Opportunities for CO_2 sequestration in offshore basalt: Cascadia CarbonSAFE and Solid Carbon projects

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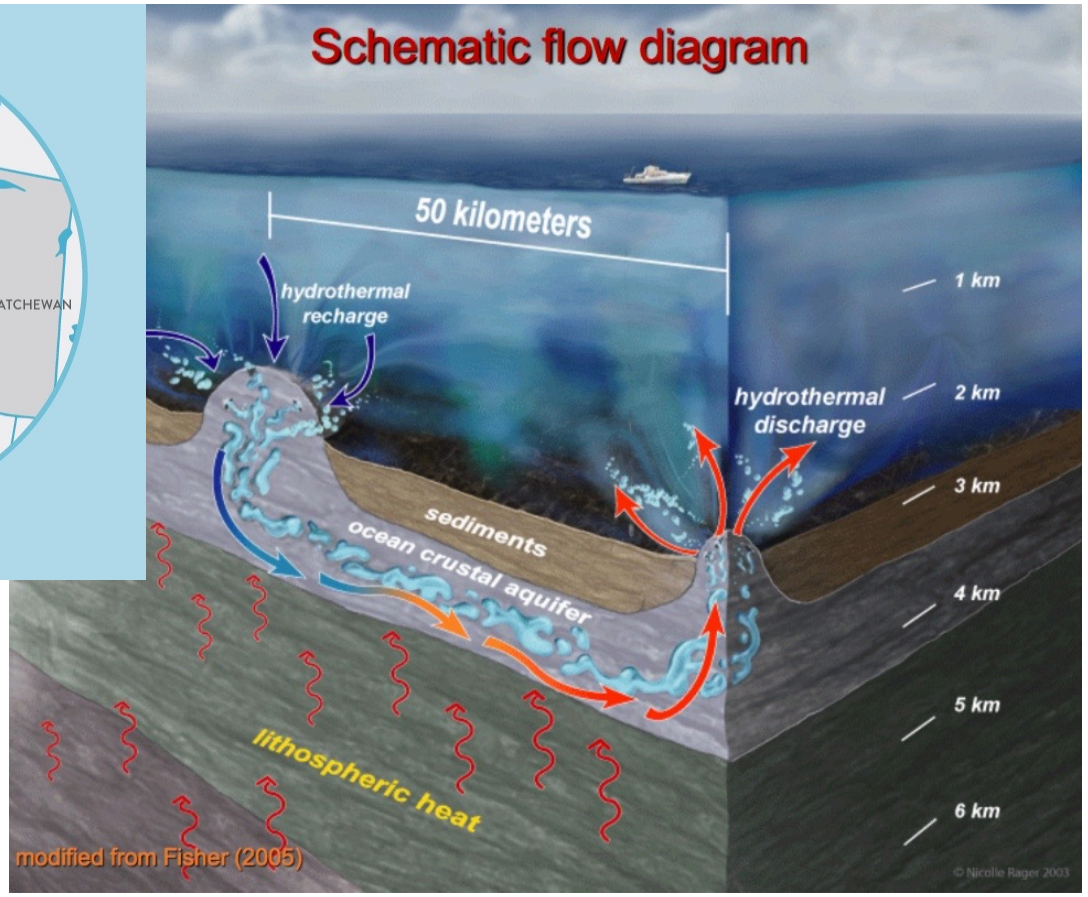
5th International Workshop on Offshore Geologic CO_2 Storage

Cascadia CarbonSAFE Project - U.S. DOE

hydrothermal siphon
in sub-seabed basalts

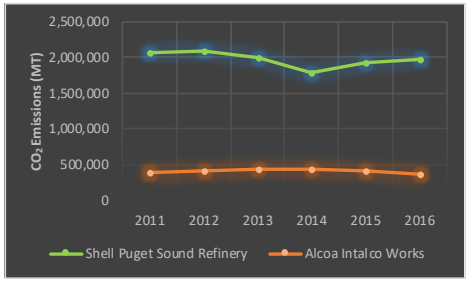


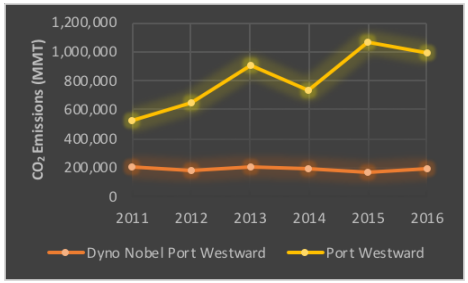
Modeled 50 $MtCO_2$ plume capped by sediments and far from outcrops after 70 years

