Ecological Witnesses conferencing on Thursday, 15 November 2018 - teleconference

Emily Funnell – Department of Conservation

Mark James – Consultant for Applicant (Alliance Group Ltd)

Tony Hawker – Fish & Game

Zane Moss – Fish & Game

Do we agree fish passage is the major issue of concern that needs to be addressed?

Yes, supported by all the expert reports completed to date, and all experts agreed on the significance of the issue.

It was agreed that the Mataura is important for cultural values, aquatic ecology and diversity and supports a nationally outstanding trout fishery.

List of issues associated with fish passage:
The following issues were discussed and points of agreement or disagreement noted.

Upstream

1. What fish species are present in the area around the Mataura Falls and potentially pass through the area moving upstream?

   It was agreed that eels (short and long fin), brown trout, lamprey, giant kokopu, koaro, torrent fish and chinook salmon are likely to be present. It was also identified that there were numerous other native fish present in the lower and upper catchment that do not necessarily migrate upstream past the falls or are resident upstream.

2. What fish species are obligate diadromous species that must pass through the Falls for sustainability of their populations?

   Short fin eels, long fin eels, lamprey and potentially koaro were all recognised as obligate diadromous species. However, it was recognised by Emily (DoC) and Tony and Zane (F&G) that brown trout move extensively within freshwater, they accumulate in significant numbers below the falls prior to spawning and that they are thought to be able to negotiate the ladder through the falls at certain flows. Mark (Alliance) agreed they would move but not necessarily to the extent recognised by the others.

3. What guidelines are available and are they relevant (to upstream passage)?

   NIWA (July 2010) 'Best Practice Guidelines for the Passage of Fish at Hydroelectric Dams in New Zealand: Part 1 –Upstream Migrants' were recognised as potentially relevant and should be taken into account. What is proposed by Alliance and is it appropriate with the focus on elvers?

It was agreed that the focus on elvers was appropriate, although some discussion occurred regarding passage of lamprey.

Downstream

1. What fish species are present in the area around the Mataura Falls and potentially pass through the area moving downstream including life stage?

   It was agreed that eels (short and long fin), brown trout (juvenile and adults), lamprey, and koaro will pass through and other native species may be carried through this area.

2. What fish species are obligate diadromous spp. that must pass through the Falls for sustainability of their populations?

   Short fin eels, long fin eels, lamprey and potentially koaro. While arguably not obligate, it was agreed that the lower brown trout river fishery was likely supported by the downward migration of juvenile fish given the more abundant spawning habitat in tributaries above the falls.

3. What guidelines are available and are they relevant?

   NIWA (July 2010) *'Best Practice Guidelines for the Passage of Fish at Hydroelectric Dams in New Zealand: Part 2 – Downstream Migrants'* were discussed.

   There was some disagreement about whether the guidelines were entirely relevant, given the differences between consumptive and non-consumptive takes. It was agreed that the guidelines should be taken into consideration and that the technical aspects on design should be accepted. However, Mark James wished to record that he had reservations about how applicable some technical aspects were to this hydro plant.

4. Proposed monitoring programme and is it appropriate:

   a. Is overall approach and study design appropriate:

Wide ranging discussion occurred in relation to the proposed monitoring program. Emily Funnell and Mark James agreed that the overall approach and programme design were appropriate. However, Tony Hawker and Zane Moss did not. There was general disagreement as to the suitability of the proposed monitoring program.

It was agreed to identify what information the proposed program would determine, and what it would not.

<u>It was agreed that the proposed monitoring will provide information on</u>;

- Large downstream migrating eels, during the primary migrating period
- Large trout that get caught on the trash screen, during the monitoring period

<u>The proposed monitoring will not provide information on</u>;

- Numbers of eels (or any large fish) impinged on the screen, or that pass through the turbine outside of the monitoring period
- Numbers of small eels that can pass through the trash screen e.g. migratory male eels (will be underestimated)
- What proportion of eels would survive if they were returned to the river

- Numbers of smaller trout, eels, lamprey or other fish that may become entrained in the channel and pass through the trash screen
- Survival of any fish that travel through the turbines (noting though that we have estimates of mortality from reports)

b. Screen size and purpose (monitoring versus mitigation)

Unfortunately, in the time we had available we only started discussion on screen size and purpose (monitoring versus mitigation).

However, we did reach agreement that the proposed work constituted monitoring and was focused on determining effect of the take, rather than mitigation. For that reason, it was agreed that determining the subsequent survival of eels and trout that are raked up the trash screen is not necessarily important because the work is not being advanced as a future mitigation option.

Topics raised but not discussed in the time available

- Relevance of bar spacing and approach/sweep velocity
- Need for monitoring what passes through

Emily Funnell

Mark James

Tony Hawker

Zane Moss