



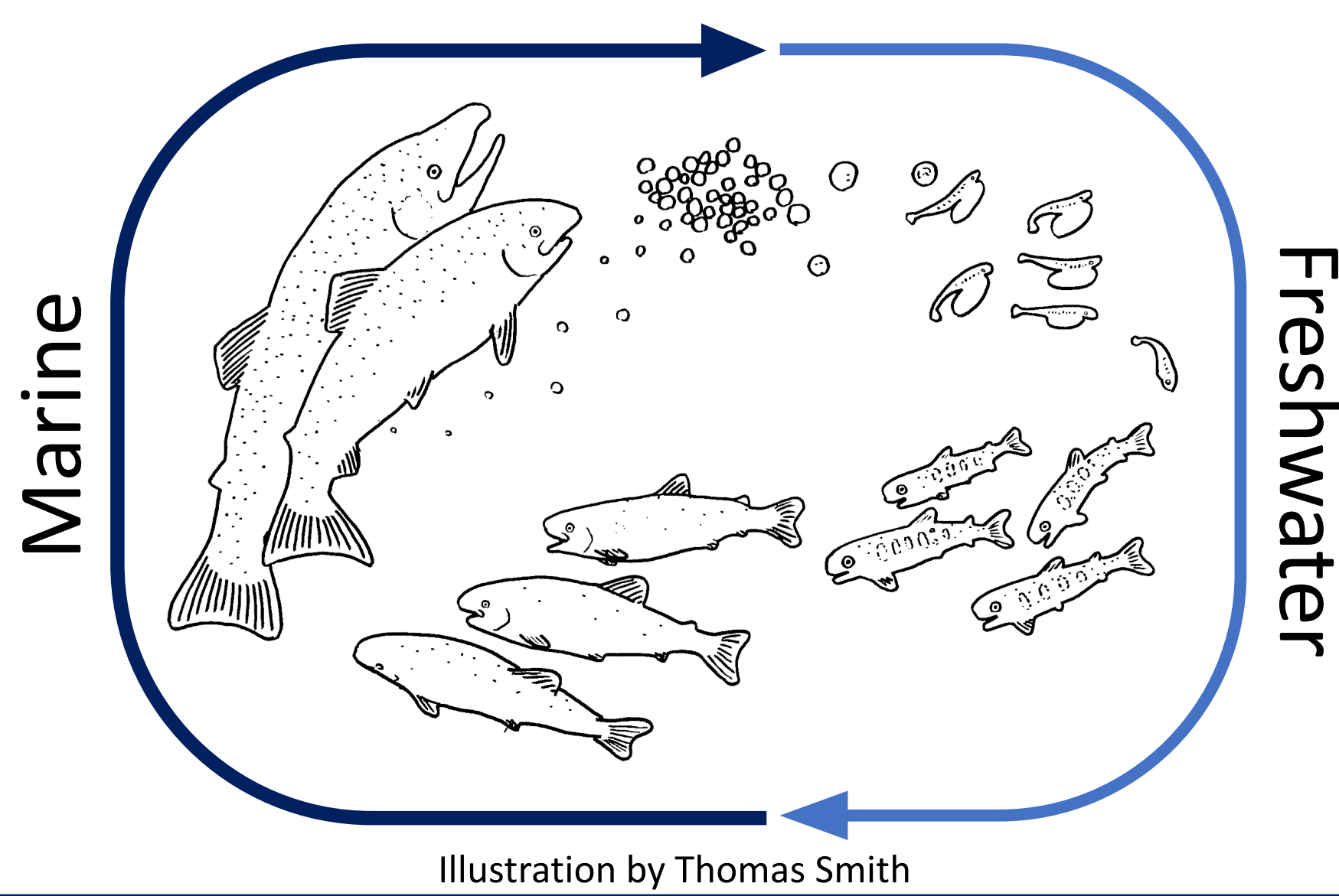
# A Marine Salmon Diet Database for the North Pacific

Caroline Graham<sup>1,2</sup>, Evgeny A. Pakhomov<sup>1,2</sup>, and Brian P. V. Hunt<sup>1,2,3</sup>

<sup>1</sup>Institute for the Oceans and Fisheries, University of British Columbia, 2202 Main Mall, Vancouver, British Columbia V6T 1Z4, Canada  
<sup>2</sup>Department of Earth, Ocean, and Atmospheric Sciences, University of British Columbia, 2207 Main Mall, Vancouver, British Columbia V6T 1Z4, Canada  
<sup>3</sup>Hakai Institute, PO Box 25039, Campbell River, British Columbia V9W 0B7, Canada



