

Fish Habitat Compensation Plan



Fundamental Flaws and Uncertainties

Ramsey Hart MSc
MiningWatch Canada

Outline

- Inadequacies of the existing plan
- Track record of compensation
- Track record of monitoring and enforcement of compensation projects
- Uncertainties and risks
- Fundamental concerns

Decision Making Context

- Project will result in significant negative environmental effects.
- The justifiability and acceptability of these effects hinges on degree of mitigation likely to be achieved.
- A robust conceptual plan is necessary at this phase.
- MMER consultations are not comparable to the current review process.

What's at stake?

- A traditional food fishery - back up to salmon for Tsilhqot'in
- A high quality recreational fishery
 - “Wild stock rainbows aren't big, but they are plentiful and cooperative. This is a great lake to take children fishing and it keeps producing all summer long.” (Cariboo Chilcotin 2010 Fishing Guide by WL Tribune)
- High productivity stream habitat (DFO 2010)

What's needed to mitigate and compensate for the loss of "fish habitat"?

- A conceptually valid plan
- Effective implementation of the plan
- Each component must work in the real world
- We need to know how the plan is working
- Enforcement or voluntary compliance to improve performance if necessary.

Inadequacies of the plan

- BC guideline vs. DFO Policy
- Not “self sustaining” (a requirement for BC)
- Reliance on hatchery (DFO)
- Does not replicate inter-connected habitats that result in productivity of system. (DFO)
- Littoral/shoal area inadequate (Levy 2009) and decreased in April 13 update
- 1:1 compensation ratio despite recommendations for at least 2:1 (Levy 2009 et al)

Lake Habitat Compensation

Water Body	Pelagic (ha)	Shoal (ha)
Fish Lake	27	84
Little Fish Lake		6.6
Total	27	90.6
Prosperity Lake	74	48
Headwater Retention Pond (non-fish bearing w variable water levels)	0	26 or 37 ???
Tailings Pond	0	811
Pit Lake	105	0

Lake Habitat Balance

- Fish Lake and Little Fish Lake to Prosperity Lake = 1.1 : 1
- Fish Lake and Little Fish Lake to Prosperity Lake, Headwater Retention Pond, Tailings Pond and Pit Lake = 9.1:1
- HRP, TSF and Pit Lake very questionable for use as fish habitat.

Out Planting

- Will appropriate lakes be found?
- Access (existing or improved) and impacts of increasing access.
- Within TNG territory?
- Temporary or permanent?
- Self sustaining?

How successful are approved compensation plans?

- Bitwell, I.K. , S.C. Samis and N.Y. Khan. 2005.
- Commissioner of the Environment and Sustainable Development. 2009.
- Hartman, G. and M. Miles. 2001.
- Lange, M., B.C. Cudmore-Vokey, and C.K. Minns. 2001.
- Packman, G.A., D.J. Harper, S.C. Samis and D. Lampi. 2006.
- Quigley, J.T. and D.J. Harper. 2006a
- Quigley, J.T. and D.J. Harper. 2006b.

How successful are approved
compensation plans?

Despite best intentions -
not very successful.

Track Record of Compensation

- The results of evaluations of the success in the application of the *Fisheries Act* to prevent habitat loss in the face of development reveal a relatively low level of achievement. (Bitwell et al. 2005)

Track Record of Compensation

-compensation ratios are dramatically reduced in projects with HADD areas greater than 30,000 m² [3 ha], suggesting that the ability to apply 'No Net Loss' is very difficult in large projects.
(Lange et al 2001)

Track Record of Compensation

- Our analyses indicate that less than half of the spawning or spawning/rearing channel projects were successful. In addition, many successful sites required either pumps to provide a water supply or regular maintenance to ensure gravel quality. For this reason, many of the constructed channels are not self-sustaining and on-going maintenance funding is required
(Hartman and Miles 2001)

Track Record of Compensation

- Most compensation projects in the reviews were small and low complexity.
- Taseko's is large and complex.

