

MINUTES

International Kootenay Lake Board of Control Public Meeting

Prestige Lakeside Resort
Robson Room
Nelson, BC

Thursday, September 12, 2013
7:00-9:00 PM

Attendance

United States

Chairs Col. Bruce Estok (host)
Members Michael Lewis
Secretary Amy Reese
Guests Commissioner, Rich Moy (U.S.), Dr. Mark Colosimo (IJC, U.S.), Ted Yuzyk (IJC, Can.), Kelvin Ketchum (BCHydro), Peter Brooks (USACE), Jamie King (FortisBC),

Canada

Bruno Tassone
Glen Davidson
Gwyn Graham

20 public guests (see Appendix I). Total of about 32 (public + officials).

Minutes

1. Welcome and Introductions

Bruno Tassone welcomed and led introduction of the Board members and guests.

2. Review of the Agenda

Bruno Tassone led a review of the agenda which was adopted without change.

3. IJC and Kootenay Order context

Bruno Tassone provided a brief overview presentation describing the IJC and the Kootenay Board including their membership and functions and the provisions of the 1938 IJC Order, as well as a brief summary of BCHydro's current feasibility study regarding additional channel capacity improvement at Grohman Narrows.

3.1 System Operations and Kootenay Lake Levels 2013

Gwyn Graham gave a presentation describing the inflow and outflow patterns of Duncan and Libby dam reservoirs, as relevant to Kootenay Lake elevations through 2103 (to date) and described the 2013 Kootenay Lake hydrograph (to date) and relevant aspects of Corra Linn Dam operations that affected lake levels, compliant with the IJC Order for Kootenay Lake. The lowest lake level of 1739.18 ft occurred on April 1st, 2013, below the April 1st IJC maximum of 1739.32 ft. There were two high-water peak levels

recorded on Kootenay Lake in the summer of 2013, but overall less extreme than what was experienced in 2012 (1753.78 ft on July 3rd, 2012). The first peak of about 1749 ft on May 24th, 2013 was largely driven by snow-melt. The second and more pronounced peak lake level (1749.33 ft on June 25th, 2013) was also the maximum lake level recorded in 2013 and associated with the same system responsible for extreme rainfall and catastrophic flooding in the Calgary area of Alberta during this period. Note that all elevations referenced in this section are based on Queen's Bay gauge observations.

3.2 Kootenay Lake Levels 2013 and Order Compliance.

Gwyn Graham reviewed the Kootenay Lake hydrograph showing that Corra Linn Dam was in compliance with the IJC rule curve in 2013 (to date). Lake levels were maintained below the IJC rule curve during the drawdown period from January 7th to April 1st and during the freshet period (following declaration of Spring Rise on April 9th, 2013), with operations at Corra Linn dam conforming to the lowering formula specified by the IJC Order during this period until the water level at the Nelson gauge descended to 1742.32 ft on August 15th, 2013. Corra Linn dam operating within this maximum level through to Sept. 1, 2013, at which point the dam can operate to store water on Kootenay Lake up to a maximum elevation of 1745.32 ft (Queen's Bay gauge) in compliance with the IJC Order.

4. Questions and comments from the public

Andy Davidoff: Who required original dredging and why? (Bruno Tassone: IJC required original dredging as part of 1938 Order as a mitigation measure following review of the Corra Linn application). Would dredging increase velocities (e.g. if channel capacity increased by 50%) and how would it impact downstream? (Bruno Tassone: Corra Linn regulates flow to a certain extent but generally, greater channel capacity can result in greater flow). Does Grohman Narrows control lake elevation at extreme events? (Bruno Tassone: to comply with the IJC lowering formula during freshet, Corra Linn typically has to operate in a manner to maintain the control point for Kootenay River Discharge at Grohman Narrows).

Andy Shadrack – in 2012, the restriction of Grohman Narrows prevented the lowering of the lake earlier. We nearly went over elevation 1754 feet because we couldn't lower it in March and April. If we could take more water out earlier in the Spring, we'd have less in the freshet (Gwyn – to confirm for 2012, Corra Linn went into freefall close to the beginning of April).

Ramona Faust – There are public concerns over impacts from the proposed Grohman Narrows project, particularly for Area "E" (RDCK). Can you provide information/Engineering studies on the Grohman Narrows project? (Gwyn - we can provide an IJC Kootenay Board website link to studies on Grohman Narrows. We can post to our website). Note RDCK = Regional District Central Kootenay.

John Drysdale: Why do you hold the lake up so high in the summer? (Answer – the applicant doesn't hold it up high during the freshet, they are on free fall (conforming to IJC lowering formula) – it's a natural hydrological effect experienced in most lakes in BC due to snow-melt and rainfall during this period).

Comment from attendee: That is what was so difficult this year – it was a long peak and went into late July.

Kindy – As you said, approximately 40% of the inflow to Kootenay Lake is managed. To what degree are Libby Dam operations influencing the level of Kootenay Lake – how much are they influencing the level in Kootenay Lake? (Amy Reese: looking at charts, we can see the peak inflow in May on Kootenay Lake was approximately 100 kcfs. Libby Dam was releasing sturgeon flows during this time, adding around 10 kcfs to previous flood risk management flow, but remaining well below what unregulated flows would have been).

Garry Jackman – Libby operations help folks in our valley because USACE is providing flood risk management to Bonners Ferry (upstream from Kootenay Lake).

