

FRSSI Future Planning

Fraser River Sockeye Spawning Initiative

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Outline

- Overview of FRSSI process & model
- FRSSI Overview
- FRSSI Model Features
 - FRSSI “does” and “does not”s
- Future Planning

FRSSI Overview

Model vs Process

- FRSSI Process
 - consultative process, workshops, etc.
 - Steering Committee, Working Group, Technical Working Group
 - Process is where the decisions are made
- FRSSI Model – is used by the process
 - outputs are used by the FRSSI process to inform the decisions

Both Process & Model continue to evolve with feedback

Spawning Initiative Overview

The Challenge

- Find a Balance between Catch and Escapement at different abundances

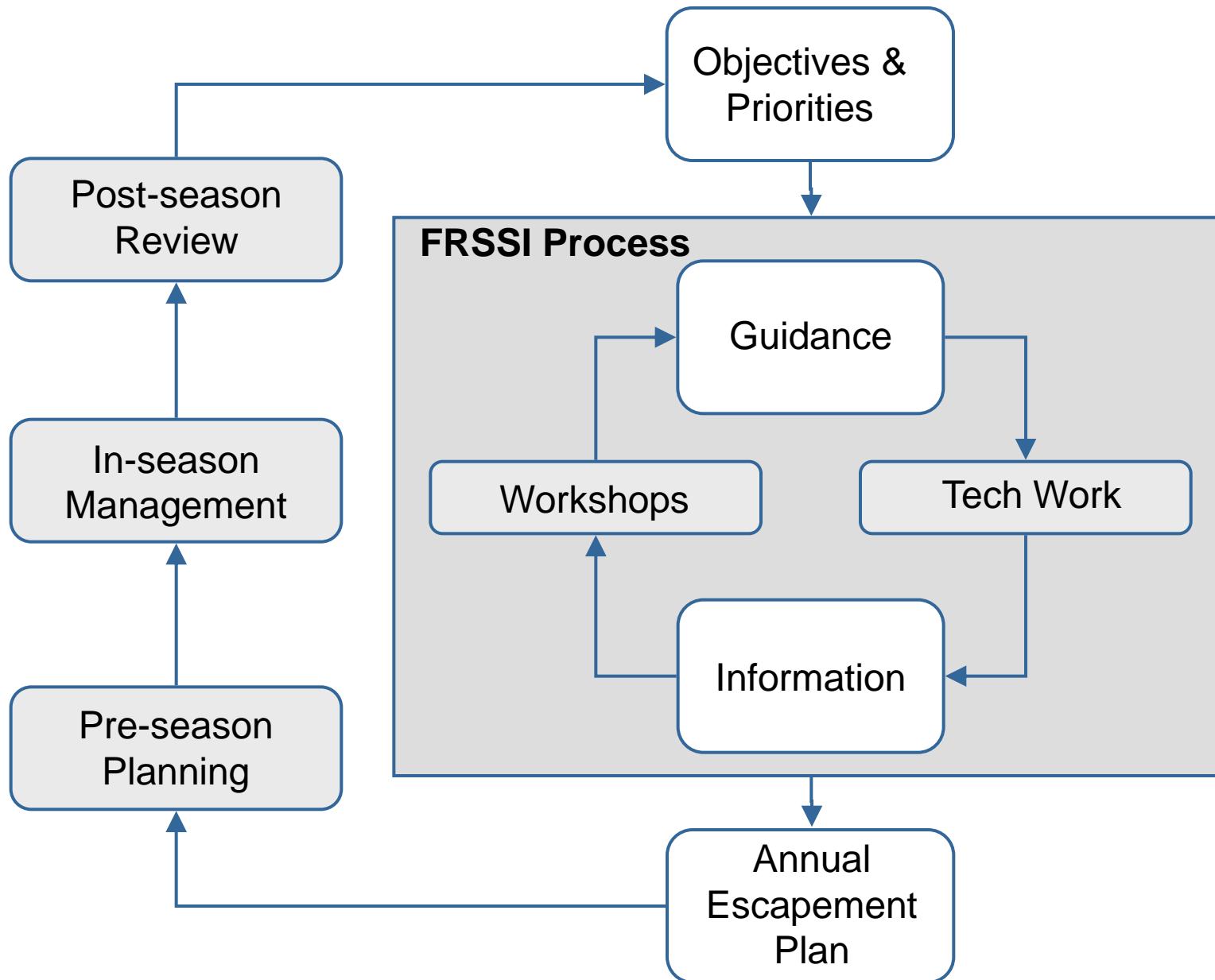
Goals

- Participatory process to develop a new set of guidelines for setting Fraser River sockeye escapement targets
- Long-term strategy based on clear objectives and assumptions
- Improve consultation by focusing on proactive discussion of escapement targets under different scenarios
- Implementation guidelines (in-season adjustment mechanisms)

How many should be caught vs. allowed to spawn?

- The answer depends on many considerations:
 - Biological considerations:
