

## MINUTES

### International Osoyoos Lake Board of Control Public Meeting

The Oroville Depot  
1210 Ironwood Street  
Oroville, Washington

Tuesday September 28, 2010  
7:30 PM

#### Attendance

	<b>United States</b>	<b>Canada</b>
Chairs	Dr. Cynthia Barton (host)	Kirk Johnstone
Members	Col. Anthony Wright Kris Kauffman	Glen Davidson Brian Symonds
Secretaries	Robert Kimbrough	Daniel Millar
Guests	Commissioners: Irene Brooks  Tom McAuley (Canadian Section IJC), Dr. Mark Colosimo (US Section IJC), Doug Johnson (WA Dept of Ecology), Amy Reese (USACE).  From Washington State University; Dr. Michael Barber, Lai Tran, Dr. Marc Beutel, and Dr. Cailin Orr.  <i>And from the community...</i> Tom Scott (Oroville Tonasket Irrigation District), Lee Chapman (Oroville), Ryan Barker (Garfield), David Buckmiller (Oroville), Phil Armstrong (Osoyoos), Sherry Linn (Osoyoos), Ralph Keuler (Oroville), Margaret Keuler (Oroville), Eike Scheffler, R. Dean Watts (Fisheries and Oceans Canada), John Moran, Mike Cantwell (Lake Osoyoos Association), Joan Cool (Sun Lakes Realty), Bruce Cool (Oroville), Stan Porter (Lake Osoyoos Association), Tamara Porter (Lake Osoyoos Association), John Biele (Oroville), Web Hallauer (Oroville), Joe Falkoski (Osoyoos), Bob Sherwood, Gwen Monteith (Osoyoos Lake Water Quality Society), Martin Lacroix (Summit Environmental Consultants), Nelson Jatel (Okanagan Basin Water Board), Anna Warwick Sears (Okanagan Basin Water Board), Brian Guy (Summit Environmental Consultants), Paul Everest (Osoyoos Times).	

#### Minutes

##### **Welcome and Introductions**

Chair Cynthia Barton welcomed guests, introduced members of the IJC and Osoyoos Board, and reviewed the evening's agenda.

##### **Overview of the IJC and Osoyoos Lake Orders**

Board Secretary Robert Kimbrough gave a short presentation on the roles of the IJC and Osoyoos Board, lake levels prescribed by IJC Orders of Approval, and the criteria for declaring a drought.

##### **Hydrologic Conditions and Lake Levels in 2010**

Board member Brian Symonds presented a graph of lake levels for 2009-10 and discussed hydrologic conditions over the past year. He indicated that a drought was declared in 2009 and 2010 although the drought in 2010 was rescinded in July after updated forecasts indicated that drought conditions would not be met.

### **Operation of Zosel Dam**

Doug Johnson indicated that one of the four outlet gates on Zosel Dam was currently stuck in the open position. The Washington State Department of Ecology has hired a consultant to assess the problem. The next step will be to hire a consultant to fix the stuck gate.

### **Studies to Assist with Orders Renewal in 2013.**

Chair Cynthia Barton enumerated 8 studies currently at various levels of completion that will assist the IJC in issuing new Orders of Approval in 2013. She then turned the floor over to Dr. Michael Barber who introduced presentations for three of the studies that are nearing completion. A description of each of these presentations follows.

#### **Study 1. An Assessment of the Most Suitable Water Levels for Osoyoos Lake**

Lai Tran presented the preliminary results of a study that assessed the most suitable water levels for Osoyoos Lake. Ms. Tran indicated the approach used for the study was to determine the water demand that will be needed from Osoyoos Lake in 2040 and then determine what range of lake levels (or storage) would be needed to meet demand. The preliminary results indicate Osoyoos Lake has limited storage capacity to accommodate all demands, therefore, lake level could be managed at levels desired by lake stakeholders. Ms. Tran suggested that the management of Osoyoos Lake could be based on inflow and outflow rather than elevation targets.