Andy Davidoff - All of the water from the border to the whole Kootenay system is controlled by BC Hydro. But this presentation makes it seem like the 1938 Order controls operations. Which actually controls? (Jamie King: BC Hydro optimizes the system – it is Fortis' responsibility but BC Hydro manages it. Fortis BC and BC Hydro's interests are aligned. Fortis operations follow IJC Order).

Ramona Faust – as regional district chair – I have two different concerns. Grohman Narrows and the hydraulics and flow velocity of the West Arm and potential shoreline damage, but also concerned about the flood potential. I'm interested in how Grohman Narrows will impact those two issues (Queens Bay is in her jurisdiction). Conversely, in her electoral area downstream of Grohman Narrows – what would be the impact there. Once the peak is over and we are at the elevation we are here, there can be complaints re. recreational boat access (she's concerned and is looking for information) – (Bruno Tassone clarified that future dredging is out of the scope of the Board and that Condition 11 of the IJC Order states the applicant will cooperate with any channel improvements as the US and Canadian governments may require. Right now BC Hydro has done investigative work. Kelvin Ketchum is here from BCHydro and can more directly answer those type of questions at the end of the meeting).

Clair De la Salle – Friends of Kootenay Lake – what is the process if there's deviation from the rule curve? (Bruno: normally we work quite closely with Fortis BC to avoid instances of being out of compliance. In some cases it may be a forecast, but few if any instances when the applicant was not complying with the rule curve. Gwyn: 1st we ensure it's not a data quality issue – then inform applicant, 2nd ensure appropriate mitigation measures, and communicate non-compliance up to the International Joint Commission for any action on their part. Occasionally April 1st inflows make it impossible to meet rule curve April 1st and Board ensures that this is not due to FortisBC operations at Corra Linn Dam).

Marc-Andre – how suitable is the order to climate change because we might see inflows bump up and down more in the future. (Bruno – the IJC will likely be doing investigative work to help inform possible changes / impacts).

John Drysdale – regarding the Kootenay Lake Level history. In the last four years, the lowest level occurs about 80% of time below 1739 feet. Is that right? Concerned that 80% average for low water is pretty good. When 1739.62 feet at Queens Bay in 2012, it wasn't that elevation at my place 50 miles upstream. Can that be continued? Is that a possibility? Is that rate going to continue? (Jamie – FortisBC tries to make the low level target every year, but when we have exceptionally high inflows it is not always possible. Note – it is important to make sure lake residents know that lake elevation at their location will not necessarily be equal to the lake elevation at the gaging site given the size of Kootenay Lake and dynamics affecting water level from one part of the lake to the next – Queen's Bay gauge is the primary Kootenay Lake reference point for the IJC Order)

John Kettle – RDCK Creston Valley. Fundamental question – Honestly believed millions and millions were saved in damages because Libby went over full pool in 2012. (Col. Estok: we were managing for the whole system – we had Canada in mind as well as the U.S.; Kelvin Ketchum – that extra foot at Libby was at least 1/3 of foot on Kootenay Lake. We were surcharging Duncan, Arrow and all over – Libby and Duncan combined saved about 6½ feet on Kootenay Lake vs. what would have occurred in natural conditions).

John Drysdale – Fortis pays American farmers, correct? (Col Estok / Bruno Tassone – yes, that is correct, as part of the order, they are paid for the increased cost of pumping). Why don't the Americans pay Canadians for increased pumping costs? (Bruno: Given that the dam is in Canada, anything within Canada was considered a domestic issue and not the purview of the IJC in approving Corra Linn dam).

Andy Davidoff: What would the IJC's role be for a water use plan for the whole Kootenay System. (Bruno Tassone: that issue would more specifically go to the water comptroller for BC, but IJC would likely be interested in impacts across the boundary. We would not be the lead but participate in the review; Glen Davidson - Water Use Plan is for a facility – need to understand which facility are you talking about? If it's for Libby then it's not specifically BC jurisdiction. BC can request but not require in this case.)

John Kettle – there is only one other option to surcharging, we have to look at the option of dredging Grohman Narrows – someone has had to model this to see how much difference dredging Grohman Narrows will make.

Ramona Faust – is it possible to get a graph of when Grohman has been in control of lake level? (Bruno: we show on the Kootenay Lake graph when it is or isn't in control. It is part of the annual report and available on our website each year. Minutes will be online – usually earlier. The annual reports usually go online in April.). Requested a stakeholder list (Bruno: there may be sensitivity sharing contact information but will see if we can get listserve or similar).

Jayne Boys – question on climate change affects – are you just starting now? When I look at the chart – it looks like it (lake level) is increasing through time (Bruno Tassone – there have been studies done already and we have access to a lot of work to date. Gwyn Graham: hard to pinpoint what you can attribute the trend over the last couple of years to at this point - Climate variability (climate cycles such as El Niño), upstream dams operations? Bruno: This is an issue across the country – could fall under a larger, national agenda).

Drysdale/Shadrack – Numerous areas of FN heritage. Are the first nations going to be involved in the upcoming Columbia River Treaty/CRT. (Bruno Tassone – yes but remember that the Columbia River Treaty is separate from the IJC Kootenay Board of Control which is not required to be involved; Deb Kozak – chair of local governments for community consultations for CRT – they are involved, but are undertaking their own process – we invite and share information. They are undertaking their own process as sovereign).

