

# Measuring Behavioral Responses of Spawning Chum Salmon to Elevated River Flows, 2005



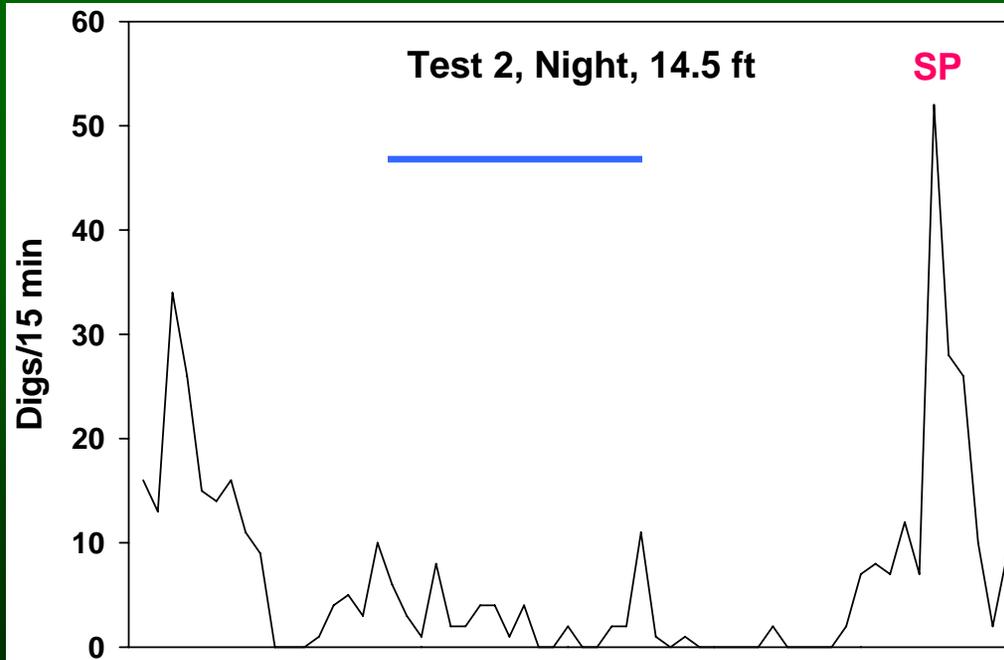
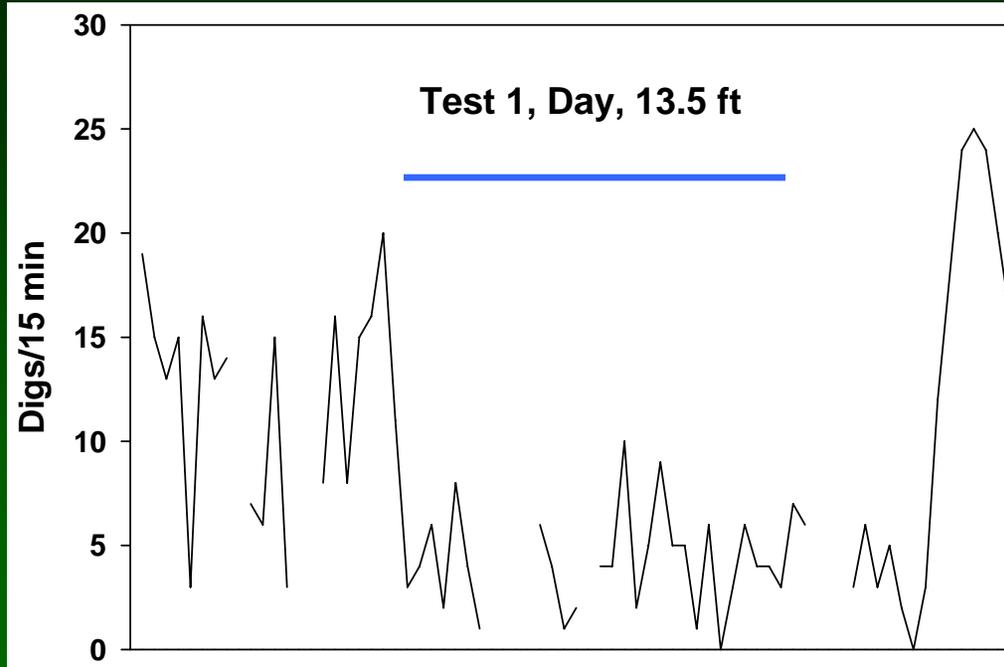
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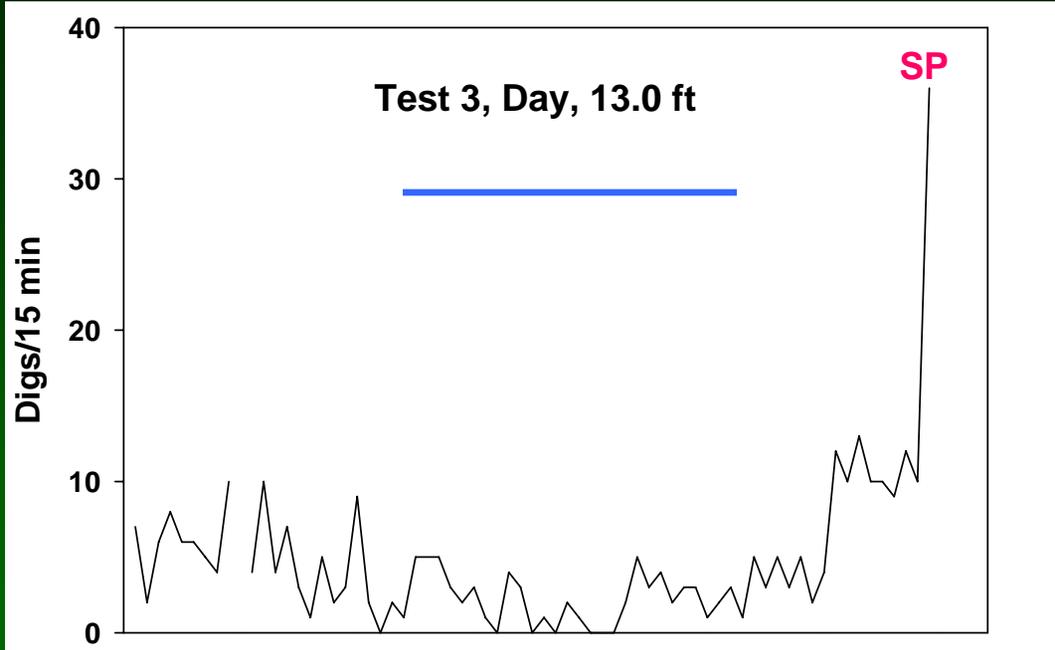
## Summary of Test flows in 2005

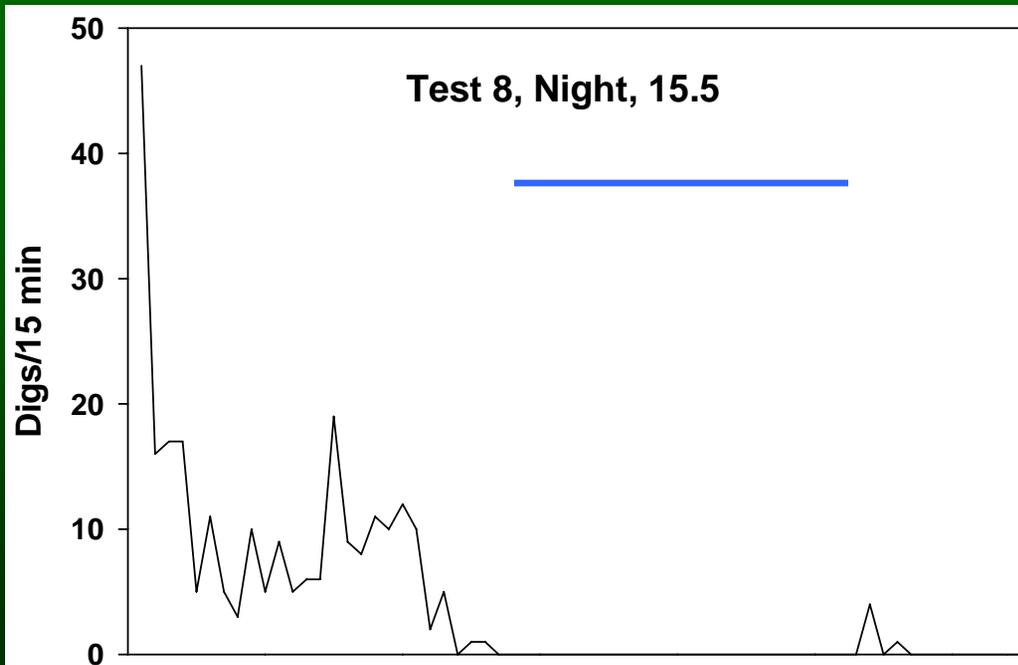
