The Boston Globe

American Fisheries Society 2022

August 21-25

Early Opportunities in the Pacific to Design Floating Offshore Wind to Coexist with Fisheries

Presented by:
Kathryn White, M.Sc.
Offshore Environmental Specialist

Worley
energy | chemicals | resources

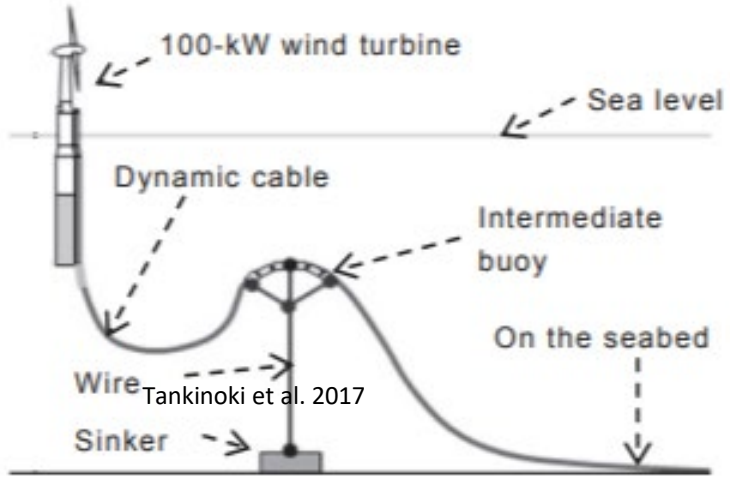
Advisian
Worley Group

Agenda

- Uncertain Floating Offshore Wind Designs
- FOSW 3-D Footprint
- The Role of Scientific Research
- Misinformation East Coast Examples
- West Coast Stakeholder Concerns
- Main Obstacles for FOSW Development
- Identify Future Research
- Opportunity to Design FOSW to Minimize Impacts
- Streamlining the Industry with Fish in Mind

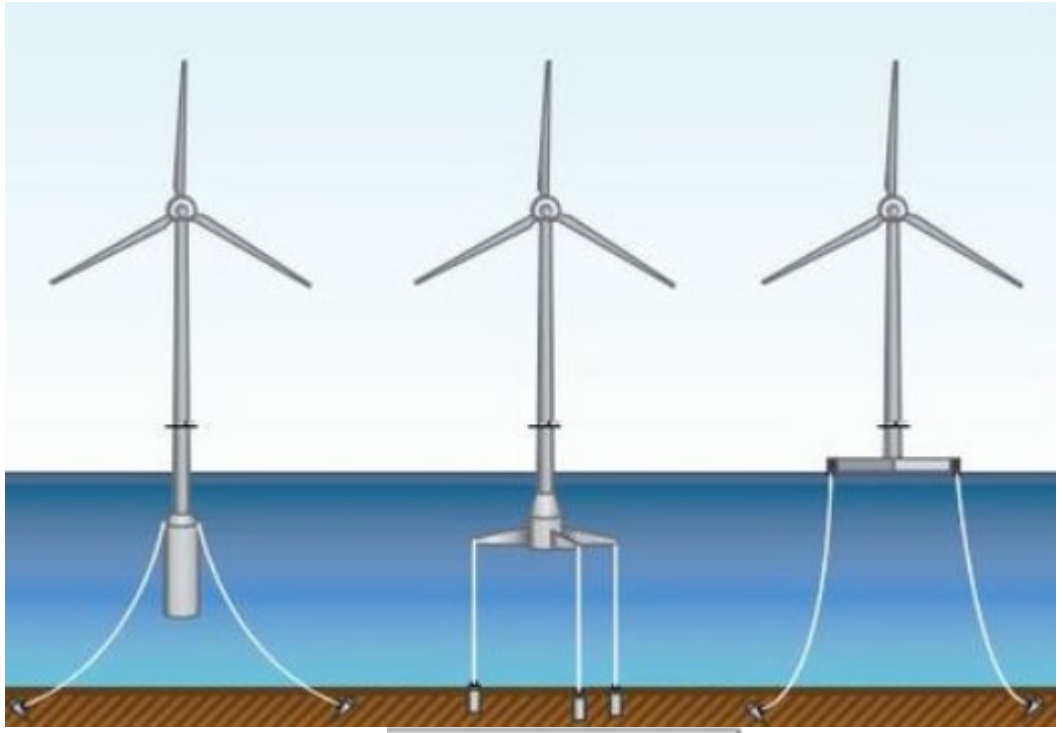
Uncertain Floating Offshore Wind (FOSW) Designs

