

Synthesizing Pathways of Effect for Decision Making

Samantha M. Wilson, Marta Ulaski, Jonathan W. Moore

Our Objectives

- Synthesize available information to make available evidence easily accessible.



Our Objectives

- Synthesize available information to make available evidence easily accessible.
- Build tools to support practitioners and planners.



Our Objectives

- Synthesize available information to make available evidence easily accessible.
- Build tools to support practitioners and planners.
 - Build PoE's for activities relevant to salmon.



Our Objectives

- Synthesize available information to make available evidence easily accessible.
- Build tools to support practitioners and planners.
 - Build PoE's for activities relevant to salmon.
 - Develop stressor-response functions and determine the shape of those functions.

Activities



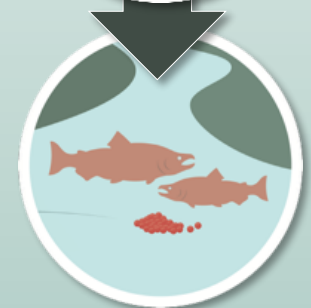
Stressors



Habitat conditions



Pacific salmon



Our Objectives

- Synthesize available information to make available evidence easily accessible.
- Build tools to support practitioners and planners.
 - Build PoE's for activities relevant to salmon.
 - Develop stressor-response functions and determine the shape of those functions.

Freshwater survival

Standardized stressor

Activities



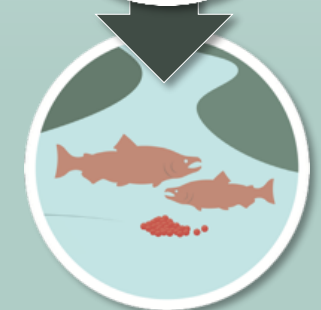
Stressors



Habitat conditions



Pacific salmon



Synthesis of available information

Systematic
review

29,504

papers screened



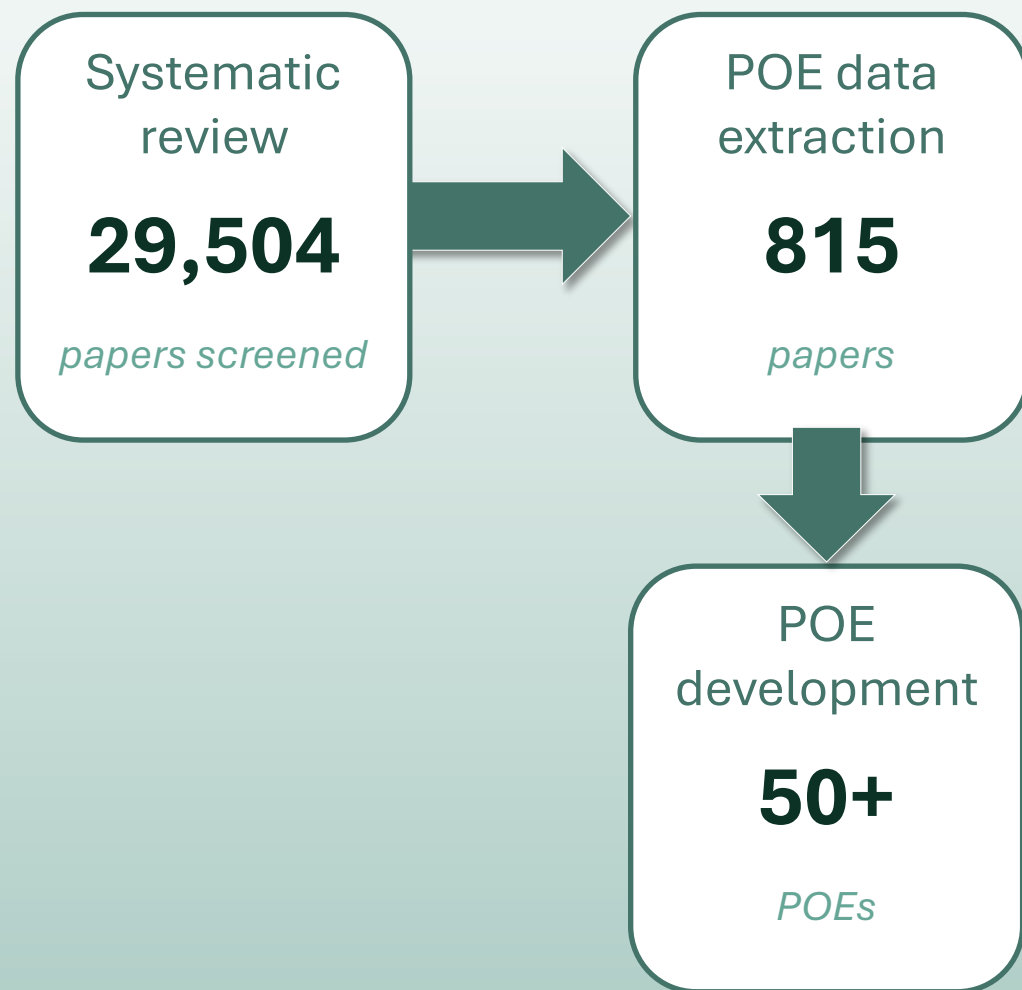
- Our search focussed on the impact to Pacific salmon in ***freshwater*** from Alaska, Yukon, British Columbia, Washington, Oregon, Idaho.
- Impacts included life-stage specific changes to **survival**, abundance, size, condition, fecundity and **productivity**.

