Nancy Young - NOAA Federal <nancy.young@noaa.gov>

Re: Genetic stock ID analysis for bycatch killer whales?

Kim Parsons - NOAA Federal (she/her) <kim.parsons@noaa.gov> Thu, Jun 22, 2023 at 8:39 AM
To: Nancy Young - NOAA Federal <nancy.young@noaa.gov>

Yep, that's correct - ecotype is definitive using mtDNA, but stocks within ecotype are not. Whether or not you're comfortable assigning stock based on geographic location will probably depend on your tolerance for Type I vs Type II error! If it was an SR haplotype and was detected in a whale in the Central Aleutians, I think we could assign it to AK stocks with high confidence. The NR haplotype is quite a bit fuzzier because it is detected in resident killer whales throughout BC, Gulf of AK and eastern Aleutians (see Fig.1b here).

Kim M. Parsons, Ph.D. (she/her)

Molecular Genetics Lead
Conservation Biology Division
Northwest Fisheries Science Center
NOAA, National Marine Fisheries Service
2725 Montlake Blvd E
Seattle, WA 98112

office phone 206 302 2428
kim.parsons@noaa.gov

Looking for a time to meet? Look here for open spots in my calendar!

https://scholar.google.com/citations
https://www.fisheries.noaa.gov/contact/kim-parsons-phd

I sometimes work irregular hours, but I respect your work schedule and do not expect an action or reply outside of your working hours.

On Thu, Jun 22, 2023 at 8:30 AM Nancy Young - NOAA Federal <nancy.young@noaa.gov> wrote:

> That's helpful. So we are able to tell resident vs. transient from the mtDNA haplotype but not able to distinguish Northern from Alaska residents. Is the location of the take okay to use to differentiate between those two resident stocks if it's outside of SEAK?
>
> On Thu, Jun 22, 2023 at 8:23 AM Kim Parsons - NOAA Federal (she/her) <kim.parsons@noaa.gov> wrote:
>
> > Hi Nancy,
> >
> > Unfortunately, it isn't possible to distinguish among some North Pacific killer whale stocks using mtDNA alone. What Kelly is likely saying is that the animals had the NR (Northern Resident) mtDNA haplotype. BUT this haplotype is found in more than one stock, which is seen in my paper. It's unfortunate that some of the killer whale haplotypes were originally named after the killer whale population in which they were first discovered, but that's the naming convention we've stuck with for consistency!
> >
> > Does that help??
> >
> > kim.
> >
> > ---

Kim M. Parsons, Ph.D. (she/her)

Molecular Genetics Lead
Conservation Biology Division
Northwest Fisheries Science Center
NOAA, National Marine Fisheries Service
2725 Montlake Blvd E
Seattle, WA 98112

office phone 206 302 2428
kim.parsons@noaa.gov

Looking for a time to meet? Look here for open spots in my calendar!

https://scholar.google.com/citations
https://www.fisheries.noaa.gov/contact/kim-parsons-phd

I sometimes work irregular hours, but I respect your work schedule and do not expect an action or reply outside of your working hours.

On Thu, Jun 22, 2023 at 8:18 AM Nancy Young - NOAA Federal <nancy.young@noaa.gov> wrote:

Hey Kim,

SWFSC has been providing genetic stock IDs for samples of killer whales killed in the observed Alaska fisheries. Does what Kelly Robertson says in the below email make sense to you? I want to make sure that when SWFSC tells us "Northern Resident" they actually mean the Alaska Resident stock and not the Northern Resident stock.

Thanks,
Nancy

---------- Forwarded message ---------
From: **Kelly Robertson - NOAA Federal** <kelly.robertson@noaa.gov>
Date: Tue, Nov 16, 2021 at 3:07 PM
Subject: Re: Genetic stock ID analysis for bycatch killer whales?
To: Nancy Young - NOAA Federal <nancy.young@noaa.gov>

Hi Nancy,

Yes, you are correct. I also just looked at Phil Morin's paper and the match is Eastern North Pacific Northern Resident Alaska. If you need this broken down further (if it is possible), I can contact Kim and send her the sequence data.

