From: Brian Ellrott - NOAA Federal <bri>deral <bri>deral <brian.ellrott@noaa.gov>

Sent:Thursday, May 16, 2019 12:32 PMTo:Evan Sawyer - NOAA FederalSubject:Re: ROCON WRLCM results

Attachments: Zeug et al 2012 - Application of IOS....pdf

Not sure if you already have the attached, but it describes IOS and might help fill the hole in the LCM section asking for a description of IOS.

There's also a Cavallo IOS paper from 2007, but I assume the 2012 is more up to date.

On Mon, May 13, 2019 at 9:59 AM Brian Ellrott - NOAA Federal < brian.ellrott@noaa.gov > wrote: Thanks Evan.

On Thu, May 9, 2019 at 1:51 PM Evan Sawyer - NOAA Federal < evan.sawyer@noaa.gov> wrote: Aren't you on annual leave?

The write up I sent to you was incorporated into section 2.5.9 (life cycle modeling) which was the file (location) I shared in the last email. So, yes it's in there but it was added after it was sent to reviewers because we only got the analysis from Noble on Tuesday (5/7).

Overall I think the LCM is a good summary of effects as we understand them. The PA has slightly lower abundance compared to the COS (which is already trending towards...), and potentially exposes the species to a greater risk of catastrophic events under the PA (because of the increased variance and frequency of population decline events of 10% or more).

I think the question is could this be described as deepening the harm?

Evan

On Thu, May 9, 2019 at 1:28 PM Brian Ellrott - NOAA Federal < brian.ellrott@noaa.gov > wrote: Thanks Evan. I'm happy to see Noble did the population decline analysis. Did you incorporate the write-up you sent me into the Effects section?

On Thu, May 9, 2019 at 9:32 AM Evan Sawyer - NOAA Federal <<u>evan.sawyer@noaa.gov</u>> wrote: Hey Brian,

Again, know you're on leave but putting this in your queue. The full version of the LCM section (that including the section I sent in the last email) is available on the ROCON drive here: R:\Draft BiOp\2_ESA\2.5-2.6 Effects of the Action\LifeCycleModels\2.5.9 LifeCycle Models V2-- (Noble additions).docx

Evan

On Thu, May 9, 2019 at 8:41 AM Evan Sawyer - NOAA Federal <<u>evan.sawyer@noaa.gov</u>> wrote: Hey Brian,

I see you're on leave but I wanted to put this in your queue. I don't know how you've incorporated the WRLCM results in the the I&S but Noble did an additional analysis to try and capture population decline criteria identified in Lindley et al. 2007. Anyway I wrote up a short section on the analysis and if you'd want to take a look, I've attached it.

Thanks, Evan

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Evan Bing Sawyer,

Natural Resource Management Specialist NOAA Fisheries West Coast Region U.S. Department of Commerce Office: (916) 930-3656 Evan.Sawyer@noaa.gov

www.westcoast.fisheries.noaa.gov



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Evan Bing Sawyer,

Natural Resource Management Specialist NOAA Fisheries West Coast Region U.S. Department of Commerce Office: (916) 930-3656

Evan.Sawyer@noaa.gov

www.westcoast.fisheries.noaa.gov



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Brian Ellrott

Central Valley Salmonid Recovery Coordinator NOAA Fisheries West Coast Region U.S. Department of Commerce Mobile: 916-955-7628

Office: 916-930-3612 brian.ellrott@noaa.gov

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Evan Bing Sawyer,

Natural Resource Management Specialist NOAA Fisheries West Coast Region U.S. Department of Commerce Office: (916) 930-3656

Evan.Sawyer@noaa.gov

www.westcoast.fisheries.noaa.gov



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Brian Ellrott

Central Valley Salmonid Recovery Coordinator NOAA Fisheries West Coast Region U.S. Department of Commerce

Mobile: 916-955-7628 Office: 916-930-3612 brian.ellrott@noaa.gov

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Central Valley Salmonid Recovery Coordinator NOAA Fisheries West Coast Region U.S. Department of Commerce

Mobile: 916-955-7628 Office: 916-930-3612 brian.ellrott@noaa.gov