

AE review of 2022-0102 (Sockeye - Bull trout interaction)

Overview: I don't see a clear hypothesis being tested, nor uncertainty that you are resolving. Potentially cool work, but please put it in a specific context of a *problem* that you *solved*. As written and described, I don't see much new knowledge here; bulls are known to be nocturnal sometimes, predators feed on available prey, we knew the diet of bulls near the counting fence was seriously on sockeye. What is the key point of this data/study? Where is the novel finding?

I think there is something here, but it needs significant re-crafting to focus on a problem/solution. Simply looking at the graphs, it looks like only one set of scans/counts can be used show an interesting pattern (Figure 3e). The other data is more or less fragmentary.

Find a clear test or problem, and re-work your data to answer that. Could be a neat little paper.

Title: consider stating key finding, rather than method, in a title. Makes it easier to attract interested readers.

Abstract:

L31- odd concept "uncertain if these predator-prey patterns exist at finer spatial scales" One would assume they must exist. Specifically, where is the uncertainty that you are resolving? And finer spatial scale is not your key finding. It was temporal scale.

L38 – do you mean daylight risk? If predation is high at night, they haven't avoided risk.

Intro:

L68-69 – why do we need to know this information? So far, the whole intro is about Sockeye.

L70 – I appreciate your use of First Nations language as place name (well done!). Whose territory and language?

L81 – circular argument. We don't know smolts responded. Do they migrate in daylight everywhere without Bull Trout? You see night predation and migration. Do we have evidence of what caused which? Are smolts responding to something else? In my experience, Bull Trout can also be nocturnal in systems without prey fish. Picky point, but you've jumped to a conclusion, and should ponder alternates.

L83 – still don't know why this is important to your "problem – solution" questions.

L85-91: methods are described before we know what question is being answered. It seems like this is a sonar project as its priority, rather than an "understand something important and useful about fish" project.

L92-94 – state what you were trying to answer, or disprove. "Investigate" is too vague. Was the synchronicity in doubt? What is the value in showing non-synchronicity? It can be assumed that predators will hunt prey when the prey is available. Why do we need a study? Just ponder that and find an answer, and make it clear to the readers why this data/study matters.

Methods:

L136- any direct evidence of sonar images = bull trout?

L158 – was day just when sun in sky, or was twilight included? Hence, were interactions crepuscular, rather than purely nocturnal or diurnal?

L144-148 – using quite two different sampling frames and correcting down to per m² might be introducing bias. i.e., the small frame would have more zeros. Were the differences in large and small frame data checked for this bias?

L165-168 – Your point was to show bull trout feed at night, but you exclude most day data. Really? Explain why this is not a potential source of bias?

Results

L178 – lowest number of interactions, but no smolts on graph. If the smolts were absent, how did interactions occur? What other metric of smolt abundance is more useful?

Were there no bull trout below the fence? Figure 3c suggests so. Or where there no sockeye at the Narrows (fig 3f)

L182 – confused, based on methods statement. Did you use daylight data or partial daylight data, or what? You show daylight data.

The whole results section would be much clearer if you were testing a hypothesis, or describing a pattern in relation to a hypothesized patterns. As it reads, it is not very informative.

L426 (caption) – what do n-values represent? I don't understand that many "diel cycles" can be fit into 10 days in April.

Discussion

L200 – if this is a result, put it in that section and only discuss, not present. Or state it as an interpretation of previously shown graphs/data. And, to my eyes, only graphs a and e show that relationship. The others make you wonder "where were the bulls, where were the smolts?" I would be more interested in the pattern of increasing/decreasing smolts and bulls, and not a simple day/night comparison, with the day data being incomplete, and the night data actually quite thin (only one set of data shows pattern over day and night, = graph e.

L205-208: sort of circular. You don't present data to show bulls are diurnal at other times, without smolts. Did they respond by changing a normal pattern, or do bulls feed on prey when prey is available? And why does this matter? Predators eat prey when prey are available, and we already knew bulls eat sockeye. I'm having trouble seeing a novel finding here.

L214-232: Odd. We knew that bulls feed a lot near the fence, so what is the point of this paragraph?

L233-240: not really necessary here. Not part of this study, not a data set easily collected by this methods, so...not relevant here. Unless I missed a point, so change my mind.

L251-252 – if this is the main conclusion (i.e., bulls feed more at the counting fence), how does it differ from Furey et al. 2016b? Why is this a new conclusion from your data?