OSOYOOS LAKE WATER QUALITY SOCIETY

A.G.M.

25TH May 2009 7:00 P.M.

OSOYOOS UNITED CHURCH

1st Guest speaker: Mike Sokal, Environmental Impact Assessment biologist from the BC Ministry of Environment.

Monitoring

The Ministry of Environment has been monitoring all large lakes in the valley including Osoyoos Lake since the 1960's, and the data is used to determine status and trends of the lakes in response to waste management issues, watershed changes, and climate change. Osoyoos Lake data is collected by the MOE twice a year (spring and fall), and they also use the data collected by OLWQS volunteers who monitor the water weekly all through the summer as weather conditions allow.

There is an automated water data monitoring plant at road #18 bridge north of Osoyoos which has been collecting data for approx. 20 years.

Total monitoring budget for the MOE is approx. $12,000 which is small considering our valley forms part of one of the largest watersheds in N. America.

Algae and milfoil in Osoyoos Lake grow quickly in phosphorous-enriched water.

Phosphorous

This is one of the biggest challenges because Osoyoos Lake - and other lakes in the Okanagan - have been found in the past to contain abnormally high levels. Sources of phosphorous that enters the lake are varied: watershed soil, urban stormwater runoff, septic tank seepage, fertilizers and manures, sewage discharge. This is called *nonpoint source pollution* as it does not come from a single point, or source, and it leaches into the lake through the ground as well as directly into the water. A small river that flows through agricultural land into Kalamalka Lake is high in phosphorous, as is the Okanagan River. There is increased runoff during wet years as compared to dry years. It is extremely difficult for scientists to determine how much phosphorous comes from which sources, although it is known that urban runoff is the biggest polluter of water in North America.

When you have too much phosphorous in the water, aquatic weeds such as milfoil together with small floating plants called algae, the smallest organism in the food chain, absorb the nutrient-enriched ('eutrophic') water and grow much too quickly in these conditions. Live weeds and algae form 'mats' on the surface, blocking out the sun. As they die and sink to the bottom they use up the oxygen in the water, literally smothering all other plant and marine life and destroying the overall water quality.

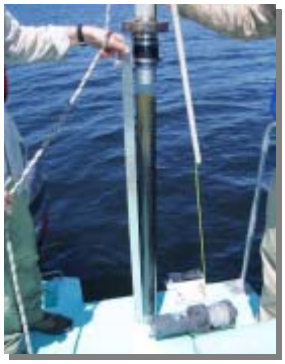
Phosphorous control began in the 1970's; we are not quite where we should be yet, but things are looking up.

Between 1970 and 1980 there was an 80 per cent decrease in phosphorous: this was due in part to upgraded sewage systems in towns and cities upriver, even though actual water use has increased. In 1993 Penticton upgraded their sewage system and we have seen results from that as well. It takes at least 10 years to show results.

The biggest improvement has been in Skaha Lake, and to a lesser extent Osoyoos Lake which is shallower so has more aquatic plants and algae. However water clarity has not improved in relation; experts believe clarity is aggravated by high water temperatures.
The central and south basins of Osoyoos Lake have more water quality/phosphorous problems and higher levels of nutrients. Scientists don't know why. The lake is divided geographically and almost appears to be three separate lakes. Could geese be a contributing factor? – the only scientific study of geese was done at the north end of Kalamalka Lake, where localised decreases in water quality were observed.

Sediment core sampling

Last summer the MOE with the help of OLWQS and UBC Okanagan took sediment core samples from the deepest parts of the north and south basins of Osoyoos Lake. The goal was to examine phosphorous levels over the last 200 years, and to discern nutrient levels and general water quality in the period prior to human settlement.



There are some deep sections in Osoyoos Lake, the deepest being in the north basin at just under 63 m. However the average depth is 14 m which is relatively shallow.
Lakes are giant traps for sediments, which come from numerous sources – the air, watershed, groundwater, plus items already in the lake eg: insects, amphibians, plants. Microscopic algae and pollen grains in sediment samples are often used for analysis as they are good environmental indicators and they preserve well.
The core samples were sliced into 5 mm sections and sent to laboratories for radio carbon dating and other tests.