- Multiple technology prototypes
- Anchoring system options
- Anchoring and cable radius changes with technology type
- Depth influences width of anchor system
- Certain fishing gear could interact with these structures causing safety concerns



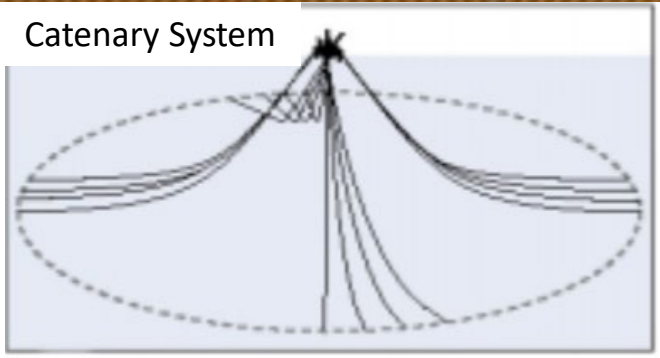
Tankinoki et al. 2017

Tankinoki et al. 2017

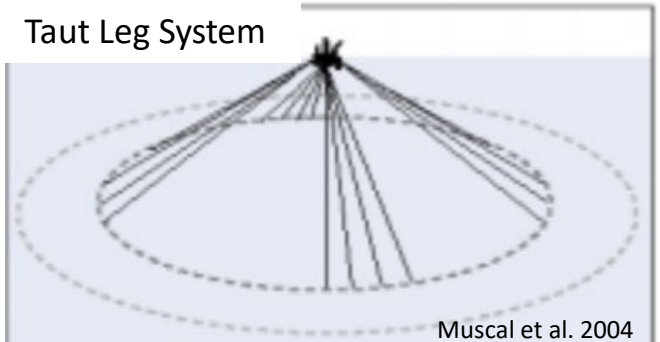


Wiser et al. 2011

Catenary System



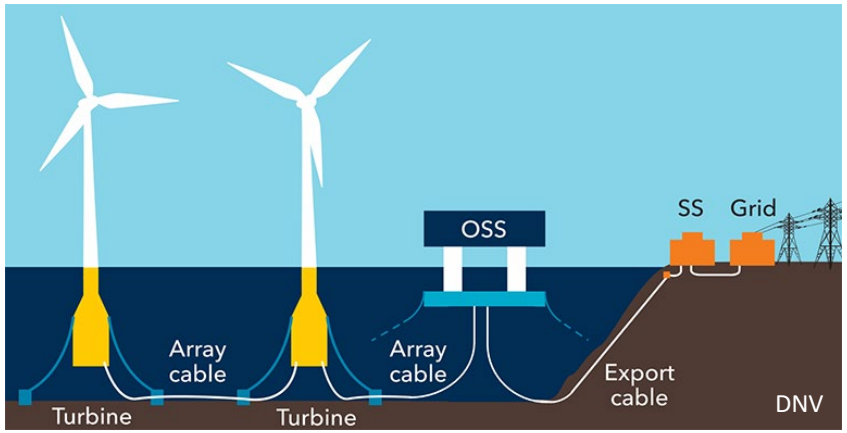
Taut Leg System

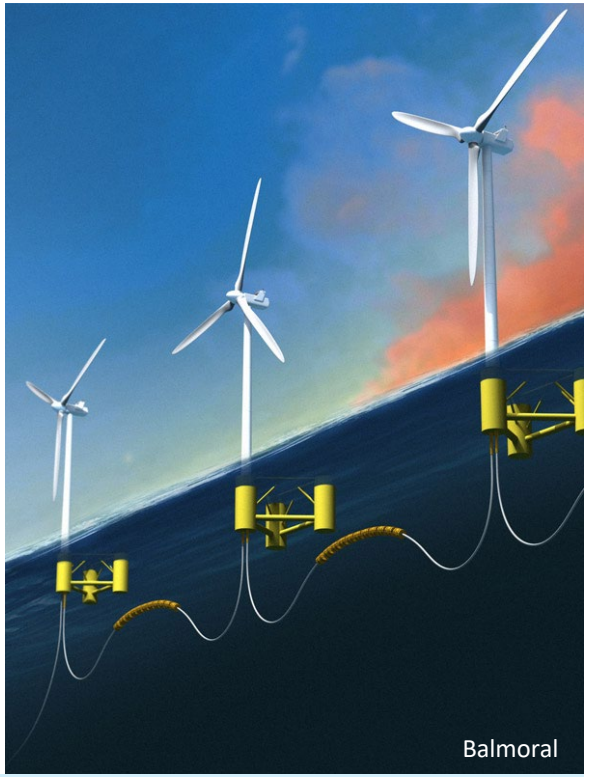


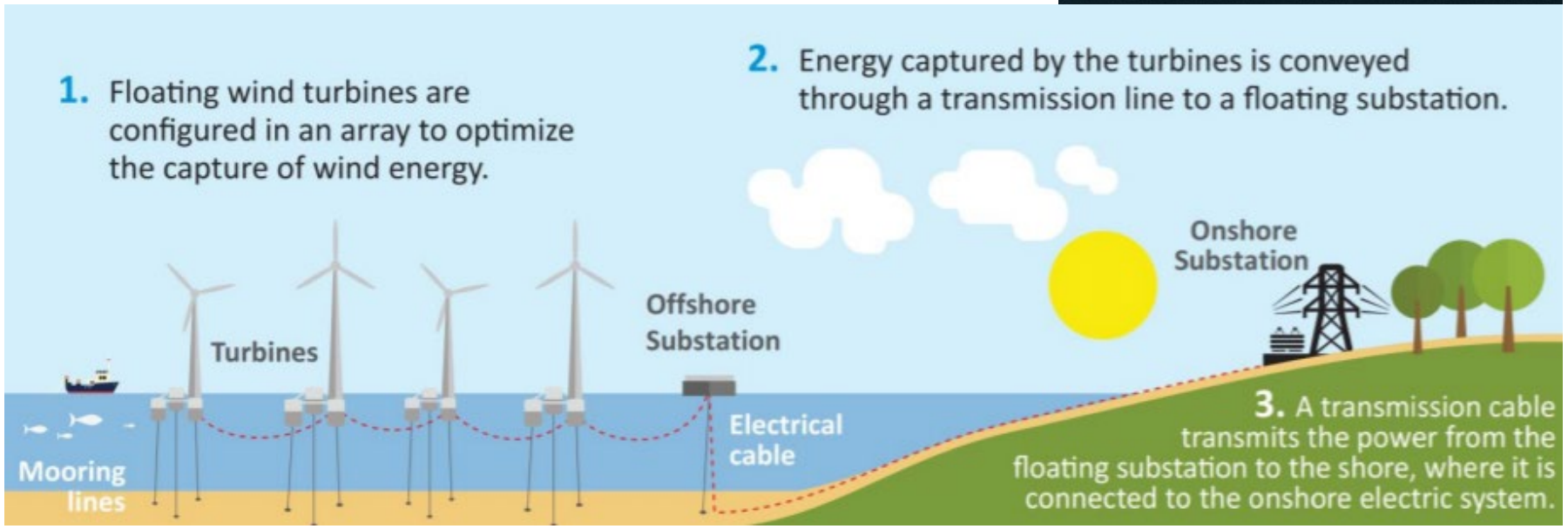
