Video transcript: Birrarung Flow Review Introductory Presentation

Duration: 1 hr 8 min

[Online meeting begins]

Stuart Lovejoy: Good day, everyone.

Lisa Duncan: Hello?

Charlotte Hilbig: Yeah. Hello!

Lisa Duncan: Yeah. It looks like maybe not everybody can speak, so that's why you didn't get a chorus of hellos back. Yeah.

Stuart Lovejoy: Oh, cool. I can allow mics later on for those people who raise their hands. Yes. Gosh! Cool. Well, give people just another minute. It is lunchtime. Maybe someone's running off to get themselves a pizza or something. About another 10 people RSVP'd.

Okay. Oh, that didn't quite work. I'll just start sharing my screen. Sent in Teams, let's see if that works.

Charlotte Hilbig: I can see that, Stu.

Stuart Lovejoy: Yeah, Grey. Well, thanks everyone for coming along to the first Project Advisory Group meeting for the Birrarung Flows Review.

Before we kick off, I'd just like to acknowledge that I'm coming today from Wurundjeri Woi-wurrung Country. I'd like to pay my respects to their Elders past and present. I also extend that respect to the Traditional Owners of the land you're all joining us from, and to any Aboriginal or Torres Strait Islander people on the call today.

Today is just a bit of an introductory session on the Birrarung Flows Review. We'll start off by Charlotte giving a quick introduction and overview of Wurundjeri involvement. Then I'll give an overview of why we're doing a Birrarung Flow Study Review and the role of the Project Advisory Group. Jacquie, who is online from Jacobs, will then give us a bit more information on the flow study review process and how that's going to be applied to the Birrarung. We'll then finish up with some open discussion and next steps.

Just a bit of housekeeping. I didn't realise that your mics were not automatically enabled, but we do want it to be an interactive session. If you put up your hand, I'll be able to turn your mic on. It probably makes the most

sense to pop any questions into the chat as we go along, or put up your hand and we can go through the questions at the end.

Andrew, you're already jumping in. Let's make sure I can enable your mic. You should be able to talk now. You might need to unmute yourself.

Andrew Lees: Yeah, no problems. Just wanting to unmute the mic.

Stuart Lovejoy: Oh, there we go. Yeah, no worries, Andrew.

Right, so with that said, I might throw over to you, Charlotte.

Charlotte Hilbig: Thanks, Stuart.

Stuart Lovejoy: Would you like me to present, or have you got yours?

Charlotte Hilbig: Do you have the slides there?

Stuart Lovejoy: Yes, I do.

Charlotte Hilbig: Whatever's easiest. I've got them ready as well, but if you've got them up.

[Slide displayed]

Charlotte Hilbig: Just while Stu is getting those slides up, my name is Charlotte. I work for Wurundjeri and I'm in the Water Program.

I'd like to begin by acknowledging the Traditional Owners and the land on which we are all meeting today. The Wurundjeri Woi=wurrung people of the Kulin Nation. I'd like to pay my respects to Elders past and present.

I'd also like to acknowledge the Elders that I work directly with in the Wurundjeri Water Program. I call them the Wurundjeri Water Knowledge Holders, so Aunty Di, Uncle Dave and Uncle Andrew. I'd like to thank them for their direction and guidance in looking after Country and water.

I'd like to acknowledge the Wurundjeri and First Nations team members who are part of the Water Program. I'd also like to acknowledge the Birrarung Rangers and the wider Narrap team who are out reading Country and healing Country every day.

Wurundjeri Country spans a large and diverse area. It starts over in the west with the Werribee River and then moves right across to the top of the Birrarung catchment. I think it's important to acknowledge that Wurundjeri has a very diverse area to look after. We've got grasslands in the west, a highly urbanised patch in the middle, and then rainforest over in the east.

The Wurundjeri Corporation is working on thousands of projects across Wurundjeri Country. That work involves governments, councils, community groups and people like yourselves.

I think it's important to acknowledge that we are just on the back end of NAIDOC Week, which was celebrating 50 years of deadly. I think this theme is really important for thinking about the work we're doing today because it looks back on what was, but also looks forward into what we're aiming towards, which I think is really important with the Birrarung Flows Study.

I'd just like to reflect that I've been out on Country recently with the Birrarung Ranger Team and we've been looking at different indicators as they pop up to help us read and understand Country better. Something that most people might have seen is that the wattles are starting to bloom. This is a really significant indicator for Wurundjeri as it's a sign to look after our Elders because we know that the water was really important for Barak, and that it started to bloom around his time of passing. So it's a time to put our arms around our Elders and make sure they're doing okay and doing well.

I'd also just like to note that Wurundjeri works inside the RAP area, which is the map that you can see on the slide. There's also a native title claim currently out that extends beyond these borders. Wurundjeri's care for Country doesn't stop at a border, it extends beyond that.

