Lightning Talks – Session 1


Lissa Eng/BOEM

Session 1 Moderator
Josh Kohut, Professor, Department of Marine and Coastal Sciences

RUTGERS

T. Grothues[1], J. Adolf[2], G. DeCelles[3], K. Dunton[2], J. Kohut[1], J. Morson[1], D. Munroe[1], S. O'Leary[4], G. Saba[1], D. Zemeckis[1]
Monmouth[2], St. Anslem[3], Ørsted[4]

Ryan Scully

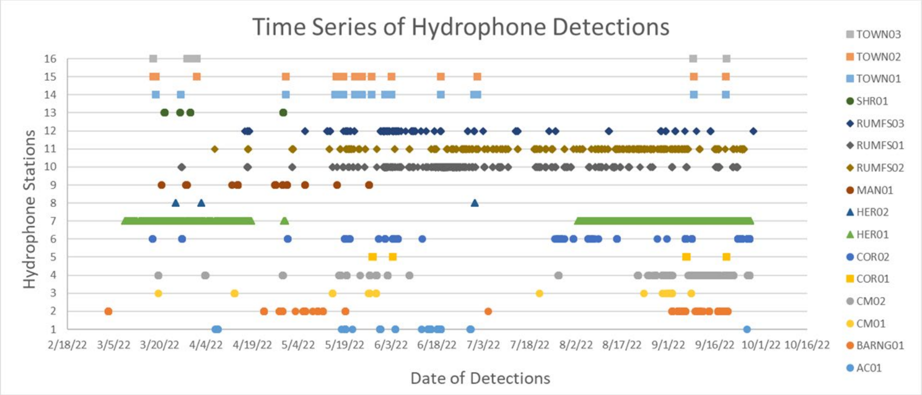
Department of Marine and Coastal Sciences

Fisheries Monitoring of OSW off NJ

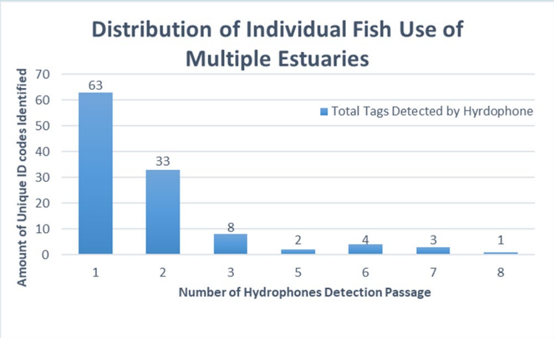
Study Campaigns

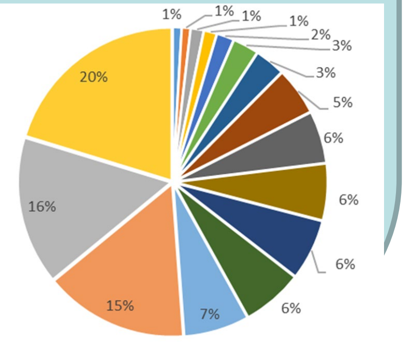
1. Acoustic Telemetry (Internal Transmitters)
2. Bottom Trawl Survey (Biomass Distribution)
3. Environmental DNA (Bottle Collection)
4. Pelagic Fish (SONAR & Camera)
5. Structured Habitat Survey (Baited Camera)
6. Atlantic Surfclam (Dredge Survey)
7. Oceanographic Data (Sondes & Satellite)