Muscal et al. 2004

FOSW 3-D Footprint

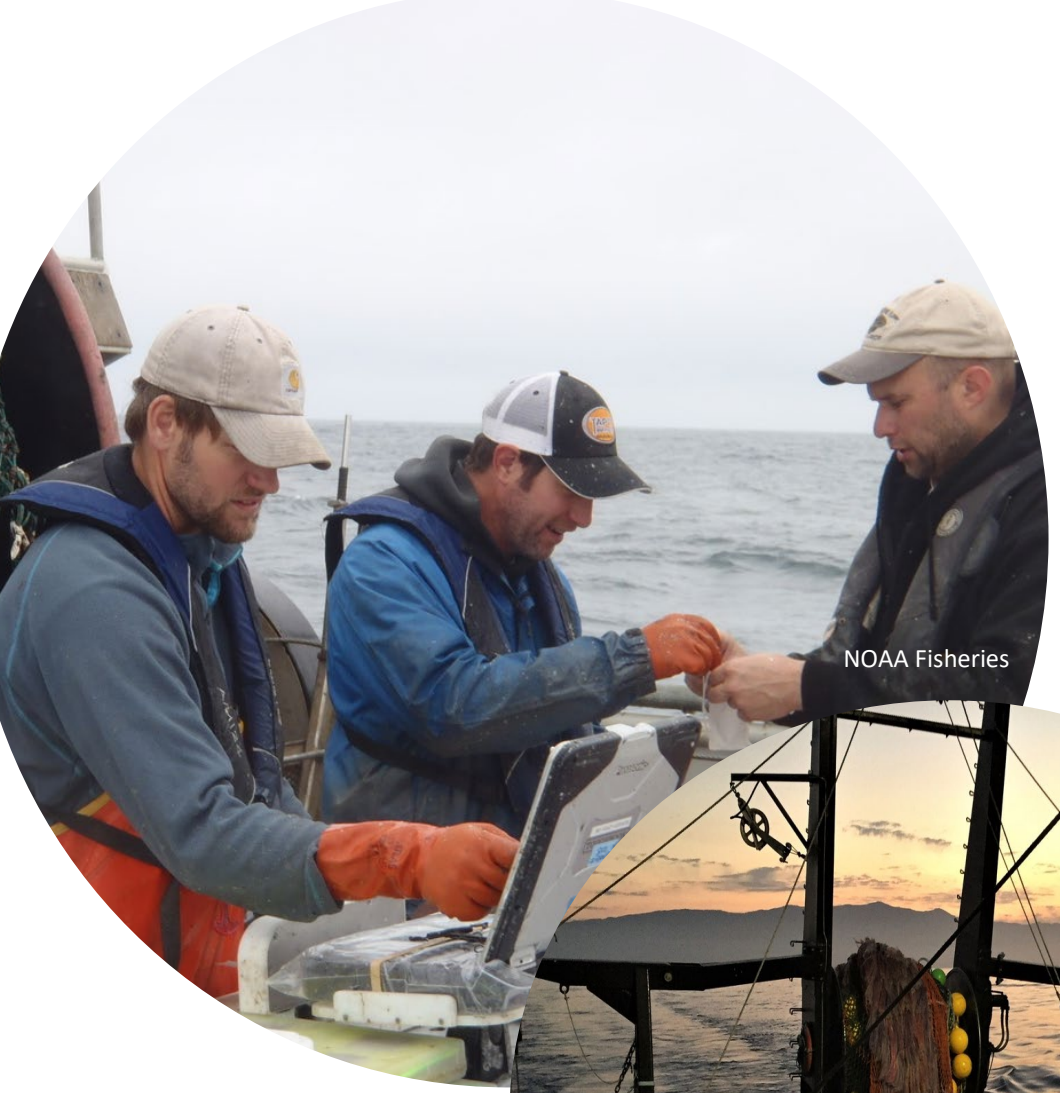
- Inter-array cable connections and depths
  - What depths avoid vulnerable animals?
  - What depths would allow certain fishing gear?
- 3-D footprint to determine ocean-user interaction zone