Monitoring and Enforcement

Commissioner of Environment and Sustainable Development 2009 audit of DFO Habitat Management.

- No systematic approach to monitoring proponents' compliance
- Does not evaluate whether its decisions on mitigating measures and compensation are effective
- No evidence of what, if any, actions were taken to inspect or investigate alleged violations or enforcement actions.

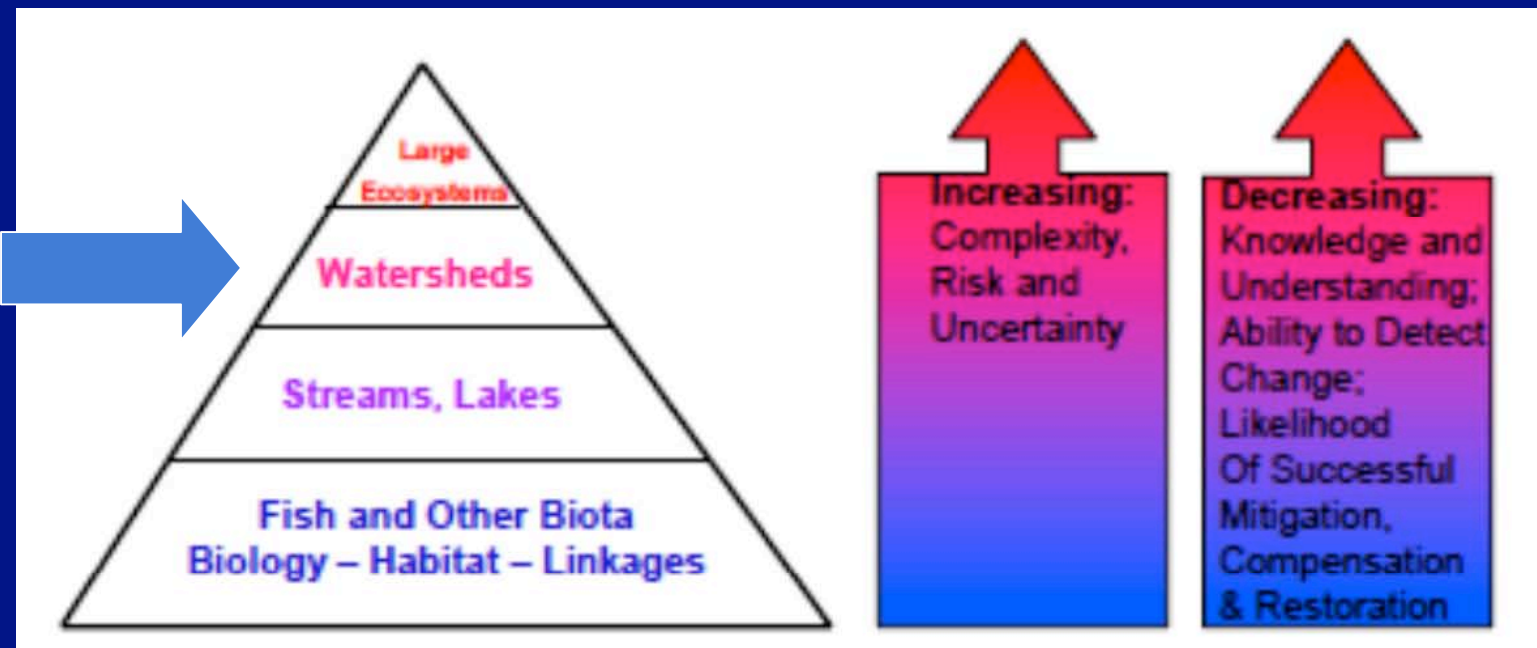
Monitoring and Enforcement

- Lack of adequate resources with DFO is a major impediment.
- Further 22% reduction of planned spending from 2009-2010 to 2012-2013.(DFO 2010).

