that
4 | was?

5 | Q. Sure. So 253. Do you recognize this document?

6 | A. Yes.

7 | Q. Go to the bottom of page 6 of 13. It says this
8 | -- the bottom of page 6. It says, "The ratio of sightings
9 | in September to August was slightly less than in prior
10 | years. However, the data is not sufficiently robust to
11 | determine if statistically significant changes in the
12 | whale count occurred in the vicinity of the September 8th
13 | whale hunt," which I read a bit earlier. Does that
14 | refresh your recollection?

15 | A. Yeah. That's what it says.

16 | Q. So, finally you -- well, finally as to this
17 | topic, you testified as to anecdotal evidence from tribal
18 | members who witnessed the hunt from a high bluff, correct?

19 | A. That day with these witnesses, soon thereafter.
20 | I don't know if they were there at the time.

21 | Q. Do you know how far these observers were from
22 | the hunt area itself, from their observation point?

23 | A. My understanding is the observation point was an
24 | overlook that looks over Seal and Sail Rock, and my
25 | understanding is that the hunt occurred in the area

1 between Seal and Sail Rock and Bullman Beach, so the area
2 where they were looking from, that was a very good view of
3 the whales utilizing the area, but it might be a quarter
4 mile, third of a mile.

5 Q. So, your declaration, your first declaration,
6 sorry, you testified that some of the observers saw
7 whales, quote/unquote, feeding in the area of the hunt.
8 Do you recall that testimony?

9 A. Yeah.

10 Q. But in your September 11th report, 253, we have
11 on the screen, you stated these tribal observers only saw
12 spouting whales, correct? Page 6.

13 A. I guess that's the case.

14 Q. So, there's no mention of feeding behavior in
15 this report that was completed closer to the time of the
16 observation.

17 A. Right. In that report, I just said spouting.
18 And I'm trying to recall why I went to feeding within the
19 -- the other report, that might have been what was said,
20 and I might have just gone with the safer "spouting"
21 within this report.

22 Q. The spouting could mean they're racing past or
23 simply coming up for air, mean a number of things, right?
24 It doesn't necessarily indicates feeding.

25 A. I would be speculation of that. I think they

1 | were saying that there were whales there in the area,
2 | holding in that area, was what my recollection was from
3 | the conversation. Which, normally, when whales are doing
4 | that at that time of year, that means they're feeding.

5 | Q. But you don't know if they --

6 | A. Don't know. Plus, I didn't make the
7 | observation. This was reporting of an anecdotal
8 | observation.

9 | Q. Did the observers identify the whales they saw,
10 | those whales referring to as spouting, as gray whales?

11 | A. Yes.

12 | Q. They actually identified them as -- they
13 | couldn't have been other whales?

14 | A. Well, odds of seeing another species of whale in
15 | that area are extremely low.

16 | Q. I think you've already touched on this, but were
17 | the whales seen by the observers seen at the time of the
18 | hunt or sometime later? It sounds like it was sometime
19 | later; is that correct?

20 | A. So, my report there says that the observers
21 | weren't there when the Coast Guard was apprehending the
22 | individuals, so that this implies that they were not, you
23 | know, looking there at the time of the hunt activity.

24 | Q. So, as a general matter, do you think a layman
25 | can assess whale behavior, whether it's stressed or not,

1 of a whale, seeing it from the vantage point, for example,
2 where those tribal members would have been?

3 A. The reason anecdotal was provided was just from
4 another point of view that whales were using the area not
5 as a definitive reference of the whale behavior and
6 whether or not they experience stress. That's an
7 anecdote.

8 Q. Okay, thank you. So, in your earlier testimony
9 today, you said that since 2007, you've conducted 485
10 surveys; is that correct?

11 A. Yes.

12 Q. So, if you divide that number by 12, I get --
13 trust me again, sorry, it comes out to about 40.4 survey
14 days per year, is that -- would you agree with that?

15 A. Yeah, it's probably averaging that. Some years
16 been more, some years have been less.

17 Q. And of those 40.4, is there a distribution of
18 when most of the surveys are conducted or more in the
19 summer, more in --

20 A. It's more in the summer and fall. Weather
21 conditions are more predictable, plus the research
22 objectives are generally receiving more funding, so I have
23 more activity during that time of year. And so, I think
24 I've described it generally, because I've tried to do one
25 to two surveys a month during the winter and spring, and

1 | then I try to go out weekly, at least, during the summer.

2 | And the operative word is "try," right?

3 | Q. Right.

4 | A. And it's a study design that we try to achieve.

5 | Q. I just actually want to clarify one thing. I
6 | was just confused by one thing. In Exhibit 253 that --
7 | the one that was completed in September 2007, in there it
8 | says, "The Tribe performs a minimum of one survey a month
9 | during the summer and tries to perform more surveys as
10 | resources allow. In 2004 and 2005, only one survey of the
11 | Strait of Juan de Fuca took place."

12 | "In August and September of 2006, there were 2
13 | days of effort in August and 4 days in September. In
14 | 2007, there were 4 days of effort in August and 3 days in
15 | September." Is that an accurate description of how --
16 | when it says, sorry, it says, the Tribe performs? Is that
17 | referring to your surveys or --

18 | A. So, I was hired 2007.

19 | Q. Okay.

20 | A. So, those were the effort that happened prior to
21 | me. And I think I've done a good job at increasing our
22 | effort and making the surveys more representative by
23 | increasing effort.

24 | Q. Let's briefly return to our favorite topic, the
25 | Russian hunts.

1 A. Okay.

2 Q. So, you testified earlier about a variability in
3 numbers of observed whales, correct?

4 A. Yes.

5 Q. So, if there's high variation in numbers of
6 observed whales and stable food conditions in the area, is
7 it not reasonable to conclude that something other than
8 prey availability is driving that variability?

9 A. How are you assessing that the food conditions
10 are stable? That sounds like a strong unsupported
11 speculation given the changes in the Pacific Decadal
12 Oscillation, sea surface temperature, upwelling driven
13 winds, all the variables that change on an annual, even
14 monthly basis within an area that whales would be feeding.

15 And so, I'm not going to warrant that with a response
16 when it -- there's just no way that prey is stable over
17 that type of time period.

18 Q. Will you turn to Exhibit 23 to your first
19 declaration? So, if you go to page 3, if you focus on the
20 highlighted, that was unintended, but in this Exhibit 23,
21 it says that the area is an important foraging ground for
22 gray whales. Do you know why that would be?

23 A. It's part of their summer foraging grounds.
24 That's why it's important to them. It's where they feed
25 at.

1 Q. Does that mean that there's good prey
2 availability in that area?

3 A. Yes, generally. But it is variable by year
4 based on environmental conditions that cause bottom-up
5 forcing or even by top-down forcing by the activity of the
6 gray whales. So, it's a variable resource that's in the
7 area in a foraging ground.

8 Q. And in the paragraph above this describes how
9 there was a great -- you just described this in your
10 declaration. "There was a great variability in
11 observations of numbers seen at different times." So,
12 this was the basis for my hypothetical, was if you have an
13 area that has -- it's a good foraging ground, so this
14 year, okay, it's good foraging ground, but you have high
15 variability in numbers you see at different times, is it
16 not possible, then, if the feeding conditions are stable,
17 good, that there's something else driving the variability?

18 A. Okay, let's put this in an example in an area
19 that we have really good data. Flores Island in Canada,
20 the researchers for the University of Victoria study this
21 very thoroughly and they do tows behind their boat to do a
22 hydroacoustic survey of the prey. And they found strong
23 correlations -- this is an important feeding ground, just
24 like this, right? Important feeding ground.

25 Q. Right.

1 A. And the prey varies year to year, based on the
2 environmental conditions and the whale use of the area,
3 varies year to year based on environmental conditions.
4 And within Canada, too, the top-down forcing is also
5 another aspect that affects the prey resource.

6 Q. Flores Island is where is it located?

7 A. It's in -- it's off of Vancouver Island, just
8 the research by the crews at the University of Victoria.

9 Q. Are they hunting whales in that area?

10 A. Historically, whales were hunted in that area.

11 Q. Currently. I said are they hunting whales?

12 A. Just for research, yes.

13 Q. In your earlier testimony, you stated in 2008
14 you observed the most whales you'd seen in the Makah --
15 the Makah U&A or was it --

16 A. It was -- I was at that point referencing
17 specifically to the vicinity of where that hunt was.

18 Q. Right, okay.

19 A. Yeah.

20 Q. Do you know whether any of the whales observed
21 in 2008 were also present in 2007 at the time of the hunt?

22 A. That's a very specific question for over 10
23 years ago. I do not recall. I would speculate that, yes,
24 they were the same individuals. And I think one point of
25 data that we had for that was the whales in 2007 had very

1 | good body condition. And I already presented that
2 | assessment earlier that the whales that were in good body
3 | condition returned. Most of our sightings that year were
4 | in that region. So, I would suspect that, yes, many of
5 | those were the same individuals.

6 | Q. So, did you have a photo catalog for the whales
7 | that were there in 2007 and you were able to compare it
8 | with the whales in 2008 to confirm that?

9 | A. Okay, I go back to describing our research
10 | methods. We photograph every whale we see. We send our
11 | photographs to Cascadia Research for matching to their
12 | catalog. So, every whale that we have a good quality
13 | photograph within a survey is documented to who that whale
14 | is, according to their catalog. So, we know the CRC
15 | catalog number for each of those whales, yes.

16 | Q. But do you have any actual evidence other than
17 | speculation that the whales seen in 2008 were also in the
18 | hunt area in 2007?

19 | A. I could confirm that for you if I went back and
20 | grabbed my computer and looked at the sighting data of
21 | individuals. Yes, I have evidence. No, it's not
22 | something I can pull out of my head here.

23 | Q. If you'd let me, that'd be helpful, that's fine.
24 | If you have the data showing those are the same whales in
25 | 2008 that were there in 2007, I'd be curious to see it.

1 | It would take time to pull that up, but it's your time.

2 | THE WITNESS: Your Honor, would you want me to
3 | do that? Is this helpful?

4 | MR. SOMMERMEYER: We can reserve the question
5 | until later. We're going to be here for a couple more
6 | days. I can reserve the question and we can, with
7 | permission to recall and just -- and he could have the
8 | time to look at it.