Synthesis of available information



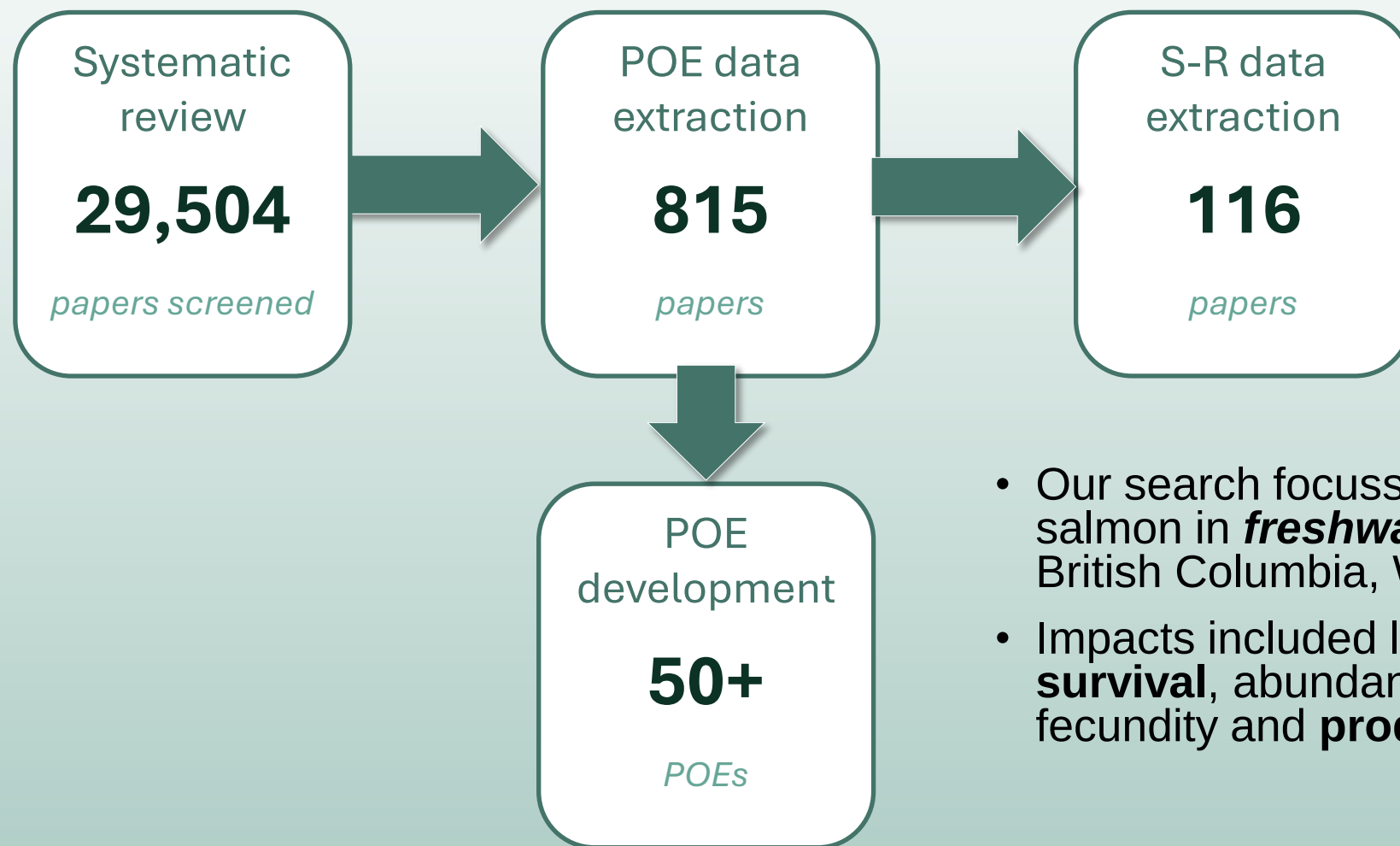
- Our search focussed on the impact to Pacific salmon in ***freshwater*** from Alaska, Yukon, British Columbia, Washington, Oregon, Idaho.
- Impacts included life-stage specific changes to **survival**, abundance, size, condition, fecundity and **productivity**.