#### **Study 4. Effects of Zosel Dam Water Regulation on Osoyoos Lake Water Quality**

Dr. Marc Beutel presented six preliminary conclusions from a study that assessed the effects of Zosel Dam water regulation on Osoyoos Lake water quality: 1) Osoyoos Lake water quality has improved substantially since the 1970's, 2) water at the bottom of the lake in summer is void of oxygen, 3) water quality correlates weakly with inflow, 4) internal nutrient loading may affect water quality, 5) Zosel Dam has a minor effect on total depth of the lake and flow rate, and 6) dam operations are not a primary factor affecting water quality.

#### **Study 5. An Investigation of Methods for Including Ecosystem Requirements in Orders of Approval**

Dr. Cailin Orr summarized the preliminary conclusions from a study that investigated methods for including ecosystem requirements in the next Orders of Approval: 1) Water quality in the lake is an important criterion for in-lake habitat, 2) lake levels could be used to control invasive species, but this is likely to degrade shoreline habitat of threatened species, 3) lake levels impact riparian habitats that are important for threatened animal species, 4) discharge from the lake impacts downstream salmonid habitat, and 5) there are trade-offs between different management scenarios.

### **Questions and Comments from Guests**

[Public questions and comments are paraphrased and presented in plain text, followed by the response in *italics*.]

#### **Questions and Comments regarding the Study 1 presentation**

What is the difference in the agricultural water demand for the various water-demand scenarios?  
*The agricultural water demand for scenario 1 was based on irrigation water requirements for different crops as listed in the Washington Irrigation Guide. Scenarios 2-4 used an agricultural water demand of 4 feet per irrigated acre which was assumed to be the maximum amount of an agricultural water right per acre.*

Question directed toward a slide showing two pie charts for current and 2040 water demand: If there is no change in the demand for instream flows between the two scenarios, why is the instream flow component larger in the 2040 scenario?

*The instream flow component is equal for both scenarios, the apparent difference may be an artifact of how the results are displayed in this presentation.*

Was the study area just Osoyoos Lake or also Okanagan Lake? You need to consider Okanagan Lake for this study.

*This study looked at inflow to Osoyoos which is influenced by releases from upstream Okanagan Lake. You are correct, we need to consider the larger basin picture. The Okanagan Basin Water Board (OBWB) is considering the entire basin in their water studies.*

How can the public find information from the OBWB studies?

*The results are currently on a CD but not yet online. The Osoyoos Times did run an article about the OBWB's presentation of key findings from Phase 2 of the Okanagan Water Supply and Demand Project.*

We need someone to show how the results of the OBWB studies affect Osoyoos Lake.

*The OBWB is also interested in this. It is complicated; if you make a change upstream, how will it affect other management decisions?*

What location do the downstream instream flows pertain to? Is it upstream or downstream of the confluence with the Similkameen River?

*The instream flow requirements used in Study 1 pertain to the reach of the Okanagan River downstream of Zosel Dam and upstream of the confluence with the Similkameen River.*

Study 1 only looked at flow conditions for an historical 22-year period. This period does not include very low runoff years that occurred in 1957 or 1977. How will lake levels be managed in really low runoff years?

Study 1 suggests that we may want to increase minimum trans-border flows. What if we had 5 droughts in a row and you dropped Okanagan and Osoyoos Lakes to meet trans-border flows? A 30-year Order could lock us into a potentially bad situation if this scenario occurred.

*These studies are intended only to inform the new Order. The Commission will endeavor to write an Order that optimizes lake management in light of the best available forecasts of future conditions.*

#### **Questions and Comments regarding the Study 4 presentation**

How do phosphorus and lake sediments react with oxygenation?

*Sediment has the ability to retain phosphorus beneath an oxidized sediment-water interface. With an oxidized interface, a thin layer of iron oxide forms and phosphorus adsorbs to the iron oxides. If the level of dissolved oxygen at the sediment-water interface decreases to near zero, the iron oxides go into solution and the phosphorus previously adsorbed to the particulate iron oxides also goes into solution and becomes available for mobilization into the overlying water column.*

Is phosphorus naturally occurring?