## What can diet reveal about the understudied marine phase of the salmon life cycle?



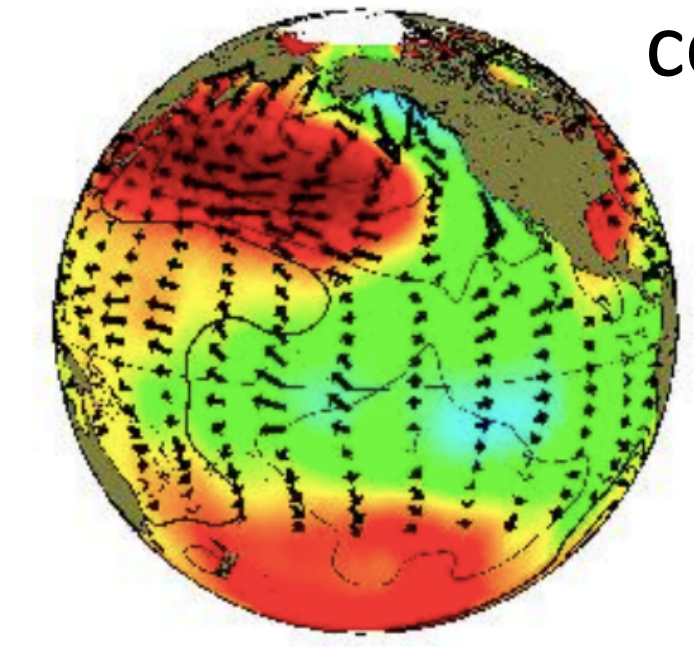
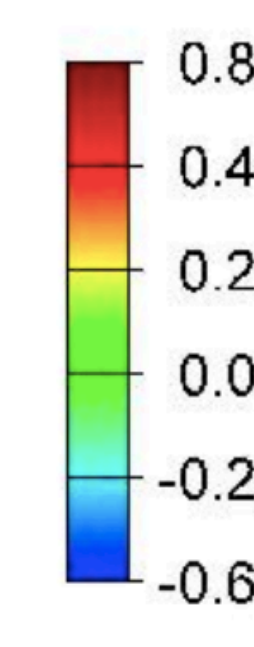
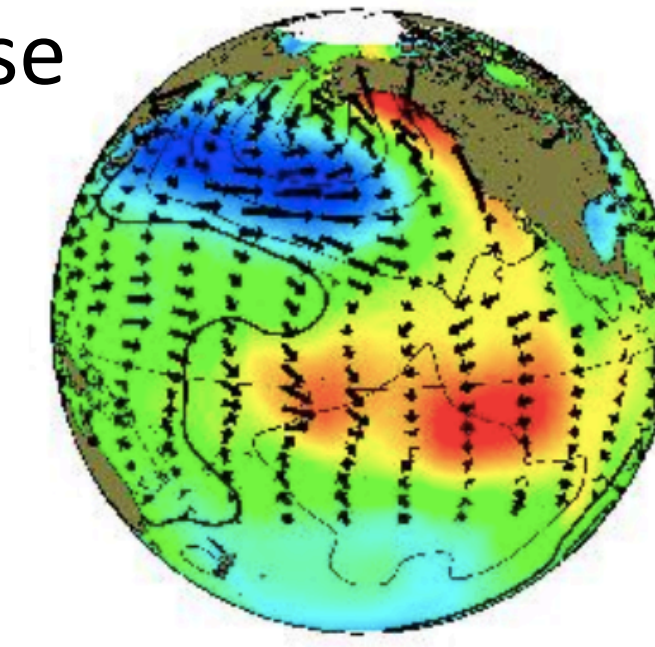
- The availability of nutritious food is an important factor affecting marine survival
- Diet data can give insight into food webs, potential competition, salmon health, and changing ocean conditions
- Historic data has been collected sporadically and using variable methods, making it difficult to examine large-scale spatial and temporal dynamics
- Studying salmon in the ocean is costly and logistically challenging, so we need to find alternatives



## Objectives

- 1) Create an open-access database framework for Pacific salmon diet data from the marine environment
- 2) Assess diet differences between one warm decade (1959-1969) and one cool decade (1987-1997) based on the Pacific Decadal Oscillation index
- 3) Understand what factors relate to the diets of salmon species across the North Pacific Ocean – such as geographic area and size/life stage

warm phase



cool phase

Fig. 1. Typical wintertime sea surface temperature (colors), sea level pressure (contours) and surface windstress (arrows) anomaly patterns during warm and cool phases of the PDO. Source: <http://research.jisao.washington.edu/pdo/>