We're talking about the Birrarung today, which flows predominantly through Wurundjeri Country, but I would also like to acknowledge any other Traditional Owners who are on the call today and extend my respect to them as well.

[Slide changes]

If you could just go to the next slide. I was asking the Elders that I work with if there was anything they'd like me to share at the start of this conversation about Birrarung and the Birrarung Flows Review.

It was just to make sure we're framing the conversation around Birrarung’s status as a living entity. I wanted to read out a little piece from them:

" Birrarung is alive and she is breathing. She is strong. We are connected to her as much as she is connected to us."

In sharing that, I'm hoping that we can all understand and think about how important Birrarung is.

Wurundjeri Elders and Rangers often say that Birrarung is the lifeblood. I think when we're thinking about caring for her, supporting her and making sure she has the right flows, understanding what she needs is really important, and that she is a living entity.

[Slide changes]

If you could just move to the next slide, please.

We're really excited at Wurundjeri to be involved in this project. There have already been a lot of conversations between Melbourne Water, Jacobs and Wurundjeri, which is really exciting.

One of the things that is quite challenging is being involved in projects from the beginning, and Wurundjeri often gets looped in a little bit later in the process. With this work, we've been there since the start.

I just wanted to quickly touch on some of the ways that we have already been involved, or are looking to be involved, in this project.

We have our Wurundjeri Elders, who I spoke about before, Uncle Andrew, Uncle Dave and Aunty Di. They're providing guidance and direction, and they're having strategic involvement in this project.

We've got the Water Program representatives. They're sharing some of the project management. We're sitting on the Project Advisory Group. We are having on-Country meetings and we're making sure that the work that comes through the Birrarung Flows Review is aligned with Wurundjeri's whole of Country plan, the Water Is Life Nation Statement, and aspirations in the water space.

Excitingly, we also have our Birrarung Ranger Team, who have developed a Baanj assessment methodology or tool. They've been developing this for the last two years, and now we're in a position to start rolling that out on Country. We're hoping that we might be able to do a couple of these assessments in the Birrarung flows area and help inform this process as well.

That's it for me, so I'll hand back to you, Stu. Thanks for the time to talk to this group and let you all know where Wurundjeri is at with this work.

Stuart Lovejoy: Thanks so much, Charlotte. Yeah, that's a really great way I think, to start the meeting and to keep in mind a lot of those concepts, especially about acknowledging Birrarung as a living entity and the connection that Wurundjeri continue to hold.

Sorry, just... Yeah, that comes up now.

Following on from that, I'm just going to go over a little bit about exactly what is the flow study. More to the point, Jacqui will go into this more later, but just to give a quick overview so that what I say makes a little bit of sense for those that are new to flow studies, and why we're doing an actual review.

So, what actually is a flow study?

Oops. There we go. Sorry about that.

[Slide changes]

A flow study, and Jacqui will go into more detail, but it basically tells us how much water we need, for how long, and at what time, to sustain key environmental values. Things like fish, frogs, invertebrates, plants and geomorphology. So it really gives us an idea of what water we need for the environment.

In Victoria, we work out these volumes, durations and timings through a set process called the FLOWS methodology, which is set by DEECA and applied throughout the state. All flow studies throughout the state use the same method.

That being said, that's what the flow study does. It gives us good information on required environmental flows.

It's also important to note that it's not a decision-making document. So when we're having these discussions today, just bear in mind that we don't have any power to make decisions. It's not a statutory power to change water-sharing arrangements or anything within a catchment.

It can't determine the source of water to deliver any recommended actions from the flow study, and it can't hold any person or organisation accountable for actions to provide water to, or extract water from, a waterway.

It's really just a scientific guide rather than a decision-making document.

I probably have these a little bit around, but I guess it's important to say why we need a flow study.

[Slide displayed]

I can see this. I know I'm not going to go through this whole thing. It's a little bit confusing, but this is an idea of how we get environmental water and how we use it.

The important thing is that every year Melbourne Water writes the seasonal watering proposal that then gets signed off. This seasonal watering proposal basically tells us how much environmental water we're going to use and at what time.

The flow study gives us the information so that we can use the environmental water we have in the most efficient way, making sure that we're supporting the values that we can support. That's the scientific method behind that.

It's also worth mentioning that it feeds in earlier. When we're trying to work out the volumes of water, which is not something that we do as Melbourne

Water, but is a statewide process, we can use flow recommendations from this to work out how much water we need versus how much water we have. We can hopefully use that information to influence policy in the future.

So that's what a flow study is.

Now, making it a bit more local to Birrarung, why do we actually need one? Why are we doing a review?

Well, it's been a while since the flow study was first done. We first did the flow study way back in 2005. We've done a couple of reviews since then, but the last review was eight years ago, and a lot has changed since then in terms of policy.

Charlotte mentioned Burndap Birrarung burndap umarkoo, the Yarra strategic plan. But there's also that which followed on from the Wilip-gin Birrarung Murron Act, or the Yarra River Protection Act.