Thanks, Kelly

On Tue, Nov 16, 2021 at 2:35 PM Nancy Young - NOAA Federal <nancy.young@noaa.gov> wrote:

Never mind! After skimming Kim's paper and looking at the location of the 2020 killer whale bycatch event, I think they must be Alaska residents, as that stock is currently defined (see stock map - https://media.fisheries.noaa.gov/dam-migration/ak-2017_killer_whale-eastern_north_pacific_alaska-508.pdf). Thank you!

On Tue, Nov 16, 2021 at 2:21 PM Nancy Young - NOAA Federal <nancy.young@noaa.gov> wrote:

Hey Kelly - just to make sure, they are not Alaska residents?

On Tue, Nov 16, 2021 at 2:20 PM Kelly Robertson - NOAA Federal <kelly.robertson@noaa.gov> wrote:

Hi Katie,

I have completed the additional sequencing of the two killer whales. Both animals have the same haplotype and are Northern Residents. This was determined using sequences submitted to GenBank and Kim Parson's paper. Please let me know if you or anyone else has any questions.

Cheers,
Kelly

On Thu, Oct 21, 2021 at 2:45 PM Katie Luxa - NOAA Federal <katie.luxa@noaa.gov> wrote:

Hi Kelly,

That's fantastic! And yes, that time frame works for us.

Thanks so much,
Katie

On Thu, Oct 21, 2021 at 2:36 PM Kelly Robertson - NOAA Federal <kelly.robertson@noaa.gov> wrote:

Hi Katie,

Yes, this is something we can help with. I can go ahead and process the two samples for this batch. We process a longer sequence for the stock id on the killer whales. It may be several weeks before I can give the results to you since we are still not back in the lab full time. Will this time frame work for you?

Generating the longer sequence is an additional $45 per sample, so you can account for that in your budget planning. If you have any other questions, please let us know.

Thanks,
Kelly

On Tue, Oct 19, 2021 at 12:00 PM Katie Luxa - NOAA Federal <katie.luxa@noaa.gov> wrote:

Hi Kelly,

We are interested in determining stock ID for two of the killer whale samples we sent you earlier this year (lab IDs 206112 and 206113), so this information can be included in the SAR. Is this something you could help us with?

We'd also like to make this a standard test for all future bycatch KW samples. It wouldn't be very many; we typically receive 1-2 samples per year.

Please let us know what information you need for this request. Approximate cost of stock ID analysis would also be very helpful for budget planning.

Hope you're doing well!

Thanks,
Katie

--
Katie Luxa (she/her)
Biologist, Alaska Ecosystems Program
MML Shared Labs Manager
AFSC | NOAA Fisheries | Dept. of Commerce
Office: 206-526-6316
www.fisheries.noaa.gov

--

Kelly Robertson
Marine Mammal and Turtle Division
Southwest Fisheries Science Center
NOAA Fisheries

8901 La Jolla Shores Dr.
La Jolla, CA 92037

Office: 858-546-7182
Fax: 858-546-7003

--

Katie Luxa (she/her)
Biologist, Alaska Ecosystems Program
MML Shared Labs Manager
AFSC | NOAA Fisheries | Dept. of Commerce
Office: 206-526-6316
www.fisheries.noaa.gov

--

Kelly Robertson
Marine Mammal and Turtle Division
Southwest Fisheries Science Center
NOAA Fisheries
8901 La Jolla Shores Dr.
La Jolla, CA 92037

Office: 858-546-7182
Fax: 858-546-7003

--

Nancy Young
Biologist, Alaska Fisheries Science Center
NOAA Fisheries | U.S. Department of Commerce
Office: (206) 526-4297
www.fisheries.noaa.gov

--

Nancy Young
Biologist, Alaska Fisheries Science Center
NOAA Fisheries | U.S. Department of Commerce
Office: (206) 526-4297
www.fisheries.noaa.gov

--

Kelly Robertson
Marine Mammal and Turtle Division
Southwest Fisheries Science Center
NOAA Fisheries
8901 La Jolla Shores Dr.
La Jolla, CA 92037

Office: 858-546-7182
Fax: 858-546-7003

--

Nancy Young
Biologist, Alaska Fisheries Science Center
NOAA Fisheries | U.S. Department of Commerce
Office: (206) 526-4297
www.fisheries.noaa.gov

--

Nancy Young
Biologist, Alaska Fisheries Science Center
NOAA Fisheries | U.S. Department of Commerce
Office: (206) 526-4297
www.fisheries.noaa.gov