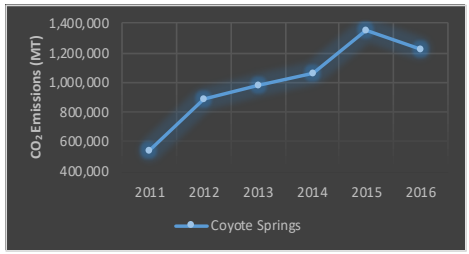
CO_2 sources near Cascadia basin

Feasibility of 50 MtCO_2 injected over 20 years

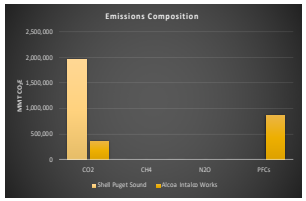
Industrial: 1-3 MMT/ yr





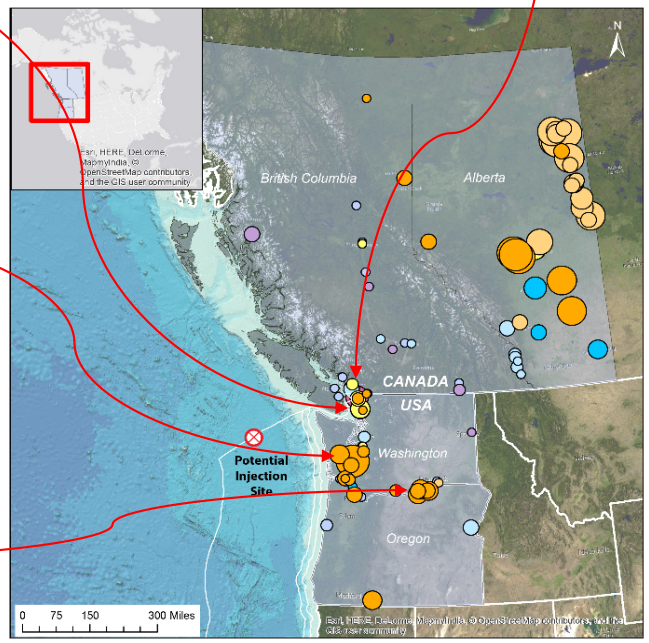


CO_2 & other VOX



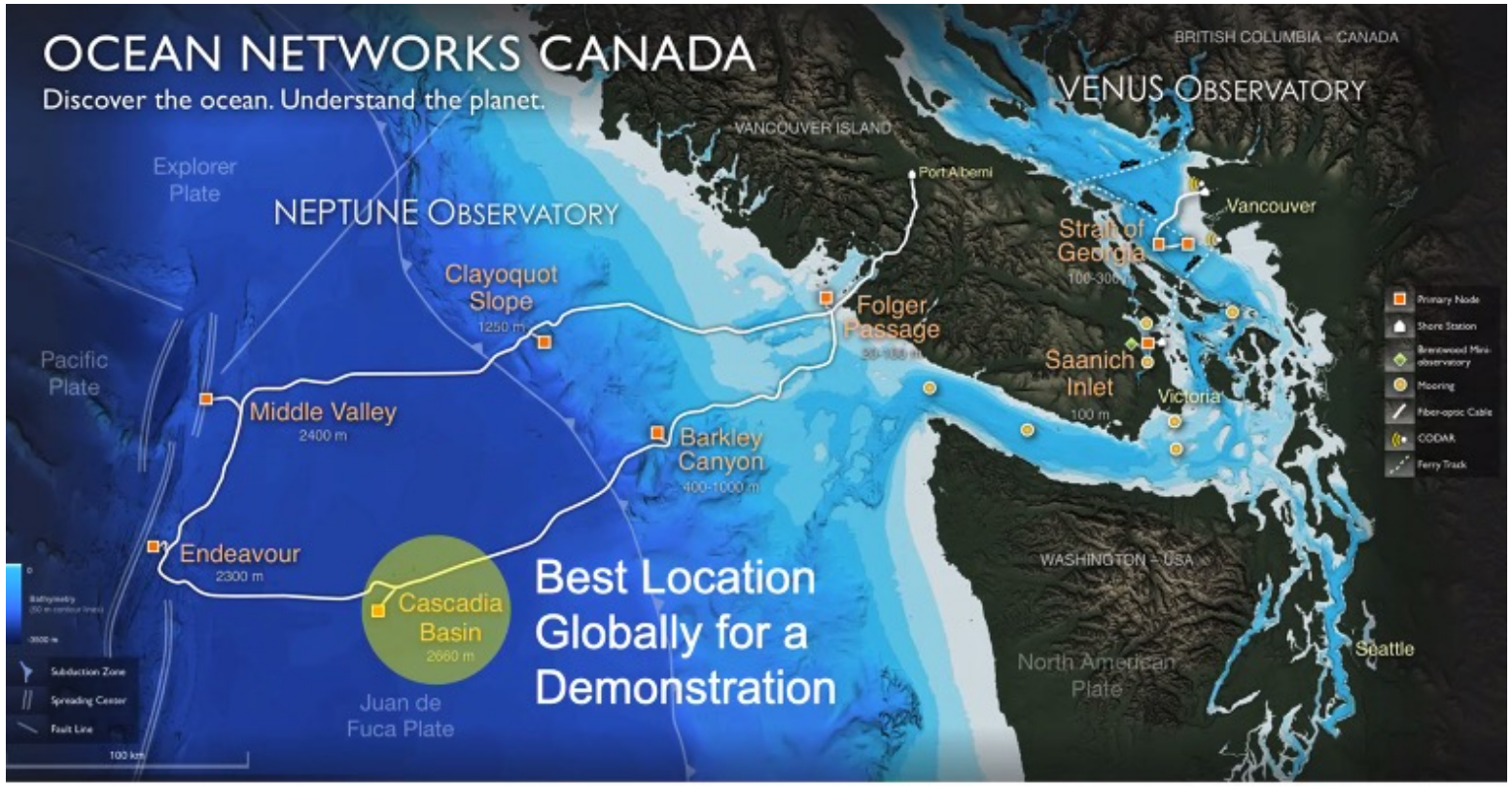
Air-to-fuels

Carbon Engineering



Goldberg et al. (2018)
DOE CarbonSAFE;
Energy Procedia

Solid Carbon Project – PICS / Univ. Victoria



Seeking a pilot basalt injection near Cascadia Basin in U.S. or Canada waters