That's all come into play a lot more since then. Even though the Act passed in 2017, it didn't really feed much into the review.

We've also had the Water Is Life Traditional Owner Access to Water Roadmap. We've had the Central and Gippsland Region Sustainable Water Strategy, for those in the know, which talks about how to use water across the Melbourne region.

So there have been a lot of updates to policy that can potentially influence how we do this.

Obviously, there have also been updates to science. We've done a lot of monitoring in the last eight years, including work on Macquarie Perch, blackfish, vegetation and geomorphology.

We're incorporating that monitoring and those studies to make sure the recommendations we have are still current.

A big one, and probably the biggest one, is engagement. Engagement with the community and particularly with Wurundjeri.

Like Charlotte said, it's nice to be able to get in on the ground floor and do this project together to reflect the intricate connection that Wurundjeri has with Birrarung.

So, I'll just go on to the Project Advisory Group, which is really what everyone here is part of if they would like to be.

The process for this flow study is a scientific process with a technical panel. Acknowledging the important role of local knowledge, the Project Advisory

Group is the forum for providing that local input and knowledge into the flows review.

It's open to all businesses and people connected with the Birrarung, its environmental values and its flows.

Its purpose is to make sure that the flow review uses all available local, on-ground knowledge. It does this by providing knowledge to the technical experts I mentioned, as well as reviewing final flow recommendations and reports.

So that's what it does.

It's also worth keeping in mind that the advisory group's role is not to set final flow numbers. That's done by the technical experts.

Because the flow study has a restricted area of influence, similarly, the advisory group, as part of the flow study, won't decide on how dams or rivers are operated, where the water comes from, or how much water the environment has.

We will be meeting hopefully three more times over the course of the project, including at least one more meeting on Country.

We really value your time. Thank you for coming today. There will be further opportunities to contribute as the project goes along.

Jacqui might go into a little more detail later, but we do envision this project taking a while. Probably another year, year-ish, it will take.

So that's the timeframe over when the next three meetings will be held

So Janet, I'll have a look at your question now.

Janet has asked how, basically, we decide when to do flows reviews.

There's no statutory requirement. It's a mix of when we think there have been substantial changes to policy, scientific knowledge or stakeholder involvement.

It's a balance because these are expensive. They cost a lot of money and use up a lot of people's time.

It's a matter of deciding when things have changed enough that we think the flow recommendations are going to change. We also have limited budgets, so we have to balance that.

I'm not sure exactly how many flow studies we have across the region, but a lot. At least 10, probably more than that.

It's a matter of prioritising them depending on how much change there has been and how much the flow recommendations are used.

With that said, I might stop sharing and go over to **Jac** to go into a little bit more about the process for the Birrarung flows review and how we're going to proceed with it.

[Slide displayed]

Jacqui Brooks: Hi, everyone. Lovely to have you all here today and to meet you eventually on the books, and I work with the team on a variety of projects, including which is true for 15.

We started the project probably in April or May, and there has been some really good collaboration, discussions and planning to date, particularly with Wurundjeri, as noted by Charlotte.

Okay, so I'm going to present a few slides at the start of the Jacobs component of this meeting, and then I'm going to hand over to Simon Treadwell, who will present the rest. He can introduce himself at that point.

As Stu has mentioned, the flow study is an update. It's an update from three previous flow studies, so 2005, 2012 and 2018 was also an update.

One of the main differences is this work incorporates the collaboration with Wurundjeri and that's very important. We all see it as setting a precedent and providing a template for future flow studies, which is really important and terrific.

Another difference is that it's going to incorporate tributaries. It's going to incorporate Little Yarra and Don Rivers, Olinda Creek, Steele-Pauls-Dixons Creek, and Woori Yallock. Previously they had existing flow studies, but this flow study is going to draw those in so that they are looked at as part of the flow study for the main stem.

[Slide changes]

This shows the team who's involved in the project.

We have the Project Director, Doctor Simon Treadwell, who will speak in a minute, and I'm the Project Manager. Both Simon and I are also involved in the project from a water quality and aquatic ecology perspective. We've got a long history of working in those areas.

We have a Traditional Owner engagement component, obviously, depending how much we've talked about it. We have Amanda Goldfarb and Holly Wilson involved in the project from that perspective, from a heritage advisor and communications and engagement angle.

We also have on the technical panel myself and Simon. There's Dr Peter Sandicock, who's involved with the geomorphological side of things. Fiona Gilbert is also involved in water, watering and recycled water.

Dr Matthew Le Feuvre is doing the fish and macroinvertebrate ecology side of things.

We have two external subcontractors, Paul Boon, who is looking at the vegetation, and Josh Griffiths looking at platypus. They both have extensive experience and a long history of working on these topics in the Birrarung, which is terrific.