## Method: Creating the Database

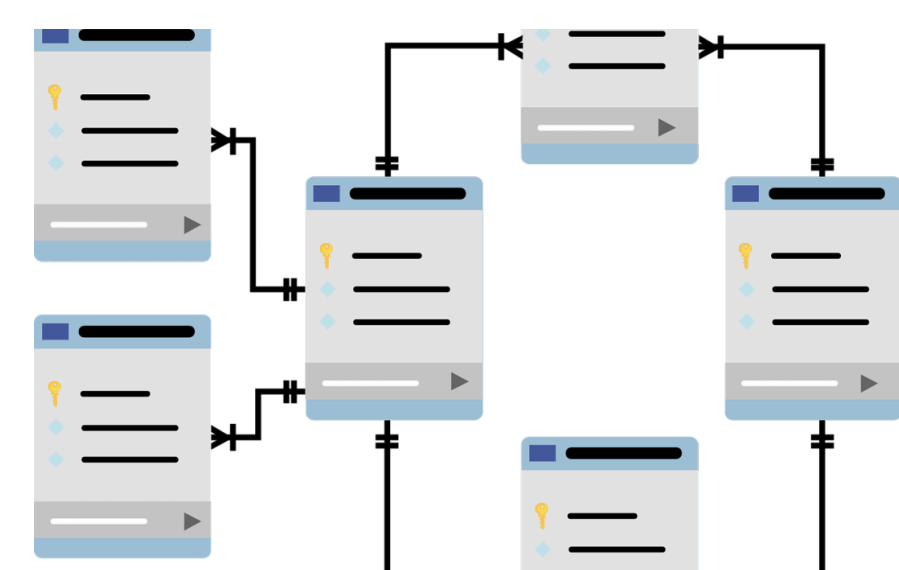
### 1) Systematic literature review

- a) NPAFC/INPFC Documents and Bulletins
- b) Web of Science: Core Collection
- c) Web of Science: Zoological Record
- d) ProQuest: Aquatic Sciences and Fisheries Abstracts



### 2) Compile data

- a) Salmon diet data
- b) Salmon biological data
- c) Prey biological data
- d) Environmental data



