Inanga spawning site identification and restoration

Dr Mike Hickford

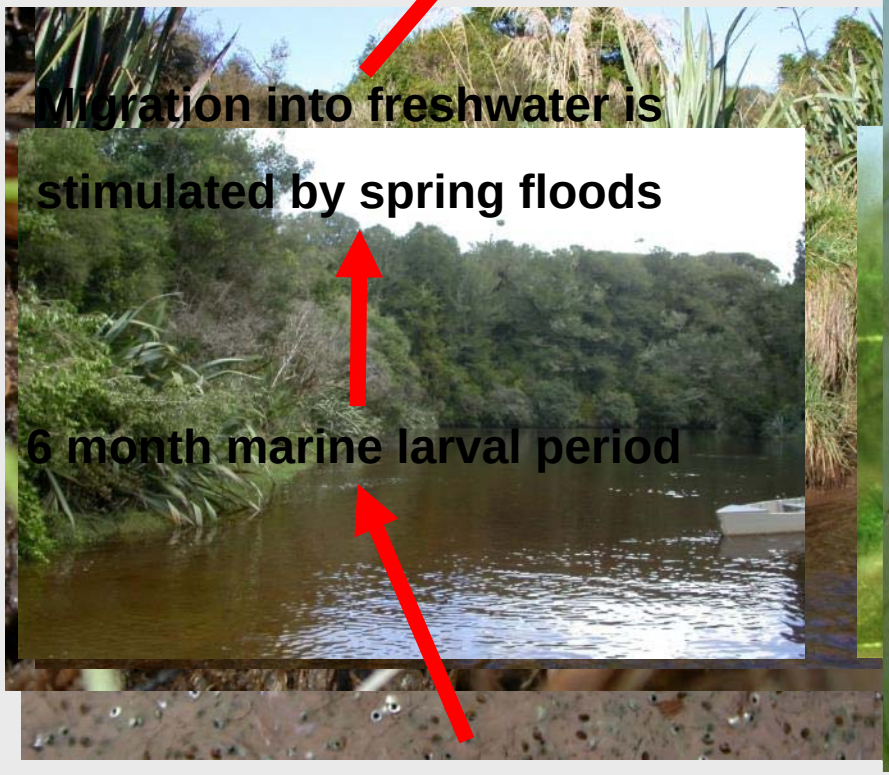
Westport, September 1968

Inanga life cycle

Adults live in freshwater, but migrate to estuaries during autumn

Eggs hatch when covered by next spring tide (4 wks)

Larvae flushed out to sea as tide falls



Migration into freshwater is stimulated by spring floods

6 month marine larval period

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Inanga spawning habitat

Small area that is vulnerable to:

- Sedimentation
- Impoundment
- Urbanisation
- Livestock grazing


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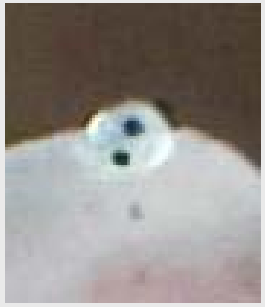
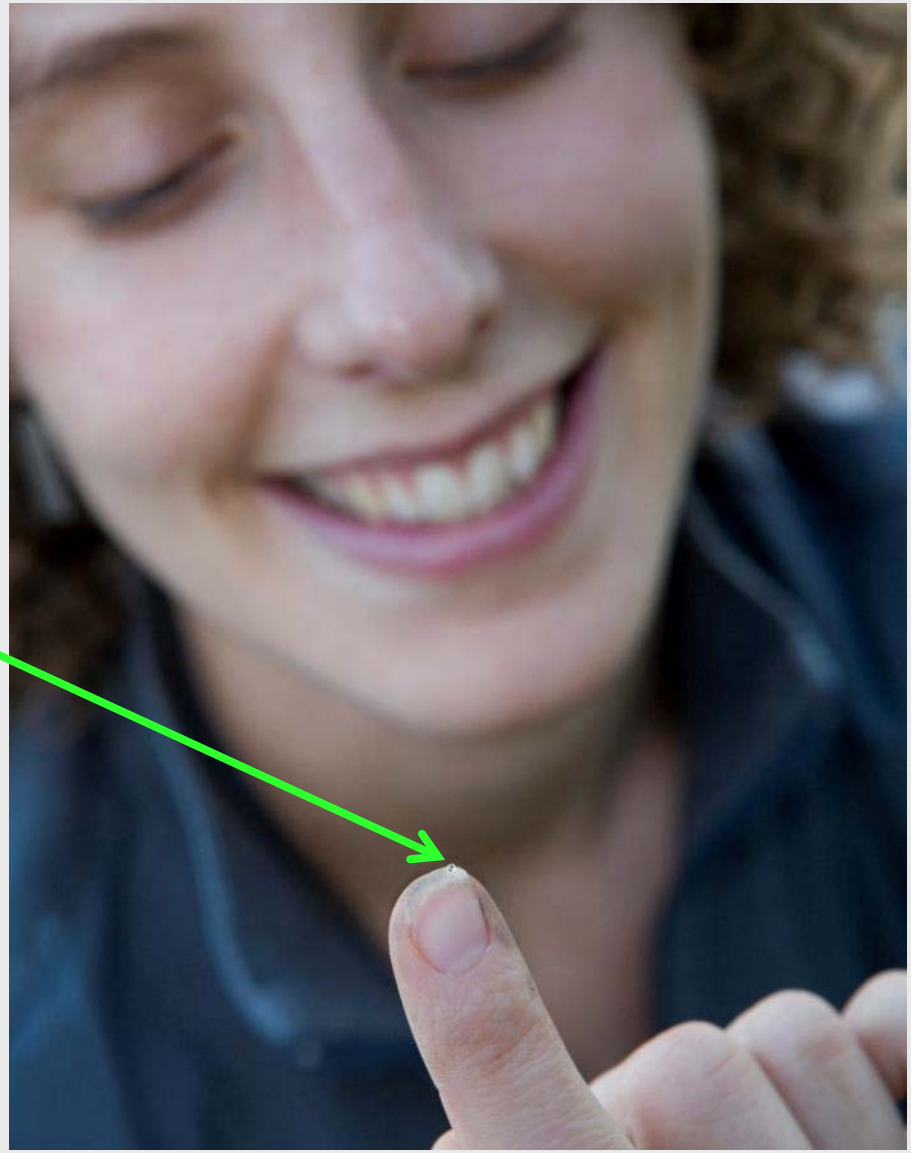
Inanga eggs



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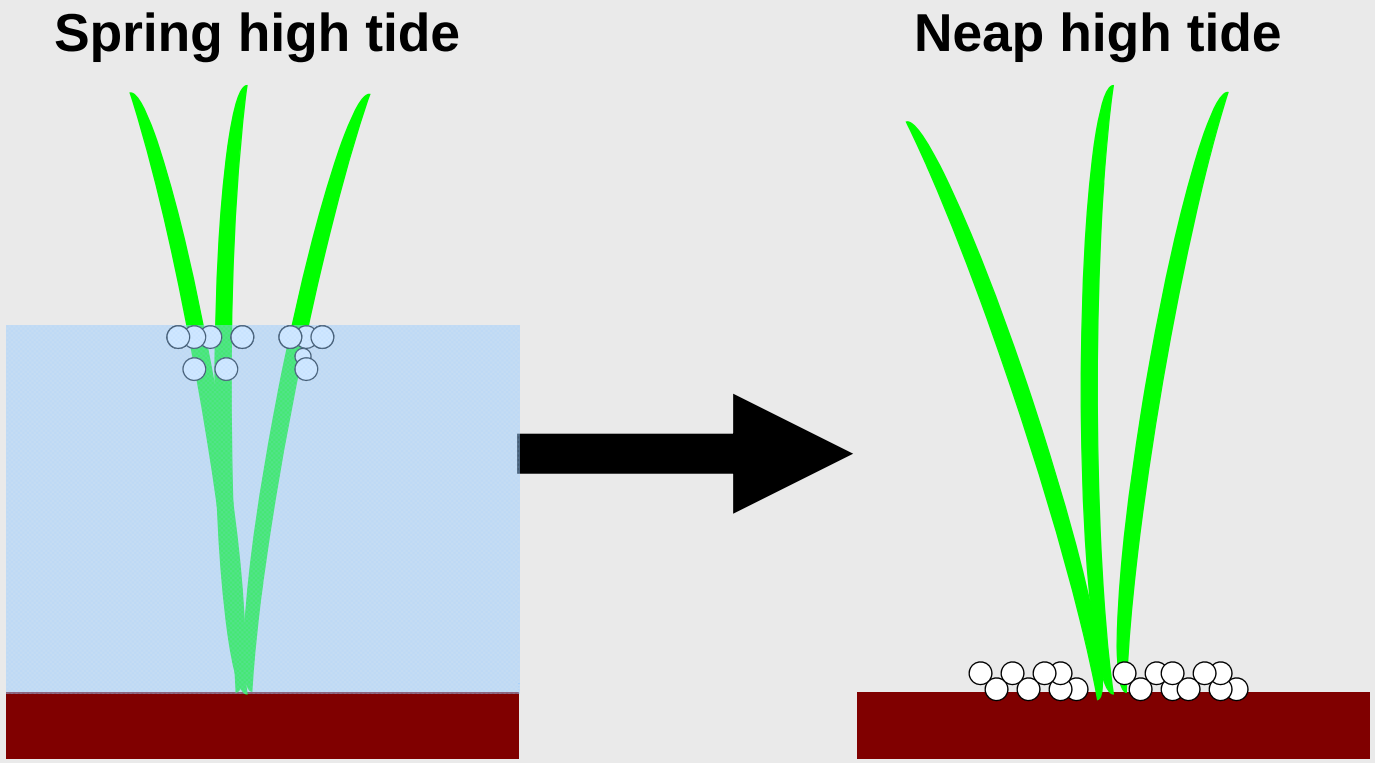
Egg laying