Jo Szemis is on hydrology and we also have Wira Yan helping with hydrology and a variety of other people who help with that side of things, and Kate Dowsley with groundwater, and our cultural values team of Uncle Dave and Charlotte.

[Slide changes]

This slide runs through the approach that we're using.

Stuart mentioned that we are using a method that has been developed and is coordinated by DEECA, Department of Energy, Environment and Climate Action.

The method was first developed by Sinclair Knight Mertz, which became Jacobs, and Simon was involved in that job.

Apologies. I hope that's not as loud for you.

The method that's being used starts with project inception and that involves meetings, in this case with Wurundjeri, the Project Advisory Group and the Steering Committee. This meeting actually wraps up the inception meetings, which is perfect and perfectly timed because we are planning the site visit for Task 2, which is the next task in the list.

The site visits will occur at the end of July and start of August. This project is timed so that we can get your insight before we finalise our approach to the site visits, where we're going and what we need to focus on.

Then we have the Environmental Field Assessment. That's Task 3 and it will involve the Environmental Flows Technical Panel going out on site and looking at the different sites that are selected as needing particular focus for this study.

We will be inviting the Project Advisory Group out on Country for that meeting so that we can get more of your insight, local values and understanding of the system.

Task 4, a cross-sectional survey, is optional, but we've realised that we will need it because there have been some notable changes to the sites in Reach One. So we will need to update some of the cross-sectional surveys to make sure that we're working with the most up-to-date scientific information to then make the flow recommendations.

Then we develop an issues paper and that obviously brings together all of the issues associated with the system. And it will build on the existing issues paper but bring in any new issues.

Then there's an update to hydraulic models and that's followed by a review of the flow recommendations.

So you can see it's a logical progression of gathering information so that we get to the point where we can update the flow recommendations with all available current information, and then that rolls back into the final report.

At the position where we update flow recommendations, we'll connect again with the Project Advisory Group.

[Slide changes]

This just shows you the schedule for the project to give you an idea of how we're planning to time and sequence the different parts of the project.

We're going out on site this month and next month, and then the site paper will be finished by the end of August.

The issues paper and hydraulic models will be finished by the end of December.

We review environmental flow recommendations by the end of March next year and finalise all of the reports in June and July next year.

The site visits, we are planning to really get to as many sites as we can.

At the moment, we've scheduled a visit to all of the existing sites from the existing Birrarung flow study and the studies for each of the tributaries involved in this round of the update.

We're going out on 30 July and 5 August with Wurundjeri.

As Stu mentioned earlier, the role that we're hoping you will be able to provide is input on issues and changes to the sites to help guide our planning with respect to where we go.

[Slide changes]

This slide summarises the help that the community will provide.

This is meeting one, selecting sites for investigation.

Meeting two will be the on-Country meeting that I mentioned with the Environmental Flows Technical Panel.

Meeting three with the Advisory Group will be related to the issues and making sure that we're properly covering all of the issues related to the system.

The final meeting with the Advisory Group will be related to the environmental flow recommendations to make sure that we're properly capturing those as well.

Now I will hand over to Simon. Thank you.

Simon Treadwell: Thanks, Jac.

Hi, everyone.

Simon is my name. There are a few familiar faces in the meeting here, which is good to see, people who have been involved in the Advisory Group over a number of years.

I've been involved in this series of projects since 2005. We did the first study in 2005 and have been involved in all of the reviews since then.

I have a reasonable amount of knowledge and understanding of how the Yarra and its tributaries have changed over the last 20-odd years. Prior to that, I grew up on the river anyway, out at Research, so it's sort of my backyard.

I was just going to quickly talk about a little bit more detail regarding the approach to selecting reaches and sites, and then ask some questions of the group to get a bit of feedback on where you see current issues occurring in the river and whether there are any particular locations you'd like us to take a look at.

I'll open it up to those questions in a slide or two, but I'll first briefly talk a little bit about the process in more detail.

Flow recommendations are derived to provide a flow regime for the river that covers the range of flows that you'd expect to see, typically based on a natural flow paradigm.

We look at what the base flows or low flows would be that are required to maintain habitat and pool depth for fish, platypus and things like that.

Then we look at what sort of higher flows might be needed to scour sediment out of riffles and freshen up those riffles, or to help form and create an appropriately sized channel, or to water riparian vegetation.

In some studies we also look at overbank flows as well.

Not so much in the Yarra. There are other mechanisms for looking at flows for inundating billabongs and the like, but we do look across the whole flow regime from low flows to high flows.

We do this at reaches and at sites within those reaches, and collectively build up a flow regime for the whole system that considers the flow from the most upstream reaches travelling downstream and accumulating as tributaries join the channel.

The flow recommendations for the downstream sites are larger than the flow recommendations for the upstream sites because the flow gets larger as you move downstream.

The reaches are determined based on key river features such as gorges and floodplain sections, and we've got a couple of those in the Birrarung.

