Field observations of oviposition and early development of the coastal tailed frog (*Ascaphus truei*)

Forests and Fish Cooperative Monitoring Evaluation & Research Committee

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Tailed frogs (genus *Ascaphus*)

Adult male

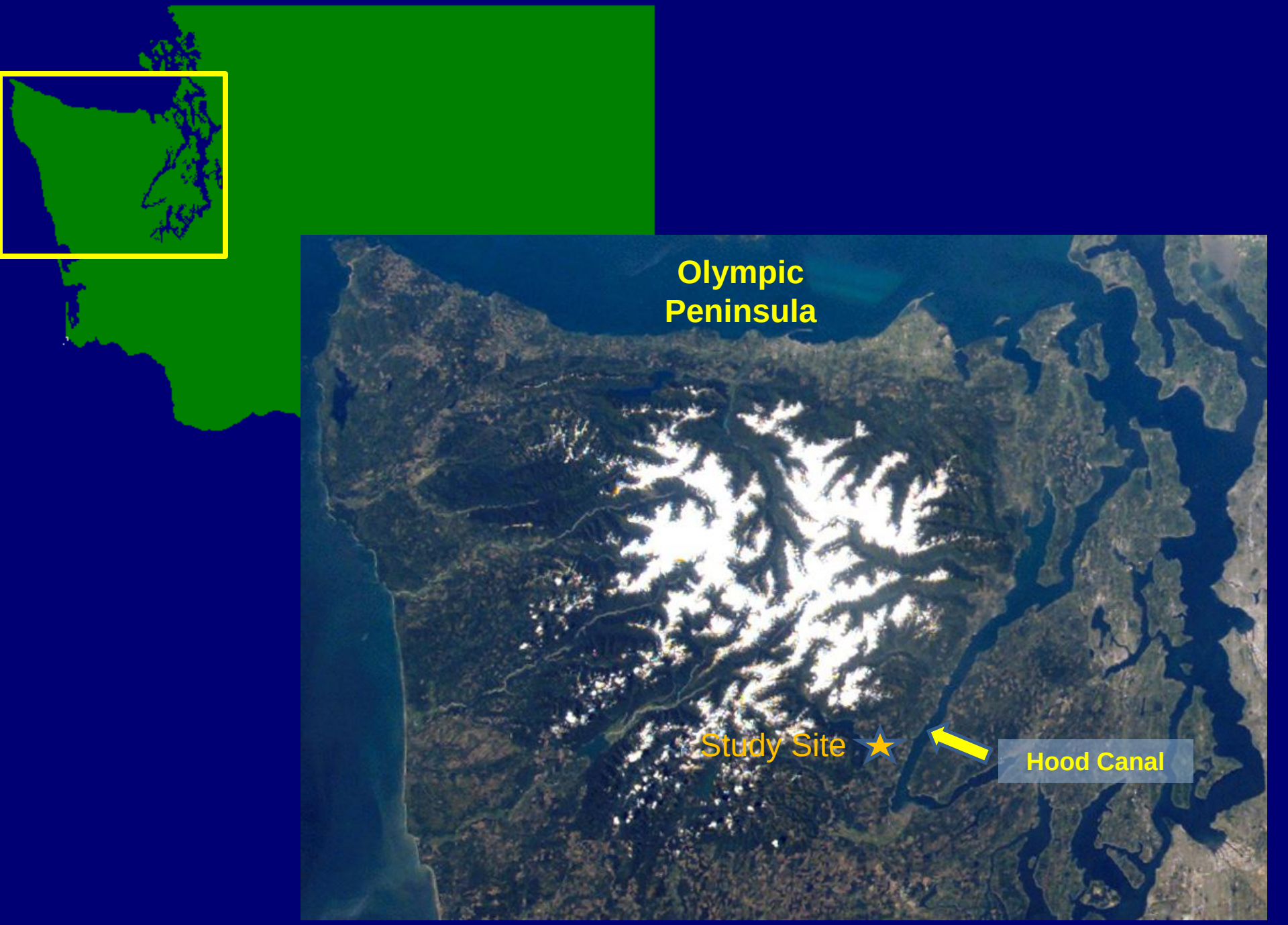
Adult female

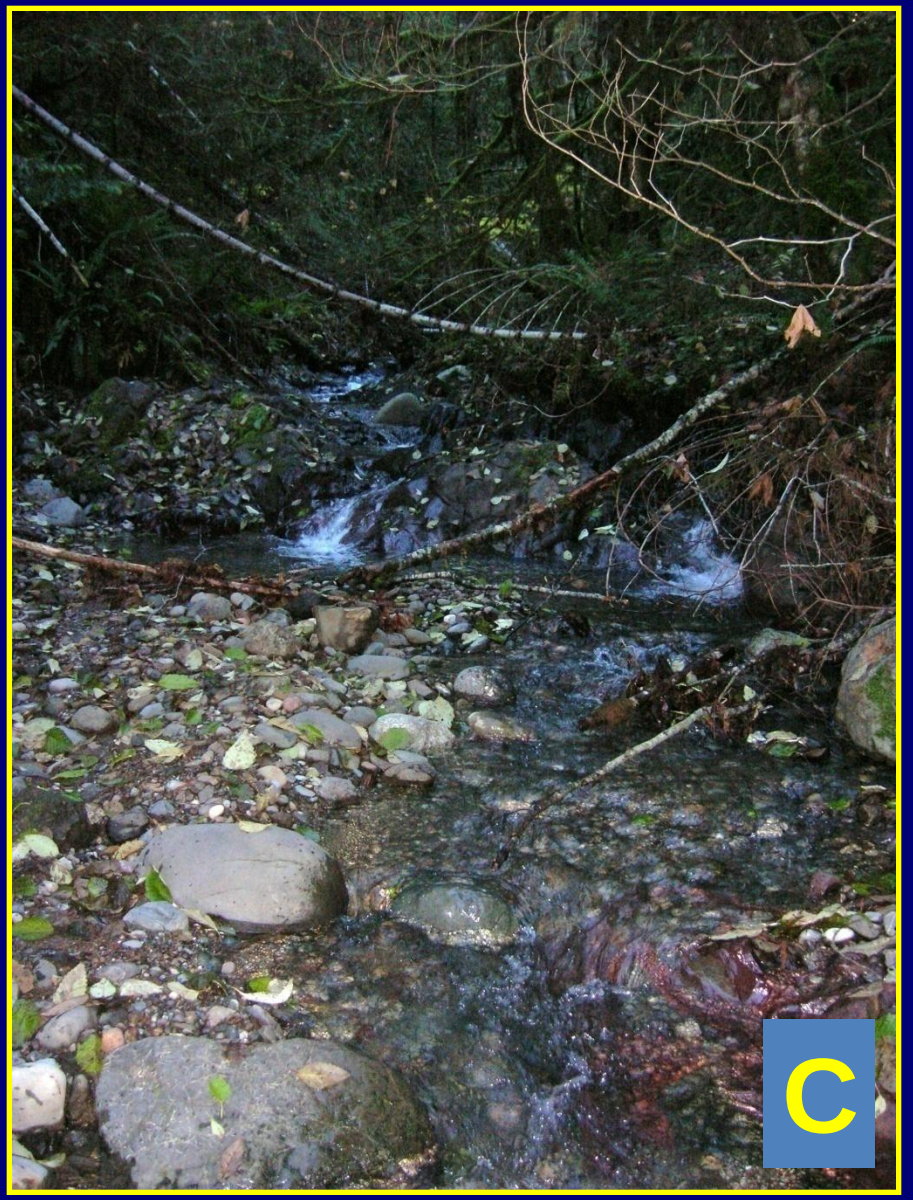
- Sole genus in distinctive family
- Two recognized species
- Internal fertilization
- Temporal separation between breeding and oviposition