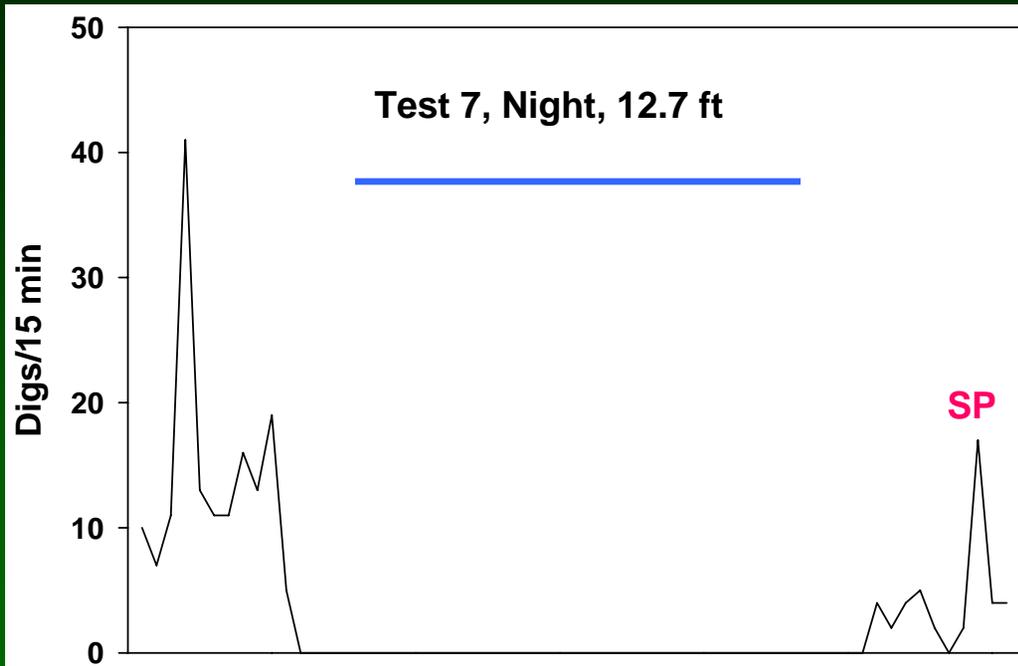
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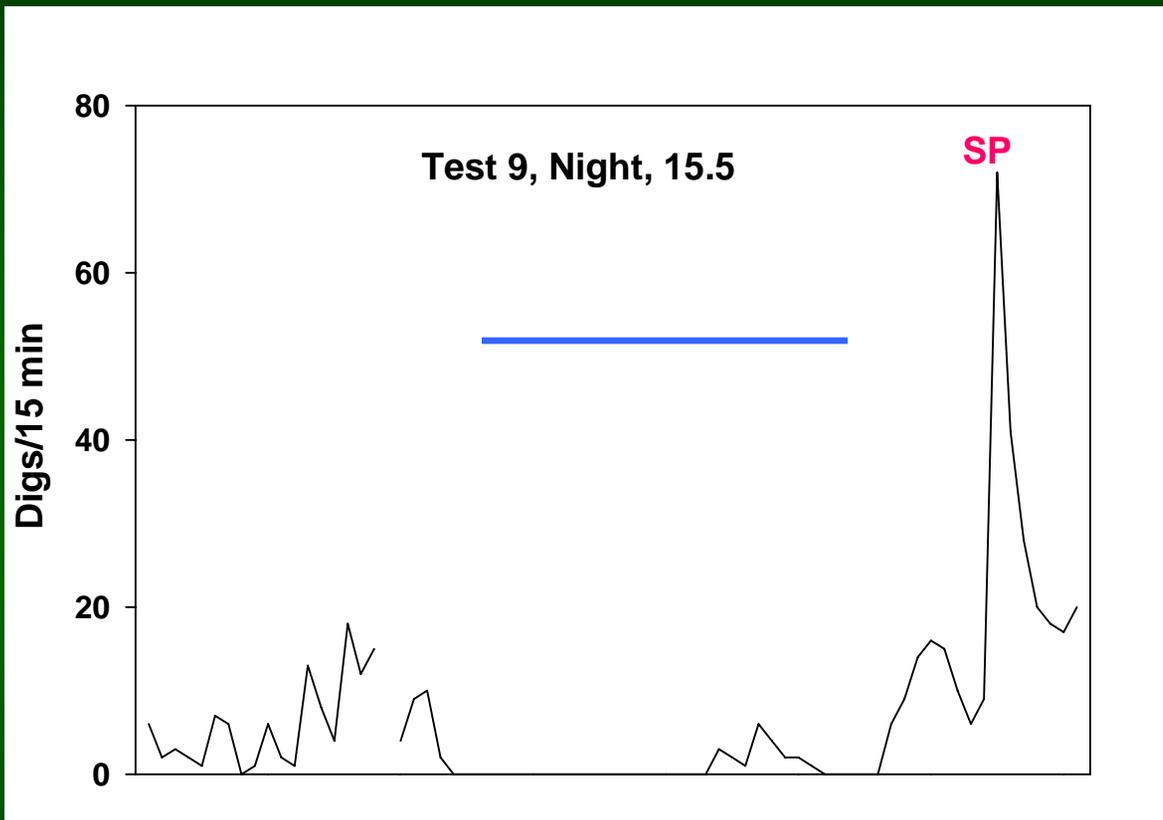
| Test | Date  | Type      | Requested elevation | Actual elevation |
|------|-------|-----------|---------------------|------------------|
| 1    | 11/16 | Day       | 13.5                | 13.5             |