They're also based on important tributaries or points of regulation.

In the Birrarung we've got Upper Yarra Dam, which is obviously a really significant impact on the flow regime of the upper reaches of the river.

As we travel downstream, tributary inflows contribute to flow, but then when we get to Yering Gorge at Christmas Hills, there's water that's extracted from the river for potable water supply into Sugarloaf Reservoir.

There's another major point of regulation in the river, and so we've got reaches all the way along the river that are defined by these particular characteristics or exhibit certain characteristics.

In each of those reaches, we've got sites that we undertake a much more detailed assessment at.

Those sites have been selected over time to contain features that are flow dependent but are representative of the characteristics of the reach.

We determine the flow recommendations based on investigations at those particular sites, but the recommendations are applicable to the overall reach.

For the Birrarung and the tributary streams, the reaches and sites have been previously determined in earlier studies, and the various reviews that we've undertaken over time have looked back on the sites that were first selected in 2005.

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Simon Treadwell: We've added some additional sites over that period of time. Some reaches have several sites and we do that to double check that the recommendations that we might have identified for a particular site are

relevant for the whole reach and are relevant for where there might be slightly different characteristics within a reach.

What we want to do now over the next couple of weeks is go back out to all of those sites, review the reaches and sites, and check if they're still appropriate and whether anything has changed at these sites. We know that at a couple of locations over time there have been some changes in the characteristics of the sites, and we want to go back and have a look at those.

We also want to consider if there are any new sites that we should add, and those new sites might come from suggestions from you. If you have a particular area where you've seen something happen over the last little while and you'd like us to go and have a look at that site and consider whether it's appropriate as part of the flow update, we can do that.

Noting that there are lots of things going on in the river and not all of them are related to flow, although they might appear to be flow-related. There might be issues that are exacerbated by flow. We do consider complementary actions that might be needed to address some issues that are not directly flow-related, and then Melbourne Water can take those suggestions and determine how they deal with them through strategies like the Healthy Waterways Strategy.

Next slide please, Jacqui.

[Slide changes]

Simon Treadwell: I'll talk briefly about the main stem reaches first and then the tributaries.

We've got Reaches 1 to 6 that run down the river from Upper Yarra Dam, and Reach 8 is in the Watts River downstream of Maroondah Reservoir.

Reach 1 is a really short reach. It's not even five kilometres, about four kilometres of river immediately downstream of Upper Yarra Dam before Armstrong Creek joins the river. It represents the most upstream and most significantly impacted reach in terms of reduced flows because of the effect of Upper Yarra Dam.

As we move downstream, we've got a reach that runs through to Millgrove, Warburton and Millgrove. It's represented by increasing tributary flows, a relatively fast-flowing river over rocks and riffles, and deep pools.

We then move into a floodplain section from Warburton down to Healesville. That covers the upper Woori Yallock floodplain. The river starts to slow down, becomes longer pools with fewer riffles, then flows through a short gorge at Healesville before coming out into Reach 4, which is the Yarra Glen floodplain.

That reach runs all the way down to Yarra Gorge. It's pretty similar to Reach 3 around Woori Yallock, but it is starting to experience increased impacts from urbanisation around Healesville and Yarra Glen, and tributaries coming in from the south, particularly Stringybark Creek and Olinda Creek, that start to enter the river at that point.

They're experiencing increased urbanisation and that's contributing to changed flow regimes for those tributary streams, creating more flashy flows as a result of stormwater runoff.

In an urbanising catchment, those stormwater impacts start to become a concern for us and we start looking at those as one of the factors contributing to flows, good or bad. Some of the stormwater runoff contributes to flooding flows that support habitat for fish and the like, but some of the runoff creates flashy flows and high disturbance, causing erosion and other impacts. We'd like to look at the impact of that.

We then head through the Warrandyte Gorge, the Yering Gorge and Warrandyte Gorge, where the river is very confined. Again, it transitions to a rock bar and deep pool formation before flowing out onto the Heidelberg or Templestowe floodplain at Eltham, and then down to another small gorge around Studley Park and then Dights Falls and into the estuary.

So that's the breakdown of the reaches and their general characteristics.

If we move on to the next slide, I've just got... In the interests of time, we might jump over this one. That's a list of sites.

I'll just run through the characteristics of some of those individual sites.

Here's an opportunity, if anybody has some particular spots they'd like us to look at, to pop them in the chat or raise your hand and we can have a quick chat about it.

The first site is downstream of Upper Yarra Reservoir.

This site is characterised by reduced flows. Over the years we've seen sedimentation of pools and the encroachment of vegetation onto the channel, and that's because of reduced flows.

Since the first flow study in 2005, and particularly after about 2012, there have been environmental flow releases from Upper Yarra Reservoir. Those releases have been effective at removing accumulated sediment from those pools and improving the overall condition of the habitat within that reach.