Uncertainties and Risks

- “The behaviour of natural systems is characterized by complexity and uncertainty.”
(Hartman and Miles 2001)

Uncertainties and Risks



Bitwell et al. 2005



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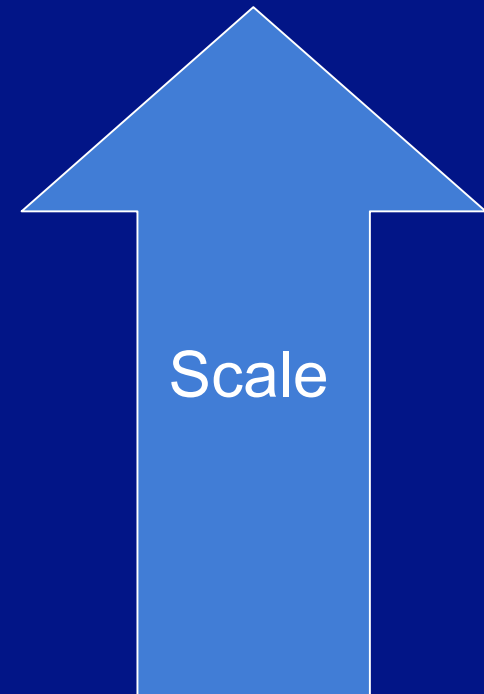
Google

Imagery Dates: Dec 31, 2004 – Dec 31, 2005 51°25'47.17" N 123°36'06.02" W elev 1495 m

Eye alt 5.11 km

Multiple Functions of Watershed Ecosystems

- Movement of water
- Storage of water
- Water quality
- Supply of nutrients and organic matter
- Food sources
- Spawning, nursery, feeding, resting & winter habitats



Is Habitat Compensation a Sound Approach?

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Habitat Compensation and Sustainable Development

It therefore follows that compensatory habitat creation (also called “offsets”) cannot be relied upon in all circumstances as means of offsetting loss of the highest quality habitat, and cannot be seen as a consistent and reliable delivery mechanism for sustainable development.

R.K.A. Morris, I. Alonso, R.G. Jefferson, K.J. Kirby 2006. The creation of compensatory habitat—Can it secure sustainable development, *J Nature Conservation* 14: 106-116.

A Political Science View

Delivery of no net loss or net gain through biodiversity trading is thus administratively improbable and technically unrealistic. Their proliferation without credible solutions suggests biodiversity offset programs are successful symbolic policies, potentially obscuring biodiversity loss and dissipating impetus for action.

Walker, Susan, Ann Brower, R.T. Theo Stephens, & W. Lee.
Why Bartering Biodiversity Fails. *Conservation Letters* 2 (2009)
149-157.

Wetland Mitigation in US

Impacted plant communities may not be replaced at most sites for many years, if at all. The completeness of the replication plan and the Order of Conditions (permit) affected the likelihood that a project complied with the regulations but not the level of similarity between the replicated and impacted plant communities.

Variance projects generally provided replication of water quality and sediment control functions but not of wildlife habitat.

S.C. Brown and P.L. M. Veneman 2001.
EFFECTIVENESS OF COMPENSATORY
WETLAND MITIGATION IN MASSACHUSETTS,
USA. WETLANDS 21(4): 508-518

Land offsets in Australia

The use of offsets outside these circumstances should not be employed under a veil of no net loss. That is, offsets should not be used to justify land clearing. This would be a case of the tail wagging the dog.

- P. Gibbons and D.B. Lindenmayer. 2007. Offsets for land clearing: No net loss or the tail wagging the dog? *Ecol. Mngmt and Restoration* 8(1): 26-31.

Fundamental Concerns

- Habitat compensation at this scale is impractical and inappropriate.
- A complex ecosystem with diverse ecological and cultural values can not be replaced through a narrowly defined “fish habitat compensation plan”

Summary

- In addition to our fundamental concerns, the habitat comp. plan is:
 - Complex and large scale with inherent risks and uncertainties
 - Insufficient in compensation area (shoal habitat)
 - Will not provide a viable self sustaining fish population or fishery.
- Uncertainties and risks are magnified by :
 - Poor track record of success
 - Insufficient capacity at DFO to monitor and enforce