Perspective:

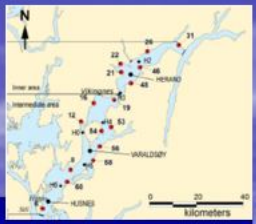
Organic Pollution from Net Pens

- Sowles and Churchill – lease requirements of benthic monitoring of Maine industry for 15 years – no permanent damage

- WA Dept. of Fisheries:
  - Modeled worst case scenarios (5 farms in an embayment area):
    - 0% increase in dissolved N above ambient in summer
      - 0.57 % increase in winter
    - 0.22% increase in phytoplankton & zooplankton in summer
      - 0% increase in winter
- Rensel (1988)
  - Worst case scenario – Large farm in shallow passage in Puget Sound
    1. Monitored phytoplankton density & growth rates on farm with and without fish.
    2. Monitored nitrogen levels downstream from farm.
  - No diff. In #1 & some N increase was seen in one tidal flushing but not other; 30 m downstream 80% ammonia was nitrite – therefore rapid decomposition.

Perspective:

Organic Pollution from Net Pens



- Husa, et al 2012
  "Regional impact from fin-fish farming in an intensive production area (Hardangerfjord, Norway)" Marine Biology Research 10:3 – 241-252

  - 70,000 MT annual production of farmed Atlantic salmon
    - (vs. Puget Sound had 8000 MT at its maximum)
  - One of most intensively farmed areas in the world (309 sq. miles)
    - (vs. Puget Sound surface area is over 1000 square miles)
  - Overcrowded low deep water flow fjord
  - Studied impact between 2008 and 2010
  - Studied intertidal macroalgal and benthic communities and chlorophull-a
  - values
  - Findings: good ecological conditions of parameters studied
  - Little evidence of regional impact despite intensive production level

Final Programmatic Environmental Impact Statement

Fish Culture in Floating Net-Pens

Washington Department of Fisheries

January 1990