 - Assumptions about population dynamics (i.e. how much can a lake produce?)
 - Uncertainty about how many spawners produces largest harvest, or largest returns
 - Uncertainty about cause and implications of population cycles in Fraser sockeye?
 - Socio-economic based factors
 - Preferences for harvest/escapement
 - Social preferences
 - economic factors
 - risk tolerance
- The FRSSI model was developed to help address this question by providing information on the implications of different harvest strategies. Focus on Biological side. 6

Annual Cycle of Management



Model Features

“All models are wrong.
Some are useful.”

- G.E.P. Box

Current model CAN do:

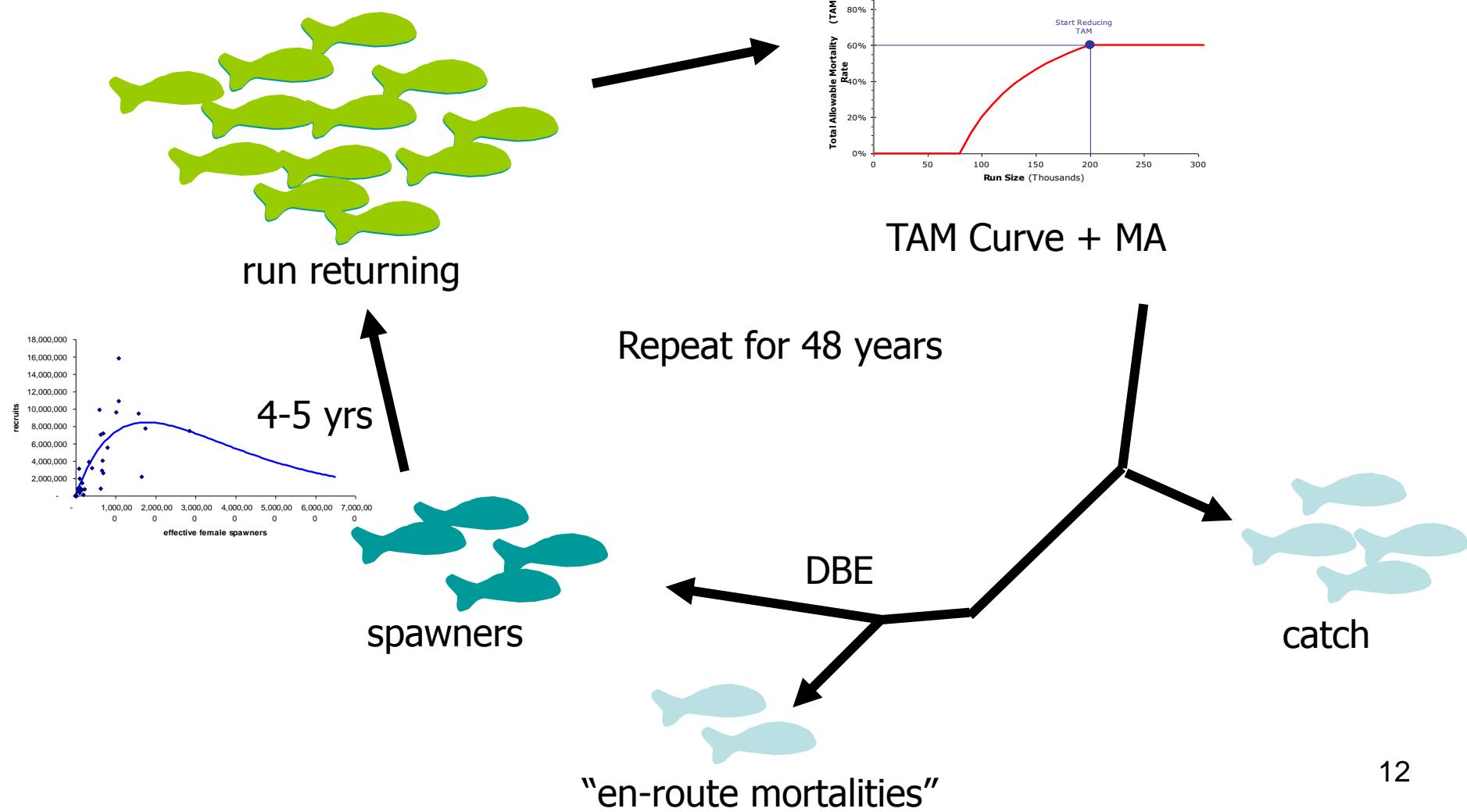
- Simulate performance of long-term harvest strategies
- Track aggregate and stock-specific performance measures
 - also, alternate aggregates
- Assume linear or patterns of change in productivity
- Apply stock-specific escapement strategies (or mix)
- reflects some current implementation methods:
 - Simulate all stocks at same time to get at overlap constraints (currently, two methods to choose from)
 - Assume a minimum harvest rate (test fishing, by-catch)
 - Apply management adjustment (Mission vs. Up-stream)

