

Fisheries panel Meeting (BOPRC Office Rotorua)

12 noon - 5.00pm, 21 November 2013

Present Richard Barker (Otago University), Michel Dedual (DOC), Ian Kusabs (Fisheries Consultant), Rob Pitkethley (ERFG), Dave Rowe (NIWA), Brendan Hicks (UoW)

Chair Andy Bruere (BOPRC)

Secretary Andy Woolhouse (BOPRC Contractor)

Apologies Matt Osborne (ERFG)

Refer also to handouts/support report documents.

This meeting was rescheduled from the original 15th October 2013 date.

Item 1 Confirmation of Previous Minutes and Matters arising.

The minutes of the previous meeting (2 November 2012) were accepted and matters arising were dealt with in the relevant agenda items of this meeting

Item 2 NIWA 2013 Smelt Report – Dave Rowe

See Rowe et al July 2013 NIWA Report HAM2013-081 'Smelt Monitoring in the Ohau Channel and Lake Rotoiti 2012-2013

Two stations, with sampling every 2-3 weeks. George Proud also recorded daily observations. Large runs and small runs (2 fish/minute/trap = a run) samples contained adults and juveniles with some seasonal variation. Juvenile runs Dec- May, adults at any time. Lots of gulls noted in October. Shags are monitored but gulls only noted. Generally gulls present in juvenile runs, shags when mature (generalisation) Gulls surface feeders shags targeting bigger fish below. Density of larval smelt in Rotoiti in October 2012 were the highest since monitoring began in 2005.

Secchi disk clarity in Rotorua and Rotoiti has increased in last 2 years. Rotorua (TLI 4.2) and Rotoiti (TLI 3.5) are both at TLI targets. Improved clarity in Rotoiti may be due to the wall. Previously Rotorua water seeded algae and nutrients into Rotoiti. The question was raised - How stable are the TLI's ?

Anglers commented that it was the biggest pre October smelt run that many had seen and lasted from January to October.

Bully bi-catch is reducing over time (significantly)
Koaro Bi-catch

Larval Smelt sampling, big recruitment in October, very little in April. As secchi disk increases smelt abundance increases. Shallow weed increasing may adversely affect smelt spawning

Acoustic Monitoring Adult Smelt - Number of adults have declined. Will high juvenile recruitment this year = increase in adult numbers next year?

Movement of smelt does not appear to be affected by the wall.

Item 3 Electric Fishing Results – Brendan Hicks University of Waikato

The final report will be available as ERI Report 26 (current draft version presented)

301 fish (12.8kg) were caught in 2012 compared to 399 (29.4kg) in 2011. Common bullies were most abundant in 2011 and common smelt most abundant in 2012. One short finned eel was found at site 2 - the first caught in this series of surveys. Goldfish were abundant at site 7 possibly due to targeted habitat for sampling.

CPUE for smelt in 2012 was 5 times greater than in 2011. The abundance of bullies was much reduced but mean bully biomass increased due to the larger size of individuals. CPUE for bullies in 2012 was half that of 2011. There is a clear trend of reducing abundance of bullies since the survey started in 2007.

Mean density of rainbow trout remained similar for the two years but mean biomass was much greater in 2012.

The black disk reading at 1.3m was the highest since 2007.

The common bully decline cannot be explained. Is it due to productivity in Lake Rotorua or could it be linked to the installation of the wall?

Item 4 Trout Fishery Data - Rob Pitkethley

See F&G Report Ohau Channel Diversion wall Trout Monitoring 2012-13 prepared for Fisheries Panel Meeting 15/10/13

2012 was generally regarded as a poor year for angling in the channel. The wild fish population in Lake Rotoiti has been stable since 2008 which indicates that fish are moving through from the Rotorua spawning streams. Young age class fish are present which indicates that the wall is not having an effect on Rotorua origin fish entering Rotoiti. Lake Rotoiti's winter catch and quality improved in 2013 following a poor summers angling in terms of harvest. NB Tarawera and Okataina both showed a moderate decline in quality over the period.

No anglers were surveyed fishing in the Ohau Channel during December as the water was too warm and fish were not present. There were fewer anglers fishing to survey in 2013. There was a good end to the season. Lake Rotorua is a wild fishery and in spring most of the fish in the channel were wild fish that had dropped back from Rotorua feeding on smelt. There were very few hatchery liberated fish caught. Browns were generally smaller and in poorer condition. Rainbows were smaller and lighter, but in significantly better condition.