The sediment core from the north basin was dated to be approx. 220 years old (1787 A.D.), and the south basin was dated at 200 years old.
Prior to European settlement, lake conditions were discerned to be probably mesotrophic – a natural condition with moderate levels of phosphorous and little fluctuation.
Total phosphorous data showed a significant increase in the 1940's, peaking between 1950 and 1990. In 1930 the Okanagan valley population was 30,000: it is now 300,000. The straightening of the Okanagan River may also have contributed to this peak, but the direct cause is not known. Post 1990 phosphorous levels decreased considerably.
Currently, levels are similar to pre-settlement levels which is good news although there is room for improvement.
Efforts are still needed to decrease non-point source pollution in the entire river basin, and emerging issues such a pharmaceuticals and climate change need to be addressed. Trend monitoring will continue into the future.

For photos, graphs, and detailed results:
Osoyoos Lake core sampling project – powerpoint presentation:
http://www.env.gov.bc.ca/epd/regions/okanagan/waterqual/pdf/osoyoos-ppt-2009.pdf
Also of interest:
Core sampling for DDT in 2001 by Washington State Dept of Ecology:
http://www.obwb.ca/fileadmin/docs/osoyoos_lake/13_EraMiller_Brandee_DDT.pdf

Benthic algae study

Our society has some funding donated to us from the 2007 Osoyoos Lake Water Science Forum, and we have also received funding from the Okanagan Basin Water Board. We will be using this to include Osoyoos Lake in a study of benthic algae. This algae is widely used to assess the health of an ecosystem as it is sensitive to changes in lake conditions such as nutrient enrichment, pH and many other contaminants. It is therefore ideal for monitoring water quality in the Okanagan lake system. Rock scrapings will be taken this summer in the NW sector area and sent to labs for testing, and further samples will be taken at a future date for comparison.

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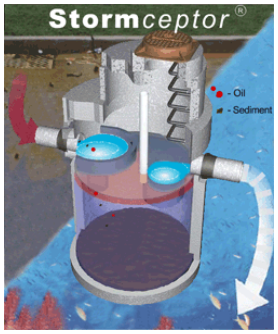
2nd Guest Speaker: Osoyoos Mayor Stu Wells

Wells served on the Okanagan Water Stewardship Council for some years before becoming vice chairman of the Okanagan Basin Water Board.*

Geese

The egg addling program is now in its third year and has been for the most part successful. It is also collecting data on the location and quantity of nests, young, and adult geese in the valley. Addling has been found to be the most effective and humane way of controlling the goose population.

Storm Water Management



As planned, a stormceptor will soon be installed at the Watermark development at the bottom on Main Street. Inside this device, sediment settles to the bottom of the chamber and lighter materials such as oils float to the surface and are then removed manually. All the stormwater from eight acres of the downtown core that used to be discharged directly into Osoyoos Lake will now go into the stormceptor. It comes with a bypass pipe for overflow situations.

Public beach access points

Aside from the main beaches, there are many smaller access points around the lake. Some are in residential areas and there have been problems with neighbouring properties encroaching into the access areas. The Town has now surveyed all the sites and a study will be released in June. Letters have been sent to all adjoining property owners; the town wants to ensure everyone understands the rules of operation. Council will have to decide what to do with each individual case.

Water Master Plan

This has not moved along as much as it should. It is being compiled by Town engineers and is tied into bylaws, water metering etc. All municipalities in the valley are now on water meters except Osoyoos. The plan does involve initial costs but the long-term savings will be substantial.

Proposed Town marina

Council has had some early dialogue with Glen Harris from Watermark, who is partnering on this project. Watermark is expected to open around mid-August 2009. The developer had been hoping to dredge the lagoon near the Sailing Club in the spring, but nothing has been heard from the Ministry and the marina is not expected to be built this year.