Spring high tide
Neap high tide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Inanga eggs

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Where do you start to look?


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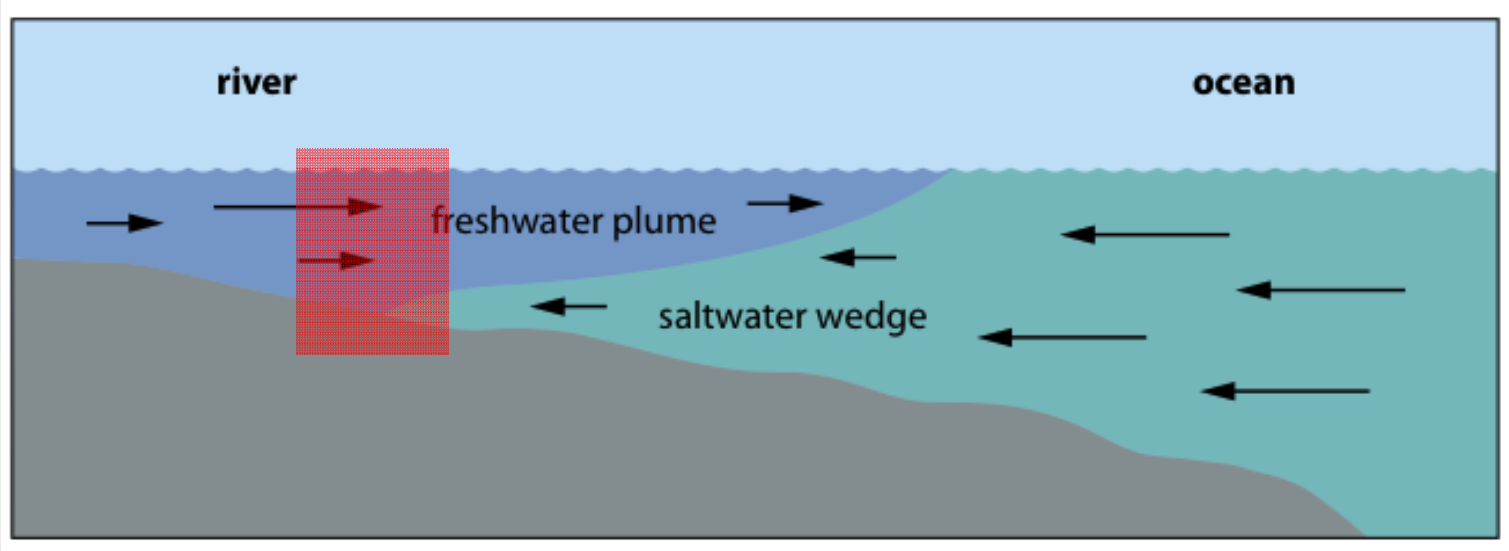
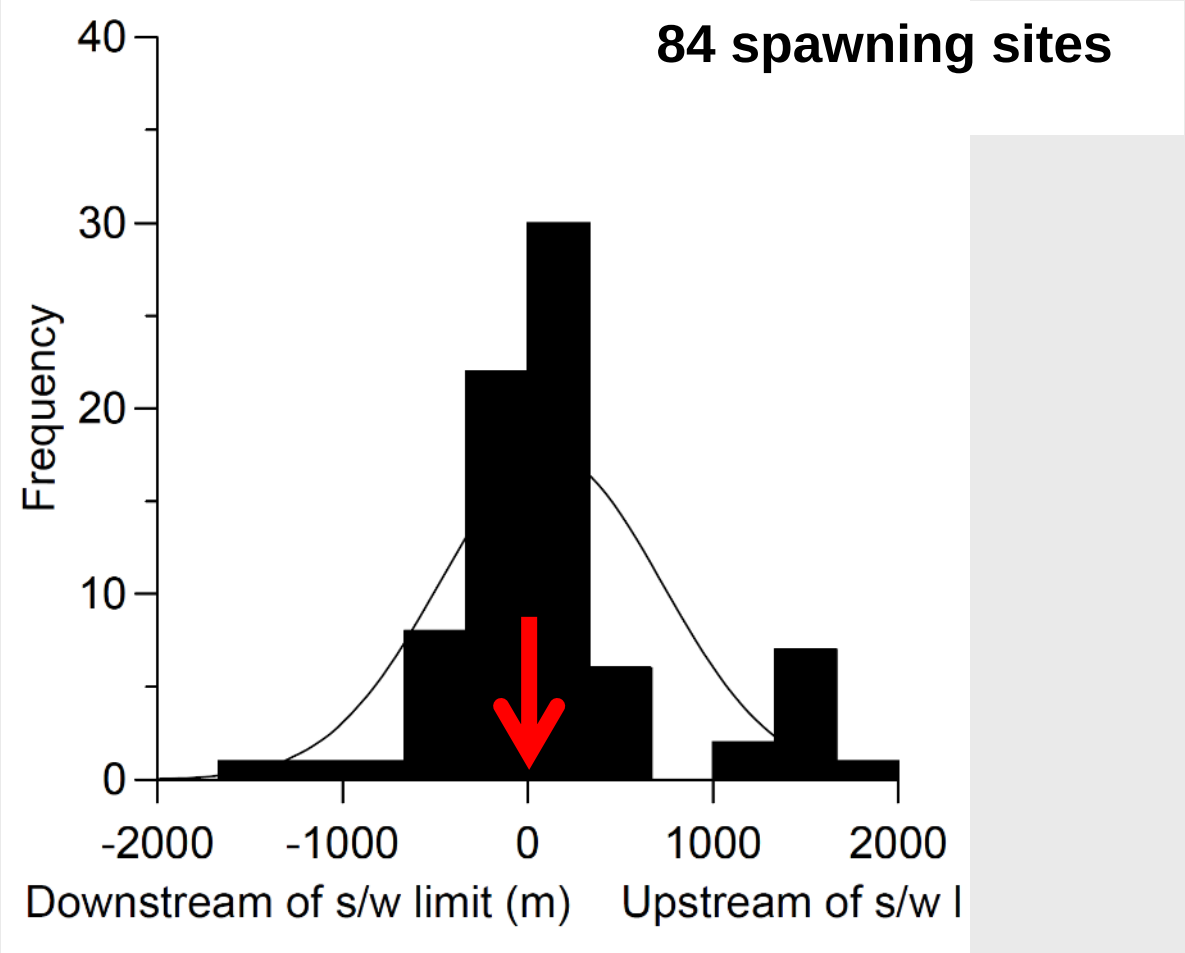
Tidal wedge


river
ocean
freshwater plume
saltwater wedge

Most spawning sites are within 100m of saltwater wedge



Taylor, M. J. 2002. The national inanga spawning database: trends and implications for spawning site management. *Science for Conservation* **188**:1-37.