Synthesis of available information



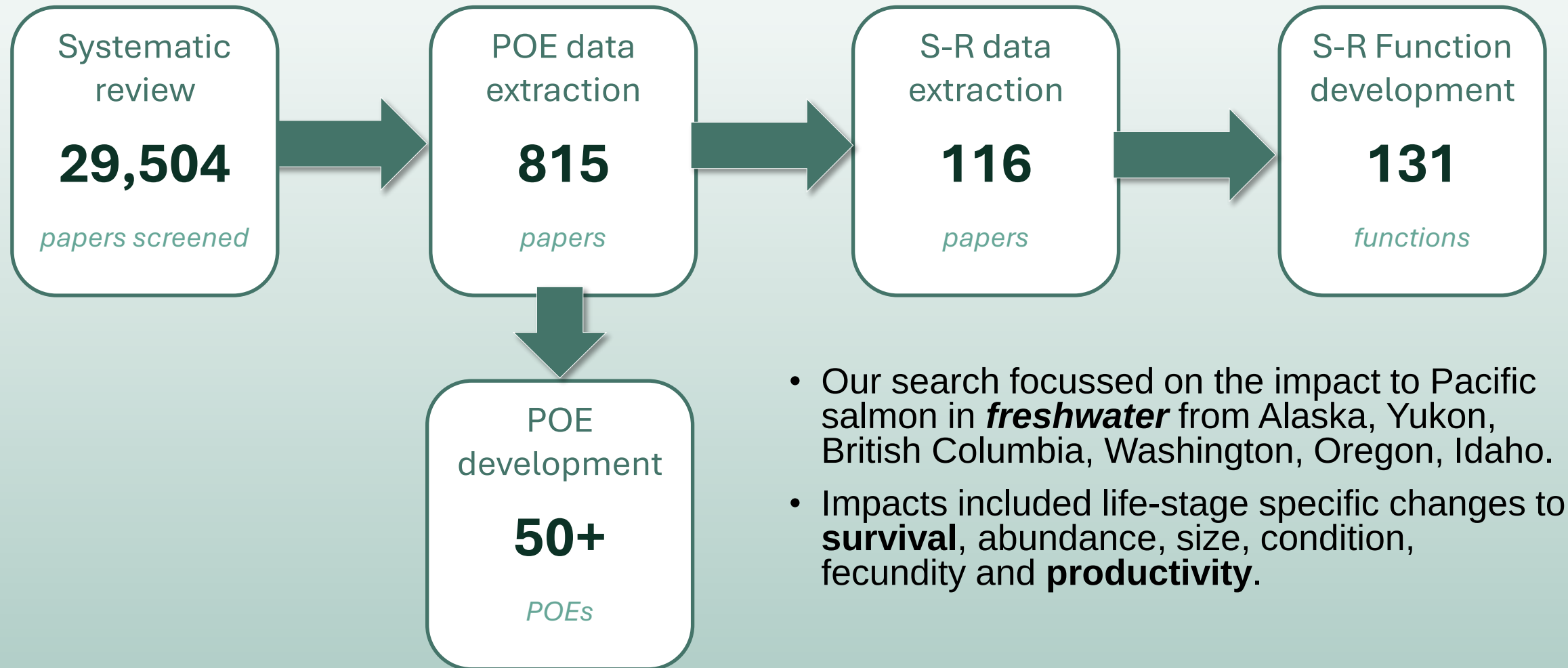
- Our search focussed on the impact to Pacific salmon in ***freshwater*** from Alaska, Yukon, British Columbia, Washington, Oregon, Idaho.
- Impacts included life-stage specific changes to **survival**, abundance, size, condition, fecundity and **productivity**.