The remainder of the meeting was ceded to Kelvin Ketchum, BC Hydro, to discuss the recent BCHydro study of the feasibility of dredging Grohman Narrows. There were many questions and concerns about potential dredging.

Adjourn

Bruno Tassone thanked the audience for attending and participating and declared the official Board Meeting adjourned, allowing further public questions and discussion with representatives from BCHydro, FortisBC, BC FLNRO and USACE representatives on matters outside of Board purview.

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Nelson, B.C**

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Name	Home Town
Email or phone contact info.	Affiliation

The International Joint Commission Kootenay Lake Board of Control

Public Meeting

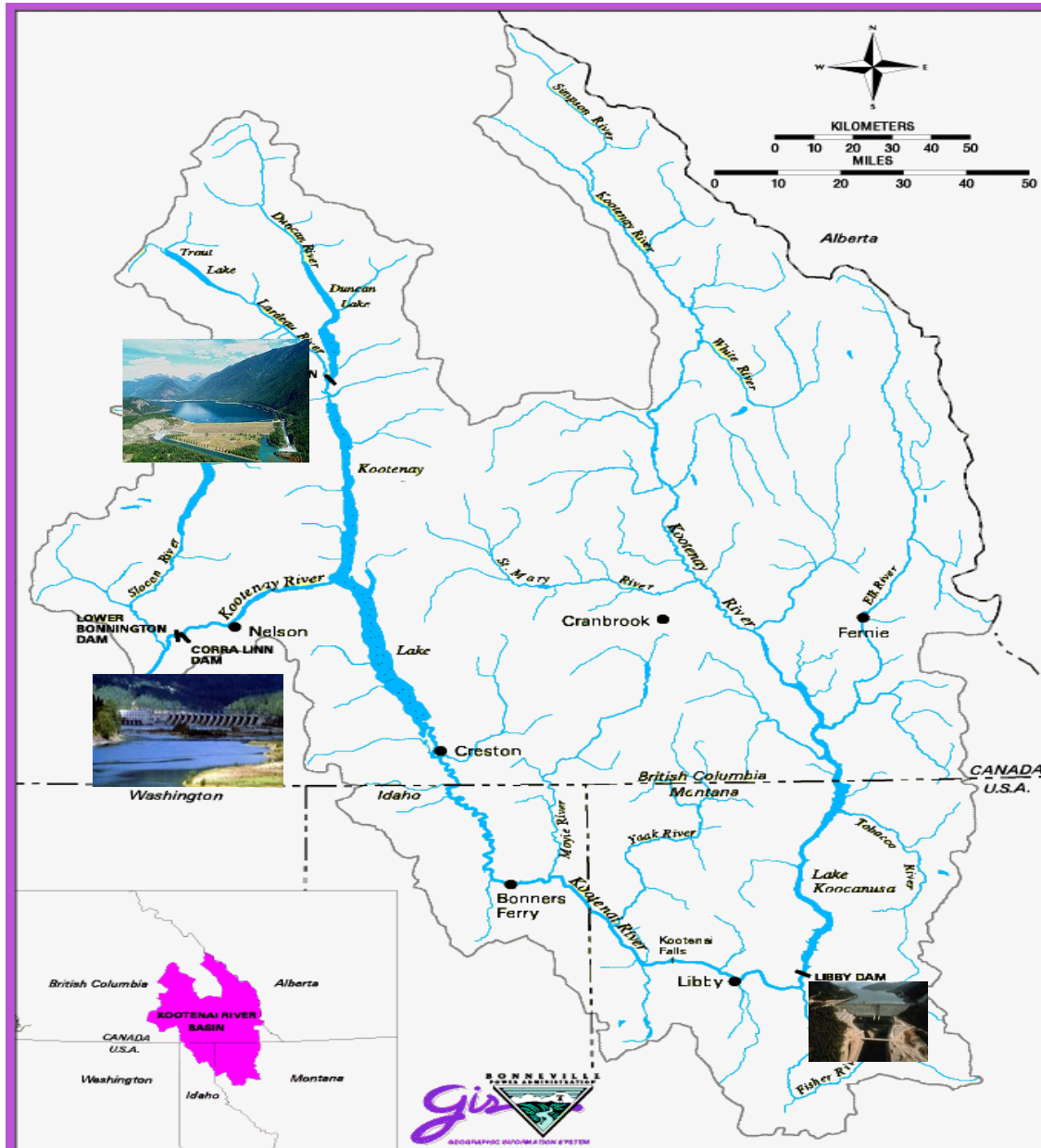
September 12, 2013
Nelson, BC

Presented by:
Bruno Tassone
Chair, Canadian Section
Bruno.Tassone@ec.gc.ca

Agenda

- **Welcome and introductions**
- **International Joint Commission Context**
- **Kootenay Lake Orders**
 - **System Operation 2013**
 - **Kootenay Lake levels 2013**
- **Questions and Comments from the public concerning the Kootenay Order and Kootenay Lake levels in 2013**
- **Adjourn**

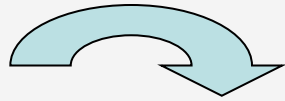
Kootenay(Kootenai) Basin



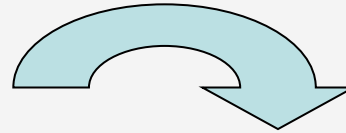
IJC Context



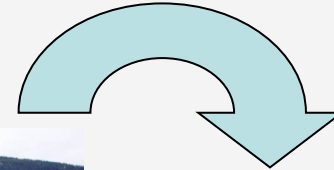
'Boundary Waters Treaty'
1909 Treaty Between the United States and Great Britain (for Canada) Relating to Boundary Waters, and Questions Arising Between the United States and Canada



International Joint Commission (IJC)



**Corra Linn Dam
IJC Kootenay Lake Order of Approval**



International Kootenay Lake Board of Control

International Joint Commission

Lana Pollack
U.S., Chair



Joseph Comuzzi
Canada,
Chair



Rich Moy, U.S.