9 | THE COURT: Let him research it, and we'll
10 | figure a way of putting that testimony back in later.

11 | MR. SOMMERMEYER: No further questions at this
12 | time.

13 | THE COURT: Yes.

14 | MS. PRUETT: Your Honor, Margaret has asked that
15 | I pull up some demonstrative exhibits for her as well,
16 | since I happen to be here.

17 | THE COURT: All right, okay.

18 | MS. OWENS: Margaret Owens for Peninsula
19 | Citizens for the Protection of Whales. And I'm clutching
20 | this roll of poster board, because I'm having a close-up
21 | vision reading problem, and last night, I used a Sharpie
22 | on a poster board and it just popped right out. So, my
23 | only technical problem will be self-curling poster boards.

24 | THE COURT: All right.

25 | MS. OWENS: Let's see what hasn't been hit here

1 yet. Well, a lot of people here know that our group in
2 Port Angeles area has been concerned about the use of the
3 .50 caliber gun close to shore. And I think you'll allow
4 me to do a short, it's going to be short.

5 We're just really hoping that a high enough
6 priority has been put on human life in the hunt planning
7 time. The humans that we're worried about this time, now
8 that the gun is out of the strait, which we had to battle
9 in the early 2000s, the human bystanders in danger are the
10 great number of Olympic National Park visitors who camp
11 and hike on the Coastal Strip.

12 MS. PRUETT: I'm trying.

13 THE WITNESS: Yeah, she's got it up on my
14 screen.

15 MS. OWENS: It's my old graphic from the 2008
16 draft. Wow, it's large. Okay, so what I'm just going to
17 quickly try to get at is there's the coast. The little
18 dots are permits that refer to -- that represent one to 14
19 campers in May, June -- April, May, June, I think, just to
20 show there's heavy use in the spring. The red dotted line
21 shows a 5-mile .50 caliber danger zone within it. The
22 little squares are where the hunts and rifle shots took
23 place.

24 We're really concerned that a gun with a range
25 of 5 miles is being shot off, you know, so close to shore

1 with really heavy usage of -- it's called the Wilderness
2 Coast Strip, but it's packed with campers and hikers in
3 the spring and summer. We're just bewildered that
4 National Marine Fisheries Service evidently never
5 consulted with the park about this danger.

6 **CROSS-EXAMINATION**

7 BY MS. OWENS:

8 Q. But I know you described safety protocols in
9 your declaration, and that's kind of my link to this.
10 Just briefly, what's the visibility -- is it 500 yards?
11 There's a little safety protocol that seems quite
12 inadequate because the people are so close. You know, 5
13 miles is going to go, you know, a long way. But what do
14 you think about the safety protocols that are planned for
15 the gun?

16 A. I think the safety protocols and the training
17 program that goes along with it should produce a safe and
18 efficient hunt.

19 Q. You know that our group has commented over long
20 years about this concern, and NMFS actually responded to
21 our comments in the 2015 draft by saying that because of
22 our comments, they had put together an alternative,
23 alternative 3, called the offshore hunt, which was
24 specifically designed to eliminate the risk, you know, to
25 start the hunt at 5 miles out so the gun wouldn't be fired

1 closer, on the first shot, anyway, closer than 5 miles
2 out. But, so, they admitted -- acknowledged a problem,
3 created a solution to the problem, but then didn't pick
4 that solution for a final hunt plan.

5 As far as you know, what is the objection to the
6 offshore hunt? I mean, why wouldn't human life be at such
7 a high priority that it would fully come under heavy
8 consideration? And, you know, a near-shore hunt shouldn't
9 be an option with the risk to people that's acknowledged
10 in the 2015 DEIS.

11 MR. GRUBER: Your Honor, I'm going to object.
12 Ms. Owens appears to be asking about the decision-making
13 mindset of NMFS.

14 BY MS. OWENS:

15 Q. Oh, how does the Tribe feel about the offshore
16 hunt alternative?

17 A. The offshore hunt alternative would
18 significantly reduce the opportunity to hunt whales.
19 During the northbound migration, during the migratory
20 season, the whales are often traveling in the 120-foot
21 isobath, which is with inside the 5-mile number that you
22 give there. In addition, what you're describing would
23 fully eliminate the summer and fall odd-year hunts,
24 because the whales are not observed outside of 5 nautical
25 miles in any predictable measure. I've never seen one

1 | outside of that --

2 | Q. Okay, I'll have to agree that perhaps you
3 | haven't seen it, but the preponderance of research
4 | including Greene et al., which is what I referenced to put
5 | that line out there, northbound migration corridor, yeah,
6 | it's a wide thing. We're on a shallow continental shelf.
7 | The whales heading north have no reason to hug the shore.
8 | They're going to cut, many of them, cut straight up to
9 | save time and energy. And they do.

10 | And I think Greene et al., gives a 5 to 43
11 | kilometer offshore average for a kind of a wide corridor.
12 | So, I really haven't seen anyone other than you remark
13 | that there's no whales out there during migration, that
14 | they're all inside. The whales that are inside are --
15 | common sense says it's the mothers and calves of all the
16 | groups, and it's the PCFGs coming back to their feeding
17 | sites. But those hungry northbound whales are cutting
18 | this corner here. And I've seen it over and over
19 | diagramed that way, and many references to Greene et al.

20 | A. So, Greene et al., had a very limited
21 | observations of whales. That was based on some aerial
22 | flights and did not see very many whales. So, the spatial
23 | scope and the time scope of that analysis was very
24 | limited. So, I could tell you over -- I at least started
25 | really focusing on making sure I was getting offshore

1 components in my survey after seeing your comments and
2 NOAA putting that as an alternative that they wanted to
3 evaluate.

4 And so, I started doing more offshore. And the
5 reason I hadn't done it before that was I just wouldn't
6 see whales out there. And so, we see whales, sometimes
7 outside of the 5 miles, more often in the early period of
8 migration. So, say, February time period, we'll see a
9 little bit more whales that are outside of 5 than maybe
10 inside of 5. Outside of that, the whale observations are
11 mostly with inside of 5 miles.

12 And you stated some hypotheses there. You made
13 the hypothesis that PCFG whales would be more available
14 within that area. Since that's where the majority of my
15 sightings are occurring, the majority of sightings by Pat
16 Gearin and NMML, so the other folks that are surveying in
17 this area, the 27 percent figure, 28 percent, whatever is
18 the current number, is referring to mostly with inside
19 that 5 miles.

20 In regards to the cow/calf pairs, when we see
21 them -- and I'm saying when, because it's not actually a
22 common sighting, when we see them, they're hugging very
23 close to shore. Not they're generally hugging within 5
24 miles. They're, like moving along in, like 20 feet, 10
25 feet of water. They're against the shoreline. We have

1 | observed one whale, a cow/calf pair, outside of that, you
2 | know, where they were in deeper water, but definitely very
3 | different behavioral actions on the cow/calf pair than
4 | other whales that we observed in the open water areas
5 | during that time of year.

6 | So, even though, you know, May is the time
7 | period when cow/calf pairs can be moving through, the
8 | unique behaviors of them are going to make it very easy
9 | for me to train our hunters to avoid them. And I, you
10 | know, they're simple enough for observation, so I think
11 | they'll have no challenge on the water just incorporating
12 | just a couple of simple things of, you know, distribution
13 | of where the whales are and looking at their behaviors.
14 | So, you talk about that limit being a benefit for
15 | cow/calves, and potentially it would be, but it's not
16 | needed because there's other measures that are taking care
17 | of that. And as far as PCFG, there's, you know, they can
18 | be at any distance from shore.

19 | You know, one example I'd like to give, Canadian
20 | researchers, John Ford and John Durban -- I don't remember
21 | who else was on this study. Anyway, they satellite tagged
22 | some whales offshore of Vancouver Island. And they
23 | intentionally went farther off than, you know, like inside
24 | Clayoquot Sound or other areas where they suspected that
25 | PCFG whales would congregate. So, they moved out to what

1 | they assumed was the migratory corridor as you're
2 | referring to it. And I think they tagged five whales. I
3 | can't remember the exact number. I think three of them
4 | were PCFG whales. So, regardless, if you're going inside
5 | or out, PCFG whales are inside the area. And so, it's not
6 | a protection measure for the Pacific Coast Feeding Group
7 | necessarily to move farther out. The whales are
8 | distributed as they're distributed.

9 | Q. Nevertheless, okay, all those dots of different
10 | colors, it's hard to make out, but off the shore from all
11 | the camper dots, there's little dots. And when I did this
12 | many years ago, I did it on a nautical chart, so I had the
13 | latitude and longitude on the sighting reports that I had
14 | from the years that are listed there.

15 | So, all those dots are whales in the different
16 | years, different colored dots, returning, returning,
17 | returning to those feeding sites. And it's just a little
18 | concerning that the hunt locations are just, of course,
19 | right on top of the feeding sites. That's where the
20 | whales are. And it's all is such close proximity to the
21 | people there.

22 | Now, it sounds like there's a slightly higher
23 | priority put on making sure there's plenty of whales than
24 | in reducing the human risk to zero, because it's not at
25 | zero currently. The last DEIS identifies the risk. They

1 | say, you know, maybe it's a slim risk, whatever the
2 | wording was, but it is a risk.

3 | And the problem is that unless you know
4 | differently or anybody knows differently, National Marine
5 | Fisheries Service in all these years since the late '90s,
6 | never once consulted with park leaders about the inherent
7 | danger of having these hunts go on right up against the
8 | shore. They have no idea that their visitors are at risk.
9 | They don't know about these drafts. They don't know about
10 | comment periods. When I finally checked in with park
11 | superintendent after the close of the 2015 comment period
12 | and asked -- after all these years, I finally asked, did
13 | you submit comments? They did not know what I was talking
14 | about.

15 | The way that the superintendents are replaced
16 | over time, since the last active hunt time, 2000-2001,
17 | there have been a succession of superintendents. There's
18 | no paper trail whatsoever to let incoming superintendents
19 | know that they need to pay attention to this Makah hunt,
20 | and if they want to comment on the danger to their
21 | visitors, they need to do that.