...not *all* of these items are done all the time

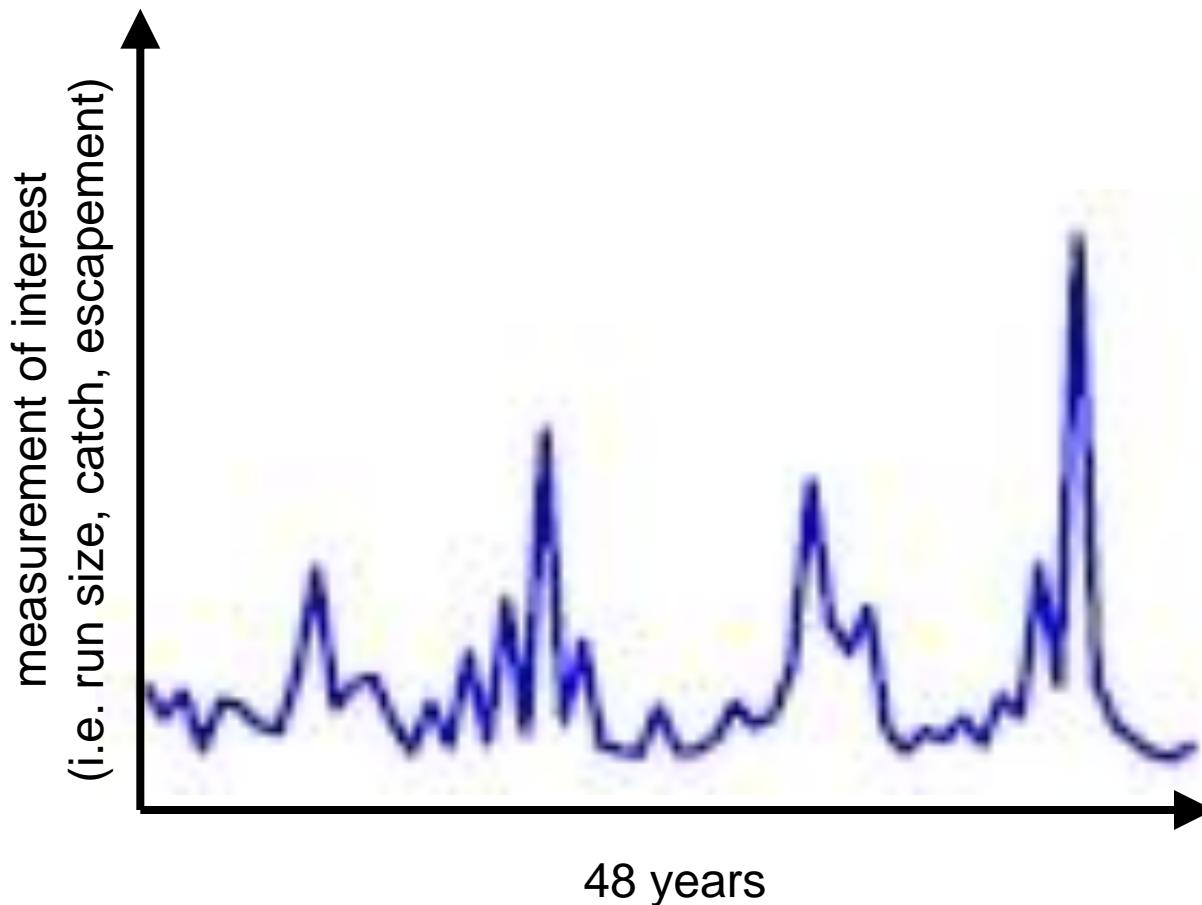
The model does NOT...