Tailed Frog Oviposition Sites

- Few data
- Always concealed (instream substrates)
- Haphazard encounters

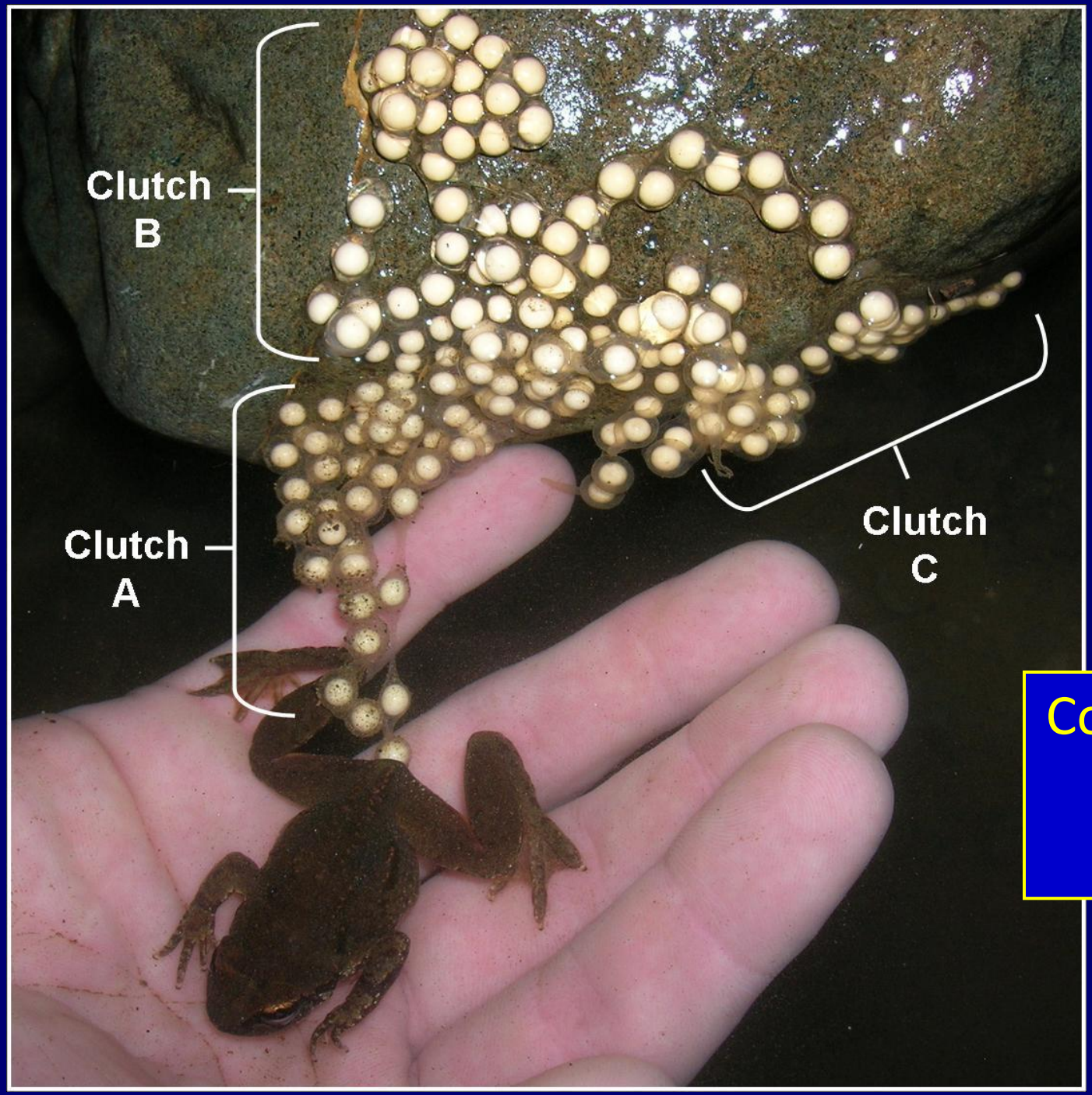
First field observation of oviposition and selected data of early larval development