22 | And as your fellow federal agency, I have to
23 | turn this way, you know, it's just baffling that there was
24 | never that communication initiated on your side. You
25 | communicated with Clallam County Sheriff, with the Health

1 Department, with a college in Baja California. You know,
2 you consulted with all kinds of entities, but not Olympic
3 National Park whose people are in the .50 caliber danger
4 zone.

5 And when I -- the last comment that just came in
6 from NMFS to my comment, my comment was, at least give the
7 park a chance to decide whether they want to close trails,
8 cancel camping, post signage, issue flak jackets, you
9 know, whatever they want to come up with, and the sort of
10 little bit of sassy comment that I got back was, well,
11 maybe the park should take the commenter's suggestions.

12 Anyway, I'm not going to stay on this topic. I
13 just think you're putting a higher priority on whale
14 density for hunt than on human safety. And I think that -
15 - something's happening? I just don't know why anyone
16 would feel comfortable gambling with innocent bystanders,
17 like who have no idea they're in a danger zone every year,
18 you know, at prime camping times.

19 So, that's what -- I've written a lot about it.
20 Everybody knows how we feel about -- and I'll end that.
21 Everything okay? So, we can go away from that.

22 Let's see here. Oh, to flash back to Brett's
23 comments, I've got this here. You discuss aspects of the
24 Chukotka hunt in Russia, behavioral response to that
25 hunting is used as a proxy or template for expectations

1 and reactions by ENP, PCFG whales in this hunt area. Does
2 that sound okay?

3 A. Distributions of the whales and how the numbers
4 and distribution --

5 Q. The behavioral --

6 A. -- would be responsive --

7 Q. -- response of the whales in the Chukotka hunt,
8 you know, as kind of a reference for how our whales might
9 react behaviorally.

10 A. So, not behavioral, but distribution in
11 abundance response of the whales?

12 Q. I'm speaking of behavioral right now.

13 A. Right, and that's where we got -- sorry, I'm not
14 trying to --

15 Q. Okay, but let me just continue for a minute
16 here. I haven't seen mentioned anywhere, so I was shocked
17 when I reread the draft again the other night. The
18 observations from Chukotkan hunters included in 2015 DEIS
19 in 3.0, Affected Environment, page 3 to 166. I'll read a
20 short section. "It has been reported since at least the
21 1800s that gray whales could be dangerous prey when
22 hunted, commonly crashing into whaling boats with their
23 heads."

24 "During the Chukotkan gray whale hunt of 2007,
25 the Russian Federation reported that of the 129 whales

1 | harvested, 49 animals, 39 percent, 'were highly
2 | aggressive' and threatened or even attacked hunting boats.
3 | So, it could definitely be said that every third whale was
4 | dangerous for whalers." That's in IWC 2007. "Subsequent
5 | reports from this hunt continue to cite such aggressive
6 | behaviors in 32 to 42 percent of gray whales taken."
7 | That's IWC 2009, '10, '12.

8 | So, evidently, everyone's aware of this
9 | situation, but I haven't really heard it come up as a
10 | somewhat of a cautionary tale about aggressive, violent
11 | behavior by whales.

12 | THE WITNESS: Can I respond --

13 | THE COURT: Yes.

14 | THE WITNESS: -- or are you going to keep going.

15 | MS. OWENS: Oh, well, you go on a long time.

16 | I'll wait for you. I just had --

17 | THE WITNESS: Okay.

18 | MS. OWENS: I got it all planned out. I'm
19 | trying to be like them and have things all in a row, and
20 | then I'll stop and let you -- I just kind of was in my
21 | section here --

22 | THE WITNESS: Okay.

23 | MS. OWENS: -- so I won't ramble.

24 | Where was I?

25 | THE WITNESS: Aggressive whales.

1 BY MS. OWENS:

2 Q. So, I'm just saying, why didn't you include this
3 in your description of Chukotkan whale behavior and
4 there's not a chance that our calm and happy gray whales
5 could be forced to become angry and dangerous, you know,
6 fighting for their lives, which to me is a pretty bad
7 picture?

8 A. So, you did hear testimony on that. I think
9 Greig and Daniel both told you that when you go out to
10 whale, you are taking your life in your hands, so you're
11 praying and getting spiritually prepared. You're asking
12 the whale to give itself to you rather than to harm you in
13 the process of harvesting it. So, I think you did receive
14 a response to that. And --

15 Q. Well, that's kind of a general --

16 A. -- that's --

17 Q. -- kind of a traditional attitude toward -- you
18 know, why it's spiritual, because it's dangerous, because,
19 of course. But this is real specific and this is real
20 recent. This is happening now. And that's a high
21 percentage of whales that are angry and aggressive at
22 being hunted down. We don't have to take it any further
23 than that. I'm just surprised it's not more well known.
24 I was kind of shocked in my rereading of the draft. I had
25 forgot -- I don't think I had seen that before. So, in

1 other words, it's definitely always going to be uncertain
2 what the response is going to be by these whales. And
3 it's pretty pathetic they have to fight for their lives
4 like that.

5 A. Well, once a whale is struck with a harpoon,
6 it's essentially assumed dead within the management plan.
7 And so, the idea is to quickly pursue it and to kill it as
8 quick as possible after it has been struck with a harpoon.
9 That's what you'll see, you know, consistently within the
10 training program.

11 And so, like I said, those whalers are taking
12 their lives in their hands to make sure that the whale is
13 -- has as quick of the time to death as possible to
14 minimize that suffering. That is why they utilize that
15 high-caliber rifle that you have objection to is to make
16 sure that the death of that whale is as humane as
17 practicable. So, there's a balancing act. The Tribe
18 could have proposed to lance the whale, you know, like
19 they did in the past. And that would be -- if you used
20 the fully traditional methods, then it would be a long
21 time to death for the whale.

22 Q. We know IWC won't allow that. I mean, I
23 understand that.

24 A. That's not entirely true.

25 Q. They want a humane kill.

1 A. So, at least in NAMMCO, the Canadian harvest of
2 bowhead whales in Nunavut, they have lanced a few of the
3 whales as the kill weapon. So, there are modern day hunts
4 that still use that approach. But the idea is to minimize
5 time to death as much as possible. And this is why that
6 gun that you're referencing is what is proposed to use.

7 Q. Okay, I'm not objecting in this context to a
8 humane kill with that gun. I'm objecting to all those
9 people being put into harm's way without their knowledge.

10 A. And that's why there's a training program. We
11 also are implementing a safety officer. I don't know how
12 much you're aware of these things, Your Honor, so I'll
13 explain some of them. So, Margaret and her husband put in
14 comments on this previously. And so, there were analyses
15 done on the possibilities, for instance, of a ricochet of
16 a bullet traveling.

17 And the experts have found that if you're firing
18 within a certain distance of the whale, I think it was
19 about 30 feet that the firing angle is at such a degree
20 that the bullet is extremely unlikely to ricochet. So, we
21 have with our training that, you know, if the whaler is --
22 the rifleman is going to make sure that they're within a
23 certain distance before they fire. They also have a
24 safety officer that's going to be communicating with them,
25 making sure they're not firing towards a people, like if

1 | there's the boats in the area, they're not going to be
2 | firing in that direction. Or if they're, you know, in a
3 | position to be firing towards land where people are, there
4 | would be communication to minimize the possibility that
5 | they're shooting at that time.

6 | So, there's a lot of safeguards within the plan
7 | to ensure that it is as safe and as humane as possible.
8 | And that's why, when you originally asked that, I said
9 | that the men should be able to training such as
10 | (indiscernible). So, that's going to be as safe and as
11 | efficient as possible.

12 | Q. Okay, you know, you've gotten me on a lot of
13 | your answers, you know, you're so good. But you lose me
14 | now. The Coast Guard said that firing from a pitching and
15 | rolling boat at a wounded whale is a danger. They're
16 | concerned. I asked the Coast Guard back when, who's
17 | responsible when a bullet crosses the shore and hits
18 | somebody? The Coast Guard said once it crosses the
19 | shoreline, they're not responsible. So, is National
20 | Marine Fisheries Service going to be responsible? The
21 | park doesn't know what's going on. You know, who's
22 | responsible once somebody does get hit, because into
23 | perpetuity, everything will happen.

24 | THE COURT: Ms. Owens, you will be testifying
25 | yourself. Try to keep this to -- you're going to be

1 producing your testimony tomorrow.

2 MS. OWENS: I'm not going to cover this. Hey,
3 everyone is going on and on all they want to. I mean, I
4 think I need to lower my voice, calm down.

5 THE COURT: No. Ma'am, this is solely because
6 this is supposed to be cross-examination. And again, some
7 of these things are getting to be speeches versus a
8 question for the witness to answer.

9 MS. OWENS: Okay. I'll drop the whole subject.

10 BY MS. OWENS:

11 Q. On to the next. We are concerned about the
12 hardship to mothers and calves being chased off the
13 feeding grounds. And I think that's likely. I think the
14 DEIS says that's a possibility. They could be chased into
15 less productive feeding grounds. That's just something
16 that can happen. It can't be denied.

17 I've got a little quote here that I'm not sure
18 you're familiar with from Captain Charles Scammon whose
19 1874 book, *Marine Mammals of the Northwest Coast of North*
20 *America*, I'll just read it, it's brief. "Describing the
21 behavior of the gray whale, hunted during the northbound
22 migration on the northwest coast, both from the near shore
23 by the Northwest Indians and offshore by Yankee whalers."
24 The civilized -- this is a quote. "The civilized whaler
25 seeks the hunted animal farther seaward as from year to

1 | year it learns to shun the fatal shore." He's describing a
2 | situation where shore-based tribal whaling did push whales
3 | offshore and the Yankee whalers had to go further offshore
4 | themselves to find them.

5 | The 2015 DEIS is quite forthcoming, page 5
6 | through 39, harassment associated with hunting could cause
7 | whales to avoid or abandon near shore feeding grounds to
8 | less productive areas where the prey does not provide
9 | sufficient food for the needs of the mother and calf.
10 | That's just plain stated as a fact.

11 | THE WITNESS: Can I respond to that?

12 | THE COURT: You may.

