Glenmore-Ellison Improvement District

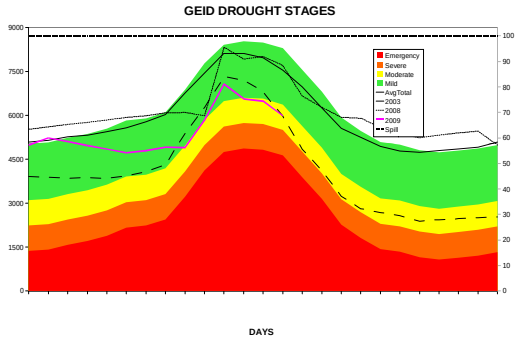
Case Study
2005
Drought
Management Plan

Background

- GEID supplies approximately 3400 acres of agricultural land in City of Kelowna and RDCO Ellison area, 70% of water to agric.
- Approx 5900 residential units (population 13k-15k).
- Creek and groundwater sources,65:35 in 2008, small OK Lake pump for 220 homes
- 2008 consumption 6267 ac-ft (7730 ML).

Crisis in 2003

- GEID upland reservoir storage reached critically low levels in 2003.
- April 2003 saw residential sprinkling notices to conserve water.
- Residential watering restricted to one day per week on August 27, 2003.

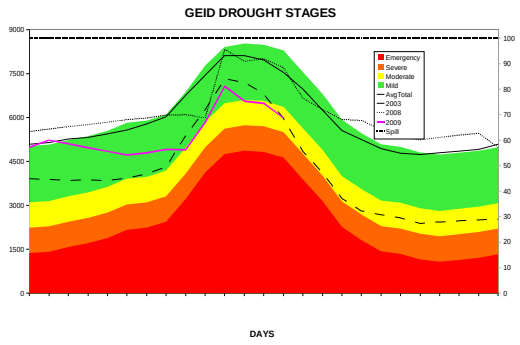


Development of Plan

- MoE development of Dealing with Drought Handbook in 2004.
- GEID retained consultant to prepare plan in 2005.
- Consumption and supply data available from 2004 Capital Plan.

Data for planning

- GEID had reservoir levels, consumption data.
- Few meters in 2005, added agricultural meters 2006-2007.
- Drought stages based on 0.5, 1, 1.5 and 2 standard deviations from historical mean reservoir levels.



Reliability and Relevance

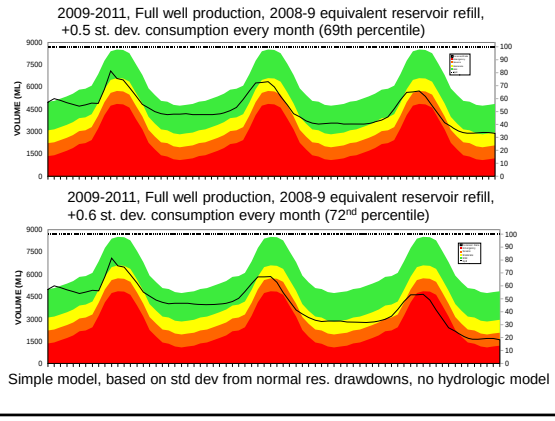
- What if…..
  - Consumption patterns change – underused agricultural land at present, allocation.
  - Population increases.
  - Climate changes (longer period on storage).
  - Landscape changes (pine beetle, fire).
- How does this affect plan?
- Other unknowns (ie, Stage 3 consumption).

What are we managing for?

- Epic drought in 1929-1931. What would happen today?
- Could we prevent severe restrictions?
- Can we store more? High costs, evaporation losses in additional storage, trying to prevent a very rare event. Reliable yield of watershed?
- Tradeoffs – Stage 2 restrictions today, possibly no return if drought not extended.

Drought Triggers

- When do we call it a drought?
- Timing of calling a drought – early as possible.
- What is role as water supplier?
- Crystal ball and modelling.



Deciding what to do

- Limited data, large uncertainty in decision support tools. Cannot predict runoff for next year.
- Knowledge of system, watershed, consumption is necessary.
- Some understanding of risk, probability.
- Consequences of unnecessary action, also of delayed action or inaction.

Questions?