Dereth Glance, U.S.



Gordon Walker, Canada



Benoit Bouchard, Canada

International Joint Commission

- **To prevent and resolve Canada/US water issues, the Commission...**
 - Receives applications and references on transboundary issues
 - Notifies public, undertakes studies and holds hearings to inform decision
 - Issues Orders (e.g. 1938 IJC Order for Kootenay Lake)
 - Issues recommendations (i.e. for reference cases)
- **The Commission appoints Boards of Control to monitor compliance with terms of IJC Orders**

Kootenay Lake Board of Control



Col. Bruce Estok,
Chair, U.S.



Bruno Tassone,
Chair, Canada



Michael Lewis,
U.S.



Glen Davidson,
Canada

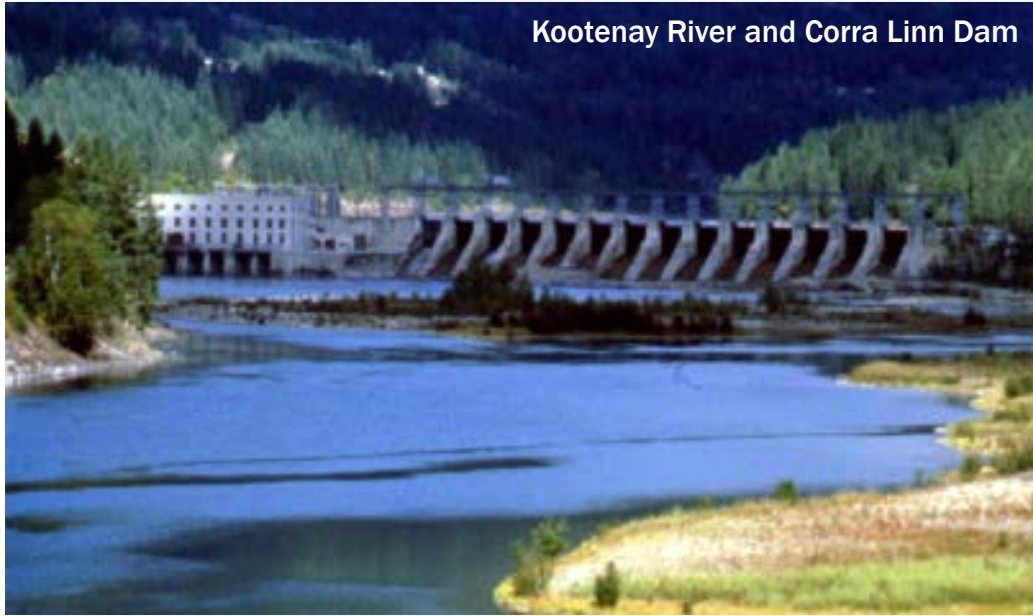
Kootenay Lake Board of Control

- **Duties of the Kootenay Lake Board of Control...**

- Monitor FortisBC's operation of Corra Linn Dam for compliance with terms of IJC Order (e.g. [maximum water levels](#) on Kootenay Lake, outside of freshet)
- Assure all other provisions of the 1938 IJC Order are followed
- Hold annual meetings, report and provide general support to the IJC on issues relating to the 1938 IJC Order

1938 Kootenay Lake Order

Kootenay River and Corra Linn Dam



- Kootenay Lake Order relates to Corra Linn Dam (FortisBC).
- 1929: West Kootenay Power sought IJC approval for Corra Linn Dam & 6 ft of water storage in Kootenay Lake.
- 1938: IJC Order of Approval for Corra Linn Dam
 - Required excavation at Grohman Narrows

- Issue: The dam can affect Kootenay Lake levels and cause backwater effect up Kootenai River into Idaho.
 - Article IV of Boundary Waters Treaty applies



1938 Kootenay Lake Order



- Directs FortisBC to help pay Idaho farmers to offset increased pumping costs for land drainage