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Simon Treadwell: Alright, with the ongoing constraints of the impact of Upper Yarra Dam. Nonetheless, the early flow recommendations that have

been made for that reach have been quite successful in dealing with some of the impacts of the lower flows at that location.

We know through surveys that we've been undertaking at this site that there are river blackfish populations in that reach. There's platypus in that reach.

More recently, there have been some operational changes in flow and we're seeing some additional scour of some of that vegetation. We want to go back in and take another look at that and make sure that we've got the right set of higher flow recommendations for that reach.

That will be a reach where we need to go and do some additional updates to hydraulic models and survey work that will build on work that's been done in the past.

As we move further downstream, there are sites at Warburton East and Everard Park at Healesville. We've also got a site, I don't have a photo of it, at the Healesville-Woori-Yallock crossing of the Yarra.

There has not been a large-scale change in the characteristics of the river at those sites, but we'll nonetheless be looking at how the river has responded over the period since the last review. Are we seeing any particular changes?

One of the effects of the regulation that happens in the river is that we do tend to see a reduction in the frequency of flows that get onto the floodplain and inundate billabongs.

We want to make sure that we consider that. We also want to make sure that the flow regime is sufficient in providing occasional flushing flows and freshes to prevent, or mitigate, the accumulation of sediment that might be occurring, particularly in fish habitat and platypus habitat.

This is an opportunity for a quick response if there's anything in that reach from Upper Yarra down to Healesville that people would like to raise, anywhere in particular that you'd like us to take a look at.

If not, we'll jump into the middle and lower reaches.

Okay. Next slide, please, Jacqui.

[Slide changes]

Simon Treadwell: The mid and lower reaches, from where the Watts River joins at Healesville through to Yering Gorge.

We've got a site at Tarrawarra Abbey. It's about halfway down that reach.

The river through here is experiencing additional tributary inflows, but over the years it has experienced de-snagging. The channel has widened, deepened and

incised into the floodplain a little bit. It's subject to livestock grazing and degradation of the riparian zone.

There's some sediment accumulation occurring in the channel as a result of overall lower flows. We'll be looking at double-checking that the recommendations we've identified over previous years are still sufficient to mobilise and prevent accumulation of problematic sediment.

There are obviously complementary actions needed through this reach in terms of fencing, management of grazing and riparian vegetation and the like. They're not specifically flow issues, but they are issues that collectively contribute to the health of the river.

We do plan on looking at some additional sites through this middle and lower part of the river, particularly at Spadonis Reserve.

There's been some work going on there around the bottom end of Olinda Creek and Spadonis Billabong over recent years, where the inlet of Spadonis billabong was lowered in order to get more water into it.

We'd like to double-check that the frequency of engagement with that inlet is captured in the flow recommendations.

There's an opportunity to look at an additional site in the Yering Gorge and Warrandyte reach in the Eltham-Research area.

There's also been quite a lot of work over the last 10 years on billabong connection down through Heidelberg. Bolin-bolin is an example of that. There's work being done at Banyule where we already have a site.

We will go back into the river at Bolin and double-check the nature of the connection into the billabong there and how that's aligning with the higher flow recommendations that have been provided in previous studies.

This is a reach of the river that's also starting to experience urban impacts, increasing stormwater, and the consequence of that is higher flashy flows.

Those flashy flows can contribute to erosion if they exceed certain thresholds.

One of the considerations that we're looking at more closely now in these urbanising reaches is whether we can provide advice on what an upper limit flow might be, or the maximum duration of higher flows, beyond which you start to experience problematic erosion.

While it may be difficult for Melbourne Water to manage some of those effects, at least having an understanding of what the consequences of stormwater runoff mean in terms of impacts on flow is useful.

Over time, looking at opportunities for stormwater harvesting, increasing infiltration, and reducing the severity and intensity of those high-disturbance flows are good things to work towards.

Setting some upper limits on those flow requirements is helpful in the longer-term management of stormwater impacts.

Lots of comments coming in there. Thank you for that.

We'll take all those on. Yes, urbanisation is not such an issue in Site 4, but definitely in Site 5. I'd just acknowledge that.

I'm interested in whether the Plenty confluence with the river is a site, or a potential site.

We have a site just downstream of the Plenty confluence at Banyule Billabong, so it's only about 100 metres downstream of the site. If there's a particular interest in the confluence itself, we can certainly take a look at that location when we're out there to see whether there are any particular issues.

We've touched on urbanisation and there are some water quality questions as well.

In terms of water quality, we consider the impacts on water quality insofar as they're influenced by flow, making sure that flows aren't too low and causing salinity or dissolved oxygen conditions.

We do think about the consequences of, and sources of, poor water quality. That might come through in complementary actions around issues such as sewer upgrades and things like that if sources of poor water quality are linked, in particular, are linked to maybe some of those effects.

We've got a couple of hands up. Andrew?

I think you've got to turn yourself off mute.