*Yes, but it is introduced into the lake.*

Did you do calculations of dissolved oxygen demand for Osoyoos Lake?

*Yes, it is in the report.*

Does lake aeration/oxygenation technology get rid of milfoil?

*No, but it does address algae by reducing the potential for internal nutrient loading.*

Pollution from the Okanagan River comes into the lake and settles to the bottom. The middle and lower basins are already dead. Water quality is not solely dependent on phosphorus; there are other constituents of concern.

*Effective watershed management is needed to effectively address the varying sources of water pollution.*

Your graph of inflow versus phosphorus shows increasing phosphorus with increasing flow. If sewage is the source of phosphorus, then wouldn't the phosphorus concentration decrease with increasing flow because of dilution?

*That would be the case if sewage (a point source) was the primary source of phosphorus during high flow. During high flow, the primary source of phosphorus shifts from point sources (i.e. sewage treatment plant effluent), to nonpoint sources (i.e. runoff from land).*

### **Questions and Comments regarding the Study 5 presentation**

Is there concern about Zebra Mussels entering Osoyoos Lake?

*Yes, because there is the potential for Zebra Mussels to be introduced into Osoyoos Lake. Zebra Mussels attached to aquatic weeds and watercraft can be transported from one lake to another. Zebra mussels are filter feeders and can actually improve water clarity but the negative impacts outweigh this one positive benefit. One result of clearer water is increased vegetative growth.*

Okanagan Chinook Salmon is a threatened species. Do instream flow requirements downstream of Zosel Dam take into account moving Chinook smolts downstream in a safe manner?

*Pulse releases of water from Zosel Dam are used to move smolts downstream.*

Do the pulses line up with the timing of the natural freshet?

*Once smolts are observed in the outlet channel, the release of pulses of water is scheduled by the dam operator and Fishery biologists. A larger concern is the high mortality rate of smolts from predation during low flow years.*

### **General comments from the Public**

The Okanagan Basin Water Board is interested in seeing a second Osoyoos Lake Water Science Forum. This would create an opportunity to cover a wide range of issues associated with Osoyoos Lake and it would attract a larger audience than the Osoyoos Board Public meetings.

*The Board had previously discussed hosting a Science Forum on a 5-year interval. However, it would be very timely for the Board and the local community to schedule a second science forum coincident with the completion of the studies.*

Summary of comments regarding milfoil: Many residents are concerned about the milfoil problem. Since chemical treatment has been ruled out, a viable option may be drawing down the lake in the winter to freeze the milfoil roots. This technique has been successful for controlling milfoil in Lake Pend Oreille. The south end lake residents are living with the effects of milfoil harvesting in the north end when the clippings float downstream and accumulate at the south end of the lake. Boat props are also effective at clipping milfoil and contributing to the problem. Condition 10 in the 1982 Order of Approval allows the IJC to temporarily deviate from the prescribed water levels to control milfoil. The Board should consider a study of deep water drawdown to control milfoil.

*The topography of Lake Osoyoos is broader and shallower than Lake Pend Oreille and it would be difficult to drawdown Lake Osoyoos far enough to be effective. There would always be a resident population of milfoil.*

Statistical analysis of historical flows is a good tool for analyzing flow scenarios but climate change will have such a major effect on future flows that the historical analysis will be less useful for predicting the future. The best thing to have in place in the new Orders is a procedure that will allocate water during severe droughts that may occur in the future.

*There are three studies remaining and one (Study 6) will look at methods for including climate change information in the new Order.*

The Climate Change Study will be important. Five drought declarations in the last 5 years are unacceptable.

*After the meeting it was verified that drought has been declared 5 times in the past 8 years and twice rescinded.*

The Similkameen River and Tonasket Creek are polluted systems and the IJC should address these issues.

*IJC can only become involved in a transboundary issue if it is petitioned to do so.*

**ADJOURN**