

# Coastal Alliance for Aquaculture Reform

## Comments on Sea Lice “White Paper”

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# 1 GENERAL COMMENTS ON WHITE PAPER

- There is *no sense anywhere in the paper that the sea lice issue is at a critical point* in terms of action, management, and immediate attention relative to the development of short and long-term research—or policy improvements.
- The paper was produced without consulting the entire steering committee. Why?
- There is *no mention in the recommended research actions of the precautionary approach, of the need for active adaptive management to recognize uncertainty and ensure sustainable management of the industry, or of the need for an objective organization (similar to the PFRCC) to audit ongoing research and monitoring.*
- The paper reads more as a meta-analysis of existing research than the outcome of a think-tank session. *The recommendations for future research or management directions are weak and/or vague, with no assigned responsibility, identification of resources (e.g. community groups/funding opportunities/etc), or specific time lines for completion.*
- There needs to be *more importance placed on recommendations.* Currently this section reads as an afterthought at the end of the document. Recommendations from other recent meetings on lice should also be acknowledged. Improvements could also include the association of key needs/points relative to where the recommendation arose, and who is responsible for a particular action and its implementation.
- *Management track record* in terms of dealing with sea lice issue (actions, opinions, assigned resources) should be summarized.
- There needs to be much more on how to *establish better communication among regulatory agencies, academics, and communities,* with respect to the sea lice issue.
- The Summary is weak, and reads like a feel-good affirmation statement. Again, there needs to be some sense of urgency/importance left with the reader, and emphasis that science-based studies underlined by the forum must be resolved, in a timely fashion, as opposed to just “recognized.”

## 2 SPECIFIC COMMENTS ON WHITE PAPER

The paper identified knowledge gaps and made recommendations for research actions and needs. No comments were included relative to management strategies, policy, communication, or other more socially-oriented concerns.

To address CAAR concerns as to what should be included in a useful document, CAAR provides specific comments on Research, Sea Lice Biology, Disease, Treatment, Monitoring and Implementation, and Communication.

### 2.1 Research

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While Appendix 4 of the paper contains a thorough list of identified scientific gaps, there is no supporting information as to why the gaps should be filled, no clearly associated method as to how each gap should be addressed (the accompanying list of research approaches and sampling methods is not useful), or which agencies should shoulder the responsibility of addressing those gaps. The time line in which these gaps must be filled is also vague—assigning “short” and “long” term time frames is not meaningful.

#### 2.1.1 General Research

##### *Baseline Information*

Baseline data are necessary to determine if management plans are effective. The white paper addresses items for which there should be baseline information. While the paper identifies specific items under “biology/ecology of all salmonids (geographic and temporal variability),” “biology/ecology of sea louse (geographic and temporal variability),” and “oceanography (DO, temp., salinity, currents, etc.),” supporting documentation is absent. The paper should include/address:

- Research objectives that are identified for each science gap. It is not sufficient to simply identify “growth rates” or “inshore behavior” as gaps under biology of salmonids. This paper was meant to focus research, data collection, and monitoring approaches for academia, government, and industry, which is why an expensive forum of experts was assembled.

##### *Human Resources*

The only reference made in the paper’s recommendations and identified gaps, regarding the use of locals and industry for sampling, monitoring and data collection, is the point in the list of research approaches which reads “collate local and traditional knowledge”. Given the remote locations of fish farms and lack of staff and funds within regulatory and

academic institutions, it is necessary to rely on locals, industry, and First Nations to ensure data collection and monitoring occur as needed. The white paper should recognize that:

- Industry has shown a willingness to cooperate and participate in research.
  - Need input to know what scientists are asking and/or looking for.
- Stolt and Heritage actively monitor for sea lice at their farms.
  - Industry had relied heavily on the Feb 22-24 workshop to provide the necessary scientific direction (short and longer term) toward resolving the Broughton sea lice issue.

Appropriate research objectives need to be identified and allocated to industry. Such objectives should have a low risk of being susceptible to bias. Those objectives that are most susceptible to bias (IHN mortalities, sea lice counts) should be followed up with audits by an objective group (which may have to be formed external to regulatory agencies, as DFO and MAFF do not fit this category, and WLAP is ineffectual). Similar objectives need to be identified for locals, as well. Although the Province has made a commitment to involve local people in the provincial plan, and DFO is considering the same, how will this involvement take place to ensure effective data collection, coverage, and commitment? The white paper should comment on such objectives and their implementation.

### ***Study Design***

While the white paper comments briefly on research gaps and methods, no comments are made on how to ensure that whatever studies are implemented will have scientific merit, be cost-effective, and directed at ensuring sustainable management. The white paper should consider:

- While the Broughton Archipelago is of immediate concern, research programs should not be designed to answer “Broughton-only” topics.
- It is imperative to embrace the precautionary approach.
- The immediate formation of a technical working group on sea lice to advise on monitoring, management and research requirements.

### **2.1.2 Sea Lice Biology**

The white paper lists a number of research gaps for sea lice biology but, once again, supporting information is missing. Clear objectives to address each topic would have been useful, as would have an explanation as to why this information is necessary for sustainable management of the industry. Effective and appropriate sea lice monitoring seems to be difficult for regulatory agencies to implement, and the white paper should be particularly informative on this matter—but is not. Associated studies should be grouped, and responsible agencies identified.

### **2.1.3 Disease**

There is no mention in the white paper of the potential that sea lice may serve as disease vectors between farmed and wild salmon. An acknowledgement of this risk is necessary, as is the articulation of research objectives that would result in needed information on the potential for sea lice to transmit diseases such as IHN between farmed and wild salmon.