Angler's perception-

The 2012-13 creel survey recorded the poorest angler perceptions to date, the catch, size and condition was significantly poorer. Catch rate was 0.1 fish/hr and anglers were 'highly dissatisfied'

The 2013-14 opening day was very good. Gulls were feeding which indicated that juvenile smelt were present, no shags observed. Catch rate 0.6 fish/hr. Generally a good opening day correlates well with a good season.

The wall was installed in 2008. 2008 and 2009 were good years 2010-12 showed big declines. Complaints about the wall have reduced.

Rob suggests that the smelt runs may not be the main factor, rather the effect of the weir forming a barrier to smelt and holding them in the channel which attracts trout. The management of the weir might have altered in some way over a number of years and not be restricting the passage of smelt to the same degree. Hence if trout are not present in the channel, it could mean that there are no smelt or that smelt are passing through quickly.

Management of the weir, Okere gates and flow events could have more effect on fisheries values than the wall.

Note the flow through the channel is now always less than or equal to the flow through the gates (It cannot exceed the gate flow rate). Previously Lake Rotoiti was used as a buffer to raise lake levels for rafters but this could cause Rotorua water to enter Rotoiti defeating the purpose of the wall. The resource consent does allow for 5% spillage if fish passage through the wall is required.

There were few tagged fish from Lake Rotoiti caught in Rotorua or the channel.

Most channel fishing occurs in the 100m stretch below the weir with very little in the delta following the walls construction.

Item 5 Otolith Update – Brendon Hicks

Hard copy report to be provided

Ground truthing of 4 Rotorua tributaries and 2 Rotoiti tributaries.

The lake identification signature is very strong, streams less so. Tributary truthing from juveniles 50-80mm long caught high up in the streams (therefore had only lived in that stream).

In 2006, fish caught in the channel were all Rotorua origin. In 2007-8 10% were Rotoiti origin. Post wall, all were Rotorua origin.

Lake Rotorua capture pre wall trout were mostly Rotorua origin (85-90%), but in 2009-10 30% of trout were of Rotoiti origin. 2010-11 had the smallest Rotoiti origin.

Lake Rotoiti capture pre wall trout originating from Rotorua streams was (60-72%), post wall 75-100% were from Rotorua stock, which indicates that the wall did not affect trout migration from Rotorua to Rotoiti.

Improved laser software and operator will be available in near future

Item 6 Koura and Kakahi Monitoring Progress – Ian Kusabs

Ian presented report '*Ohau Channel Diversion Wall – Monitoring of koura and kakahi populations in the Okere Arm and Lake Rotoiti October 2013*'.

Sampling method has been used since 2005.

Koura The Okere Arm continues to support abundant populations but the decline in abundance and bio-volume at Okere and in abundance at the control site (Te Akau) continues. As previously suggested, this could be due to inundation of the lake bed by hornwort. There isn't the same decline at the deeper sites which have less hornwort. Clarity at the Okere site has increased.

Kakahi Remain abundant in the Okere Arm and Lake Rotoiti. Whilst abundance has generally increased in Lake Rotoiti over the sample period there has been significant decline at one of the three treatment sites (the Ditch). Since the construction of the diversion wall there has been a noticeable accumulation of silt in the Okere Arm sites, particularly the Ditch. However shallow areas of the Okere Arm have been colonised by extensive growth of low turf species which has consolidated the lake bed creating more habitat. This may be due to shelter provided by the wall reducing easterly wave action. The Okere Arm is a dynamic environment and future changes in kakahi abundance are inevitable until equilibrium is reached.

The wall does not appear to be causing problems as the worse decline was at the Te Akau control site. The effects of hornwort on kakahi populations is still a concern.