13 | THE WITNESS: The Makah Tribe is not allowed to
14 | hunt mother and calf pairs. That is a prohibition within
15 | the management plan. So, there's multiple times a year
16 | that the hunt is occurring, right? We have the
17 | winter/spring hunt, and -- in even years, and we have the
18 | summer/fall in odd years. During the even years, there's,
19 | like I said, the behavior patterns are different in the
20 | migration of the whales up the coast, and these
21 | mother/calves are hugging very close to shore, where
22 | you're not seeing many other whales. So, if you're, you
23 | know -- there's very little benefit to trying to hunt in
24 | the area where you're going to see very little of what
25 | you're allowed. And maybe potentially, in an area you're

1 | not allowed.

2 | In the summer and fall, the hunters are going to
3 | have more time. They can sit and watch a whale. They
4 | have time to digest, what is this whale doing? What is
5 | its behaviors? Does it have a calf with it? So, you know
6 | as a mother/calf pair, they might be moving more like the
7 | rest of the other Pacific Coast Feeding Group whales.
8 | Because of the difference in behaviors, a little more
9 | predictability of how a feeding whale uses this
10 | environment compared to a migrating whale that will take
11 | one or two breaths, travel a quarter to half mile, take
12 | one or two more breaths. It's hard to, you know, in a
13 | canoe, get on that whale and to strike it without just
14 | jumping on it when you see it.

15 | In the summer/fall, very different. They have
16 | time to digest and look at it. And they'll be trained to
17 | -- so it's very unlikely that they will be targeting a
18 | mother/calf pair, since it's a prohibition. So, it's not
19 | likely they're going to have any approach. They're not
20 | going to have any unsuccessful harpoon attempts, no
21 | training harpoon attempts, any of these activities that
22 | could cause any change in the behavior of these
23 | mother/calf pairs. So, it's -- the mother/calf pairs are
24 | protected under regulations and by the training that will
25 | be provided.

1 BY MS. OWENS:

2 Q. Okay, but they're in the mix. They're in the
3 mix. You can't say they're in a completely different area
4 from where the hunting's going -- the mothers are feeding
5 at the same feeding sites that we see here clustered with
6 whale dots. You even mentioned that you found very little
7 reaction from whales when you're darting except the
8 mother/calf pairs. And I even made a comment about that.
9 Why are you frightening mother and calf pairs? So,
10 they're in the mix. You can't say they're segregated
11 completely from the huntable whales. I know they're not
12 allowed to hunt the whales. I know they're not chasing
13 them out. But the whole activity, all this harassment,
14 could drive them offshore and the DEIS says that.

15 A. So, let's get back to that. You said, number
16 one, you asked the question, why would I target
17 mother/calf pairs. I target them. I target every whale I
18 see when I'm doing biopsy sampling, because I want to make
19 sure that my sampling is representative of the Pacific
20 Coast Feeding Group. Now, if I avoided collecting samples
21 off of calves, as well as the mothers, you aren't getting
22 a known signature of internal recruitment. So, by
23 collecting those, or by intentionally not collecting
24 those, I can cause a bias in the data collection. And
25 this I a good example of how I don't work to make a bias.

1 | I work to make sure I sample every single whale, because I
2 | believe in good science.

3 | The second thing you said, that the whales are
4 | distributed out wherever. They're all kind of mixed
5 | together. I think that ignores what I just said that
6 | during this winter and spring, when the mother/calf pairs
7 | are migrating north, they're generally, you know, as I
8 | maybe mentioned one exception that had very unique
9 | behavior of how they're acting, but generally, they're
10 | right on the shoreline, not intermixed with everybody.
11 | They're right on the shoreline.

12 | And this is the same behavior pattern that Dr.
13 | Weller is able to take advantage of when they're doing
14 | northbound cow/calf counts. So, the statement is
15 | incorrect that they're intermixed at random. They're not
16 | intermixed at random. The hunt can be designed in a way
17 | and through training that they are minimizing any
18 | possibility of interaction with those two an extremely low
19 | probability.

20 | Q. That gives me very little confidence, as does
21 | the safety protocol of you're going to face a gun this way
22 | or that way. We know it can ricochet. The first bullet
23 | from the first hunt, they just showed it on TV again, the
24 | aerial view. You see it hit one side of the whale, bounce
25 | over, hit the other side of the whale, and go to who knows

1 | where. But we can put this poster board to rest.

2 | Let's see what's here. I have no idea, because
3 | it's been curled up all day. Okay, I think we cue the
4 | much-maligned new exhibit. Everybody wanted to pick on
5 | this one. I did it in one week leading up to this
6 | deadline. I thought I made it pretty for you guys. Okay.

7 | Now, I know it's simplistic. It's sort of like
8 | resident whales, PCFG for Dummies, not referring to
9 | anybody, just simple for me to explain to people on my
10 | end, too. I have to explain what I'm talking about with
11 | all these acronyms and divisions so there's the migratory
12 | group. And then, this part here is that small part up
13 | there, the Makah U&A, enlarged here. So, this little
14 | arrow was the Makah U&A whales. And I know it's not 33
15 | particular whales. I just went with that number that NMFS
16 | used in the DEIS a thousand times, 33. And they used it
17 | as an average. I understand that.

18 | Okay. Why do I have this up? Okay. When you
19 | talked about, you know, my concern about the straits and
20 | that you didn't analyze the impact, environmental impact
21 | of removing gray whales from the ecosystem. Well, the
22 | California Current, okay, I'll go along with probably no
23 | one will notice any impact to the environment. But I
24 | wasn't just talking about the western strait.

25 | I'm talking about the whole strait, all the way

1 | into here, all the way in the whole Salish Sea. That
2 | whole inland waterway with bays and river mouths and
3 | different kind of water. It's a separate ecosystem. It's
4 | the Salish Sea ecosystem that nobody will say. But why
5 | was it unanalyzed? And that's rhetorical. I don't expect
6 | an answer, because no one will say it. But our PCFG
7 | whales come all the way down in. And I live way down in
8 | Joyce, you know, maybe 50 miles from Neah Bay, Highway
9 | 112. I know all the little feeding pockets all the way
10 | along there. And we know that they're not occupied every
11 | year or every month.

12 | But the whales come back on their own timetable,
13 | unpredictable, so it's always a wonderful surprise to see
14 | them at Crescent Bay or at Deep Creek or at Pillar Point
15 | or at Hoko River mouth. I got to go to the archaeological
16 | site there and hear about the whales that come there.

17 | So, that's the area I'm concerned about going
18 | unanalyzed. Because you start pulling -- killing whales
19 | out here, you're acting like, I think, that these are
20 | separate whales when you say, well, will there be hunting
21 | in the strait? No. End of story. No. We all know these
22 | are the same whales. South Vancouver Island, up Vancouver
23 | Island, down the coast and in the straits and in and out,
24 | on their mysterious circuits, you know, following the prey
25 | blooms. You know, but this is a big part of it.

1 And the Puget Sounders, those beloved whales of,
2 you know, Whidbey Island and up in there that those people
3 know by name, Earhart, and all the rest of them. I used
4 to know the names. All their names. Some of their names
5 are there. Lucifer. They love those whales. There's only
6 about 12, but John has -- Calambokidis has studied them
7 intensely. He's put cameras on them. He's discovered how
8 they bump and move against each other, how tactile they
9 are while they feed, how there's friendships. How two of
10 those, Earhart and Shackleton, always come together,
11 always leave together. You know, what's that
12 relationship?

13 It's kind of like the relationship between --
14 whale 175, killed at Seal and Sail Rock, when that whale
15 was identified, it was a shock to our people, because we
16 adopted in '99 that whale's best friend, 178, the whale we
17 call Freedom. Those two whales seen together many times.
18 And as I have gone through the sighting records, now I'm
19 spotting them, those two whales, those two whales. What
20 was that relationship? I always thought it must be two
21 males, two buddies, and then we find out that the whale
22 that was killed was a mother, an old mother. So, what's -
23 - we'll never know. She's gone. It would have been so
24 cool to know what the relationship was between that killed
25 whale and this other whale.

1 Any rate, this is just to show -- just to show
2 it up big, I wish someone would take a picture of me in
3 front of it. Five bucks.

4 (Laughter.)

5 THE WITNESS: May I respond?

6 MS. OWENS: Yes, please.

7 THE WITNESS: Okay. So, first, your
8 characterization of -- for whale use of the areas to the
9 east is a pleasant surprise to see that, is very different
10 than Carrie Newell's survey area off Depoe Bay or my
11 survey areas off Neah Bay. It's an expectation to see the
12 whales. It's not a pleasant surprise. I've been to the
13 same areas you've talked about, you know -- so, the -- I
14 have looked in those areas. I've looked very carefully
15 when I go. I'm a whale biologist. I like looking for
16 them. I've never seen a whale in those areas. I have
17 seen one once in Port Angeles Harbor and once towards
18 Greene Point.

19 MS. OWENS: Greene Point is a Washington Park
20 Fish and Wildlife dedicated whale feeding area. Yeah,
21 you're right.

22 THE WITNESS: But there's not -- it's again, as
23 you characterize, a pleasant surprise. Depoe Bay, when
24 I'm driving the Oregon coast, I stop and I expect to see a
25 whale. So, the role of the whales in those environments

1 are very different. So, you know, I mentioned in my
2 summary testimony that, you know, they could have analyzed
3 the Salish Sea. I didn't use the word Salish Sea, because
4 it offends my colleagues with the Tribe.

5 MS. OWENS: Oh, I wasn't aware of that.

6 THE WITNESS: So, I said -- because they're not
7 Salish, right?

8 MS. OWENS: I was unaware of that.

9 THE WITNESS: So, I was careful, and I said the
10 strait and Puget Sound. I just described it rather than
11 use a term that offended individuals.

12 Okay, and then, I said that it's -- so, like the
13 California Current ecosystem. The major drivers of that
14 ecosystem are large-scale processes, so the conclusions
15 that NOAA made in regards to California Current ecosystem
16 could be drawn for the Salish Sea ecosystem as well, or
17 whatever you want to call that area.

