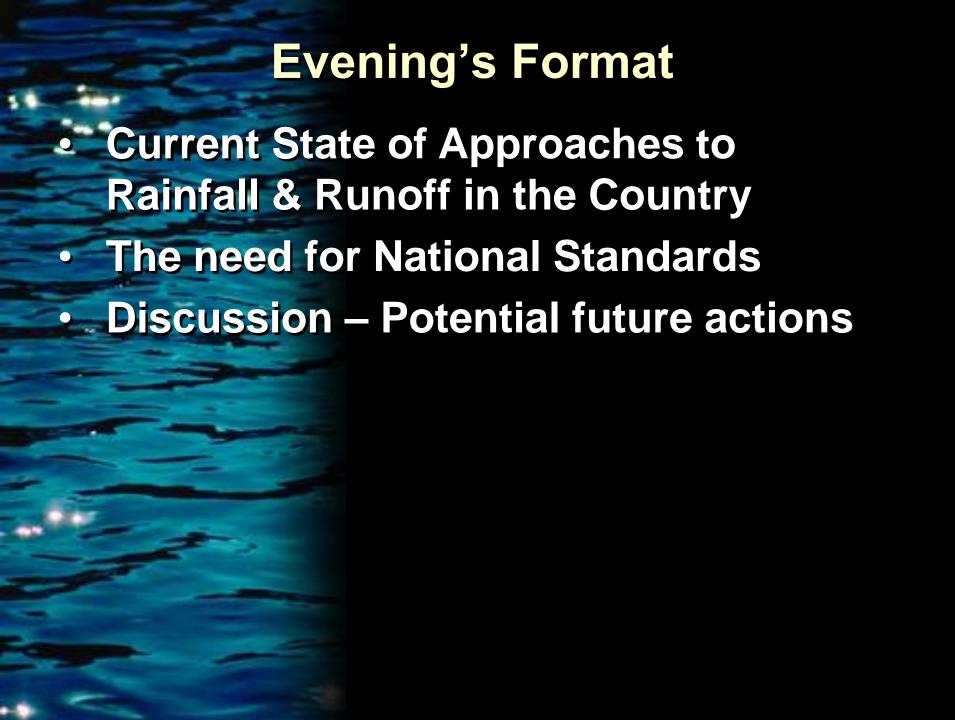


Development of Rainfall and Runoff Standards For New Zealand

Water NZ Modelling SIG — Evening Meeting 18th
October 2011





Definitions

- Rainfall- Single rainfall events or series of events which are used in conjunction with runoff approaches to do things
- Runoff The algorithms to transpose rainfall into flows

Application

- Prediction of a flow or volume of a certain frequency of occurrence Big
 Small
- Natural Rivers & Streams
 - Large catchments
 - Small catchments
- Urban (& hence modified) Stormwater
- Wastewater Networks

Approaches - Rainfall

- Rainfall Intensity with Frequency
- HIRDS
- Design Storms To generate Peaks
 - Chicago "Invented" in 1957
 - Regional or City 'standard storms'
 - European profiles
- Real Rainfall Events e.g. Event 39
- Historical Rainfall Time Series Concept of Retrospective Compliance
- Synthetically Generated Rainfall Time Series
- Climate Change Modification

Approaches – Runoff

- Rational Formula 1899
- Building Code
- SCS Method
- Fixed Runoff Rates
- European Runoff Models
 - Scandinavian
 - Uk
 - French
 - ARR
- Others Many, Many, Many others

Absence of Guidance - Regional Drift

- Many part of the country don't have any guidance!
- Many parts of the country don't have any data!
- Some parts of the country are using approaches that have drifted over the border
- Dunedin inputs generated from scratch based on
 - Historical Rainfall Data
 - Chicago Nested Storm
- MFE CC modifiers appropriate to drift situation

Issues

- Developers, utilities, irrigation companies, consultants, regulators don't know what to do!
- Approaches can be challenged Who's got the fattest wallet?
- Danger that what we build might be too big or too small – Thats inefficient – Either Way!
- We don't do enough monitoring of outcomes and when we do the approach of the day has been superseded
- We need to do better than this!