

Keith, Ian

From: Keith, Ian
Sent: January-20-17 11:43 PM
To: Paylor, Adrienne
Subject: RE: Sonja and Monday's call with Karen

[REDACTED] I hope you have the time to consider this and discuss with Sonja before our phone meeting.

With Karen's momentum (Marsh decision), Sonja still being at our elbows, and willingness for some changes that you referred to, we may be in a prime position to correct what Sonja and I have repeatedly said is the most serious challenge to health we have. This doesn't require change in licence, it requires change in authorized production. (March has shut me down saying that peak biomass won't change. [REDACTED] March cites legislation to say we can't change licence conditions but doesn't cite legislation to say we can't change authorized production.)

I've used Sonja's professional language – I would phrase it differently, that Karen has to be warned that within pen fish size variation is the greatest risk we have for sustainability of BC salmon aquaculture, because with farming you have native parasite infestation and bacterial disease that have to be controlled. You can't inject every fish; you have to be able to use medicated feed. With such size variation you can't get therapeutic doses in all your fish and sublethal levels of SLICE and antibiotics are an efficient means of selecting for resistance. Jon Chamberlain's told me that for the sea lice meeting with the ENGOs last week, his solution for reducing sea lice abundance was to make more drugs available: Sonja and I have responsibility for veterinary oversight of antimicrobials and there is a national framework to address this under new Federal Government regulations which are expected to be implemented by the end of 2017. Jon's suggestion is regressive as resistance will develop to any new drugs because there is promotion of resistance through the change in authorized production that DFO implemented. [REDACTED]

You asked last year whether we have evidence of increased tonnage or another factor to account for the 4 fold increase in SRS in Clayoquot. We know it is multifactorial so no, we won't be able to sort it out. However, we have evidence of losing effectiveness of SLICE. Sonja cannot say that having peroxide is going to be a solution; maybe, it buys you some time while you wait for a long period of low salinity.

Sonja without knowing size variation identified underdosing as one of two causes for SLICE tolerance in Klemtu. The same should be predicted will happen for antibiotics. I have a publication of oxytetracycline resistance for atypical furunculosis where there was half dosing of the drug – this has the same effect as underdosing because of size variation.

Karen understands the challenge to ***incorporate the natural cycles of sea lice production into a management strategy for sustainable aquaculture*** (the ACRDP that Dick Beamish and Sonja worked on in 2005). The intent is to minimize abundance during outmigration, and to do this without having lice develop resistance to SLICE. The answer is strategically timed treatment but having uniformly sized fish is necessary which is not the case so I am conflicted.

- I am to judge the veterinary management of lice abundance that will minimize abundance the vulnerable population of wild salmon – pinks under 0.7 g, as I did while with the province
 - How can DFO Science not share with their health management counterparts that they have data indicating that sockeye are the most susceptible species of Pacific salmon
 - [REDACTED]
 - How interpretative do we want the comments in the SL public reporting. Strategically timed treatments are going to be based on run times and year on year refinement. Timing of winter treatment we are

conflicted with: licence conditions say to minimize for outmigration, but if a dry winter and burdens are high, then SLICE treatment would be more appropriate around January 1. The regulation promotes treatment at the middle of February so that there is metaphylactic effect i.e. there will be therapeutic levels present in the fish to stop infestation from the hatch that will occur in March and early April.

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From: Paylor, Adrienne
Sent: Friday, January 20, 2017 2:32 PM
To: Keith, Ian
Subject: RE: Sonja and Monday's call with Karen

Thanks Ian,

The call with Karen on Monday is just an opportunity for Karen to ask any questions she has about the sea lice numbers in the public report for her own understanding and then we will decide if any further explanations are appropriate for the comments column in the public version. Sonja is certainly welcome (always) to join if she has time or interest. I have also invited Krista to join in case we need to her to make changes to the report for us. I know you are able to answer any of Karen's questions but I'll invite Sonja as well if you think she would like to be involved. Let me know

☺ As for the MTA I did speak to Karen about it yesterday and she confirmed that she and Nathan are still working on it so if there are any changes or updates we just need to let her know otherwise we are waiting on them.

Thx Adrienne

From: Keith, Ian
Sent: Friday, January 20, 2017 1:53 PM
To: Paylor, Adrienne
Subject: Sonja and Monday's call with Karen

Hi Adrienne,

I chatted with Sonja this morning and mentioned the call with Karen on Monday. I said that we would be going over comments in the sea lice report. But when we met yesterday and you said you would ask for a phone meeting with Karen regarding the public report, I think what triggered it was my agreeing with you that commenting on the regulatory perspective required biological understanding. I told Sonja that I would ask if you would be extending the call to include her, but this would depend upon what specifically you were going to resolve with the call. If it was just with regard to comments, then I think I have the experience and knowledge to propose and defend but if the discussion were to be broader then you know that I can disagree with Sonja but accept her advice as wise. So don't exclude her on my account.

By the way, I said that Ian Gardner, Sonja and I would be talking about the MTA during our call January 16 and you gave me instruction as you were walking out the door to have Sonja contact Karen with any update regarding the MTA given

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that she and Nathan were managing this. Ian, Sonja and I didn't talk about the MTA so Sonja wouldn't have anything to update Karen with.

This said, we are going to talk about the MTA at noon Monday (with Ian, Raphael and the post-doc epidemiologists).

Ian

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