18 MS. OWENS: Strait of Juan de Fuca and Puget
19 Sound and Admiralty and all that.

20 THE WITNESS: Right.

21 BY MS. OWENS:

22 Q. So, what was that last thing you said? You
23 could draw the same conclusion that there'd be no impact?

24 A. If you do the same analysis that they did of
25 same -- it's mainly they have large-scale processes. And

1 I'm not doing their analysis. I'll let them do their
2 analysis. That'd be my interpretation, right? I'm not
3 NOAA, right? Some of your questions have suggested that
4 I'm the NOAA person up here, but if I were them and I was
5 doing that analysis, I would come to the same conclusion
6 as they did for the California Current ecosystem.

7 Q. That there would be no impact?

8 A. That you wouldn't have an observable impact on
9 the ecosystem. And you got to remember these whales are
10 going to replace, right? 175 is gone, right? Does that
11 mean there's not -- there's one less whale? No.

12 Q. Yeah. Maybe.

13 A. No, there's still a use of these areas. In
14 fact, 2009, was one of the years of the maximum use I've
15 ever observed in the strait. And that was the year when I
16 actually observed whales east into, you know, Port Angeles
17 Harbor and other areas. It was a very rare occurrence.

18 Q. Well, now I'm sorry that I said it was a nice
19 surprise to see the whales, because we see them more than
20 rarely. But we'll let that go. I've got tons of
21 photographs. You know, it would be a surprise every day
22 if it happened, it'd be a wonderful surprise every day.
23 But I know it's not the same as whales parked in Depoe
24 Bay. It can happen in Crescent Bay, though, and it does,
25 every so many years.

1 Okay, we'll move along. Yeah, you know, they
2 provide a lot of important plowing services in the near
3 shore, which is a migratory route of important endangered
4 species of fish and salmon. They're providing a free
5 service, you know, all the time in there, and it would be
6 a great loss to the people and the ecosystem, they start
7 getting picked off out here.

8 I did think it was startling in your
9 declaration, page 74, you said that, "At higher levels of
10 human-caused mortality (e.g. 10 animals per year), it is
11 possible that the population dynamic described above,
12 i.e., if the removal of whales results in improved
13 foraging for other whales would offset removals and result
14 in minimum or no net impacts on the abundance of PCFG
15 whales." The question in all that, there are many, but
16 the one I'll say is why are you speculating on the deaths
17 of 10 PCFG whales per year?

18 A. There was a couple reasons. And one of them was
19 that people talk about this multiplier, right? You see
20 3.9 to 13.9 percent of the whales dead in the
21 (indiscernible) paper, and so, you can apply a multiplier,
22 right? And we're seeing, normally around one bycatch or
23 ship struck PCFG whale per year, based on some estimates I
24 provided. So, that might represent 10 individuals, right?
25 And as I have identified earlier, there's many avenues of

1 recruitment of new individuals into the PCFG, including
2 external recruitment from the outside.

3 There's also the population has a lot of animals
4 that emigrate per year. So, if they stay within the
5 population, you're essentially increasing by not
6 decreasing. And then, you have, you know, the chances of
7 more internal recruits. So, my point was that even if
8 this, you know, multiplier is correct and these are high
9 levels of mortality, you know, there's replacement
10 occurring, especially if you assume that that 10 to 20 or
11 whatever the multiplier has been used, that same
12 multiplier would have to have been used through the whole
13 time series, you know, back to when we were getting the
14 bycatch data.

15 And that's, you know, since the mid '90s or so
16 that we were showing that bycatch is occurring through
17 there. So, yeah, each year, you would have that high
18 level removal. And yet, the population has maintained or
19 increased during that time.

20 Q. Okay. What bothers me is this whole idea that
21 it's just fine to remove actual PCFG whales and have them
22 be replaced by other whales. It seems like there's no
23 sentimental or scientific interest in preserving the
24 actual PCFG, genetically distinct, matrilineal fidelity
25 whales if it's just a matter of having some whales. I'd

1 | be more interested in the preservation of these really
2 | special PCFG whales. But we can let that go.

3 | A. Well, I would just say you have to define what
4 | is an actual PCFG whale.

5 | Q. I mean, a genetically distinct, has a mother
6 | that had a mother that had a mother that had a mother.

7 | A. You can't pull those out of the data set so that
8 | -- if you could, what you would find is that you'd have an
9 | ability to look at the mitochondrial DNA and do an
10 | allocation or an assignment test. And you can't do that
11 | based on the haplotype frequencies that are there. So,
12 | that's not really a possibility.

13 | Q. Right. Our amateur theory is if you don't kill
14 | whales on the coast, you're giving them a much better
15 | chance of survival, but we don't have to -- I don't want
16 | to argue with --

17 | Where are we? Okay, some questions about your
18 | work for the Tribe. Okay. Speed round. You've spent
19 | much time on the water every year photographing, taking
20 | biopsy samples. You've darted 100 whales. You mentioned
21 | weekly surveys summer and fall, 40 to 50 research surveys
22 | per year. The question is, will this level of research
23 | continue if whaling resumes?

24 | A. I expect it to. We have even more reason as we
25 | go forward to continue conducting research, because the

1 | Tribe is invested in doing sound management, making sure
2 | that the whales are managed as well as possible. And the
3 | best way we could do that is to continue collecting data.
4 | Because if we don't, I think we're very well aware that
5 | any uncertainties in the data, any decline in that, and
6 | it's going to be used as ammunition to fight against a
7 | future waiver or future waivers. It's going to be used as
8 | ammunition to fight against, you know, allocations that
9 | the IWC is putting out. So, the best way to address that
10 | is to collect good, scientific data.

11 | Q. Okay. I'm not opposed to scientific data
12 | gathering. What I'm concerned about is that now we have
13 | to add all of your -- what is harassment to all the hunt
14 | harassment, and have a big cumulative big ball of
15 | harassment that combines both of those. And that's what
16 | we worry about. You know, we're thinking that we're
17 | whalecentric, you know, we're thinking about the whales.
18 | What would the whales want? So, all of your technical
19 | harassment is added to all the whaling harassment. And
20 | that's a whole lot to us. But you don't have to make any
21 | comment.

22 | So, oh, your responses to gray whale
23 | entanglement, you mentioned four gray whale entanglements
24 | in gill nets or crab pots in something I just read.

25 | A. Oh, so you're talking about my --

1 Q. Yes.

2 A. Okay, so I've been a participant in 10 efforts
3 to disentangle whales. I have led four of those. As a
4 member of the region's large whale disentanglement
5 program, I'm a level 3 or class 3 or something 3
6 responder. And so, of those, we've had four successes.
7 So, in the time I've worked for the Tribe, the Tribe has
8 contributed to the rescue of more whales than the hunt,
9 which was what I was hired to --

10 Q. That's great. And I followed some of the
11 exciting stories and even, you know, seen pictures. And
12 that's wonderful. I'm also, you know, a lower level -- I
13 keep my whale stranding network training up, I'm always --

14 A. There's a difference in strandings and
15 disentanglement response.

16 Q. Oh, no, no. Oh, totally, of course. Of course.
17 Okay, but that wasn't my question. My question was, what
18 times of year do these incidents occur, mainly?

19 A. The incidences of entanglements can occur year-
20 round. And it's not only an incident of the entanglement,
21 but it's an incident of observing the entanglement. So,
22 for instance, colleagues of mine have talked about
23 observing whales coming in to Hawaii that are trailing
24 gear that they picked up in California.

25 Q. Yeah.

1 A. And so, these whales -- you don't know when
2 you're going to observe it relative to when they picked up
3 the gear. As far as my observations of entanglements go,
4 certainly, I've had a couple in the spring, and then a few
5 in the summertime as well.

6 Q. Yeah, I wonder if it correlated to seasonal use
7 of crab pots or gill nets and, you know, what was the --
8 you know, the time of most jeopardy.

9 A. So, the time of most jeopardy was the early
10 '80s, when they had a --

11 Q. I mean monthwise. Month of the year.

12 A. Month of the year?

13 Q. Yeah, you know, summer, spring? You know, is it
14 PCFG time? Is it migration time? Is kind of what I'm
15 getting at.

16 A. There was more outside of the PCFG time period.

17 Q. Okay. Here's a good one, that if we were
18 sitting around and, you know, I'd really want to ask you
19 this one.

20 A. Okay.

21 Q. In all your years on the water, have you
22 experienced any friendly encounters from the gray whales?

23 A. Define friendly.

24 Q. Well, it's a term. It's used. I see it on the
25 surveys, friendly. You know, it comes up to the boat.

1 A. Yeah. So it --

2 Q. Approaches you, puts his nose up, whatever you
3 think.

4 A. Yes. We've definitely experienced that.

5 Q. Oh. Right out with our PCFG whales or --

6 A. During migratory season, and during the PCFG
7 season. And it seems like it's most often in a time of
8 year when the whales are not as active in foraging, so
9 late fall, early spring, you know, when whales are --
10 yeah, we don't see them engage in foraging activity.
11 They're more just kind of milling at times, and --

12 Q. Yeah. Thanks. Thanks for sharing that. I
13 appreciate that. Let's see. I'm going to skip that.
14 Skip that. Do you agree with the point of Punt 2015 IWC
15 that that PCFG is at half of carrying capacity?

16 A. That's a misleading use of that analysis, so,
17 no. That is a selective use of a modeling result that
18 makes different assumptions that is taken out of context.

19 Q. So, you're not blaming me. You're blaming Punt.

20 A. I'm saying that you could have looked at a lot
21 more sources of the --

22 Q. Well, I look at a lot of things. That jumped
23 out at me.

24 A. Yeah, so if you looked at the whole data set,
25 you would see many a range of ideas of what the carrying

1 capacity --

2 Q. What do you think it is?

3 A. The carrying capacity?

4 Q. No, I mean -- what's the PCFG at, yeah?

5 A. I would suspect the PCFG is close to what it is
6 right now. That's why you see whales leave the area.
7 They permanently emigrate from the area, and we see new
8 whales coming in, but we don't see that -- I did get quite
9 familiar in the Calambokidis et al., papers of the
10 discovery curve showing the number of new whales observed
11 each year or the new whales that recruit into the PCFG.
12 And it's just a linear line increasing. Year after year,
13 it's increasing, increasing, yet the population estimate
14 doesn't.