1938 Kootenay Lake Order

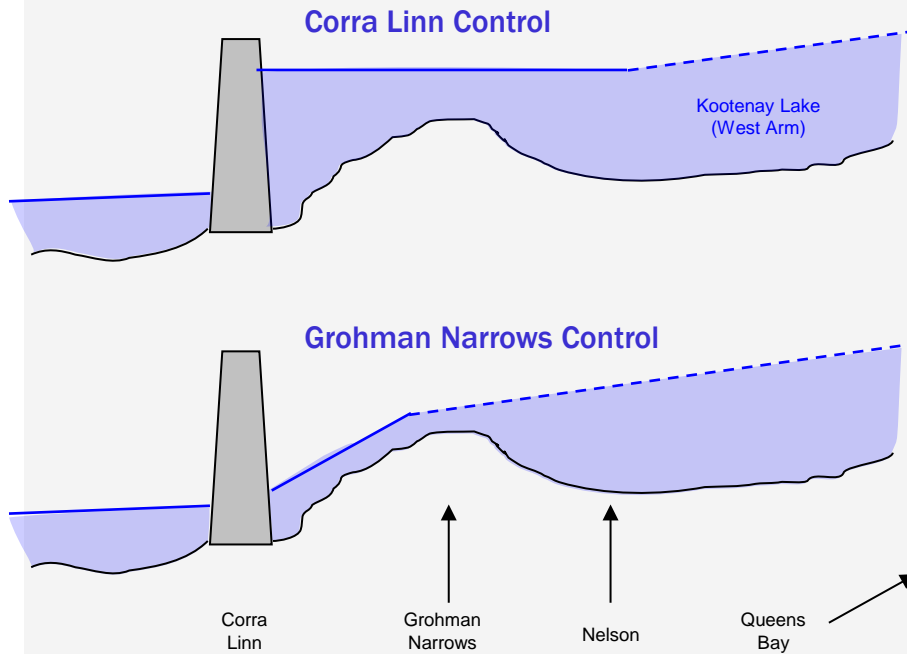


1938 Kootenay Lake Order



- **Directs FortisBC to take advantage of the channel improvement at Grohman Narrows (dredging) to lower peak water levels on Kootenay Lake**

Kootenay Lake Control



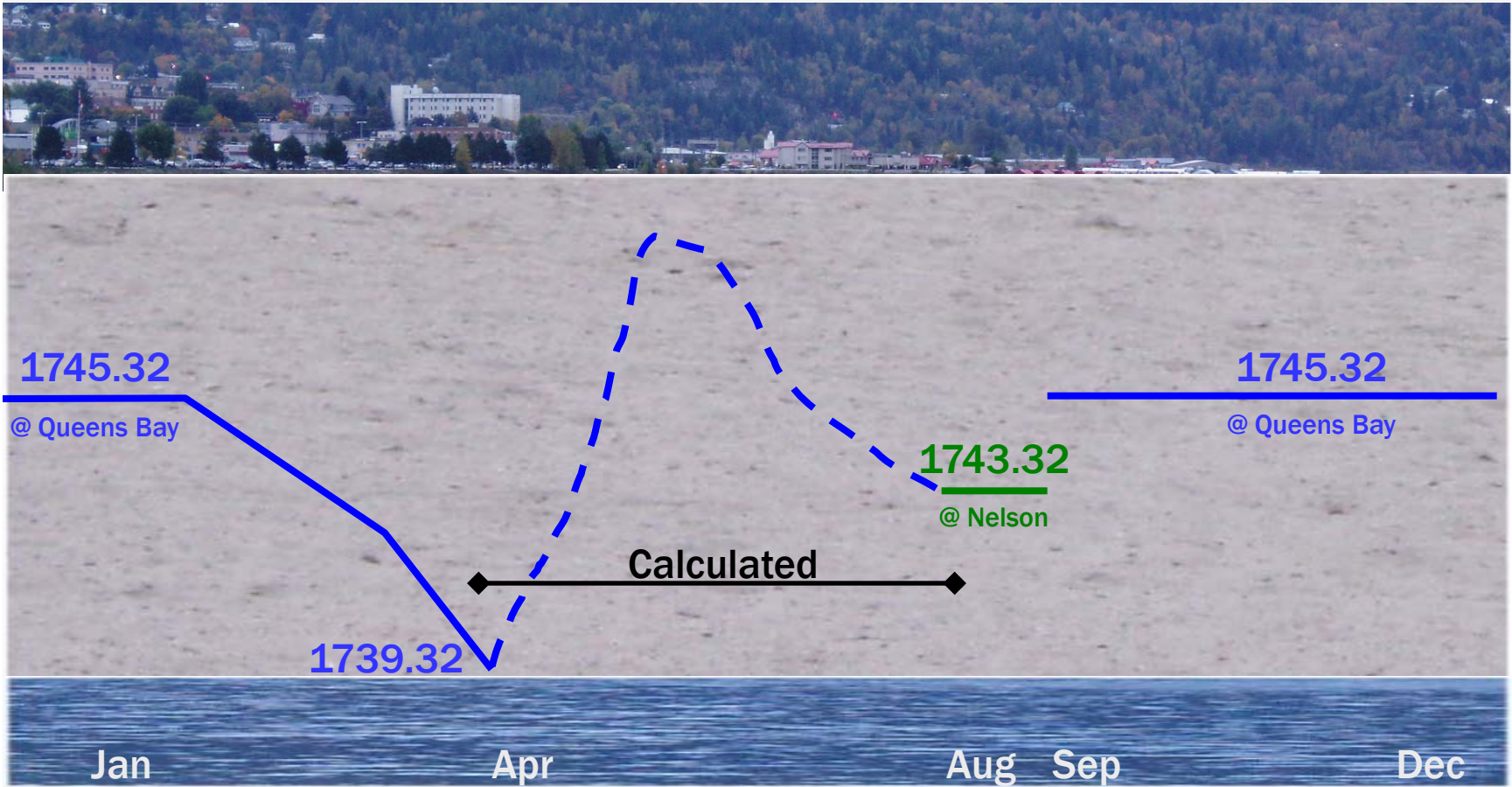
- Lake level depends on balance of inflow and outflow
- Corra Linn dam does not have exclusive control of lake outflow
- When the Corra Linn forebay is kept low, control moves upstream to the channel constriction at Grohman Narrows