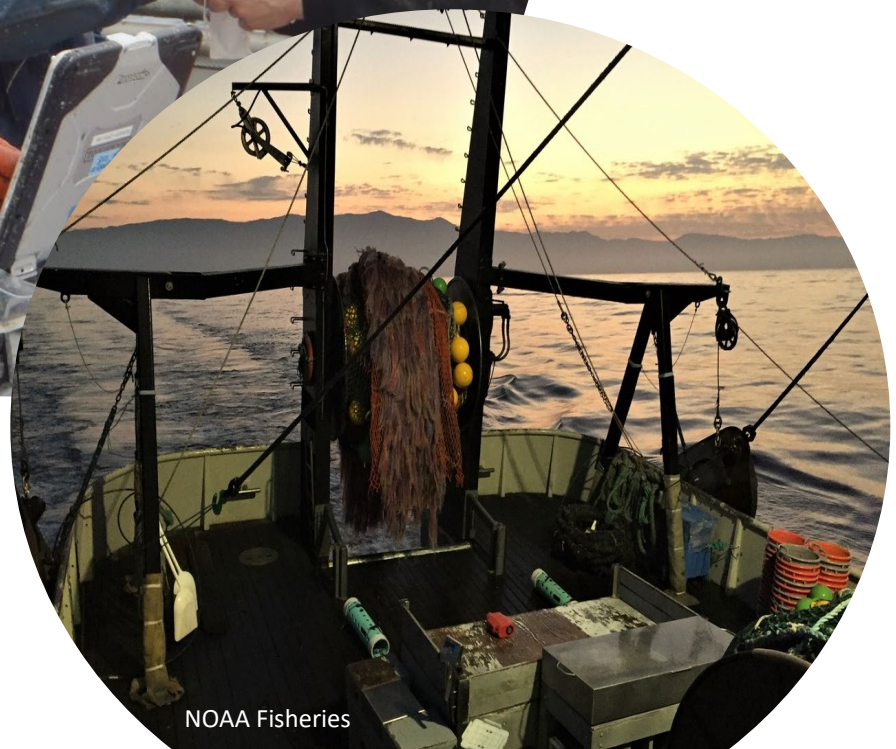






BOEM 2018





The Role of Scientific Research

- West Coast scientific research vital for fisheries management
- NMFS and PFMC conduct scientific research and surveys along the coast
- Transects allows decades of data collection comparisons
- Some scientific methods can be adapted, just as they have in the past with technology innovation

Misinformation East Coast Examples

- Misunderstandings about risks and impacts
- Confuse clear science-based outreach
- Slow US offshore wind development

Offshore wind excludes all fisheries
False

Offshore wind is unreliable and leads to blackouts
False

Vessels cannot transit through wind farms
False

West Coast Stakeholder Concerns

- EMF impacts → Studied and mitigated
- Loss of fishing grounds → Unique to specific area and fishery
- Vessel safety → Multi-Agency priority
- Noise impacts to protected animals → Regulations and safeguards control impact level
  - MMPA
  - ESA


Orsted

Projects undergo:
- Site characterization
- Site assessment plan
- Construction and operation plan
- Environmental and technical reviews