### 3) Build a relational database

Database Management System: MySQL



## Results: Available Data

### Spatial resolution of data

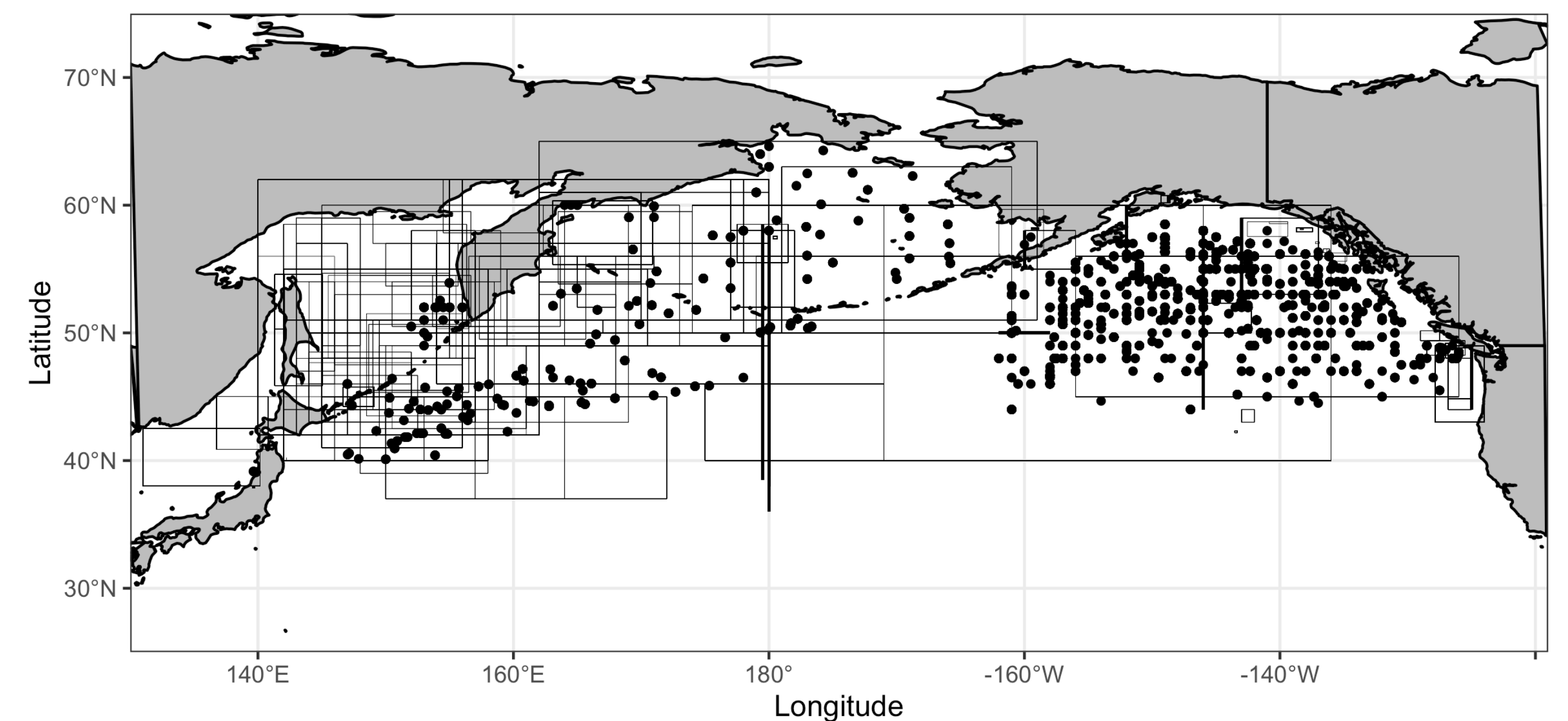


Fig. 2. The distribution of sampling points, transects, and areas (represented by rectangles) where salmon diet information has been collected and added to the database.

### Types of available data for decadal time periods

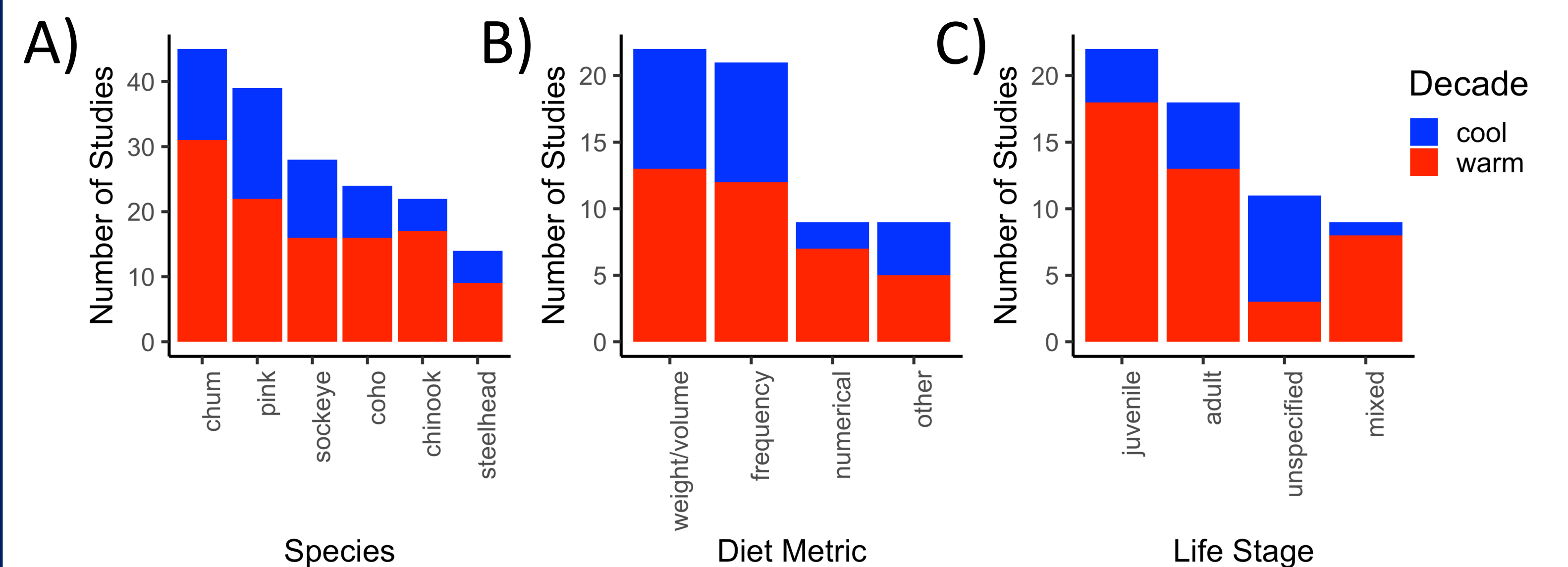


Fig. 3. The number of studies in the database for each salmon species (A), diet metric (B) and life stage (C) for warm (red) and cool (blue) decadal periods.

## A Tool for the Future

This database will continue to grow and could be used to answer any number of important research questions, such as:

- 1) How does diet relate to changing prey fields?
- 2) How is diet expected to change in the future with climate change?
- 3) How does diet relate to salmon returns over time?

This database will become an **open-access resource**, so if you have input and ideas, we would love to hear from you!



Please talk to Brian Hunt in person, or contact Caroline via email: [c.graham@oceans.ubc.ca](mailto:c.graham@oceans.ubc.ca). Thank you!



## Acknowledgements

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