1938 Kootenay Lake Order



- Directs FortisBC's operation of Corra Linn Dam with respect to maximum water levels in Kootenay Lake

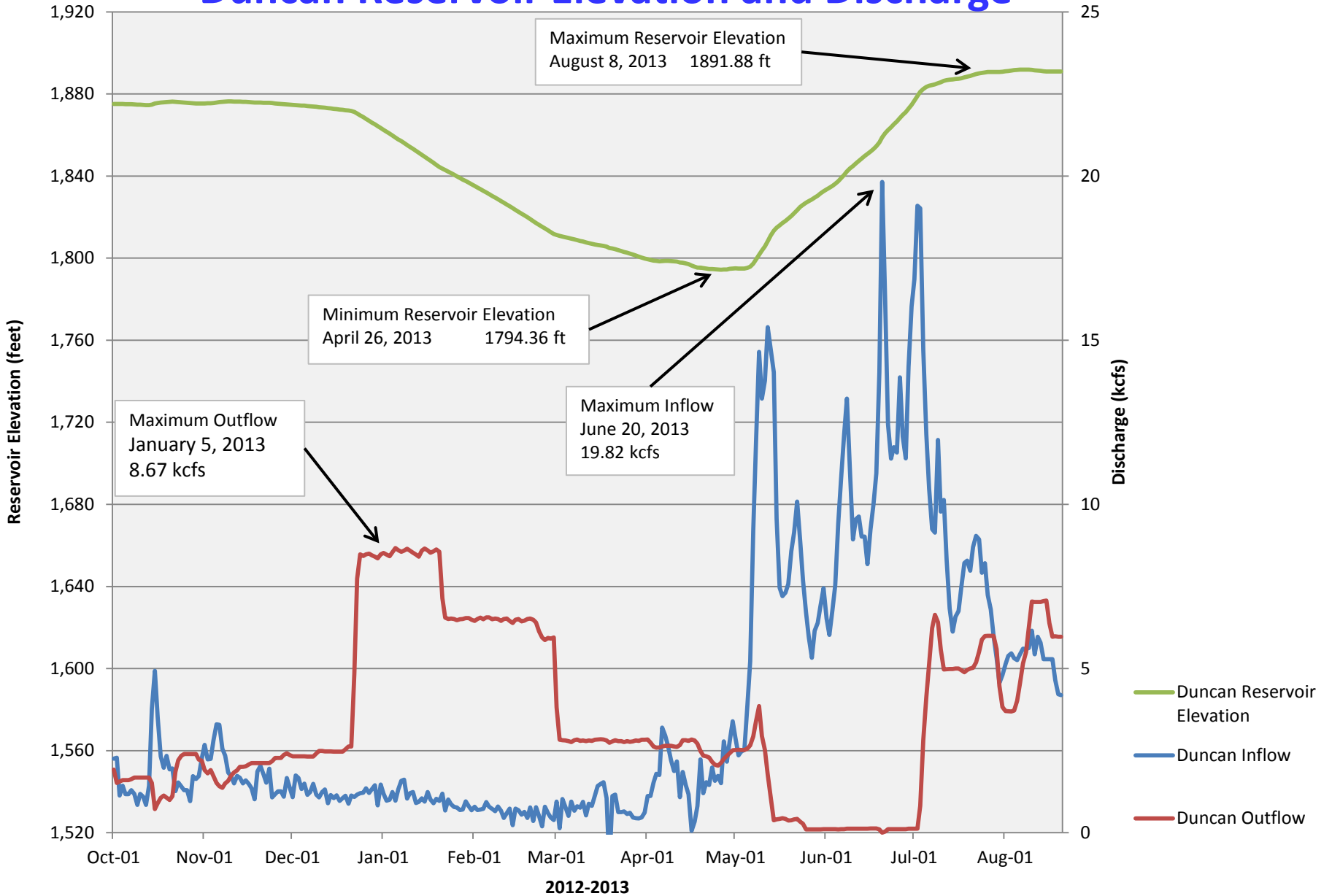
Maximum Water Elevations Ordered



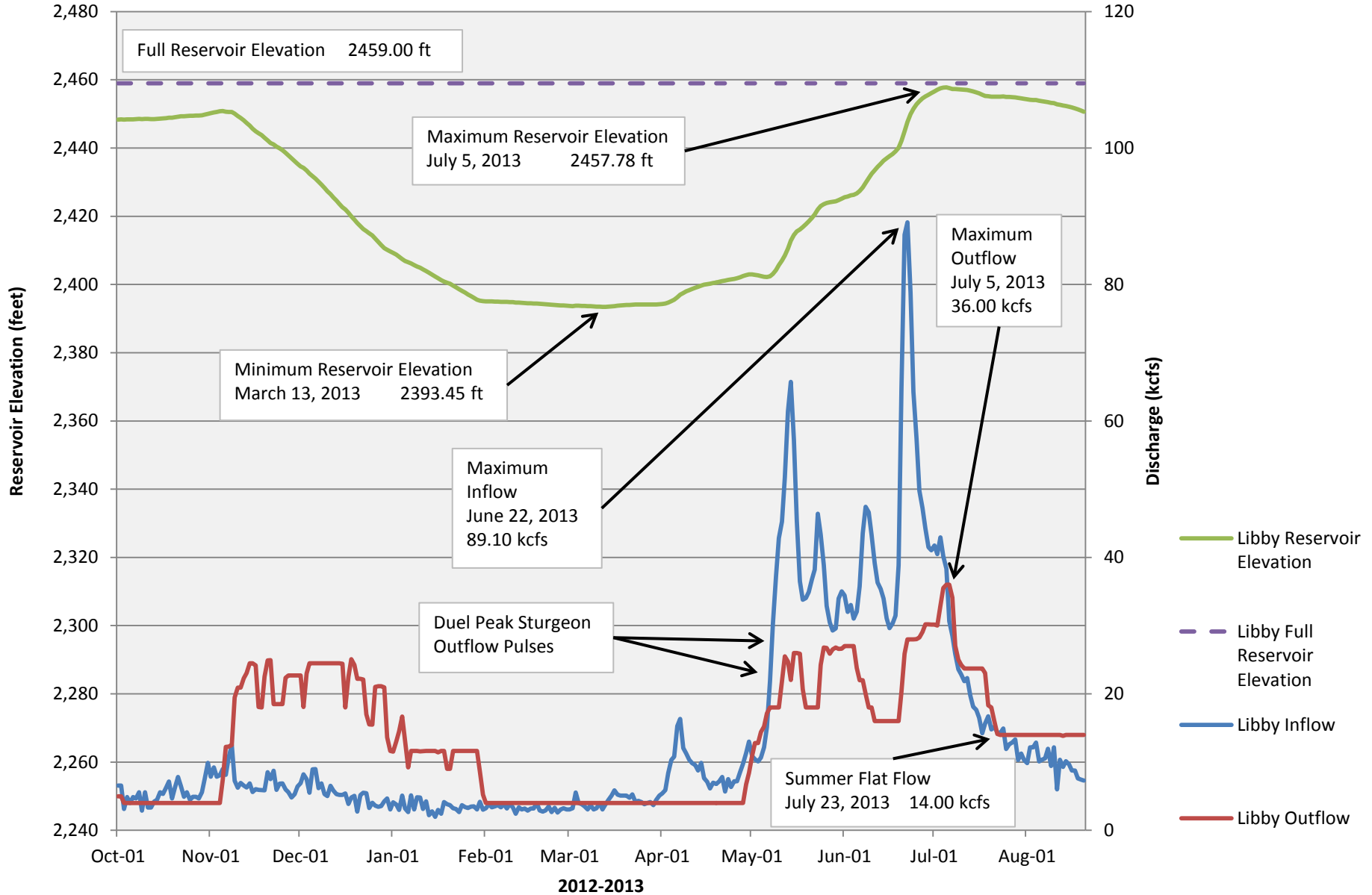
Overview of System Operations and Lake Levels in 2013