Combinations of existing technologies, renewable energy, and reservoirs

- Direct air capture
- Renewable energy

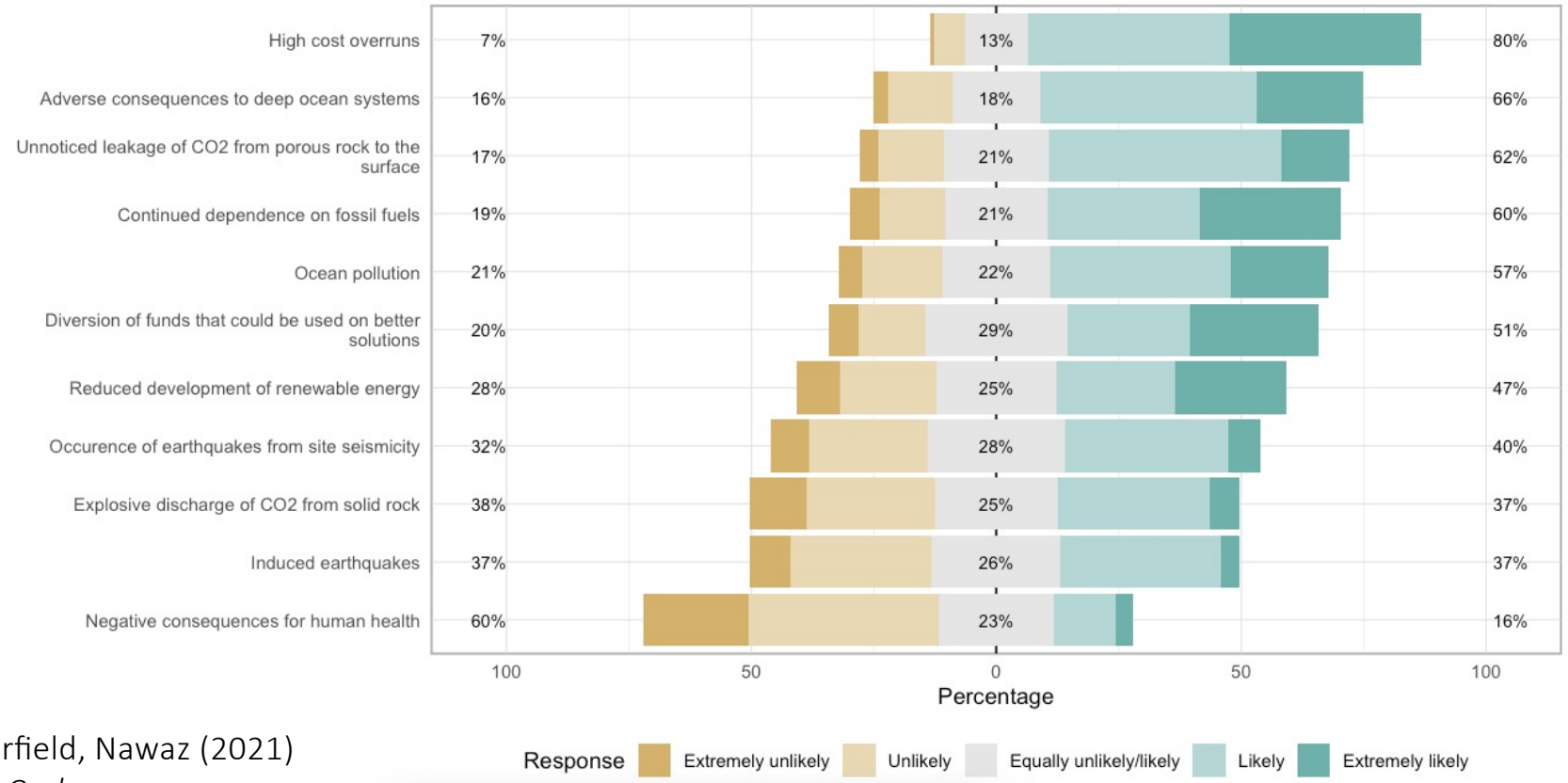
- Ocean oil & gas technology
- CO2 injection system

- Mineralization into basalt
- Ocean monitoring

Mineralization depends on composition, kinetics, and hydrologic flow

Solid Carbon pilot injection project

Expert survey (N=500) of technical risks



Satterfield, Nawaz (2021)
Solid Carbon

Thank you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