From: **Natasha Hardy** nahardy@ualberta.ca
Subject: Re: 499 project info
Date: August 26, 2020 at 4:21 PM
To: Stephanie Green sgreen1@ualberta.ca

NH

Steph, this sounds great and a great way to carve out a helpful piece of a larger project. There's definitely so much work to be done in simply exploring the assemblages of traits consumed vs. available across space and time, and indeed simply an overall picture will help.

On Wed, Aug 26, 2020 at 2:30 PM Stephanie Green <sgreen1@ualberta.ca> wrote:

> Hi Tash,
>
> Thanks for the nudge about Caitlin's project! Yes, these are the two sets that I had envisioned from our last chat too. The question I had envisioned Caitlin addressing is a variation of your overall question: 'how do the traits consumed by albacore compare to the traits of prey available to them?' The devil is in the details/methods here.
>
> For Caitlin, I'm envisioning her take on the question could involve multivariate analysis similar to what we conducted in the Global Traits Review paper: 1) construction and comparison of rank abundance curves for traits (rather than taxonomy) to look at 'top' traits in the diet vs environment, 2) nMDS visualizations of the two 'communities' of traits, and some accompanying ANOSIM/SIMPER analyses to look at similarities and differences between communities. She could break out these products for different 'regions' or 'years' where the diet/availability data are matched, but need not consider space/time if that gets too much.
>
> These visuals and the descriptive comparisons would feed into the Eastern Pacific trait-based diet selection publication, which we have discussed you leading. However, the more sophisticated mixed modeling approach that is needed for the paper is in your wheel house (i.e. beyond a 499 project!); i.e. a GLMM that could use the manyglm multivariate framework, or use binary and proportional responses (looking forward to talking about that more!). It would also need to account for the spatial and temporal nestedness of the diet/environmental prey data sets. Caitlin may be interested in these skills sets, but she will need to show initiative in seeking out these skills and resources for it given the scope... .
>
> I'd envision the major bundles of tasks being:
>
> 1. Independent work with background reading and idea development (guided by our suggestions from the literature, and reinforced via discussion):
>
> - 1) the ecosystem and species, 2) diet selection in ocean ecosystems, 3) multivariate analyses
>
> 2. Data collection and management:
>
> - Contributing to completing trait data collection for species (particularly in the availability data sets)
>
> - Assisting with data management to combine species & abundance data frames to construct rank 'diet consumption' and 'availability' data sets by traits
>
> 3. Data visualizations (rank abundance plots, nMDS) and associated analysis
>
> 4. Writing up (sections useful for her report, and also section to be drawn on for a pub paper).
>
> I don't know her well enough yet to have a sense of how much she can take on/how quickly she takes off on projects, so we can adjust as we go from a minimum baseline project description.
>
> ... What do you think? Looking forward to your ideas and more discussion!
>
> Steph
>
> Stephanie Green, PhD (she/her)
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> *The University of Alberta is located on Treaty 6 territory, a traditional gathering place for diverse Indigenous peoples including the Cree, Blackfoot, Metis, Nakota Sioux, Iroquois, Dene, Ojibway/ Saulteaux/Anishinaabe, Inuit, and many others whose histories, languages, and cultures continue to influence our vibrant community.*
> On 2020-08-26 10:57 a.m., Natasha Hardy wrote:
>> Hey Steph,
>>
>> Would you mind sending me any brief information or format requirement for 499 project proposals?

I'm getting to some laundry list writing today, just FYI.

About Zach's project, apart from discussing it again with him, I would be very comfortable helping him to write that up. In terms of Caitlin's potential project, I of course would love to be involved, but I feel like I could use some helpful suggestions for bounding her project to the realm of achievable + useful to all involved. Based on the following datasets:

1. Prey consumed by albacore in NE Pacific / CCLME from 2005-2010 + prey traits;
2. Several datasets that quantify relative availability of hundreds of forage species + currently building the forage species trait db.

I am of course thinking in terms of what the publishable product could be. I know that's a little added pressure on a 499, but I personally would prefer to set that end goal as something for the team to aim towards from the start. Wondering what your thoughts are on that?

Best,
Tash

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