Restricted spawning habitat

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Finding the saltwater wedge

Crab holes normally ≠ eggs

Saltmarsh vegetation normally ≠ eggs

Cotula coronopifolia , Bachelor's button

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Saltmarsh vegetation normally ≠ eggs

Apodasmia similis, Jointed wire rush, oioi

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Salt-intolerant vegetation normally ≠ eggs

Nasturtium microphyllum/officinale, Watercress

Photo by Phil Bendle

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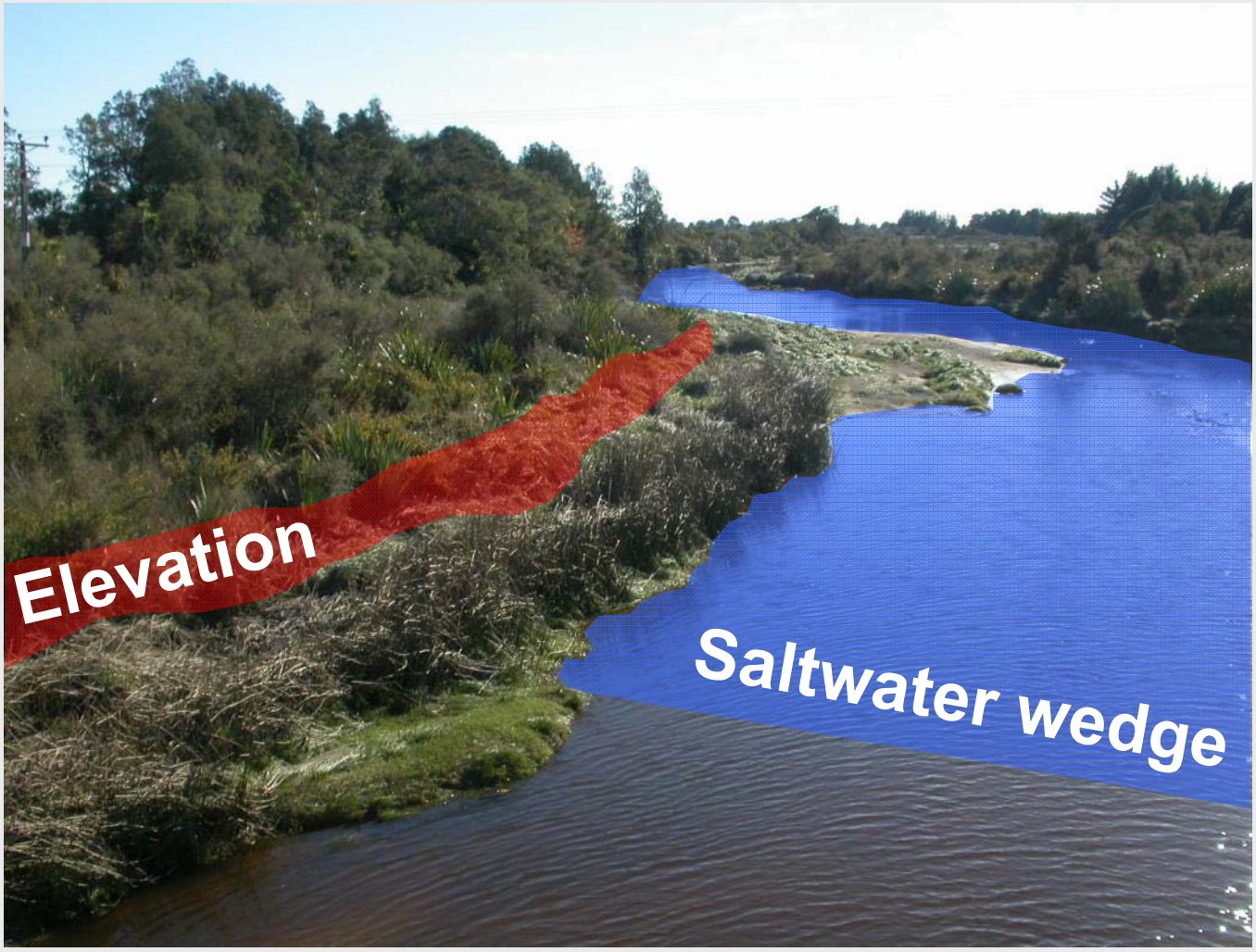
Restricted spawning habitat

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Low tide

High tide

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Measure local tidal amplitude