- **Duncan Dam Reservoir**
- **Libby Dam Reservoir**
- **Kootenay Lake Level**

Duncan Reservoir Elevation and Discharge

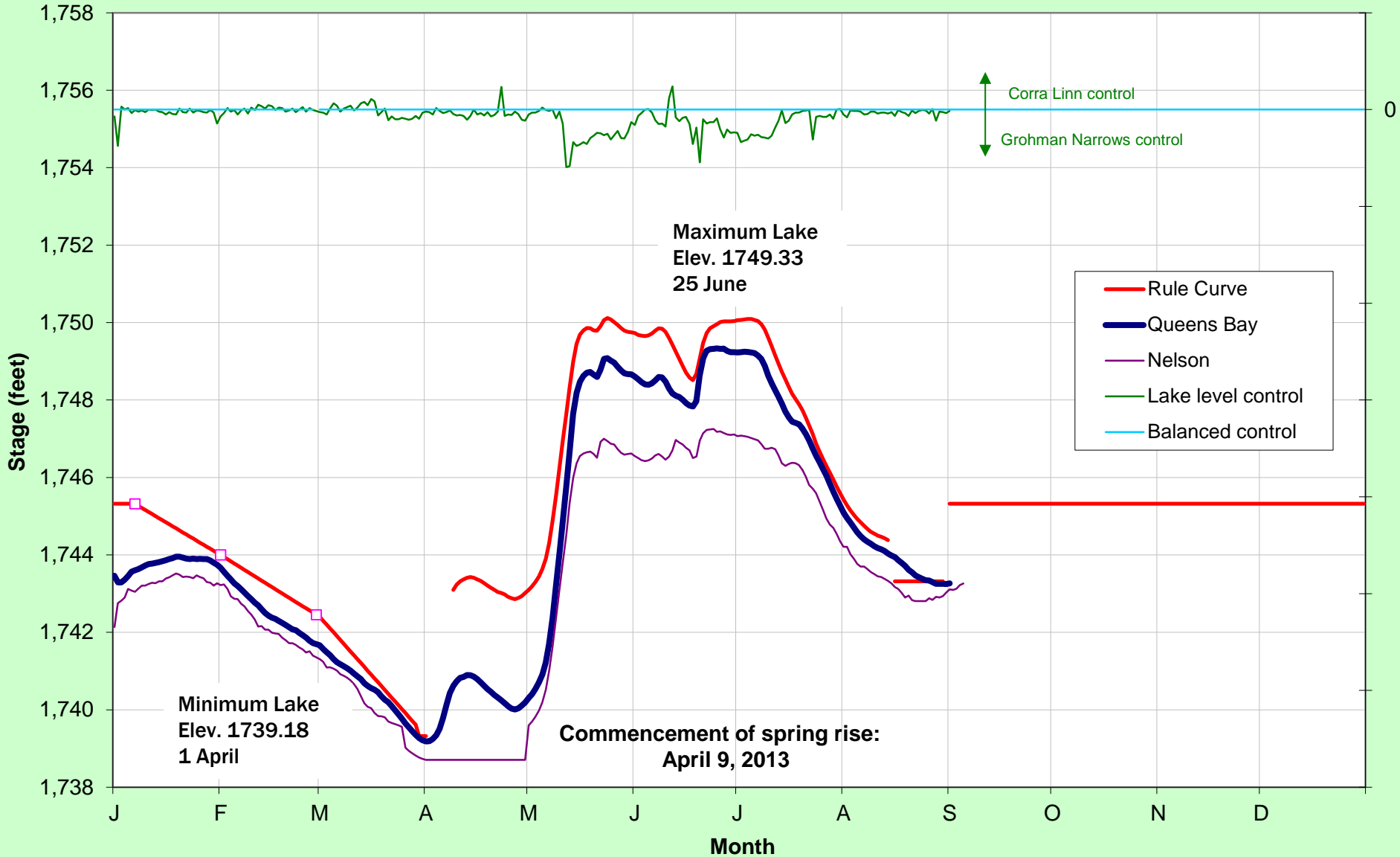


Libby Reservoir Elevation and Discharge



2013 Kootenay Lake Levels