| 2    | 11/17 | Night     | 15.5                | 14.5             |
| 3    | 11/19 | Day       | 13.5                | 13.0             |
| 4    | 11/21 | Night     | 13.5                | 13.5             |
| 5    | 11/22 | Cancelled |                     |                  |
| 6    | 11/26 | Day       | 15.5                | 15.5             |
| 7    | 12/1  | Night     | 13.5                | 12.7             |
| 8    | 12/2  | Night     | 15.5                | 15.5             |
| 9    | 12/6  | Night     | 15.5                | 15.5             |
| 10   | 12/8  | Night     | 13.5                | 13.5             |

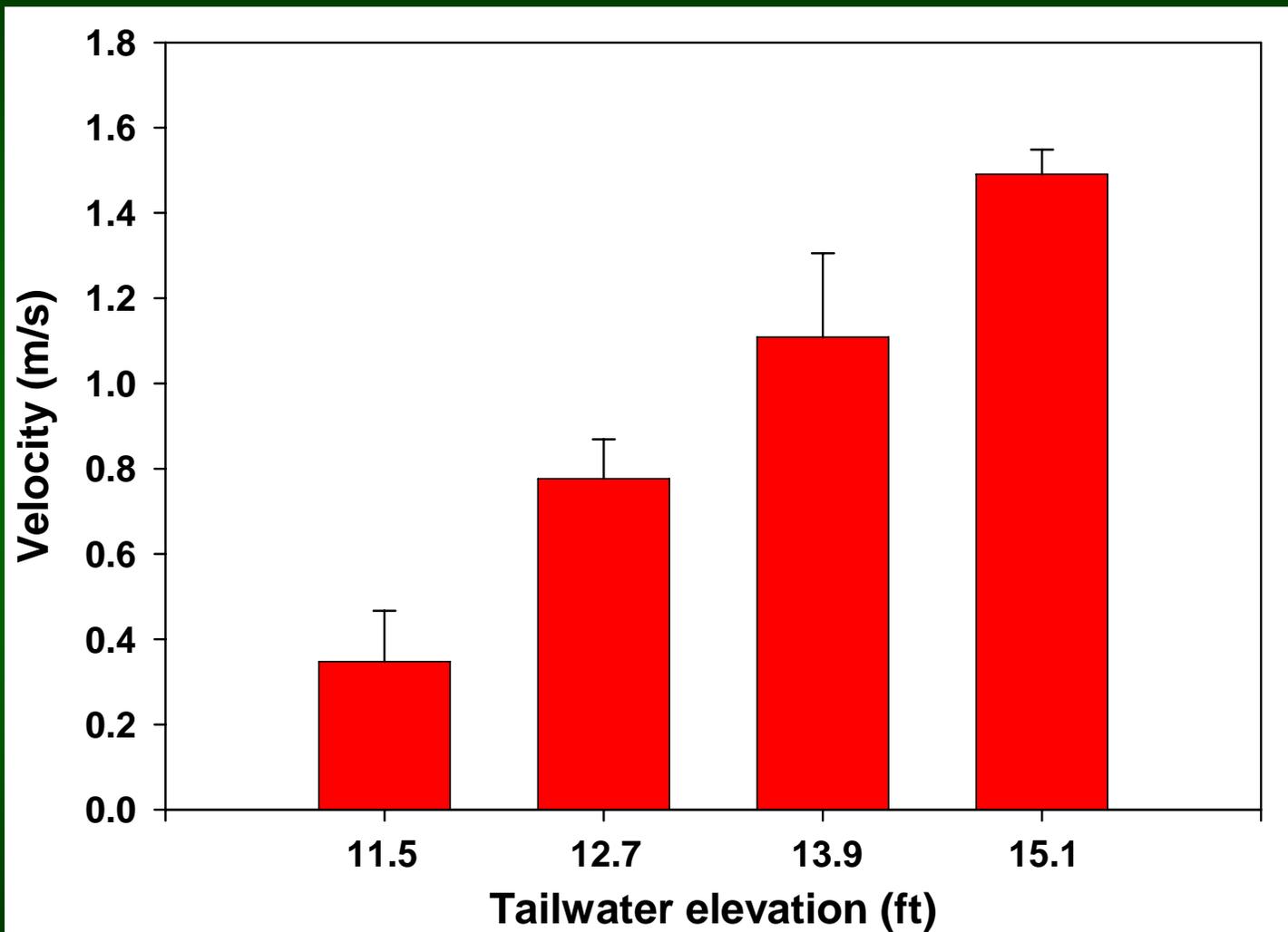