- Spatial Component
 - FRSSI outputs total allowable mortality, does not model *where* the mortalities take place (e.g. marine vs in-river / mixed stock fisheries vs terminal)
 - FRSSI will not develop an annual fishing plan
 - currently, annual fishing plans are evaluated using the Pacific Salmon Commission pre-season model and IFMP development
- calculate allocations
- make annual adjustments to escapement strategy based on forecast
 - e.g. will not model this year, Option 1; next year, Option 3...
- assume there is any implementation error in applying TAMs
 - i.e., assumes that if there are 52,631 fish to catch, then 52,631 fish will be caught
 - note that there IS implementation error in applying DBE/MA
- get used in season
 - TAMs are used in-season, the model is not

FRSSI Flow Diagram

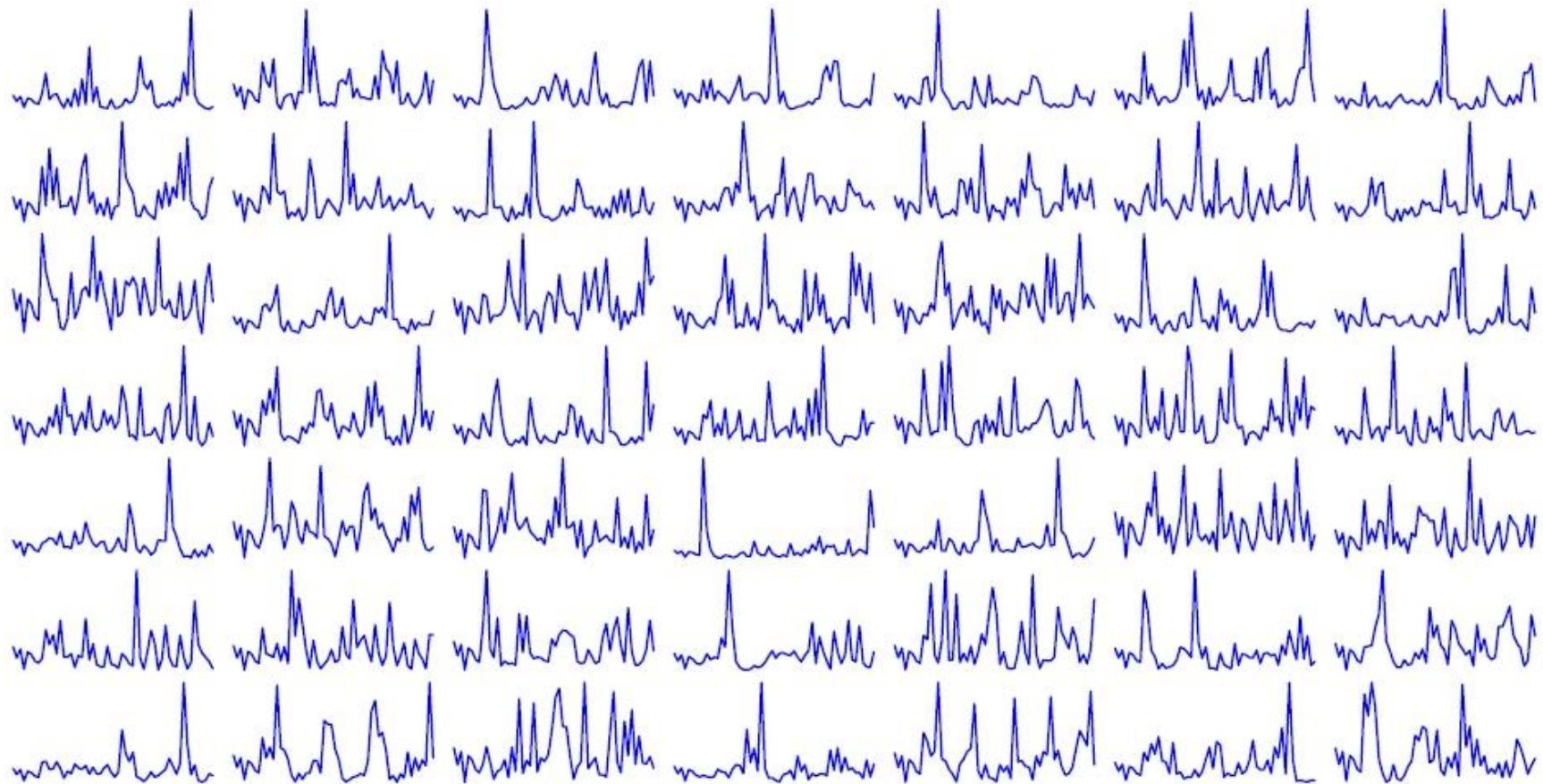


What one trajectory looks like:



Repeat 500 times (this is where computers come in really handy!) ₃

What a bunch of trajectories look like:



For a given performance measure (e.g. Escapement below a benchmark)

- for each group of 500 simulated trajectories, keep track of the escapement in each year
- get a distribution of escapements from 2400 years (i.e. 48 years x 500 simulations)
- calculate the frequency that escapement was below some number(s)

Future Planning

2015/16 Timelines

- March – agenda “small group”
 - input into April Agenda
- April 16/17 – expanded steering committee meeting
 - setting priorities for the technical work
- 2016 spring – workshop(s)(?)
 - reporting out from technical group re: outcomes

March (pt 1)

- what do people want to get out from an escapement plan evaluation model? (e.g. goals & objectives)
 - what sort of information/outputs would you find helpful to get? (again, not FRSSI model specific, but general to the discussion around evaluating escapement plans)
 - what are your main concerns about the FRSSI model?

March (pt.2)

- what techies think the main assumption(s) that are affecting the results in the FRSSI model
- **Outcome:** *prioritize list of assumptions that small group would like to get more technical information about*
 - this becomes the list of technical items that will be presented at the expanded steering committee meeting in April

April 16/17

- go over goals/objectives/concerns ID'd in March
- present background info on priority technical items ID'd in March
- **Outcome:** *identify priority technical items/scenarios for techhies to work on prior to March 2016*