I've got two Andrews. Andrew Kelly.

Andrew Lees: Andrew Kelly, I think, first.

Stuart Lovejoy: You should be able to unmute yourself too, Andrew Kelly.

Simon Treadwell: He's put his hand down. All right, Andrew Lees.

Stuart Lovejoy: Okay.

Andrew Lees: Yeah, look, just quickly, I'm President of the Friends of Yarra Flats Park, so I guess Reach Six is the area I'm most interested in.

Basically, Yarra Flats Park, Bolin and Banyule all have similar sorts of issues.

I guess it's very much about the health of billabongs, overbank events and things like that.

There's a catch-22 where you're saying that we don't want erosion to occur, but to get overbank flows into the billabongs, you do need those high-flow events.

Simon Treadwell: Absolutely, yep.

Andrew Lees: That's one of the tricky bits. The health of the billabongs is really critical to the health of the area.

If we're talking about a single living entity, we've got to consider how flow in the river interacts with the water in the billabongs.

So I suppose that's my question.

Simon Treadwell: It's a really good question, Andrew. Thanks.

To respond to that, as part of previous projects we've done surveys of all of the inlets to a lot of those billabongs through that floodplain reach.

We know with reasonable confidence what flows are needed to progressively inundate all of those billabongs, so we've got a really good understanding of the high flows that are needed.

Yes, high flows are needed.

One of the benefits of high flows is that they occur maybe once or twice a year under natural conditions. The bigger ones may only occur every couple of years.

They usually last for a few days, maybe a week or more. At that kind of duration, they're beneficial for shaping the river.

They do cause some localised erosion, they might scour out some pools, and they move sediment that's accumulated in the channel.

The channel's shape is adapted to that type of flow.

The concern we have is where the duration of those high flows is longer than it would have naturally been.

When the duration is longer, there's a greater period of erosive force acting on the channel.

It's about understanding what's an acceptable duration of high flow to do the things that we need it to do in terms of sediment removal, freshening up gravels and things like that, but also understanding what's too long to the point that we start to see excessive erosion that contributes to damage.

Finding that threshold is part of the studies that we do.

Andrew Lees: So those sorts of flash floods suggest that they're actually quite beneficial from that point of view. They don't last a long time, but they get water into, or may get water into, the billabongs.

Simon Treadwell: Yep. Some of those flashy flows do contribute to that when they occur.

There can often be issues with the rate of rise, in particular, if they come up too quickly.

There are scale effects as well.

When those flashy flows come out of the Plenty River, Diamond Creek or Mullum Mullum Creek, they can potentially do quite a lot of damage in those creeks, maybe not so much in the Yarra.

They contribute to the high flow in the Yarra itself, which is perhaps a good thing because it gets water into billabongs, but in the process they might have done some damage in some of those distribution streams.

Andrew Lees: Yep, yeah, I get that entirely.

Simon Treadwell: Andrew Kelly?

Andrew Lees: Mm.

Simon Treadwell: Hello. You've got to turn yourself off mute. If not, maybe put it in the chat.

Stuart Lovejoy: Andrew, you should be able to unmute yourself. Sorry about that.

Before we go on, while I have the mic, we are rapidly running out of time. Simon and Jacqui, are you happy to stay on? Obviously, we don't expect anyone to stay on, but if you two are happy to stay on, we can keep going for those who are here.

I'll also post in the chat a survey that we've got so that you can put in any concerns or issues that you'd like us to be aware of.

We'll also send everyone on this meeting follow-up meeting minutes and invite you out to the field day with the technical panel as well.

With that, we might as well get going again. Sorry.

Simon Treadwell: Yep, I think I've only got one or two more slides anyway, just to touch on the tributary streams.

Andrew Kelly, I see your comment there, so thank you for that.

There are operational issues, I guess, with the pumps at Yering Gorge. The flow study identifies what the river needs, and it's then a bit out of our control in terms of how the river is actually operated, but I acknowledge that there are some implications of operations there in terms of impacts on the river.

Jacqui, if you can just share the screen. We do have a site immediately downstream of the Yering Gorge pumping station, so we can see some of the impacts of that.

Jacqui, if you can re-share the screen quickly.

Jacqui Brooks: Okay, apologies. I didn't know that it had gone. It's not gone on mine.

Lisa Duncan: I can see it.

Simon Treadwell: Oh, hang on. Maybe I just lost it. Here we go. All right. That was my problem, my end.

Jacqui Brooks: Hi.

[Slide displayed]

Simon Treadwell: The tributary streams that we're looking at are focused on the sort of mid-Yarra streams.

These streams have had flow studies done on them in the past. Some have had relatively recent updates, while some are really old. We're taking another look at those sites and providing updates to recommendations where relevant.

We did do a review last year on the status of flow recommendations for these streams.

[Slide changes]

I've just got a table on the next page that talks to those.

These are the creeks along the top.