15 And so, I suspect that's because the carrying
16 capacity of the ecosystem, number of whales that can be
17 supported for PCFG whales would be in the environment. It
18 fluctuates, right? So, in its recent years, it's been
19 better, so you see more of them. But it's around this
20 area.

21 Q. Okay, there's light at the end of the tunnel. I
22 ran out of poster board. I have more questions. Okay, so
23 -- just like two more. Would you agree that PCFG whales
24 seen primarily in California and Alaska are less likely to
25 be seen in the Makah U&A, in the South Vancouver Island

1 area?

2 A. Relative to what?

3 Q. Relative to how often the California whales are
4 seen in California rather than here. I mean, I've seen
5 breakdowns and it's, you know, it gets less and less
6 likely to see a California whale here.

7 A. I just thought you were going to compare it to
8 something else.

9 Q. No.

10 A. That's why I said relative to what.

11 Q. No.

12 A. So, yeah, there's some probability that those
13 whales that are outside that range are within the hunt
14 area.

15 Q. Right. It can happen. But what I'm getting at
16 is, for a while there, it was going to be the Makah hunt
17 take was going to be calculated from the Oregon, South
18 Vancouver Island region. And that seemed kind of fair.
19 Now, it's taken from the whole group, and that seems kind
20 of unfair.

21 A. The removals always would have been from the
22 Pacific Coast Feeding Group. It would have been analyzed
23 relative to a population abundance of the Oregon to
24 Southern Vancouver Island area. As you look at the data
25 longer term, each time a Calambokidis et al., update

1 | occurs, the range in how far the whales are used or how
2 | many areas they use expands with more data sources. So, I
3 | think it makes sense that they're using the whole Pacific
4 | Coast Feeding Group as the analysis point for this.

5 | Q. I think it's a setup for a disproportionate take
6 | of our local whales, but we don't have to argue it. I
7 | just think that's odd. Common sense says there's going to
8 | be a disproportionate take from our local whales. Ninth
9 | Circuit thought so also, but we can leave it there.

10 | I just have one more thing. Let's see what it
11 | is. Okay, so I know you asked me where I came up with
12 | this, you know, five mothers in this area. And I told you
13 | it was from your paper and I was close. So, whether
14 | there's five or seven or eight, because I removed the ones
15 | with asterisks and got down to five, the ability of the
16 | Tribe to take females at the rate of almost one a year
17 | seems like quite a gamble, you know, and it seems we could
18 | risk the extrication of our local whales. Do you think
19 | the value of female whales to a small population is no
20 | more than the value of a male whale?

21 | A. So, I think NOAA set up the limit of 16 males
22 | can be taken or 8 females. Either way, we would hit our
23 | limit. If we have -- because we have a total, like if it
24 | was all one sex or another. So, they're saying we could
25 | take twice as many males if all we took were males. And

1 | what you were saying about my paper, I was reporting the
2 | observations of mothers with calves in a small survey
3 | area.

4 | There is probably more than 20 different whales.
5 | I don't know what the exact number is, of whales that I've
6 | identified that have had calves in the Pacific Coast
7 | Feeding Group range. So, these whales are -- it's not
8 | only five whales that have had calves in that area.
9 | There's many individuals that have had calves that utilize
10 | that area.

11 | Q. I'm glad to hear that. I just want to explain
12 | to you where is it? Where do you get that? It's from
13 | your paper.

14 | A. Right.

15 | Q. I still -- I can't accept that a female whale is
16 | only equal value with a male whale in a small population,
17 | but we won't have to --

18 | A. Well, like it said, it was double as the
19 | regulation determined.

20 | Q. Well, 50/50, and the mixing, you know, if a
21 | whale's taken they don't know which sex, so it'll be, you
22 | know, 50/50, male or female, male or female, you know,
23 | flip a coin.

24 | A. But the limits are set such that you can take 16
25 | males or only 8 females.

1 Q. Nevertheless, you can take 8 females.

2 A. Right.

3 Q. Right.

4 A. And that's fully sustainable based on the
5 analyses conducted by the International Whaling
6 Commission.

7 MS. OWENS: All right. Thank you very much.
8 Thanks for your patience. You have really done, I think,
9 a wonderful job.

10 THE WITNESS: Thank you.

11 MS. OWENS: I hope I had a few interesting
12 questions in roll up here.

13 Thank you, Your Honor.

14 MR. SCHUBERT: Thank you, Your Honor.

15 **CROSS-EXAMINATION**

16 BY MR. SCHUBERT:

17 Q. This is, for the record, Donald or DJ Schubert.
18 Mr. Scordino, thank you for your testimony today.

19 A. You're welcome.

20 Q. Thank you for your stamina. Just a couple
21 really quick questions. Do gray whales communicate
22 vocally or acoustically?

23 A. Gray whales make sounds. And whether or not --
24 how that forms into communication is not something I've
25 read that people clearly said. It sounds like there are

1 | some sounds that are made more often between cow and calf
2 | pairs, but communication's kind of a loaded term there.

3 | Q. Have you ever put a hydrophone in the water and
4 | listened to them?

5 | A. We had a hydrophone in the water for a while off
6 | of the east end of Neah Bay, and again, I didn't hear any
7 | gray whales the objective was to listen for southern
8 | resident killer whale site use.

9 | Q. So, recognizing that it doesn't sound like
10 | you're a gray whale acoustics expert.

11 | A. No.

12 | Q. Okay, fair enough. Do you know what kind of
13 | sounds they make?

14 | A. S-1, S-3. I mean, that's how they're describe
15 | in literature. I don't know. You know, there's a variety
16 | of sounds they make, like grunts and other sounds. I'm
17 | looking at Dave, because I know he was involved in some of
18 | those studies and you probably should have asked him.

19 | Q. Okay. Do you know how far those sounds can
20 | travel in the water column?

21 | A. No.

22 | Q. And I know you're not Dr. Doolittle. Do you
23 | have any sense from what you've read in the literature as
24 | to what they might be communicating with those sounds?

25 | A. So, again, the communications mode, in terms of

1 | the way you said that was that they are communicating
2 | information to one another. And I have not seen a study
3 | saying that they are communicating information.

4 | MR. SCHUBERT: Okay, thank you.

5 | **CROSS-EXAMINATION**

6 | BY MR. GOSLINER:

7 | Q. Good afternoon.

8 | A. Good afternoon.

9 | Q. Earlier today, you testified that to date, none
10 | of the photographs that you've taken, and that number is
11 | considerable in the area where you're conducting your
12 | studies are matched to the WNP catalog.

13 | A. So, nuance it a little bit. None of the
14 | photographs I have taken that were matched to the WNP
15 | catalog, and that wasn't done for all of my photographs,
16 | so I probably misspoke in saying all. It was through the
17 | period that they have done comparisons. I can't say all,
18 | like what I did last week, I have no idea if they'd match
19 | or not, right? So, all of them that I know of that a
20 | comparison has been done, have not matched to whales from
21 | Sakhalin.

22 | Q. And can you quickly walk us through the process
23 | -- that you take a picture and then you submit it to
24 | Cascadia or somewhere else, how that match would be made
25 | if one were to be made?

1 A. Well, how much of the process do you want? Do
2 you want just the matching or the -- okay, so my process,
3 we use a telephoto lens for photographing the dorsal flank
4 of the whale. We shoot the left and the right side, if we
5 can, you know, at least one side, hopefully both. We try
6 to square up to the whale as fast as possible.

7 Q. I'll foreshorten this a bit.

8 A. Okay.

9 Q. Just that you've taken your picture. You send
10 it to someone or a group of someones who actually does the
11 matching for WNP, not the Pacific Coast Feeding Group, but
12 the WNP.

13 A. Yeah, so that matching project that was done a
14 few years ago, I think all the matching was done by
15 Cascadia Research Collective. And I believe that was Alie
16 Perez that did that matching, or she was the lead, at
17 least.

18 Q. And how quickly is that done or could it be
19 done?

20 A. I think Dave answered that really well on how
21 quickly. Alie's amazing. If I send her an email and say,
22 this whale is acting really neat, you know, who is this?
23 And she'll get me back something immediately if she sees
24 my email. So, she's very capable. They're very capable
25 there of quickly comparing the catalogs of what they have.

1 | So, Alie's very familiar with the Pacific Coast Feeding
2 | Group. I think that makes her probably a little bit
3 | quicker. And it'd probably be a little bit slower for her
4 | to go through the WNP catalog, because she doesn't have
5 | the same familiarity.

6 | Q. And do you have -- I think you said you have
7 | access to some of the WNP catalogs or is it all of them?

8 | A. Yeah, Dave sent me one a few years back, and
9 | that's the U.S./Russia Catalog. I'm not sure what it's
10 | called now. Russia catalog.

11 | Q. So, to the extent you have one, it'd be out of
12 | date somewhat?

13 | A. Yeah.

14 | Q. But you wouldn't be doing the matching anyway.

15 | A. Right. And so, you know, I don't try to match
16 | them in house, because, yeah.

17 | Q. And then, the other mechanism for doing matches
18 | is genetic matching --

19 | A. The genetic fingerprint, right.

20 | Q. Right.

21 | A. So, not an assignment test, but the actual
22 | genetics match to a previously sampled whale.

23 | Q. Right. And do you know what percentage of PCFG
24 | whales have that fingerprinting that you could do a match?

25 | A. So, I just saw a paper published by Jim Darling,

1 | who's doing an independent biopsy sampling effort than
2 | what I am, and they have 138 whales sampled. And the study
3 | that I'm involved in with Dr. Lang, we have around 200
4 | whales sampled. I don't know how many of those were the
5 | same whales. So, it's a large proportion of the PCFG for
6 | a group that's estimated as 244.

7 | Q. And that would be current or that would include
8 | old samples of whales that have died or --

9 | A. It does include some whales that have died, yes.

10 | Q. And then, do you know the percentage for WNP
11 | whales, how many of those have been genetically
12 | fingerprinted?

13 | A. You had Dave up here who would have been able to
14 | answer that much better. In years past, they had
15 | rigorously sampled it for some of the studies that are
16 | given. I don't know how current that is and what the
17 | proportions are now. I imagine it's less than it was.