Item 7 Trout Release - Rob Pitkethley

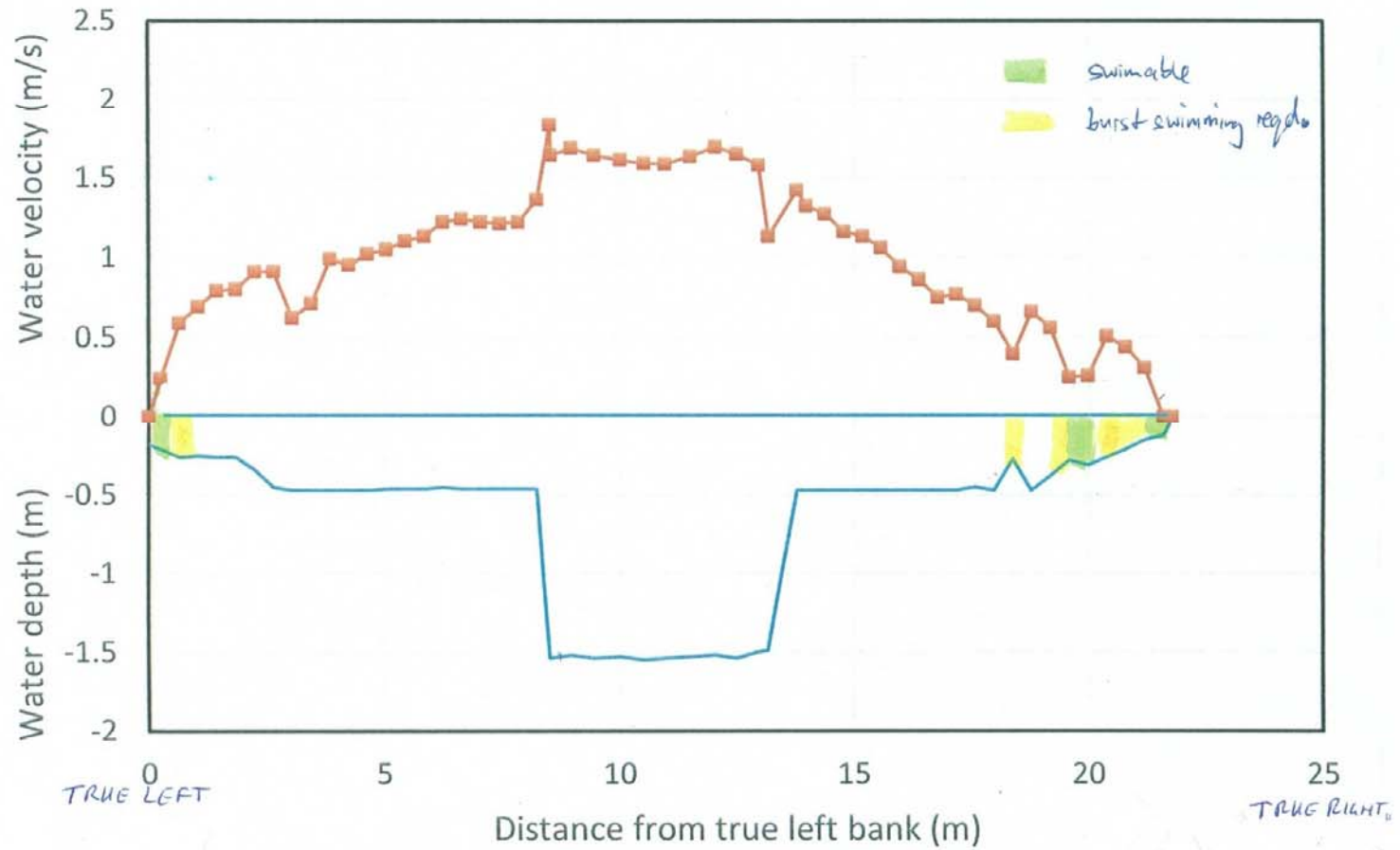
Release tagged fish into the channel 3 months ago to monitor where they went, but don't think this monitoring is necessary now. Leaflet was produced last year and given to anglers, suggest revising and reissuing it at the end of the season, also update the website when reports are available.

Item 8 Weir Velocities - Dave Rowe/Andy Bruere

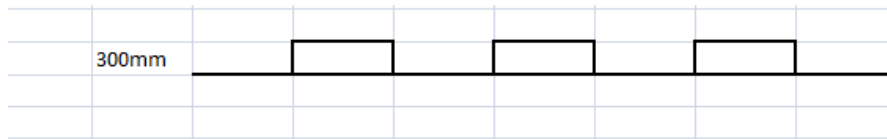
Dave presented graph showing velocities across the weir with stop logs removed (see overleaf)

The graph clearly shows that smelt can only pass through the low velocity areas at the sides of the channel. If the water level drops, options reduce. This means that feeding trout could congregate where the velocities are high or water levels are low. We need similar data at the outfall of the weir. NB the graph is only a snapshot and more assessment is needed to show velocities for different flow conditions and water levels.