Hoddles Creek is not included. In doing this review, we looked at the status of the objectives and flow recommendations, whether there has been significant land-use change in the catchments, such as increasing urban development, and whether any of the objectives might be dated or need updating.

For Hoddles Creek, there wasn't really any need to update the flow recommendations. We've got high confidence and low uncertainty in the ability of the latest flow recommendations to support values, so we're not taking a further look at Hoddles Creek.

Little Yarra and Don Rivers. There's a need to take a look at the recommendations, particularly around freshes. They might not be quite frequent enough in terms of matching a natural paradigm.

There have also been updates to the understanding of the flow requirements for platypus since all of these studies were done. We want to make sure that any flow recommendations align with that updated understanding of platypus where platypus are an important feature of those creeks.

That applies to the Little Yarra and Don systems.

It's probably not relatively recent, but there have been reviews and updates of flow studies for Olinda Creek and Stringybarck Creek in the last decade.

There is urban development occurring in those systems, or ongoing urban development, and we wanted to take another look at upper limits on flows in those systems to make sure we're mindful of where urban development might be having an effect in terms of flashy flows.

Again, we want to align our flow recommendations with the updated understanding of platypus flow requirements.

Steels, Pauls and Dixons Creek. It's been a long time since the flow recommendations were first undertaken for those systems.

They are three tributaries that come in on the north side of the river, just upstream of Yarra Glen.

The current accepted FLOWS method was not used to develop flow recommendations for Steels, Paul and Dixons Creek.

We're going to take a pretty close look at those tributaries and, to the extent that we can and with the resources available, look at how we completely update those flow recommendations.

Stuart Lovejoy: I might just jump in quickly again because we have gone over one.

Just a reminder, if anyone wants to leave, this is also recorded. People can jump off and access the recording afterwards as well. Otherwise, fill out the survey, attend the technical panel session, or email us as well.

Andrew Lees: Yeah.

Stuart Lovejoy: Anyway, sorry. I just wanted to say...

Simon Treadwell: Yep, that's alright.

The last one is Woori Yallock Creek.

Flow recommendations were developed for that using the FLOWS method, but a long time ago. So there's another opportunity to take another look at that and consider whether the flow recommendations are outdated.

I see a couple of questions popping up about other tributaries like Merri and Darebin, lots of urban development and things like that as additional sites.

I think Stu and Lisa are probably better placed to talk about any plans for updating flow recommendations for some of those other tributaries.

If there are any particular comments on these tributaries on the list, so Steels Paul Dixons...

A great deal flows through private land, yes. There are also a lot of farm dams in that catchment, lots of vineyards and lots of rural and agricultural demand on flows in those catchments.

That's one of the factors that contributes to poor flows, particularly in dry years.

We are cognisant of that and, because of that, it's hard to get in and see those creeks as well.

Shani, you've got your hand up.

Andrew's still got his hand up too.

Jacqui Brooks: Darren, did you want to ask a question?

Simon Treadwell: Stuart.

Jacqui Brooks: Go ahead and ask a question.

Simon Treadwell: No, you might have to type it in if Stuart can't put you off mute.

Jacqui Brooks: You're on mute, Stu.

Stuart Lovejoy: Yeah, sorry. I've tried for Andrew and Sharon to be able to unmute themselves, but it seems to only work for Andrew Lees. I'm not sure what makes Andrew so special, but thanks, team.

Simon Treadwell: Andrew's just popped a question about gauging.

In various flow studies over time, we have made recommendations or suggested where gauging stations might need to be updated if there's not an appropriate gauge for a reach that has been identified as significant.

The main Birrarung is actually really well covered with gauging stations, so we probably wouldn't see the need to make any recommendations about that unless something pops up as part of this review.

All of the sites are pretty well aligned with existing gauges as well.

The flow recommendations are linked to a gauge so that over time we can assess how well the actual flow that's occurring meets the flow recommendations that have been made for those reaches.

Any other questions?

Stuart Lovejoy:

Well, thanks everyone again for staying with us and going over time.

Thanks especially to Jacqui and Simon for presenting, and especially to Charlotte for the excellent introduction.

Like Charlotte, I'm very excited that the partnership approach we're using to do this project is really exciting. We're looking at doing some things a little differently.

Like I said, there's the online survey there.

We'll definitely be emailing everyone and letting you know when there's an opportunity to come out and meet on site.

We'll also keep you updated.

If you'd like to email us directly with any issues you have, we'll also be doing two more online meetings and keeping you up to date that way.

Thanks everyone. We really appreciate your time and input. It's been great.

I'll do better next time in making sure everyone's unmuted at the start of the meeting so that we don't have to play games with enabling unmute.

With that, I'll let you all go.

Thanks everyone and I'll be in touch soon.

Simon Treadwell: Thanks. See ya.

Jacqui Brooks: Thank you.

Lisa Duncan: Thanks, everyone.

[End transcript]