18 | Q. And could you briefly explain how the genetic
19 | matches are made, who makes them and how quickly they can
20 | be made?

21 | A. I'd imagine that that would be Dr. Lang or maybe
22 | one of the other researchers at Southwest Fisheries
23 | Science Center. Essentially, they're looking to see that
24 | the same haplotypes and microsatellites are showing the
25 | same patterns from one whale to another, so just like a

1 forensic case would do that for a criminal investigation.

2 Q. But it takes quite a while?

3 A. I'm not knowledgeable of that.

4 Q. Fair enough. And then you also talked about the
5 impacts of whale watching and you've seen a lot of whale
6 watching vessels do close approaches and things. And I
7 was just wondering, are there any whale watching
8 activities that go on in the Makah U&A area?

9 A. Whale watching is -- so, there's a couple boats
10 that will offer eco tours and, you know, we have a lot of
11 charter fishing operations. And I've talked to them about
12 whale watching and other, you know, bird watching and
13 other activities that they could take an interest in. And
14 they did tell me they've had many more requests for
15 spreading ashes of deceased family members than they do of
16 whale watching, even though the whales are all over.

17 The people that come to Neah Bay are interested in
18 fishing, generally, because you can access many areas for
19 whale watching without taking the winding Highway 112,
20 right? It's a challenging road to do. So, the whale
21 watching itself isn't as much of a unique opportunity as
22 compared to other areas they can access without that
23 challenge.

24 Q. Right.

25 A. But the fishing is.

1 Q. So, how close would you say are the closest
2 people that are intentionally approaching whales?

3 A. Are there roads there? I mean, I've seen people
4 right on top of whales, you know, so --

5 Q. But the whale watching which you were
6 describing, how close are the commercial whale watching
7 trips to Neah Bay?

8 A. In Neah Bay, I want to say in the Oregon coast
9 this summer, I had a family reunion. So, on the way
10 north, I stopped off and watched whales from shore. And I
11 could see the whale watch boats, you know, within 5, 10
12 feet of the whales.

13 Q. Right, but they're hundreds of miles away
14 from --

15 A. The Makah U&A?

16 Q. -- the Makah area.

17 A. Yeah, so generally, whale watching is not very
18 prominent activity there.

19 MR. GOSLINER: Thank you very much. No further
20 questions.

21 THE COURT: I think it's -- you probably have a
22 little bit of --

23 MR. GRUBER: Yeah, but I think we'd love to give
24 Mr. Scordino a clean break at the end of the day, and if I
25 could ask a few questions on redirect.

1 THE COURT: All right, because the only question
2 would be how do we want to deal with that other question
3 from Mr. Sommermeyer? Is he going to come back tomorrow
4 or are we going to try to finish him up today?

5 MR. GRUBER: Well, my hope is that we could
6 finish with him today, but I don't know about this
7 question.

8 THE COURT: Actually, can I -- I have two quick
9 questions to ask.

10 BY THE COURT:

11 Q. From your testimony, you've developed -- you
12 helped the Tribe develop the current hunting strategy.

13 A. Training program.

14 Q. Yeah, the training program. And right now, how
15 many vessels would that usually entail?

16 A. How many vessels would be involved?

17 Q. Would be involved in both the training operation
18 and a hunt?

19 A. So, in a hunt, if we envision it working like
20 1999, you're going to have a whaling vessel, which is most
21 likely to be in a canoe. And you're going to have a chase
22 boat that has the ability to close on the whale quickly.
23 You're going to have another boat standing off somewhere
24 in the distance that is a -- has a better capacity for
25 towing the whale. You're also going to have the hunt

1 | observer boat, whether that is for the future hunts, a
2 | boat that has both National Marine Fisheries Service and
3 | Makah members on board, you know, Makah Fisheries
4 | observers on board or if there's two separate boats, I'm
5 | not sure. So, in that case, that was four boats that we
6 | would have.

7 | Q. And is there a -- the safety officer's on the
8 | chase boat or which boat?

9 | A. They're going to be on the chase boat with the
10 | rifleman. So, the main point of the safety officer is to
11 | make sure that the rifle discharge is safe.

12 | Q. Is there any boat available in case there's a
13 | problem with the canoe, to be able to effect the rescue of
14 | anyone if the canoe capsized?

15 | A. Yeah, I mean, that's another important role of
16 | the chase boat, right? And even my boat, as the observer,
17 | if I saw our crew was in danger, I would close in and help
18 | them as well. So, I think most boats would close in and
19 | help people if somebody were in danger.

20 | Q. And that would be pretty much the same both in
21 | training exercises other than the observer boat.

22 | A. I expect the training exercises to be smaller
23 | amount of boats. Of course, you wouldn't need a large
24 | boat to stand by to tow a whale. And there's going to be
25 | different activities that are happening in training. So,

1 | some of the activities might be they're just accompanying
2 | me on research activities, so it's just one boat, and
3 | they're training, learning the behavior patterns of how
4 | whales surface and how they use their habitat. Other
5 | activities where they're doing the practice harpoon could
6 | require at least two boats where you have the canoe and
7 | probably the hunt observer boat, you know, so we could
8 | take photographs and monitor how they're interacting.

9 | Q. The other question is that you also -- you're
10 | familiar with the Russian hunts.

11 | A. Right, somewhat, yeah.

12 | Q. And I understand the major difference between,
13 | from your testimony, the major difference between the
14 | Russian hunts and this hunt is the Russians are using
15 | powered boats for everything.

16 | A. Right.

17 | Q. Again, same as -- all of your boats would be
18 | basically outboard powered?

19 | A. All except for the canoe.

20 | Q. Except for the canoe. And the Russian boats are
21 | outboard powered?

22 | A. Yeah. Well, I should take a step back. The
23 | large boat that would be standing by would not be an
24 | outboard. It would be a -- you know, a large in-line
25 | engine. Not an outboard.

1 Q. Okay.

2 A. But, yes, it'd be a motor boat.

3 Q. Small motor boat.

4 A. That'd be a fishing boat, so it'd be a larger
5 boat, yeah.

6 Q. And the manner of striking and killing for the
7 Russians is the same as we're using or --

8 A. So, their manner of killing is very different.
9 Both, I think, are going to use a cold harpoon first,
10 which is, you know, a hunk of steel essentially sharpened
11 with a toggle head to it. They use a lower caliber rifle,
12 and so, they'll take many more shots, rather than the
13 large caliber, which has the power to punch through and
14 efficiently kill the whale quickly.

15 Q. And again, the Russians take 120 or more whales
16 a year from about 20 different villages instead of one.
17 How many training -- what's the percentage of training
18 exercises to hunts on their part?

19 A. For Russia?

20 Q. Yes.

21 A. They don't report on training exercises. And
22 they're conducting their hunts frequently enough that --

23 Q. They're proficient.

24 A. Yeah, and the training you might be, you bring
25 the new guy on with the trained crew and they gain their

1 training that way. I don't know. That's pure
2 speculation.

3 Q. All right, thank you. Those are my questions.

4 MR. GRUBER: Thank you, Your Honor.

5 It sounds like you did some of my questions.
6 But I would say in our hearing management plan that we
7 submitted and the Court approved, we agreed that the
8 questioner finish questioning and would not rise again.
9 We don't have an objection to the research question that
10 was asked of Jonathan, and he can do that, report back
11 tomorrow, it would be fine if you had questions related to
12 that, but I think we need to stick to our, you get one
13 shot as an individual questioner, unless -- on cross-
14 examine.

15 UNIDENTIFIED SPEAKER: You're not going to ask
16 him?

17 THE COURT: Well, we probably heard on it, sure.

18 UNIDENTIFIED SPEAKER: So, tomorrow.

19 MR. SOMERMEYER: (Indiscernible) today. Did he
20 want to hear the question today or tomorrow I
21 (indiscernible).

22 MR. GRUBER: Well, I was hoping that we -- the
23 only questions for tomorrow would be related to this
24 research question.

25 MR. SOMMERMEYER: I appreciate the accommodation

1 with that. One clarification is what we have been doing,
2 I know we haven't been following the plan, but what we
3 have been doing (indiscernible) looked at as each day as
4 we get more cross and then people (indiscernible).

5 THE COURT: It might have -- yes, it would have
6 -- again, there will be recross available. So, I believe
7 Mr. Scordino will be here tomorrow.

8 MR. GRUBER: Okay, well, I do have some redirect,
9 if I --

10 THE COURT: Yes.

11 **REDIRECT EXAMINATION**

12 BY MR. GRUBER:

13 Q. So, Mr. Scordino, you were asked some questions
14 about feasibility of identifying whales on the water.

15 A. Right.

16 Q. Would you agree that that requires a specialized
17 expertise in whale identification?

18 A. Specialized expertise as well as a lot of
19 experience with those whales that you're trying to match.

20 Q. Do you think it's feasible on the water to rule
21 out that a specific whale is a member of the PCFG?

22 A. To rule out to -- no, that would be really hard
23 to do.

24 Q. And a similar question with respect to ruling
25 out that a specific whale on the water was a WNP?

1 A. No. It's much easier to make a positive match
2 and be comfortable with that than to make a negative match
3 to be sure that it's not in the catalog.

4 Q. The IWC modeling relating to this limit --
5 strike limit on female PCFG whales, did you testify that
6 there were eight modeled in the course of -- there was a
7 trial where eight removals are modeled?

8 A. No, what I said is that the IWC modeling is
9 assuming that the removals are in equal proportion to what
10 they are in the habitat. So, assuming 50/50, male and
11 female, so if you're removing 16, they'd be assuming that
12 eight of those are female. And then, there was also a
13 trial with a higher rate of females. I can't remember if
14 we went up to 100 percent, but it was a substantial
15 increase over 50/50.

16 Q. So, that trial potentially would have involved
17 removal of more than eight.

18 A. Right.

19 Q. And did it still meet the conservation
20 objectives?

21 A. It did, yes.

22 Q. Did you find any irony in the quote from Charles
23 Scammon regarding how civilized whalers are hunting
24 offshore to avoid killing mothers and calves?

25 A. Yes, especially, if you read the full Scammon

1 | book. So, he also references a process called kelp
2 | whaling, which was a process he described in California
3 | where the whalers, the commercial, civilized whalers, were
4 | hunting right along the kelp for the whales that were
5 | migrating, so, yeah, that was kind of an odd statement.

