River Cells
Changes in American Falls Reservoir

ESHMC Meeting

October 27, 2011

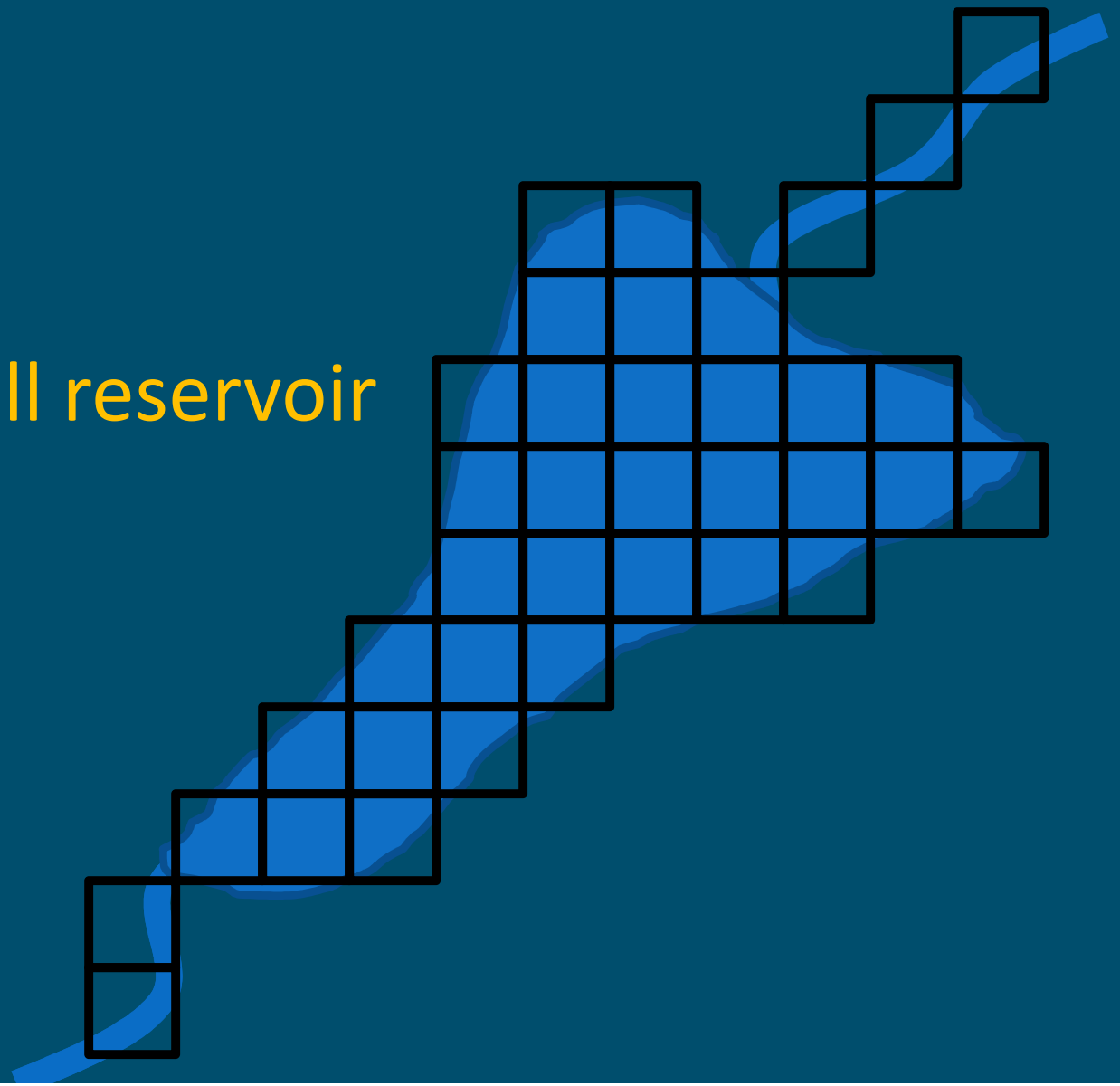
Presented by Stacey Taylor

What's the Problem?