Ohau Weir (minus stoplogs) water velocities on 12 June 2012



This data needs to be correlated against fish results. Can this be modelled? AB thinks we may have the background data to do it. The only control available is to add the three stop logs in sequence (300mm high).



At low flows water is confined within the weir notch. NB none of this is linked to the wall - but is an attempt to investigate fisheries mitigation

Item 9 Wall Mitigation Proposals - Dave Rowe

It does not appear that the wall is having an effect on fisheries values, so any mitigation should be viewed as an additional benefit rather than mitigating effects of the wall. The resource consent holder for the Okere Gates and Ohau Weir is the BOPRC Engineering Department.

Michel - The purpose of the stock logs is to keep the level of Rotorua constant. The design takes account the need for boat access and the ability to quickly remove excess water. It is more natural than the top loaded Okere gates.

Smelt can only pass when the water levels are high enough to create slow flow areas (at the margins). Historically the stock logs were not removed for 10 years. Since the wall was constructed, they have been removed occasionally.

Richard suggested that nothing needs to be changed - Michel agreed, as there is no obvious effect. But Michel is keen to see modelling of weir velocities

AB - Can the modelling work be done by the end of February? Brendon - yes, but depends on what data is currently available and more measurement may be needed. Rob Donald has a lot of data AB to check what is available.

AB to report back to the committee by the end of February

Boat Electric fishing planned 25/26 November (1 day, second day is bad weather contingency) Ian asked if Iwi can attend - Brendon - yes, Ian suggested asking Joe Tahana.

Future Monitoring

The diversion wall consent expires October 2017. The panel discussed whether monitoring should continue.

Richard - happier after this year's results than last year. It gives confidence but if monitoring stops we have no ongoing data - so keep it going

Michel - Trout, smelt and koura monitoring is all very necessary

Ian - Valuable to keep trout, smelt run and koura monitoring going

Brendon Rotoiti is self supporting is smelt production (Jennifer Blair's work)

Although there is no obligation to do so, the Panel recommended keeping the monitoring going at current level and for the panel to meet again next year (November 2014).

Bullies

Brendon - Concerned that monitoring by Brendon and Dave both shows a decline in bully numbers. BH suggests sampling Rotorua, Ohau Channel and Rotoiti to look at otoliths to see if they are different which may show restriction in movement.

Andy B - How important are bullies in the two lakes?

Brendon - Decline could indicate wider ecological effects

Dave - If there are brown trout in the channel bullies are their staple food

Michel - Bullies are second food source for trout if smelt are not present

Ian - Browns are not resident in channel all year round (too hot in summer).

Rob - Browns move in to feed when cooler conditions

Ian - Could do a drift dive now to assess numbers.

Rob - If the lake is cleaner it could reduce bully numbers. Some changes may be attributed to improvement of lake water quality.

If bully numbers reduce, is it an issue? - There are large numbers of bullies and they are not endangered

Dave - If we continue the monitoring programme as before, there will be a bully bi-catch so we will have the data to monitor changes in bully populations

Other

Rob - This year's migration wasn't scheduled to be monitored, but we need the spring/autumn smelt migration results

Brendon - Will Otolith work continue? Michel thinks it has value. Panel agree it should continue

Key Points and Summary of Recommendations

- **Movement of smelt does not appear to be affected by the wall.**
- **Decline in Bully numbers, cause not clear**
- **Otolith studies indicate that the wall does not affect trout migration between Rotorua to Rotoiti.**
- **The wall does not appear to be affecting koura and kakahi but there are dynamic changes to the habitat. The effect of hornwort on kakahi populations is still a concern.**
- **The stop logs may affect ability of smelt to move into Lake Rotorua under certain flow conditions and this may provide feeding opportunities in the channel for trout. Investigation needed on water velocities in different flow conditions. This is not related to the wall but may be a factor on fisheries values. AB to check what data is available for modelling and report back to the committee in February.**
- **Electric fishing indicates that the wall is not affecting fisheries values**
Ongoing monitoring is important and the panel recommends that the current monitoring programmes are continued. Panel to meet in November 2014.

Action Points

- **Water Flow Modelling AB to report back to the committee by the end of February**
- **Monitoring Programme -Although there is no obligation to do so, the Panel recommended keeping the monitoring going at current level and for the panel to meet again next year (November 2014).**
- **Otolith Study The panel agreed it should continue**