6 | Q. I wanted to return you to the question of the
7 | human risk issue that Ms. Owens raised and sort of
8 | speculating that if there were an offshore hunt that the
9 | human risk would be zero. In your opinion, is there zero
10 | risk to the crew if the hunt is 5 or more miles offshore?

11 | A. No. The risk would increase as you go offshore.
12 | You're more exposed to weather and ocean conditions.

13 | Q. You got all the questions about the Lagerquist
14 | 2019 paper. Did you understand that that paper was
15 | limited to feeding season movements?

16 | A. Right, so very -- well, it wasn't limited, but
17 | the analysis on the -- how the whales utilized the habitat
18 | was that movement behaviors within the PCFG range, that
19 | was limited that they removed the behaviors that were
20 | clearly northbound or southbound migration that's
21 | documented.

22 | Q. In your familiarity with the Russian harvest and
23 | numbers of whales landed by the Russians, have you ever
24 | known them to report a harvest as low as the 2018 report
25 | of 107 whales?

1 A. I have not seen that before.

2 Q. And you don't know why that number is lower than
3 typical?

4 A. I mean, I heard speculation that they were
5 concerned about going over the quota for the whole block
6 period.

7 Q. Is there any witness here who could probably
8 give us a definitive answer on the gray whale catch limit
9 question?

10 A. I imagine Mike Tillman could. So, we were shown
11 it there for a -- as an exhibit that was shown.

12 Q. You were asked about some of the sources of your
13 funding. You mentioned species recovery grants and other
14 funding from NOAA. When you receive a grant like that
15 from NOAA in particular, are there requirements that you
16 report results and information back to the agency?

17 A. Right, so I have to do progress reports, you
18 know, every 6 months, as well as a final contract report
19 that I provide to them. I also have to, when I write my
20 proposal, write a data availability agreement within that
21 and how the data will be made publicly available. So, at
22 some of mine, I say that, you know, we're going to make
23 those reports available so if they're requested, such as
24 Margaret's request a few years ago of my report, those
25 were provided to those people.

1 MR. GRUBER: Thank you. No further questions.

2 THE COURT: We have the outstanding question for
3 the witness, which we'll work on to try to get an answer
4 for tomorrow. And then, we'll have recross in the
5 morning. And hopefully this will -- and then, we'll end
6 with this witness and we'll have --

7 THE WITNESS: Could I ask, first, what exactly
8 is the question I'm trying to answer?

9 (Laughter.)

10 THE WITNESS: It seemed important to me.

11 THE COURT: Actually, why don't we -- Mr.
12 Sommermeyer, just put it on the record before you leave.

13 MR. SOMMERMEYER: So, the question I asked you
14 during Sea Shepherd's cross was, you, in your testimony,
15 you said you'd observed in 2008 or you were aware in 2008
16 of there being a large number of PCFG whales or -- was it
17 PCFG or is it ENP in general?

18 THE WITNESS: PCFG whales -- would gray whale --

19 MR. SOMMERMEYER: Gray whales, the gray whales.
20 Gray whales in the area where the unauthorized hunt was in
21 September 2007. And so, my question was, were the same
22 whales you saw in 2018 (sic) the ones that were present
23 during the -- the same whales you saw in 2008 the ones
24 that were present in 2007? Do you have evidence that the
25 same ones returned?

1 THE WITNESS: So, the whales that were in the
2 vicinity of that area.

3 MR. SOMMERMEYER: Of that hunt, yes. You said
4 you might be able to track which whales were there in 2007
5 during the same time period of the hunt, and then in 2008,
6 they returned in 2008, per your data.

7 THE WITNESS: So, just for perspective, Your
8 Honor, it's kind of an interesting question, but it's not
9 very well informed if you think what's the odds of a whale
10 returning in general, right? So, if I come back and I say
11 50 percent of them were -- I don't know how you would take
12 that, right? It might be in a normal year only 10 percent
13 of what I see are observed in the next year. It might be,
14 you know, it has a whole range of what that is. So, I
15 understand the question, but I don't know what the result
16 will tell you.

17 MR. SOMMERMEYER: But, Mr. Scordino, it was your
18 testimony -- it must have been some significance to you
19 testifying that in 2008, you saw the same whale --
20 designate there were a large number of whales in that
21 area. And then, you implied or stated in your cross-exam
22 that they were the same whales, some of the same whales
23 were there. So, what was the point of your testimony that
24 you saw a lot of -- a huge return of whales or a large
25 number of gray whales in 2008?

1 THE WITNESS: I don't think I said they were the
2 same whales. I think that's taken out of context. I said
3 there was a large number of whales that utilized that same
4 area the next year, suggesting that there was not a
5 behavioral response of the whales in that area to avoid
6 it.

7 MR. SOMMERMEYER: But wouldn't it follow that in
8 order to assess whether there was a behavioral response,
9 you'd have to have the same whales in 2007 exposed to the
10 hunt and they came back anyway, despite the hunt.

11 THE WITNESS: Yeah. So, I can get what you're
12 asking for, but I -- without context, it's kind of a
13 meaningless response. And that was what I was getting at
14 that, yeah, so I could tell you what the percent is, but
15 how you interpret that becomes kind of irrelevant, because
16 it all depends on what is normal.

17 MR. SOMMERMEYER: I guess we could see what we
18 get as far as the data, okay?

19 THE WITNESS: Okay.

20 MR. SOMMERMEYER: You understand now?

21 THE WITNESS: I understand what you're asking,
22 yeah.

23 MR. SOMMERMEYER: Okay, great.

24 THE WITNESS: But like I said, it's a caveat
25 that it's probably not very interesting.

1 THE COURT: Okay, I think I just had a memory
2 that you were asking for some source that he was looking
3 for so he could --

4 MR. SOMMERMEYER: Well, so, yeah, he said that
5 he -- I asked him in my cross-exam, can -- did the same
6 whales -- so you had a large number of whales, gray whales
7 in 2008. Were there -- is there evidence that some of
8 those whales, at least, were the same whales that were
9 present during the hunt in 2007. And he said he'd have
10 that data on is computer. And that's where the source
11 came from.

12 THE COURT: Okay.

13 MR. SOMMERMEYER: Thank you.

14 THE COURT: So, where --

15 MR. GRUBER: One very quick request. AWI, Sea
16 Shepherd, PCPW, referring back to our management plan --

17 THE COURT: Right.

18 MR. GRUBER: -- there was a commitment to inform
19 the other parties the order of witnesses, and if possible,
20 it would be helpful to know that before tomorrow morning.

21 THE COURT: Well, I believe AWI is next, am I --

22 MR. EUBANKS: Correct, Your Honor.

23 THE COURT: Their witnesses will be next.

24 MR. SOMMERMEYER: We have Carrie Newell on
25 tomorrow. Then Stella Villegas can't be here until

1 Wednesday morning.

2 MR. GRUBER: So, would Margaret testify -- sorry
3 -- Ms. Owens planning to testify third tomorrow?

4 THE COURT: I'd like to have some -- because we
5 know that we have Sea Shepherd testimony on Wednesday. I
6 would like to -- even if it's not exactly to plan, I would
7 like to see if we can get Ms. Owens to testify tomorrow.

8 MR. SOMMERMEYER: That's fine with us. We just
9 were interested in the order.

10 THE COURT: Yeah, I think that makes --
11 and then we can -- you wanted to be last anyway, I
12 thought.

13 MR. GOSLINER: Well, I got to -- the other
14 alternative makes sense for us to go before the --

15 THE COURT: Before the Sea Shepherd --

16 MR. GOSLINER: Well, before the one with the one
17 witness, which wouldn't be here until Wednesday.

18 THE COURT: Sure.

19 MR. GOSLINER: But we could have gone after or
20 if we're breaking at 2:00 tomorrow --

21 THE COURT: As long as we get it all in, I'm
22 fine. And again, if the parties wish to discuss and make
23 a switch there for MMC, you can figure the best time to --
24 for them to put their testimony in, that's fine with me.
25 But we'll be planning that we're done with Dr. Scordino,

1 | we'll be starting with AWI, and after that, we'll -- up to
2 | the parties.

3 | Thank you very much. We're in recess.

4 | **(Whereupon, at 4:33 p.m., the hearing in the**
5 | **above-referenced matter was recessed, to reconvene,**
6 | **Tuesday, November 19, 2019, at 9:00 a.m.)**

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CERTIFICATION

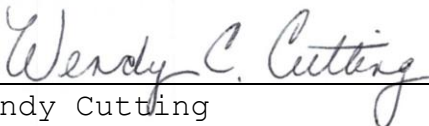
This certificate is valid only for a transcript accompanied by my original signature required on this page.

I hereby certify that the proceedings in the matter of Proposed Waiver and Regulations Governing the Taking of Eastern North Pacific Gray Whales by the Makah Tribe, Docket No. 19-NMFS-0001, heard on Monday, November 18, 2019, before the Honorable George J. Jordan, Administrative Law Judge, were recorded by means of audiotape.

I further certify that, to the best of my knowledge and belief, page numbers one to two hundred forty-six constitute a complete and accurate transcript of the proceedings as transcribed by me.

I further certify that I am neither a relative to nor an employee of any attorney or party herein, and that I have no interest in the outcome of this case.

In witness whereof, I have affixed my signature this 16th day of December, 2019.



Wendy Cutting
Transcriber

CERTIFICATION

This certificate is valid only for a transcript accompanied by my original signature required on this page.

I hereby certify that the proceedings in the matter of National Oceanographic and Atmospheric Administration, Docket number 19-NMFS-0001, hearing heard on Monday, November 18, 2019, before the Honorable George J. Jordan, were recorded by means of audiotape.

I further certify that, to the best of my knowledge and belief, page numbers one to two hundred forty-five constitute a complete and accurate transcript of the proceedings as proofed/corrected by me.

I further certify that I am neither a relative to nor an employee of any attorney or party herein, and that I have no interest in the outcome of this case.

In witness whereof, I have affixed my signature this 21th day of January, 2020.

Sally S. Gessner

Sally S. Gessner, CER
Certified Electronic Court Reporter