Olympic
Peninsula
Study Site
Hood Canal

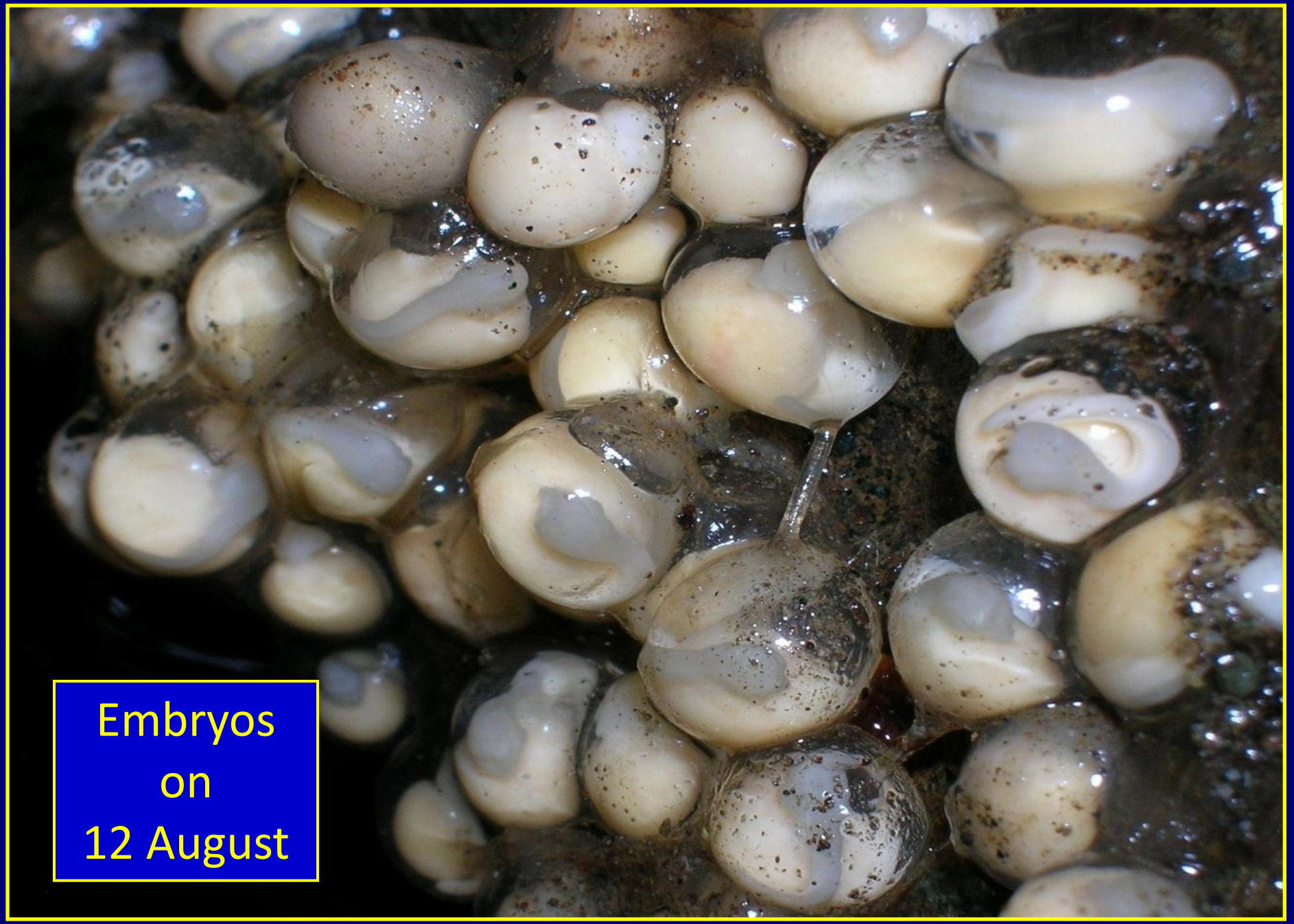


Looking upstream from survey point
The boulder is just downstream of photo edge


The
Original
Observation

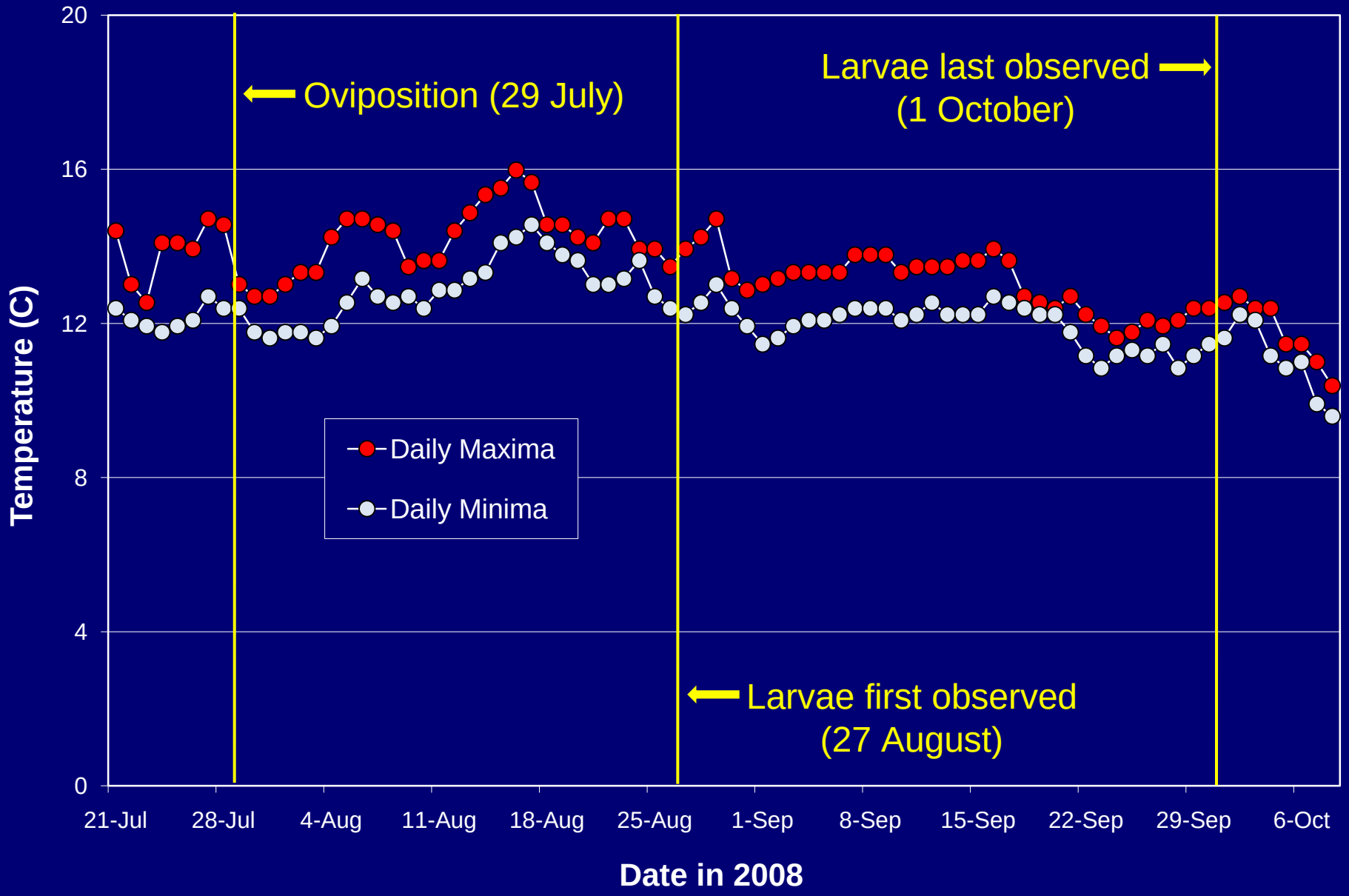


Communal
Egg
Laying

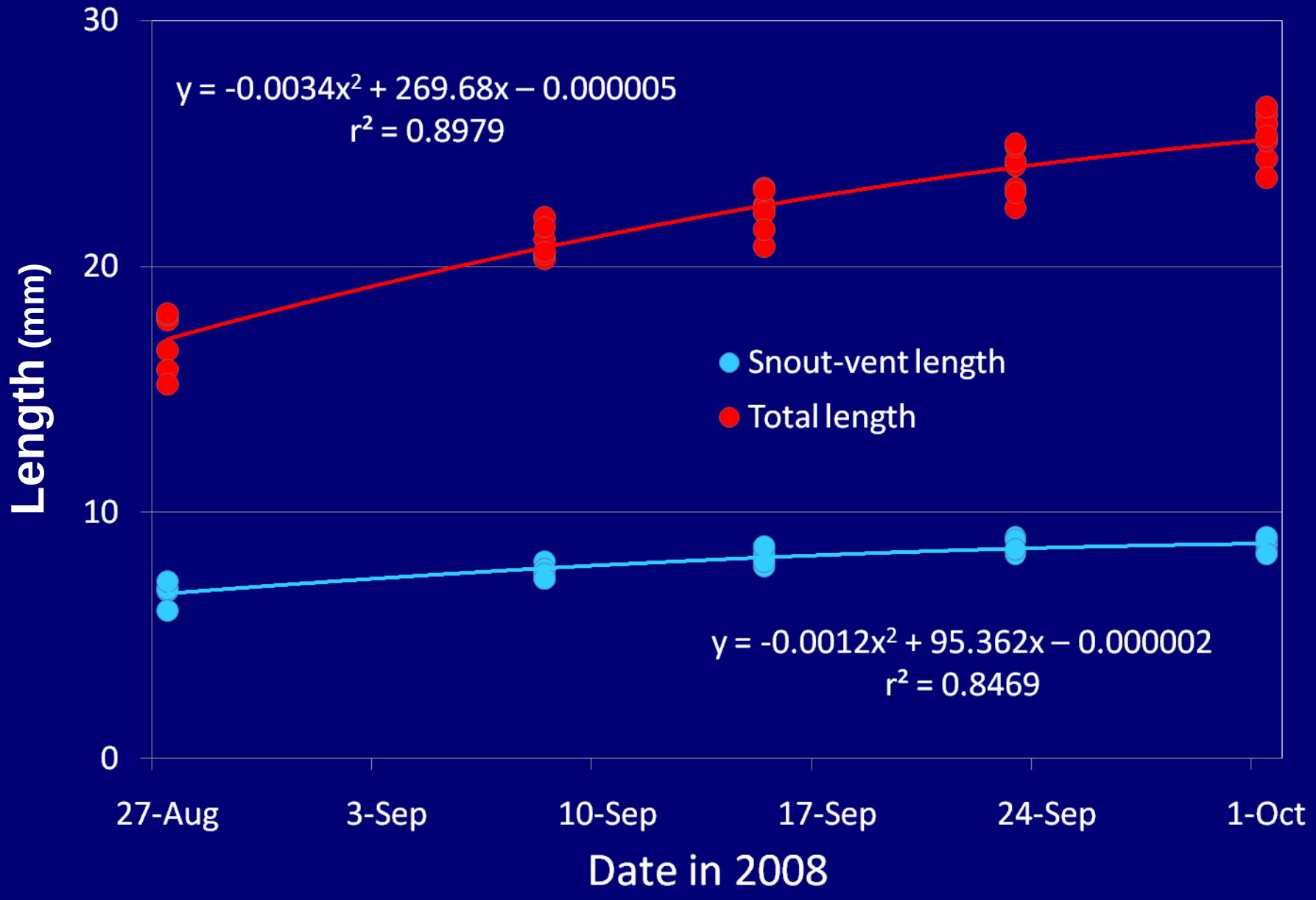

Embryos
on
12 August

Instream Enclosure

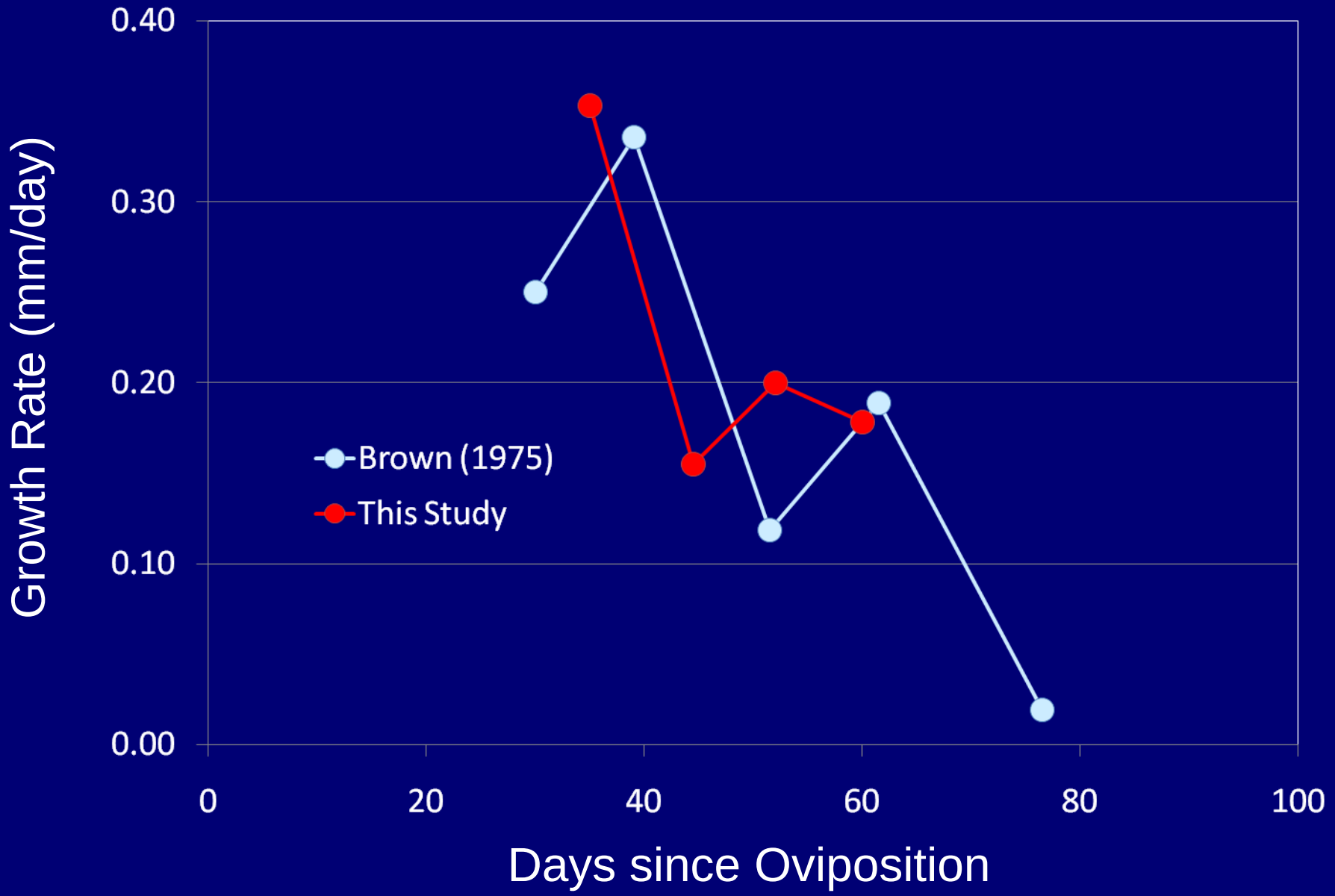
Water Temperature Variation