## **2.2 Treatment**

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As in the previous section concerning salmonid and sea lice biology, the white paper does list a number of knowledge gaps regarding sea lice treatment methods, but there are no specific objectives or supporting rationale for filling these gaps. There is no specific mention of any treatment by name, that these treatments are unregistered drugs, and that their emergency use status is being abused. Here again the white paper should emphasize the use of the precautionary approach and the need for active adaptive management, but it does not. Also, the paper should include the following science gaps:

- Bioaccumulation studies.
  - No real information exists on persistence and transportation of chemotherapeutants in the sediments or across trophic levels. What are the potential dangers to human health from consumption of animals whose tissues had biomagnified these chemotherapeutants and/or their metabolites?
  - What metabolic processes and associated chemical changes occur to the chemotherapeutants in the environment? What are the implications of these changes?

## **2.3 Monitoring and Implementation**

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Monitoring is only effective if used as part of an adaptive management protocol. Monitoring alone is only slightly less ineffectual than not monitoring at all, as there is no defined process by which information gathered through monitoring is analysed, reported, and reviewed for inclusion in a dynamic management strategy. The white paper barely mentions monitoring, only “monitoring of lice in time and space,” “monitoring of fish health,” and “monitoring of pink salmon populations (life history traits) in the Broughton Archipelago).” Within the paper there should have been emphasis on the need for effective, biologically meaningful monitoring, and how to institute it. A monitoring plan should also be based on baseline data, such that comparisons are possible, and potential impacts, properly identified. Specifically, the white paper should acknowledge:

- A single migratory route through the Broughtons is too simplistic to reflect nature.

- Pink salmon do not travel only through some artificial fallow route (e.g. Tribune Channel).
- Oceanographic movements in the region must be recognized and accounted for when devising plans to protect wild juvenile salmon.
- We may need to protect the entire Knight Inlet.
- The opportunity and usefulness of incorporating TEK.
- Fallowing may be only a temporary and/or weak solution, as pink salmon have a two-year cycle.
  - Farms may have to be moved away from salmon rivers and routes.
- Is lice-free a reasonable objective, given natural background levels of lice?
  - Natural background levels of lice in this area are unknown, so we cannot answer this question. This is a glaring gap, because how can you identify impacts, if the original state is unknown?
- A threshold level for sea lice on pink salmon needs to be identified.
  - However, use of a single threshold is too simplistic.
    - Need area/species specific controls.
- One year's data are not sufficient to account for annual variability.
  - Need monitoring to be in place, long-term.
- Data collected in 2003 under the Sea Lice Monitoring Program cannot be regarded as a "normal" year for comparison, because of depressed pink salmon populations, and the enhanced use of chemical therapeutants to reduce lice populations.
  - If a study is to be conducted to study normal fish/farm fish sea lice interactions, it should be done elsewhere on the coast, under normal situations.
- Identification of plausible study sites for monitoring and active adaptive management studies.
  - E.g. The Wakeman River for a freshwater study site since it is clear water, has a reasonable number of spawners, and a relatively long reach to study the movement of fry. In salt water, need to study corridor versus non-corridor sites.
- Need to develop standardized sampling programs.
  - Good science is not possible unless the data are collected in a proper manner and are made available to others conducting supporting studies in this field.
- Importance of using the precautionary approach for this situation cannot be overstated.
- Provincial audit procedures up to March 2003 were deficient because they looked only at presence/absence of lice and dead fish.

- Do the improvements under the new provincial plan increase scientific credibility through a rigorous approach and defensible study design?
- Need mandated periodic external review of government monitoring programs and industry self-reporting.
- While the Broughton Archipelago is of immediate concern, research programs should not be designed to answer Broughton-only topics.
  - Monitoring survey design must take into account desired strength of inference.

## **2.4 Communication**

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The white paper's sole mention of a communication strategy is the recommendation that a website be established to provide information (undefined) to the public. Relying on the internet as the sole means of communication with the public and other interested parties is not adequate, especially given the remoteness of many of the communities involved in fish farming. Public information seminars, open houses, area-specific planning seminars, and a transparent process are needed, and a useful white paper would recommend these actions. These recommendations should also be made with the recognition of the current levels of trust, secrecy, and conflict that pervade this industry. Also, consider:

- There is a lack of (public) information on current levels of sea lice on salmon farms.
  - Industry monitors this information for their treatment programs.
  - This information is made public in Europe, and BC farms should adopt or exceed international standards (i.e., with still-rich wild salmon at stake).
- Defensible objectives and methodology, as well as data and results, must be clear, accessible, and available to the public.
- Both governments need to acknowledge the Public's confusion and concern over who is responsible and accountable for protecting wild salmon.
- Despite proclaimed collaborative efforts between governments and industry, concerns have been raised about separate and uncoordinated planning. Issues include:
  - No apparent overall authority.
  - Lack of accountability, responsibility, authority, funding, enforcement.
- Industry needs guidance from scientists and managers as to what parameters to monitor, to ensure the greatest possible value to all parties.
  - Industry seems willing to cooperate on this issue, but protocol and lines of communication need to be developed by scientists and government.
- Local people need to be informed and involved.

- Process must be transparent, and efforts must be made to communicate actions and intentions to residents and user groups, to decrease confusion and misinformation, and enhance trust.
- Despite the deliberate fact the white paper was created from a science forum of international experts, there was oddly no call for increased collaboration among scientists and managers across international boundaries. This is a severe shortcoming, mischievously impedes learning and transparency, and is professionally irresponsible.