Synthesis of available information

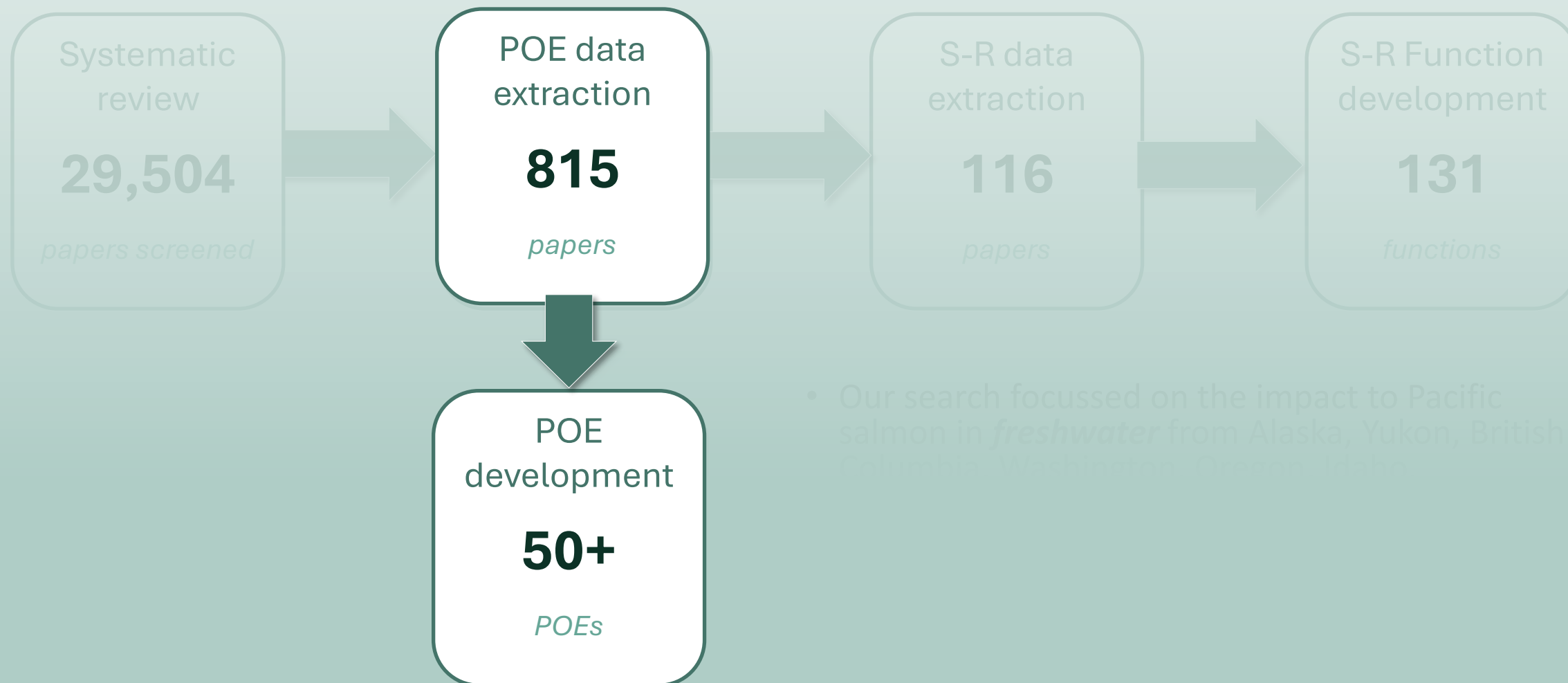


- Our search focussed on the impact to Pacific salmon in **freshwater** from Alaska, Yukon, British Columbia, Washington, Oregon, Idaho.
- Impacts included life-stage specific changes to **survival**, abundance, size, condition, fecundity and **productivity**.