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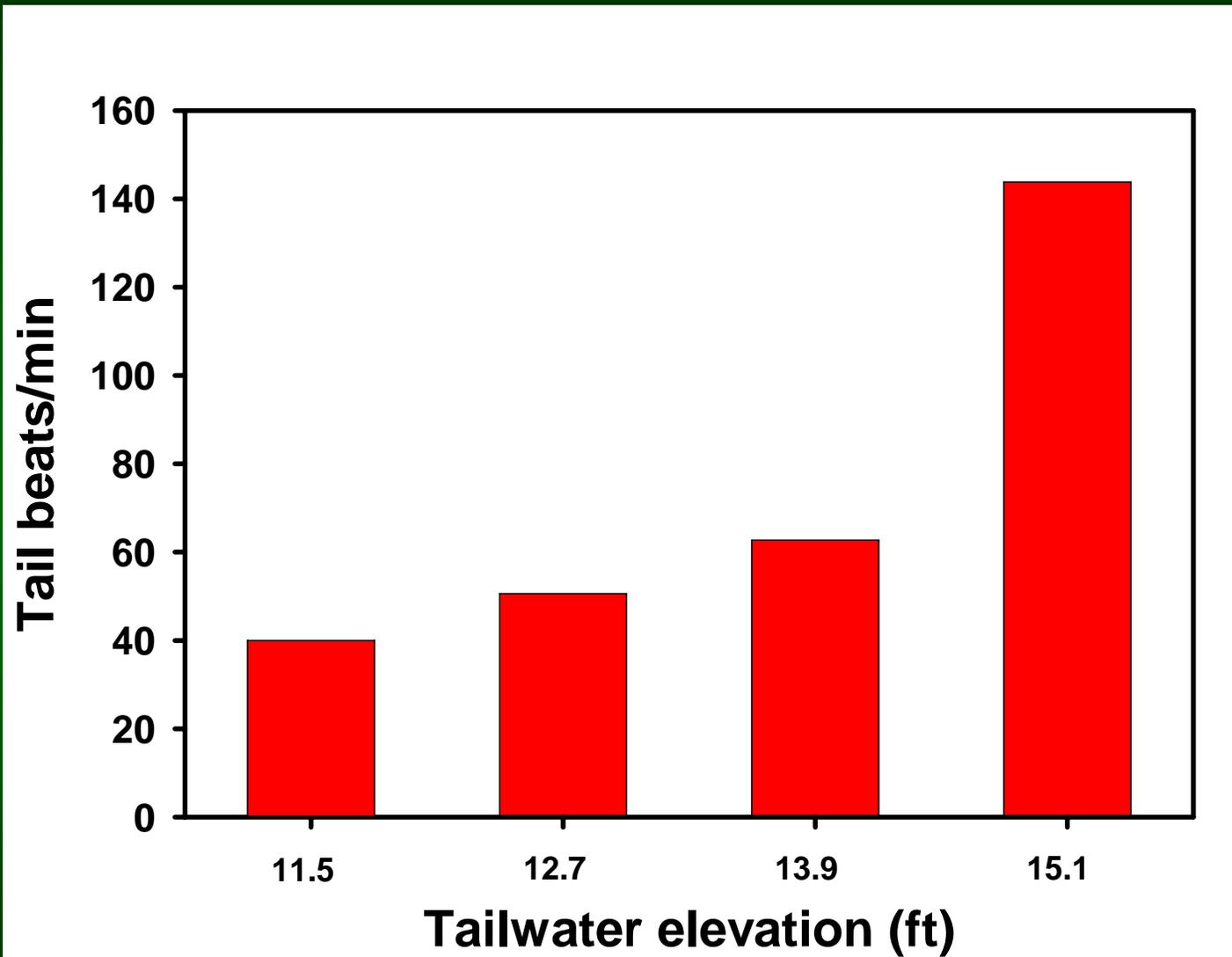






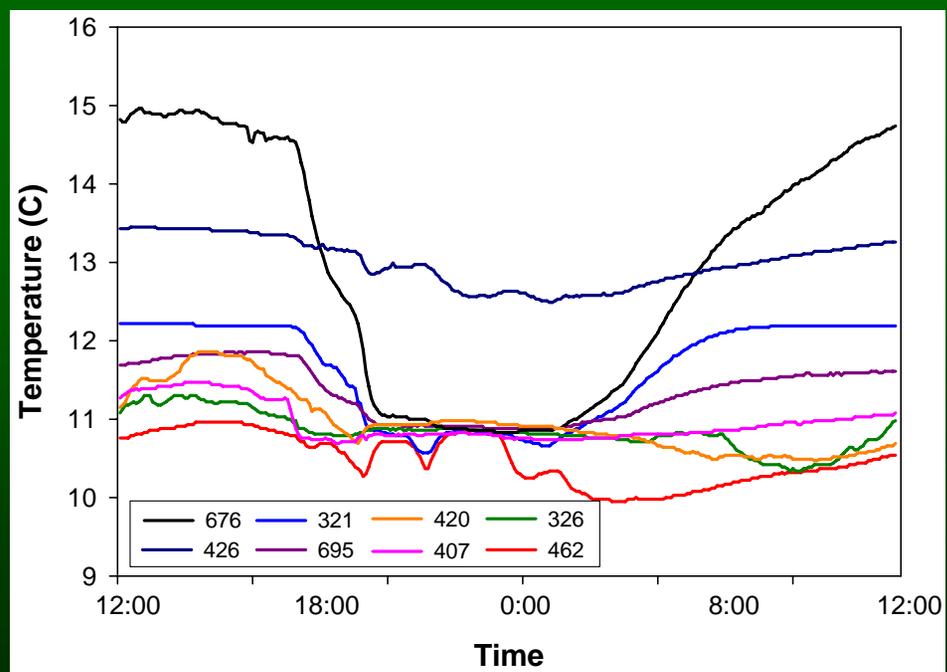
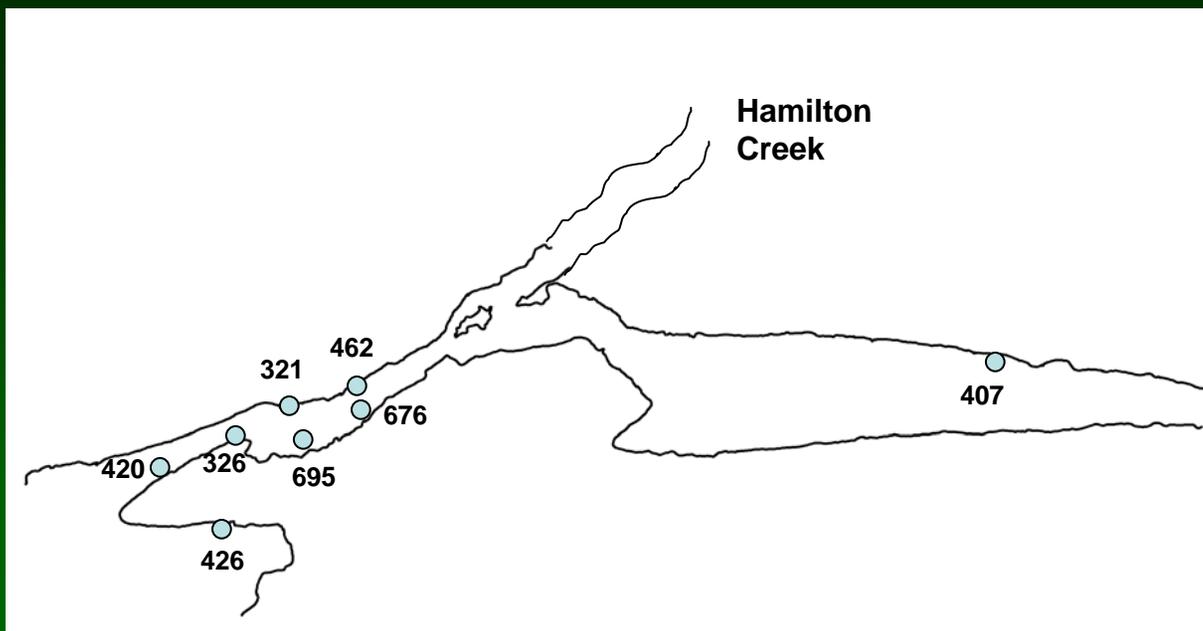






**No fish, spawning activity, or redds were found at higher riverbed elevations during flow tests in 2005, however, fish abundance was relatively low**





## Conclusions:

1. Some fish were displaced from their redds at a tailwater elevation of 15.5 ft.
2. Fish returned to their redds after flows returned to base levels.
3. Four of the eight pairs of chum salmon observed spawned following a flow test.
4. No redds were found at higher riverbed elevations, but fish numbers were down in 2005.
5. Some consequences of elevated flows we evaluated are short-term interruption in spawning activity, increased velocities and swimming activity, potential depression of thermal cues used for redd site selection, and temperature variation experienced by incubating eggs and fry.
6. Analysis of acoustic telemetry data is ongoing.