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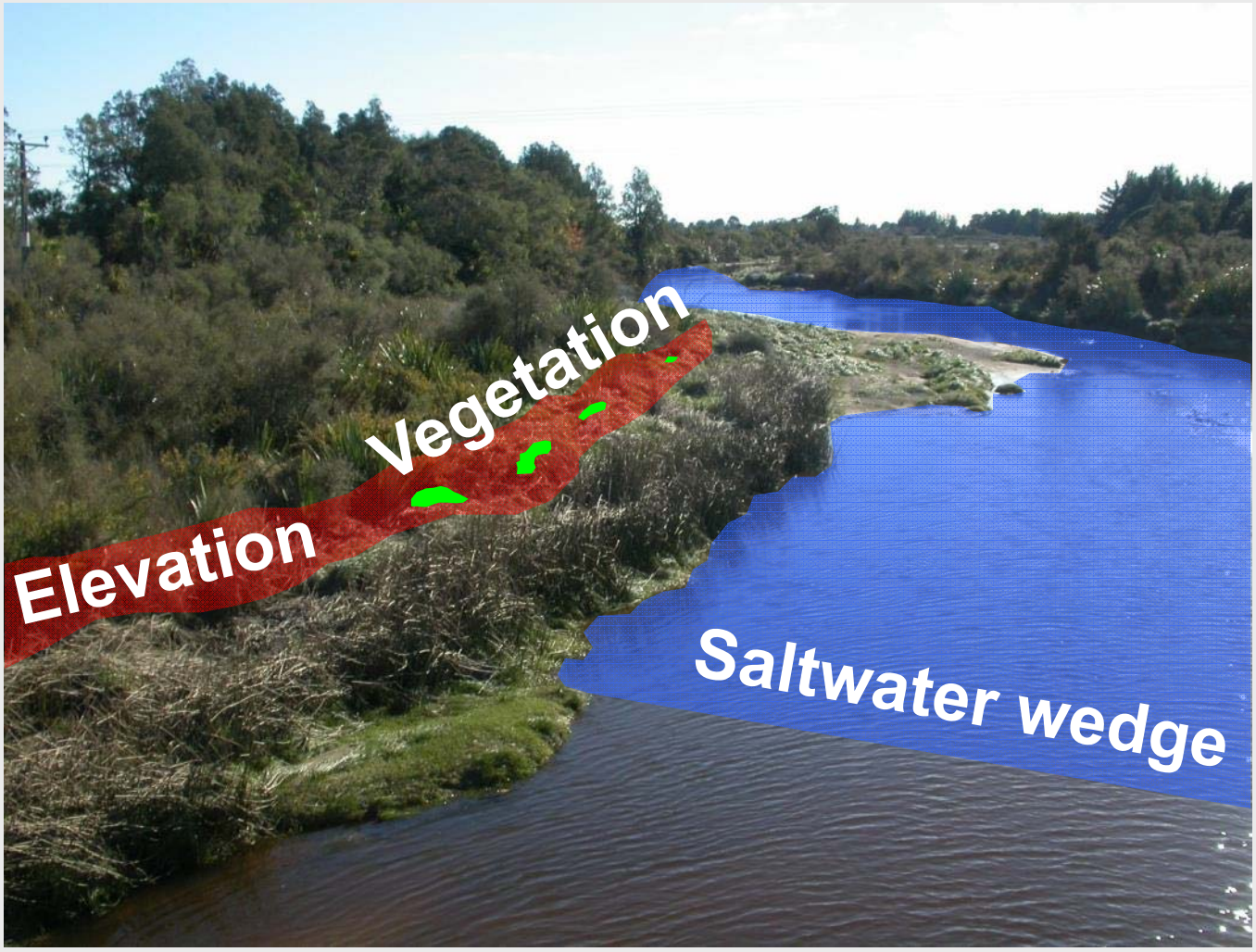
Restricted spawning habitat



Dense stems & thick root mat

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How do you quantify spawning area?

Primary search

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How do you count inanga eggs?

10 x 10cm quadrat

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Horizontal extent

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Vertical transects

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With 3-4 hrs effort

- Location of spawning site (GPS)
- Horizontal extent of eggs
- Area of eggs
- Average density of eggs (+ stem density, root mat depth, species composition)
- Estimate of egg production (survival)

Spawning site data

- Prioritisation of spawning sites
- Measuring change
- Verification of restoration efforts