- Willem noticed some problems with cells in American Falls Reservoir when reviewing calibration
- Issue occurred over several stress periods
- The cells that were causing the problems were the ones that were not intended to be "wetted" by the reservoir

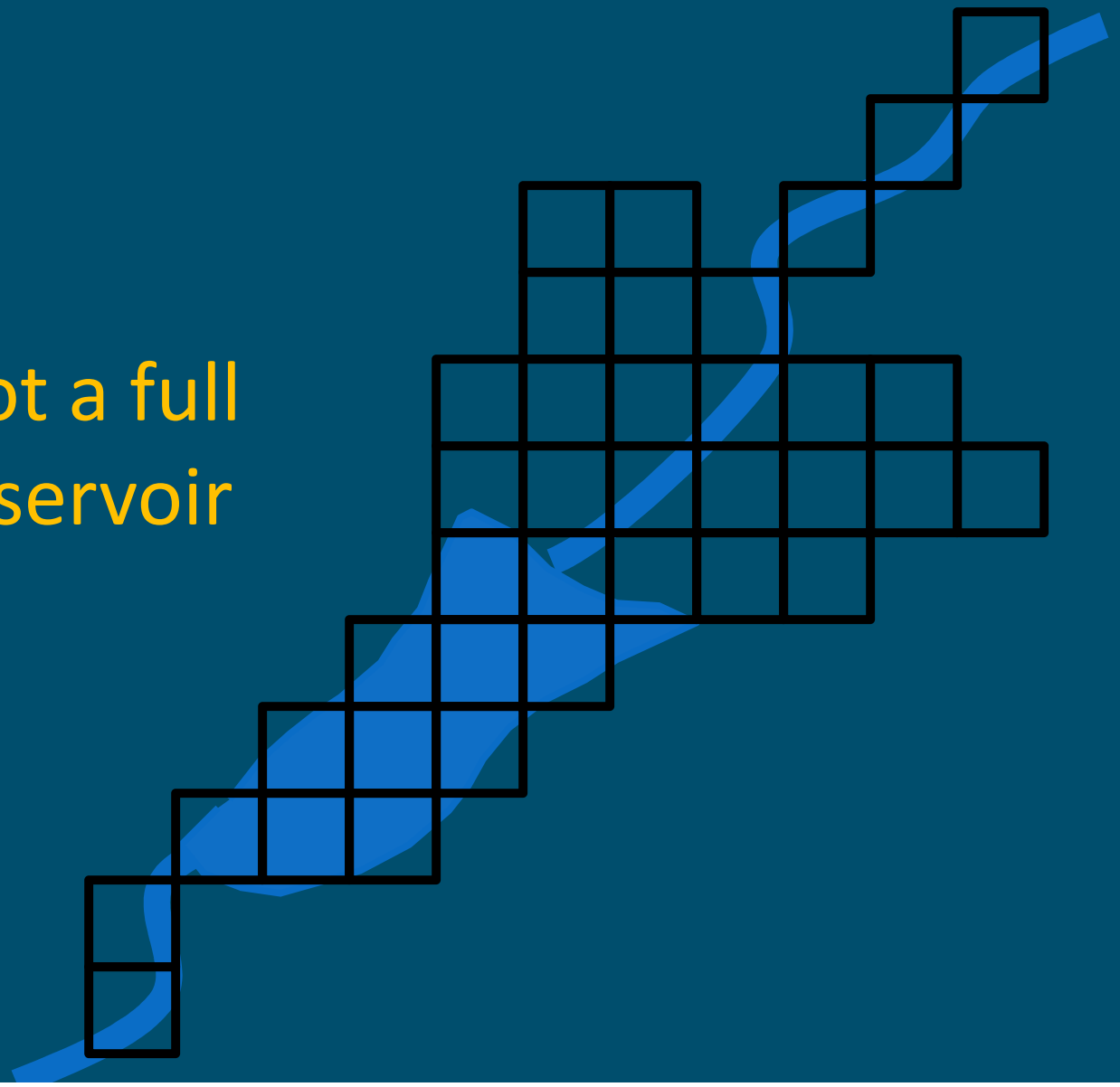
American Falls Reservoir

American Falls Reservoir



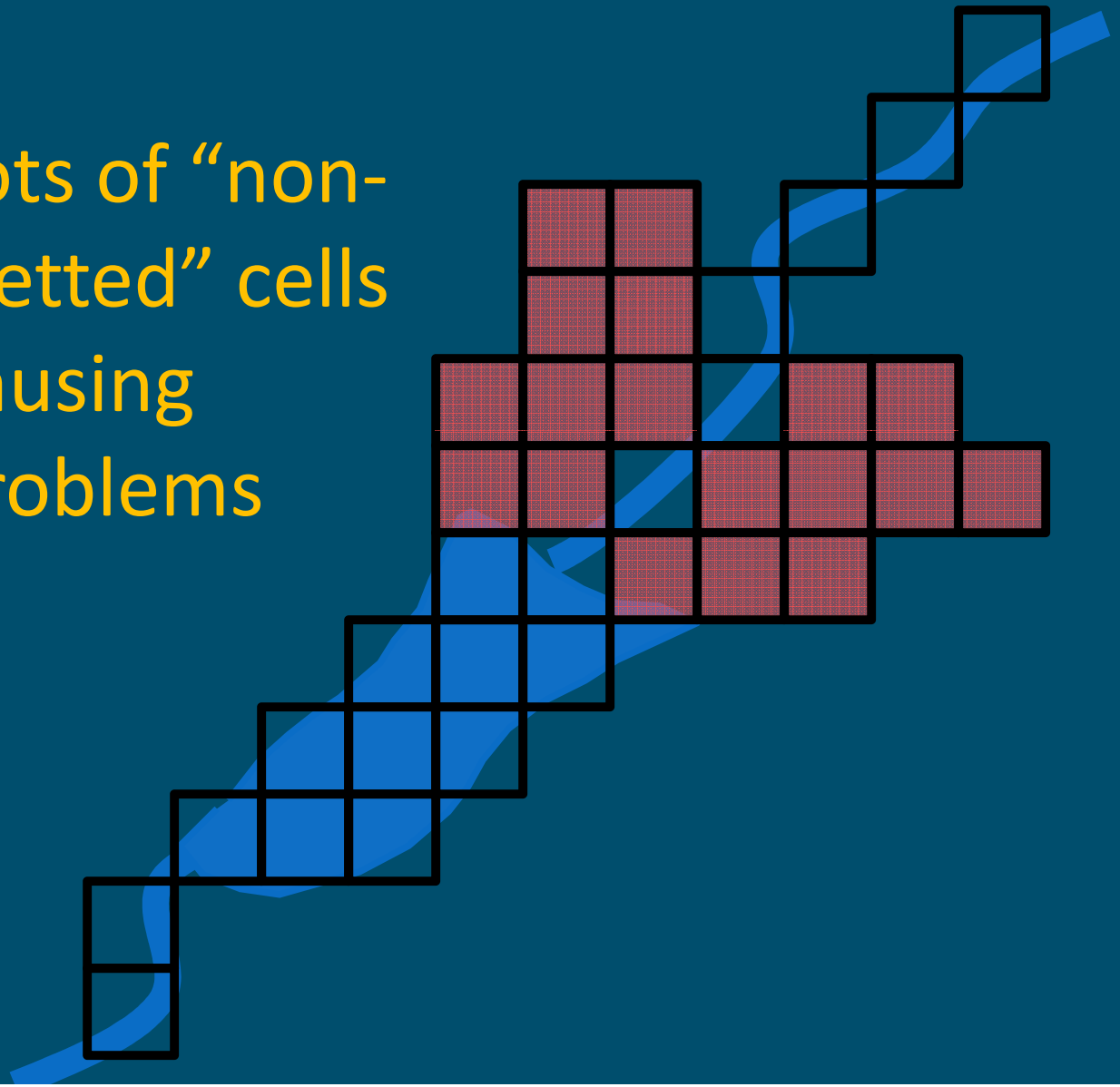
American Falls Reservoir

Not a full reservoir



American Falls Reservoir

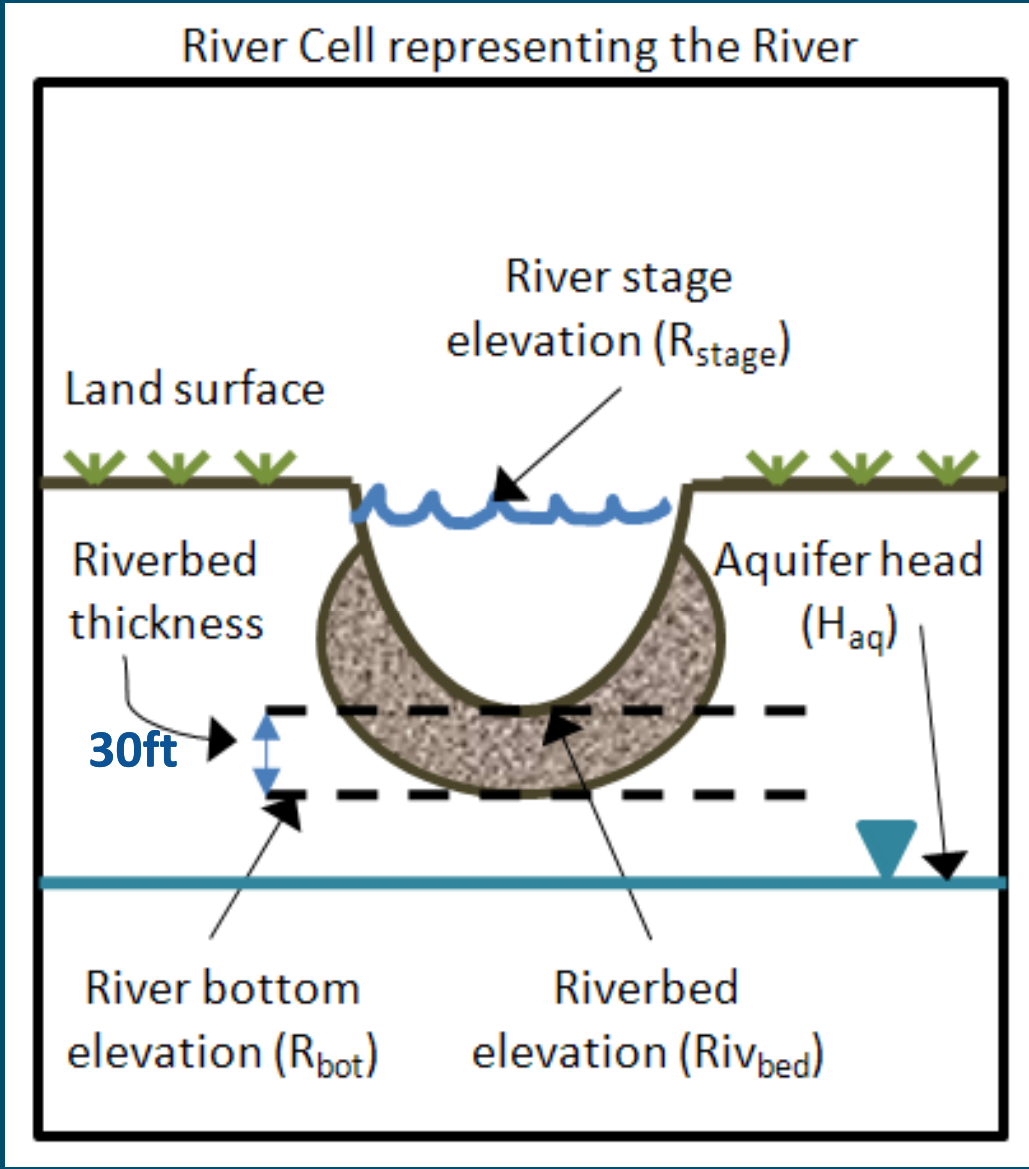
Lots of “non-wetted” cells causing problems



What Was Done to Fix the Problem

- Allan sent file marking which cells were causing problems
- Cell issue occurred most often when the reservoir stage was between 4300ft and 4349ft and never when it was above 4350ft (essentially full)
- When cells in reservoir were not intended to be covered (not "wetted") by the extent of the reservoir for a certain stress period, R_{bot} value in the reservoir was adjusted (+30 ft) to the actual elevation of the surface of the reservoir bed
- This change fixed most cells that were not intended to be "wetted", other cells on the outer edges of the reservoir still created a problem
  - R_{bot} for these cells was increased to the elevation the river cell stage for that particular cell ($R_{stage} = R_{bot}$)
  - This allowed water to flow from the aquifer to the reservoir while preventing the reservoir from losing water when it should not lose water

30ft was added to the R_{bot} value in all cells in each stress period not intended to be "wetted" by the rservoir extent



In some cases for non-wetted cells, R_{bot} was set equal to the R_{stage}

Fig. 1 adapted from the ESPAM2.0 River Cells Design Document

Questions?