

## Zamora, Phil

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**From:** Wright, Dennis  
**Sent:** July 29, 2003 6:53 PM  
**To:** Zamora, Phil  
**Subject:** RE: Whites Point 3.9 hectare quarry

Phil - the equations for spawning areas were developed from some Russian work on the sensitivity of salmon (not real ones, but those fake Pacific *Oncorhynchus* types) eggs to disturbance. The very critical stage is just before the blastopore of the embryo closes - very early in embryonic development. I do not know anything about post-smolt mortality in Atlantic salmon. And thus am unqualified to even make a supposition. Hope this helps. - by the way it is almost 19:00 in Halifax what are you and Jollymore still doing in the office?- go home

### *Dennis Wright*

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-----Original Message-----

**From:** Zamora, Phil  
**Sent:** July 29, 2003 4:40 PM  
**To:** Wright, Dennis  
**Subject:** RE: Whites Point 3.9 hectare quarry

Thank you, Dennis, for your comments and your explanation of Norm Cochrane's comments.

I have one question that I will be putting to our Science Branch - Diadromous Division before I draft the letter to the proponent but I would like to get your feedback as well. The DFO Factsheet which I believe was developed from your paper, has a column in Table 1 with H2 habitat described as including "spawning habitat where eggs or early fish development are occurring". Could you tell me what criteria were used to increase the setback distance? If the fact that these stages of life are more sensitive to stresses is a factor, I am wondering if post-smolt would fit this category. I do believe that it is the post-smolt mortality that is suspect in the decline of iBoF Atlantic salmon. I also know that post smolt are at a sensitive stage of development and could arguably be considered in early development stage of their sea life. Post-smolt leave the freshwater environment in May and June following their smoltification process. They are 50 - 150 grams in size and quite vulnerable to stress.

Thank you, again, Dennis for your help on this file.

-----Original Message-----

**From:** Wright, Dennis  
**Sent:** Tuesday, July 29, 2003 4:46 PM  
**To:** Zamora, Phil  
**Cc:** Jollymore, Brian  
**Subject:** RE: Whites Point 3.9 hectare quarry

Good afternoon Phil -

Further to our telephone conversation this morning, I have the a few comments and thoughts concerning the explosives use issue associated with the White's Point Quarry, Digby Neck. As I mentioned to you, the explosives use guidelines are simply that - guidelines as there is much uncertainty concerning both how explosives behave when detonated in or near water and how fish and marine mammals will react to the shock waves produced by the detonation of the explosives. Because of these constraints, we can use the guidelines to determine an approximate lethal zone or develop a set-back distance to protect those resources. We can impose further terms and conditions to meet site and resource specific conditions.

I am not comfortable with using the 'I-Blast' model for buried charges as the model was developed using relatively few data points. I have much more confidence in the equations used for the guidelines. Because of the presence of an endangered Atlantic salmon population in the area, an endangered Atlantic Right Whale population and a spawning area for herring, I would recommend a set back distance at least triple that determined by application of the equations in the guidelines. This would be approximately 100 m or so. This is not as great a set-back as you had proposed using the I-Blast model but I think that it would be a much easier sell to the proponent.

In addition, I would recommend that the proponent re-think his explosives plan in order to reduce the size of the individual charges being used. If the individual charges could be spilt or decked, as described in the guidelines, the impacts could be further reduced. I think that this is a realistic compromise as you are asking the proponent to alter his plan while at the same time you are making a significant change in your proposed set-back distance.

With respect to Norm Cochrane's comments, he is correct in his comment about sub-lethal impacts. Again I emphasize that these are only guidelines and are meant as a starting point for the mitigation of impacts. To provide guidelines to cover all species and size ranges for all possible explosive use situations is virtually impossible to accomplish. I am unfamiliar with Norm's term of 'beaming'. Under certain circumstances, explosive shock waves can be focussed or beamed and the impact zone will be quite different from that predicted. Again these are only guidelines. In a quarrying operation there is much opportunity to fine tune the terms and conditions to be imposed to better serve the needs of both the environment and the proponent.

In addition to the explosives use issues, it would appear that this proposal is fraught with many other issues that will be addressed through the full impact assessment process. Should you wish clarification on any of the points that I have raised, please feel free to contact me at any time.

### ***Dennis Wright***

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-----Original Message-----

**From:** Zamora, Phil  
**Sent:** July 29, 2003 12:39 PM  
**To:** Wright, Dennis  
**Subject:** Whites Point 3.9 hectare quarry

Hi, Dennis. Further to our conversation earlier today, could you comment on the following statement I came across in the Blasting Plan file. It was made by one of our research scientists here at BIO, Norman Cochrane, on nov. 27/02 in response to being asked to review the Blasting Plan. I tried to reach him but could not. I thought you might be able to help me with it.

By the way, thank you for sending us the "Digby Neck on the Line" article and thank you for your assistance with the file.

"One should note that the 35.6m set back criterion is computed for a 100 kPa pressure pulse. Such a pulse has a high probability of lethal effects on swim bladdered fish, especially at shallow water depths. Sublethal effects are not considered. This is a very severe criterion!"