NOAA Fisheries

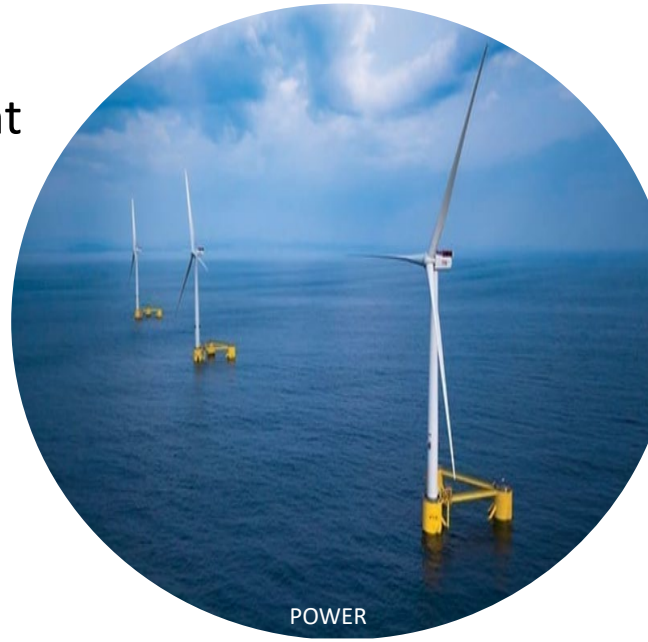
Main Obstacles for FOSW Development

Inter-array cable depth

- Fisheries and PFMC can collaborate with NMFS and developers to determine best depths
  - Avoid certain fishing gear types
  - Identify gear types that could interact with FOSW footprint
  - Adapt fishing gear (if possible) to minimize potential interactions
- BOEM ongoing study with NOAA to identify in a computer simulation where derelict gear are in the water column

Research method adaptations and transects

- NOAA has been collecting scientific survey data for 150
  - Methods have adapted with technology innovation
  - Platforms of opportunity
- Transect corridors
- Adapt management for new baselines



Identify Future Research

California Department of Fish and Wildlife

- West Coast subject matter experts
  - Identify FOSW and fish/fisheries risk questions
  - Assess current research
  - Design research to answer priority risk questions
- Regional coordination across
  - Academia
  - Agencies
  - States
  - Developers
  - Organizations

Opportunity to Design FOSW to Minimize Impacts

- West Coast technology, environment, and grid are different
- West can identify unknowns and close gaps
- FOSW can be designed **now** to minimize impacts
- Increased monitoring and research effort with operation and maintenance vessels
- Gear entanglement monitoring could lead to fast removals, increasing Pacific derelict gear removal


National Grid

NOAA

Streamlining the Industry with Fish in Mind

- FOSW can learn from past industry successes
- Identify gaps to design targeted research
- Research can answer fish/fisheries interaction potential
- Anticipate interactions and adapt designs before construction
- Transparency and collaboration

Worley
energy | chemicals | resources

Advisian
Worley Group

Thank you for your time!

Kathryn White

Offshore Environmental Specialist

Kathryn.white@advisian.com

References

- Bureau of Ocean Energy Management (BOEM). 2018. Outreach Summary Report California Offshore Wind Energy Planning. Prepared by Kearns & West.
- Musial, W., S. Butterfield, and A. Boone. 2004. Feasibility of Floating Platform Systems for Wind Turbines. NREL/CP-500-34874.
- National Oceanic and Atmospheric Administration. 2019. Development of Computer Simulations to Assess Entanglement Risk to Whales and Leatherback Sea Turtles in Offshore Floating Wind Turbine Moorings, Cables, and Associated Derelict Fishing Gear Offshore California (PC-19-x07). Administered by Pacific OCS Region. Accessed at https://www.boem.gov/sites/default/files/documents//PC-19-x07.pdf on August 5, 2022.
- Taninoki, R., K. Abe, and D. Azuma. 2017. Dynamic Cable System for Floating Offshore Wind Power Generation.
- Wiser, R. et al. 2011. Wind Energy in IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation, Cambridge and New York: Cambridge University Press.