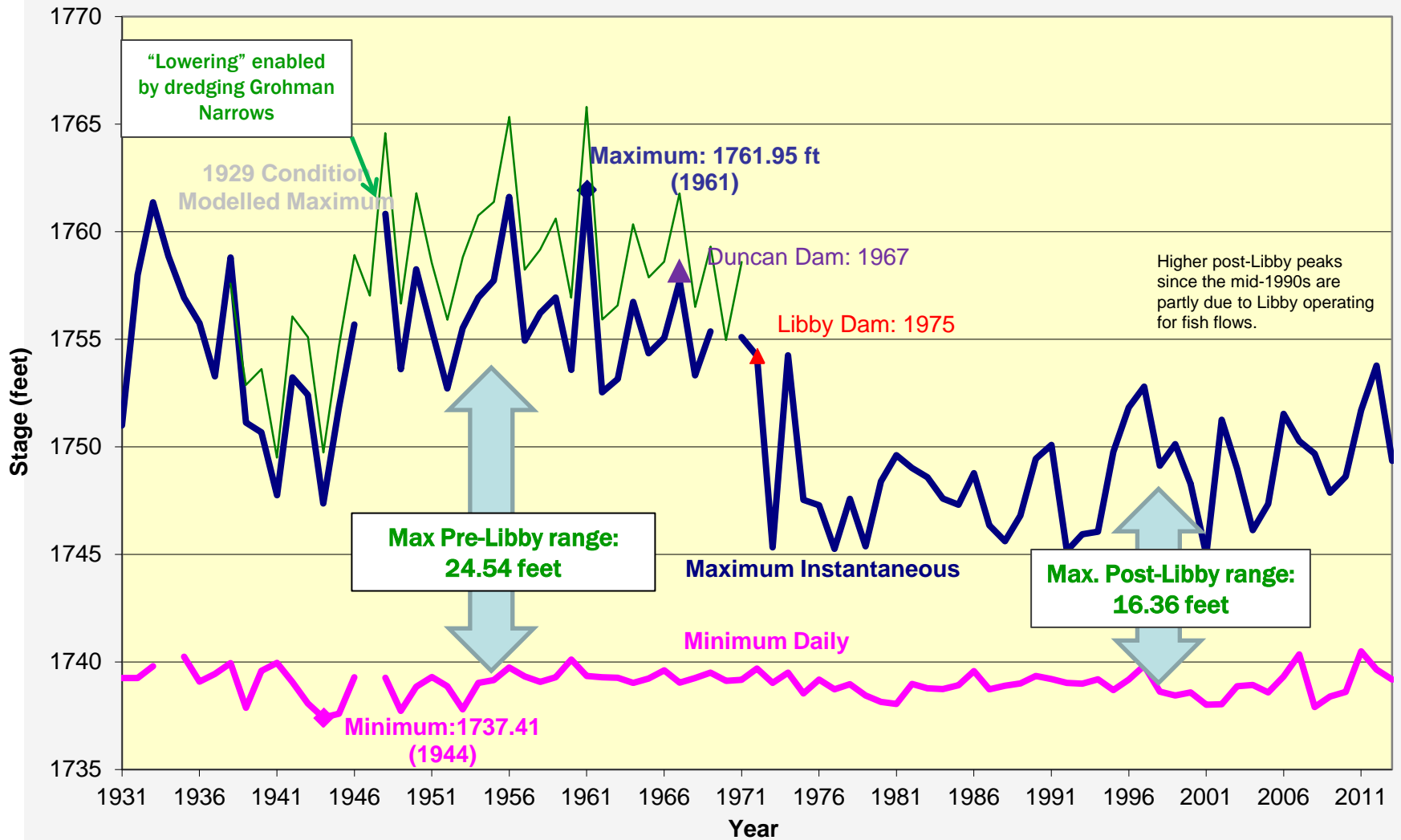
Kootenay Lake Hydrograph



Comments/Questions?

Supplementary Information

Water Level Extremes, Kootenay Lake at Queens Bay



Kootenay Lake Elevation and Discharge