NW Sewer project

There will be an agreement signed this week. The Town is moving ahead whether Willow Beach is a player or not, and it hopes to get started this fall. If the Willow Beach development does not go through the cost factor changes considerably. There are 900 or so septic systems in the rural area around Osoyoos but only a small number within Town boundaries.

*Please note that since our AGM, Wells has been appointed Chair of the Okanagan Basin Water Board.

More info:

Okanagan Basin Water Board: http://www.obwb.ca/index/

Okanagan Water Stewardship Council: http://www.obwb.ca/wsc/
Okanagan Valley Goose Management Program: http://www.okanagangooseplan.com/
Osoyoos Waterfront Master Plan:
http://www.ownwatermark.com/downloads/07058_Council_Report.pdf

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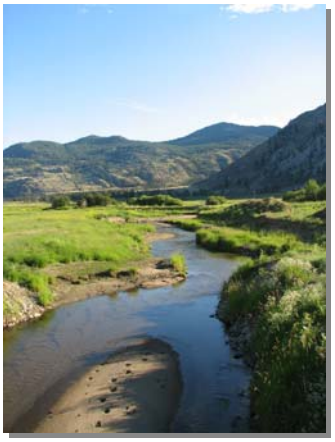
Meeting called to order at 8:40 p.m. 23 people present.
Motion to accept minutes from previous AGM: Sherry Linn/Joe Falkoski.

Treasurer's Report – Art Molenkamp
The year started with a balance of $5800 and ended with $11,850. The difference of $6,900 came from the Water Science Forum. Current balance (April 30th) is $12,890. In May we received $520 in memberships and $960 for well testing. We made an application to the Okanagan Basin Water Board for $14,000 for our sampling project and were awarded $9,250 which is two-thirds of what we asked for. We want to examine other sources of funding to do bigger projects in the future.
Motion to accept Report: Art Molenkamp/ Roger Horton.

Water Monitoring – Denis Potter
The boat has been taken out of its winter storage and prepared for use and we are now waiting for weather to improve. This week we will be helping the Town put out buoys in the lake's swimming areas. The data we collect is sent to the Ministry of Environment.
More info: http://www.olwqs.org/monitoring.html

Our water monitoring team & our pontoon boat



Shanker's Bend near Oroville, WA

Shanker's Bend Dam – Mark McKenney
There is an application in process to build a US$260 million, 80 metre high dam on the Similkameen River approx. 8km south of Oroville, WA. This would be for water storage and hydro power. The dam would flood up to 15 miles into Canada and the Similkameen Valley. Although this watershed is separate from the Okanagan watershed, the water systems are connected since the Similkameen River flows into the Okanogon River, and in some flow conditions there is backing up of water. The BC government is publicly opposed to this project, but so far the federal government has done nothing. It is likely the application will involve many years of feasibility studies and public hearings.
More info: http://www.olwqs.org/Sililkameendam.html

Water Science Forum

We have surplus funding of $6,900. There was an interest to put on another water science forum in 2009 in conjunction with the International Joint Committee meeting in Osoyoos in the fall, and we put out feelers with the original organisers from various government agencies, but there were no bites. We took $4,000 of the amount and put it towards the algae study. We could possibly hold an open house next year.

More on the 2007 Osoyoos Lake Water Science forum:
http://www.obwb.ca/olwsf/

Election of Officers

The following names were put forward:
Mark McKenney – President
Roger Horton – Vice President
Alicia Osland – Secretary
Directors: Lionel Dallas, Mike Cantwell, Gwen Monteith, Denis Potter

Motion to elect the above officers: Art Molenkamp/Sherry Linn. Carried.

Our Treasurer of many years, Art Molenkamp, is standing down. Mark McKenney thanked him for his years of hard work and dedication to the OLWQS. Art in turn expressed gratitude towards the society and its directors.

We are in need of a replacement treasurer. Please let us know if you would like to consider joining our team.

Adjournment

Motion to adjourn: Denis Potter/Roger Horton at 9:00 p.m.