Growth of Young Larvae



Comparative Growth Rates



Comparison to Brown 1975

	Brown (1975) [Lab]	This Study [Field]
Time to stage 18 (muscular response)	13.2 days (constant 13 C)	14 days (mean 12.9 C; range: 11.6-14.7 C)
Time to hatch	16 days (constant 13 C) 13 days (constant 14.5 C)	15-29 d (mean 13.4 C; range: 11.6-16.0 C)

Communal Oviposition in Tailed Frogs (summarized in Karraker et al. 2006)

- Defined as oviposition on same rock
- Only 4 of 30 oviposition sites communal
- Larger rocks protect embryos
- Communal oviposition underestimated
- Larger rocks harder to access

Postulated Reasons for Communal Oviposition (summarized in Karraker et al. 2006)

- Reduced predation risk (predator satiation)
- Limited appropriate habitat for oviposition

Both fit our data poorly

Rethinking Communal Oviposition

- Significance of restriction to single rocks
- What about hydrogeomorphology?

  a) perennial flow (often below stream origin)

  b) substrate coarsens from stream origin

  c) bedload movement ⇑ w/ stream power

  d) stream power ⇑ w/ downstream position

Possible tradeoff in oviposition site adequacy

Upstream limitation: Reliable perennial flow

Downstream limitation: Mobile stream substrate

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Questions ?