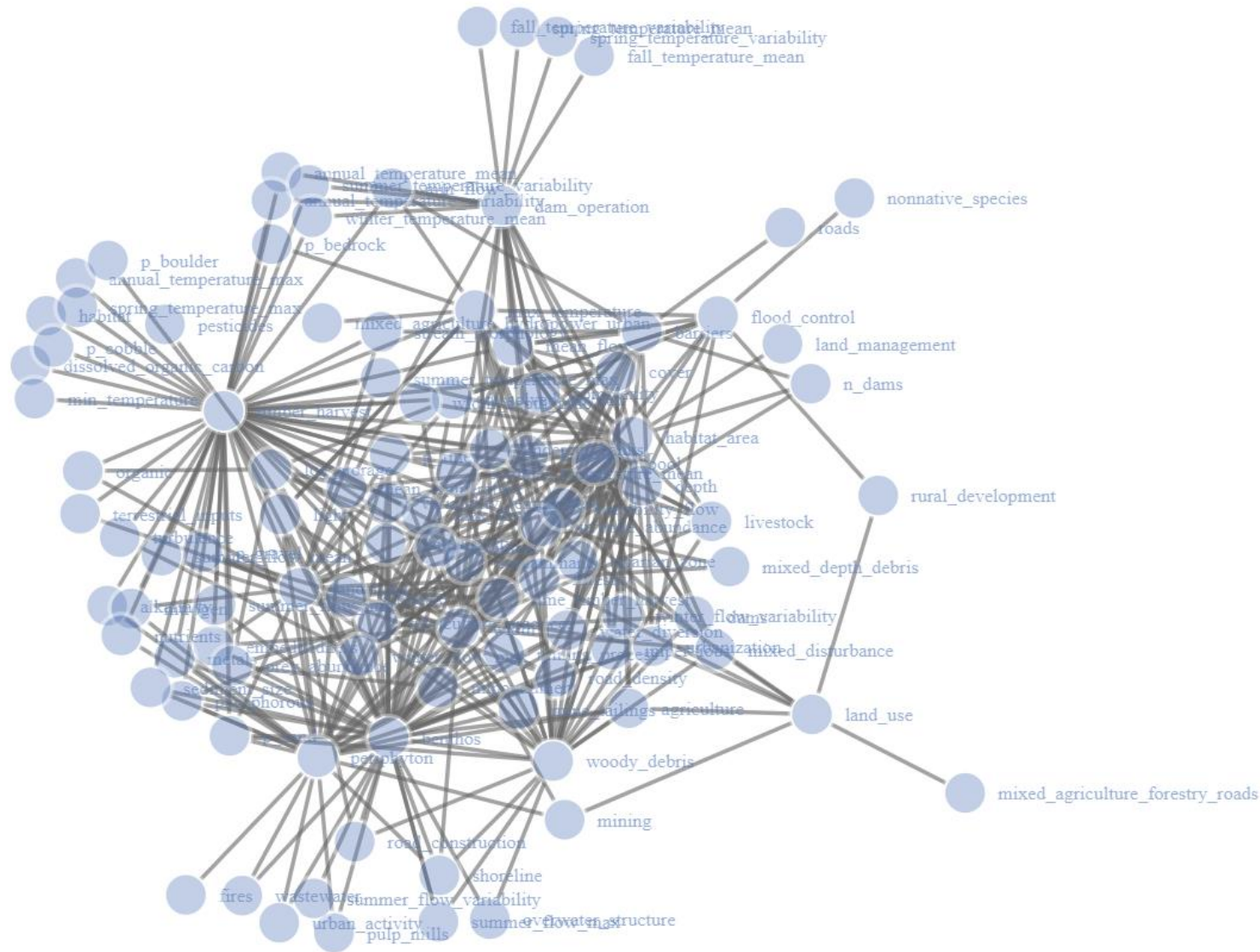
Synthesis of available information



Synthesis of available information



Pathways (Webs) of Effect:



Activities



Stressors



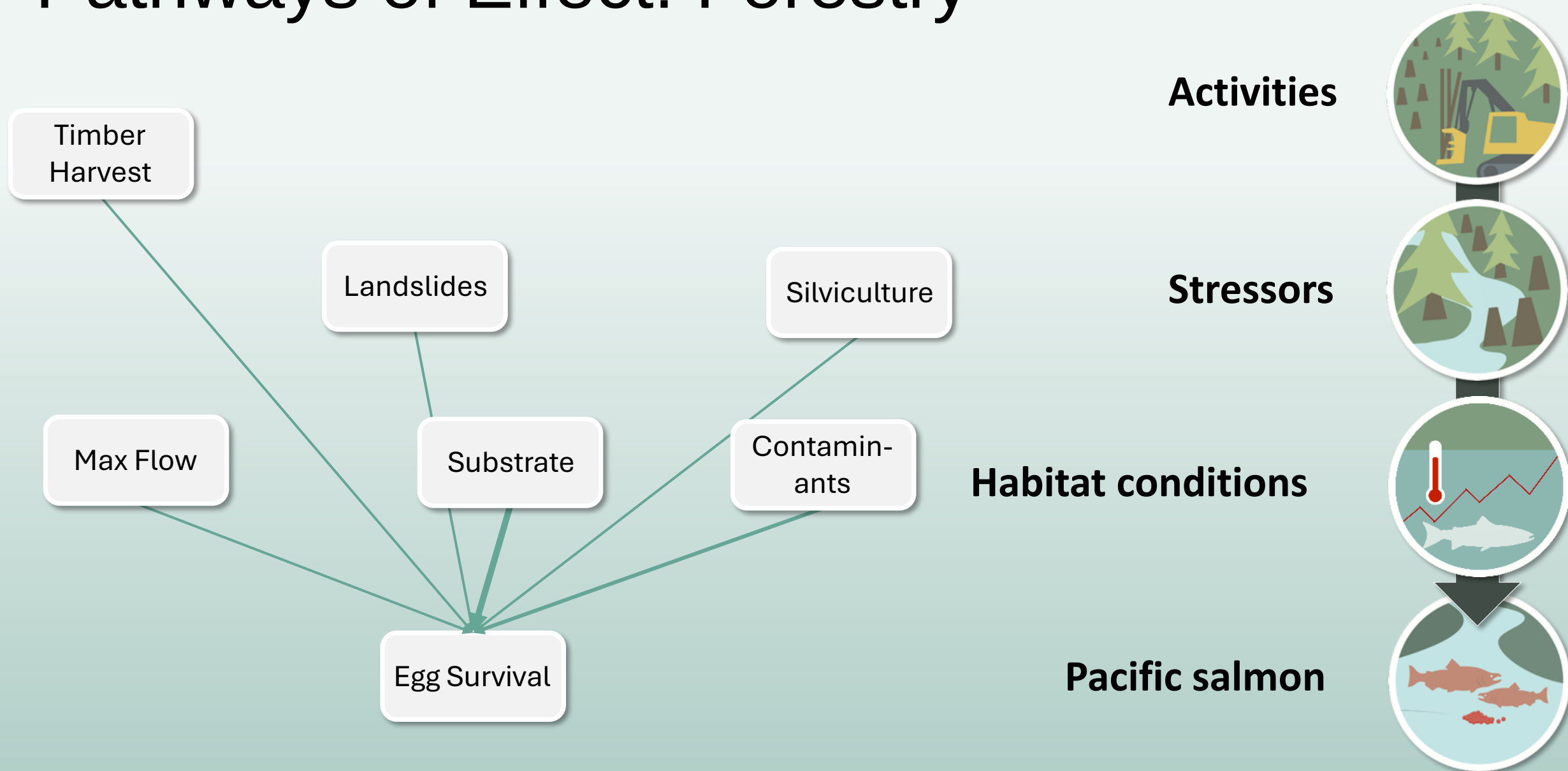
Habitat conditions



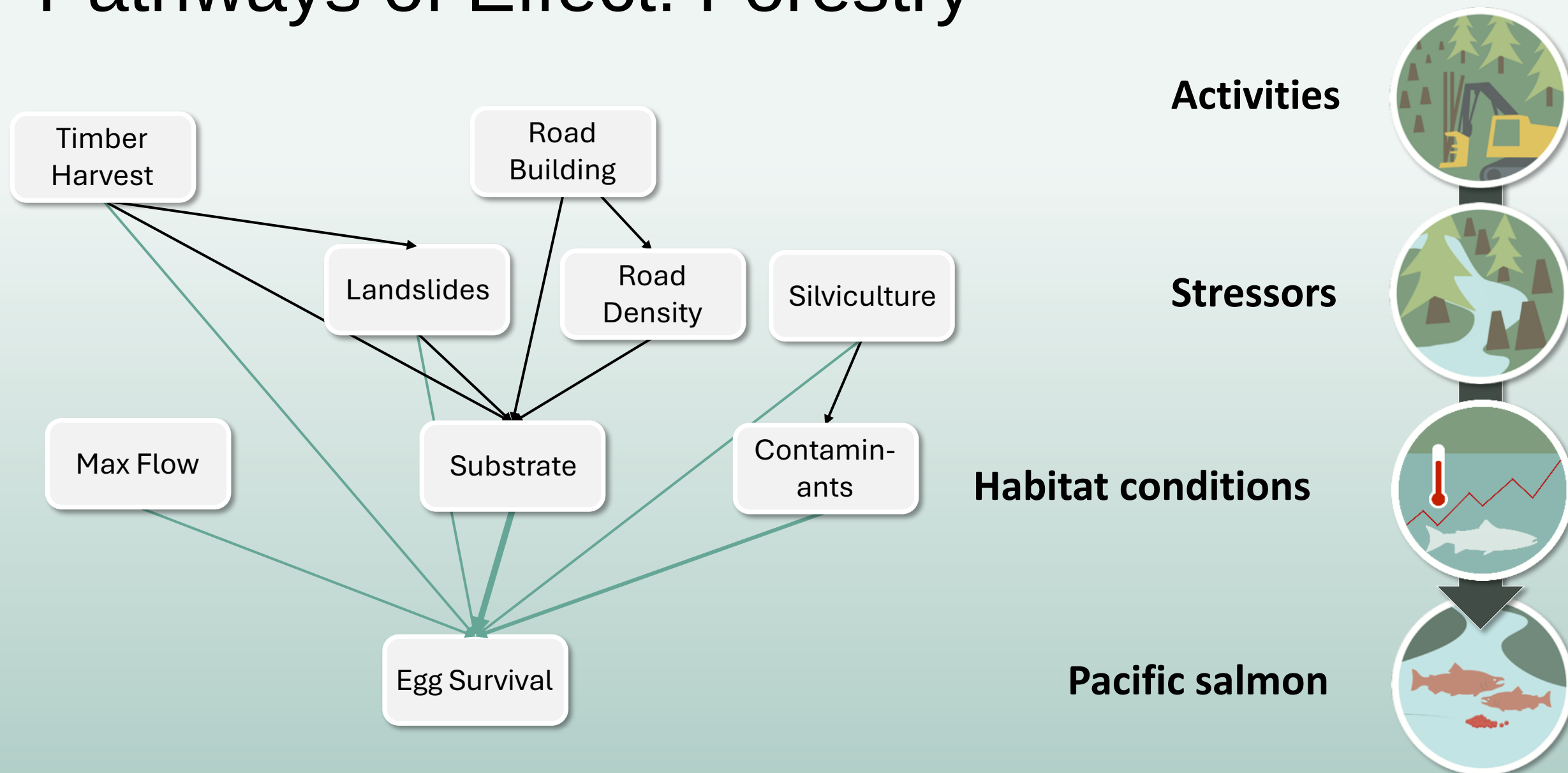
Pacific salmon



Pathways of Effect: Forestry



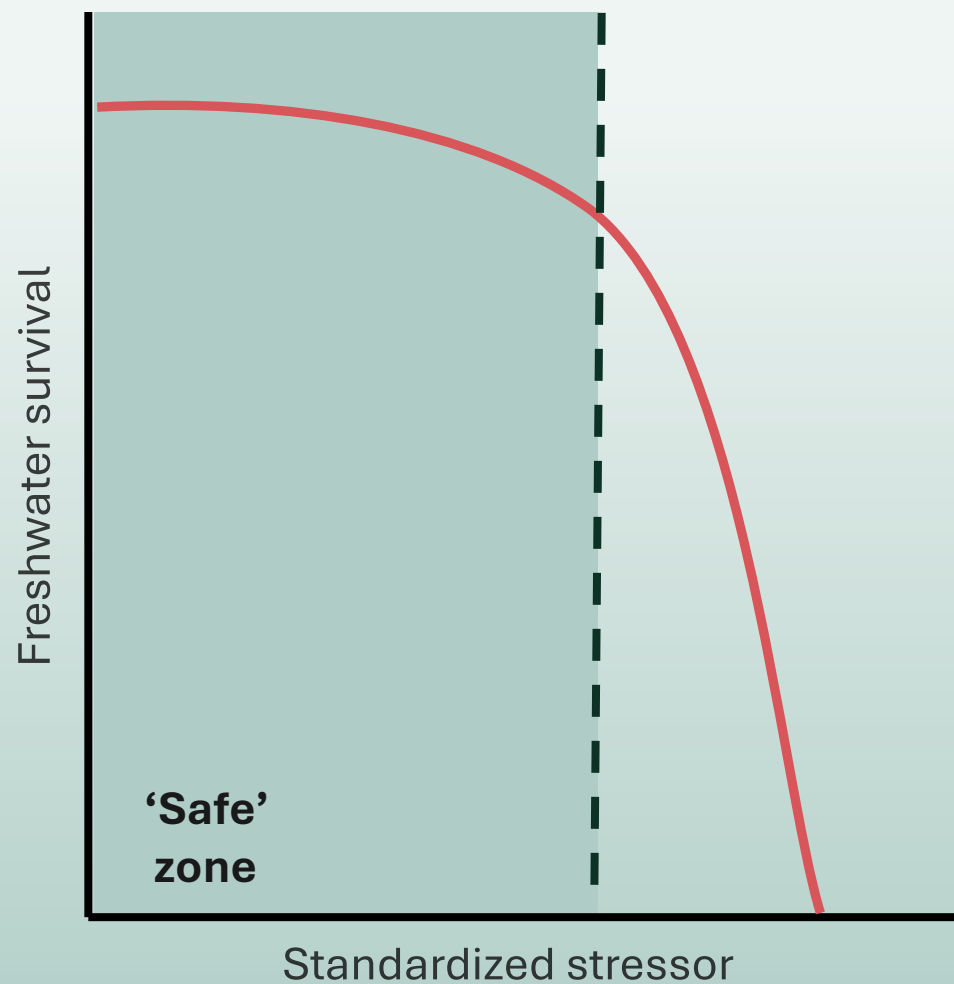
Pathways of Effect: Forestry



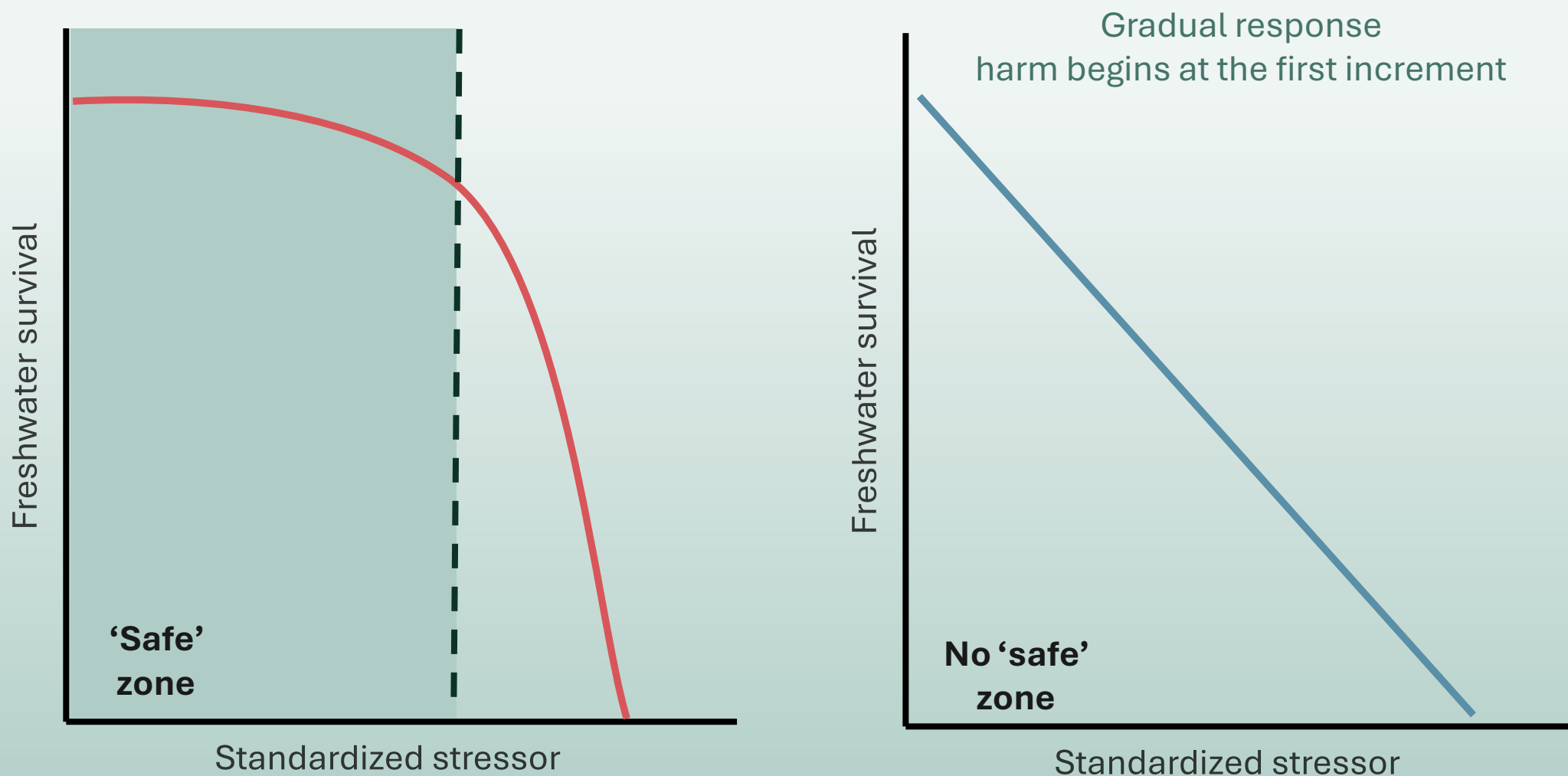
Synthesis of available information



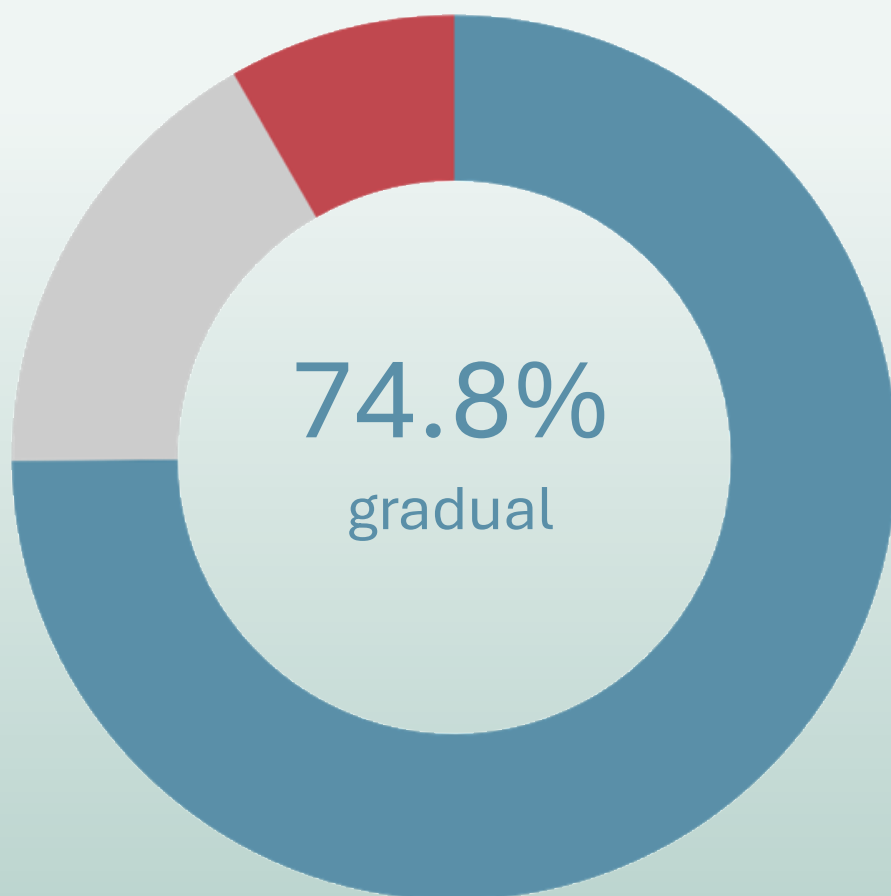
Stressor-response functions



Stressor-response functions



Stressor-response functions



Threshold	8.3%
11/131 functions	
Gradual	74.8%
98/131 functions	
Weak	16.8%
22/131 functions	

Watch these spaces for
stressor-response libraries →



Key Take-Aways

- We can build POEs with published research, but these will need to be augmented by other sources of information (e.g., expert opinion).
- Stressor-response functions are most often linear, meaning small ecosystem changes can impact salmon.
- Together POEs and stressor-response functions can be used to identify cumulative stressors and the impacts on salmon (E.g., Cumulative Effects Model for Prioritizing Recovery Actions (CEMPRA)).

Watch these spaces for
stressor-response libraries →



Stay up to date as these papers are published!



Contact:

arc_lead@sfu.ca

ulaskimarta@gmail.com

Thank you!



Example stressor-response curves

