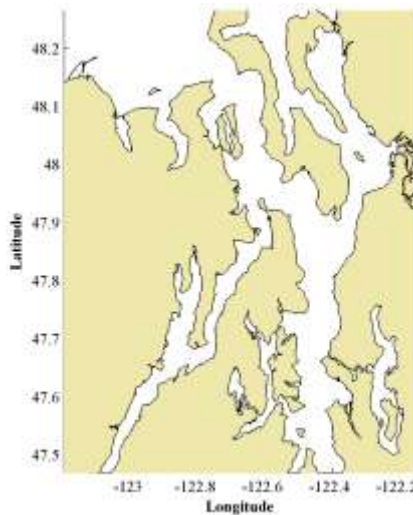


Ecological Effects:

What measurements are needed, what measurements are feasible?

Examples from Pacific Northwest tidal energy projects (studies conducted by Northwest National Marine Renewable Energy Center)

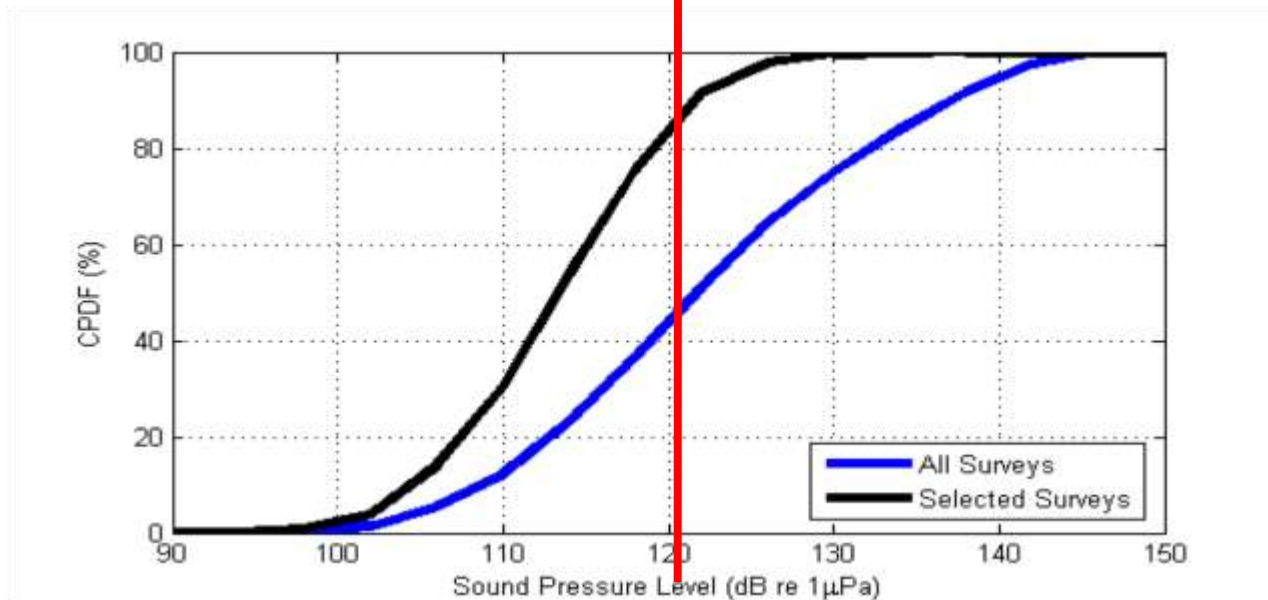


Jim Thomson

Oceanographer, University of Washington Applied Physics Lab (Navy UARC)
Asst Prof, University of Washington Dept of Civil/Environmental Engineering

Ambient noise:

- many existing sources (e.g., shipping)
- difficulties measuring in energetic flows

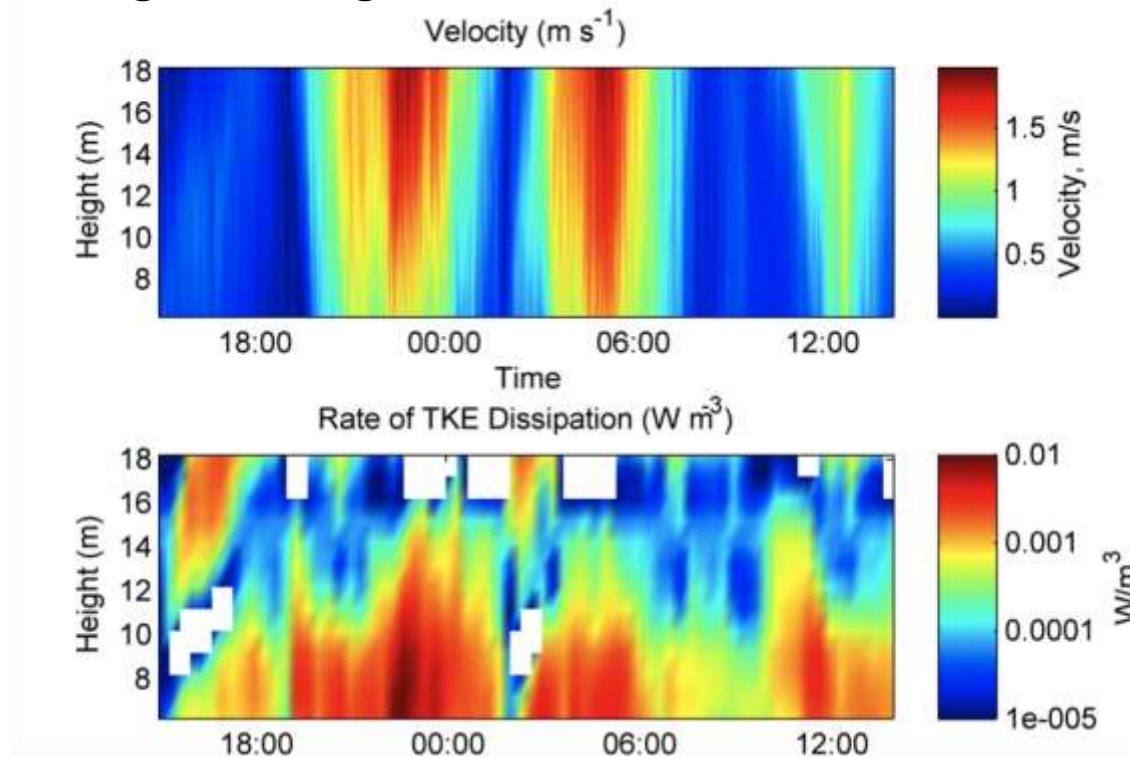


MS student Chris Bassett

2

Turbulence:

- complex natural phenomena
- difficulties measuring in energetic flows



MS graduate Sam Gooch

3

- **Need for data (baseline + operational)**
- **Need to acknowledge variability (before-after may not be feasible)**
- **Need to understand other input to marine systems (cumulative effects)**