Acoustic Telemetry



High estuarine fidelity & seasonality typify coastal habitat connections





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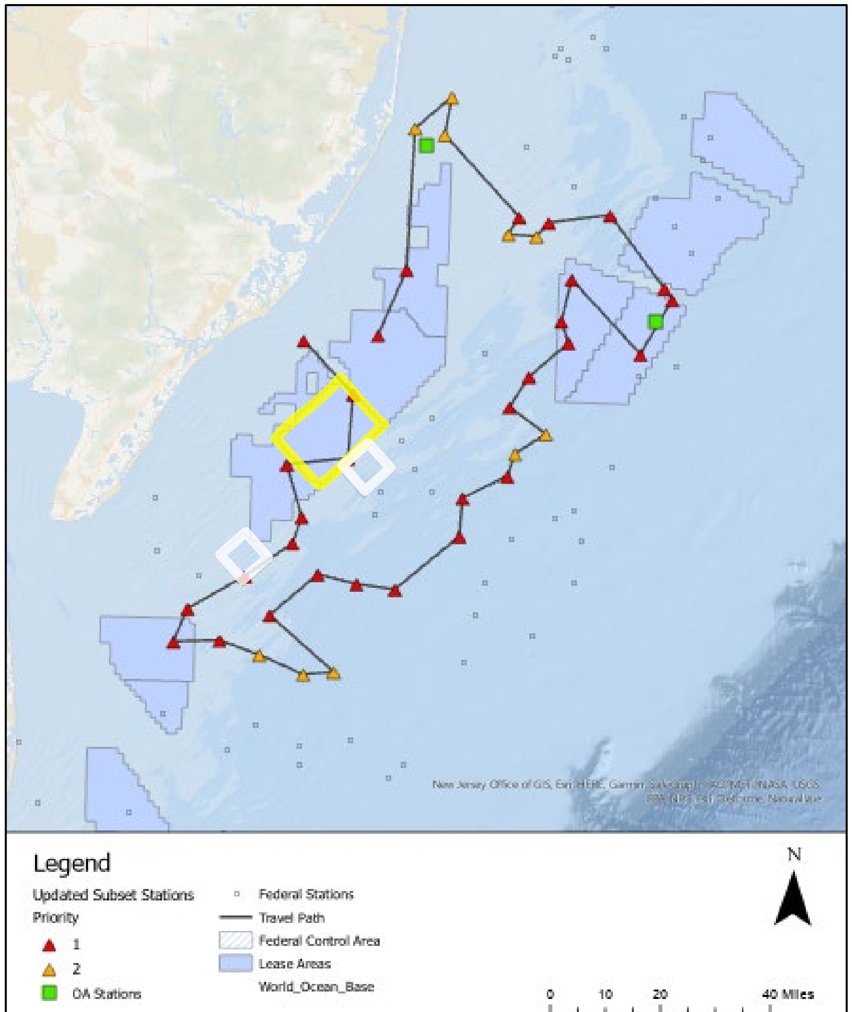
Daphne Munroe

Department of Marine & Coastal Science

Surveys and Experiments for Monitoring Surfclams at Offshore Wind Projects



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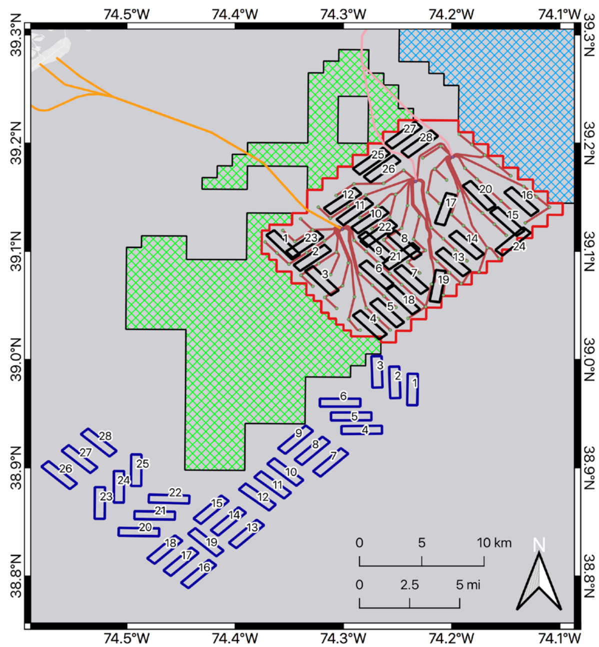
Jason Morson, *Department of Marine and Coastal Sciences*

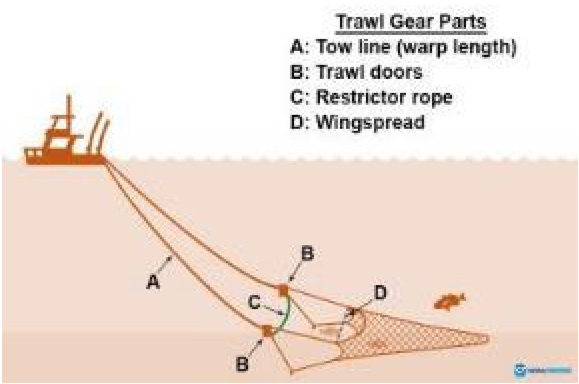
Co-PI: Douglas Zemeckis, Department of Agriculture and Natural Resources

Fisheries Monitoring of an Offshore Windfarm: Bottom Trawl Survey

Research Question:

What is the relative biomass, distribution, and demographics of fishery resources within the lease area and at a nearby control site before, during and after wind farm construction?





NEAMAP
NORTHEAST AREA MONITORING & ASSESSMENT PROGRAM

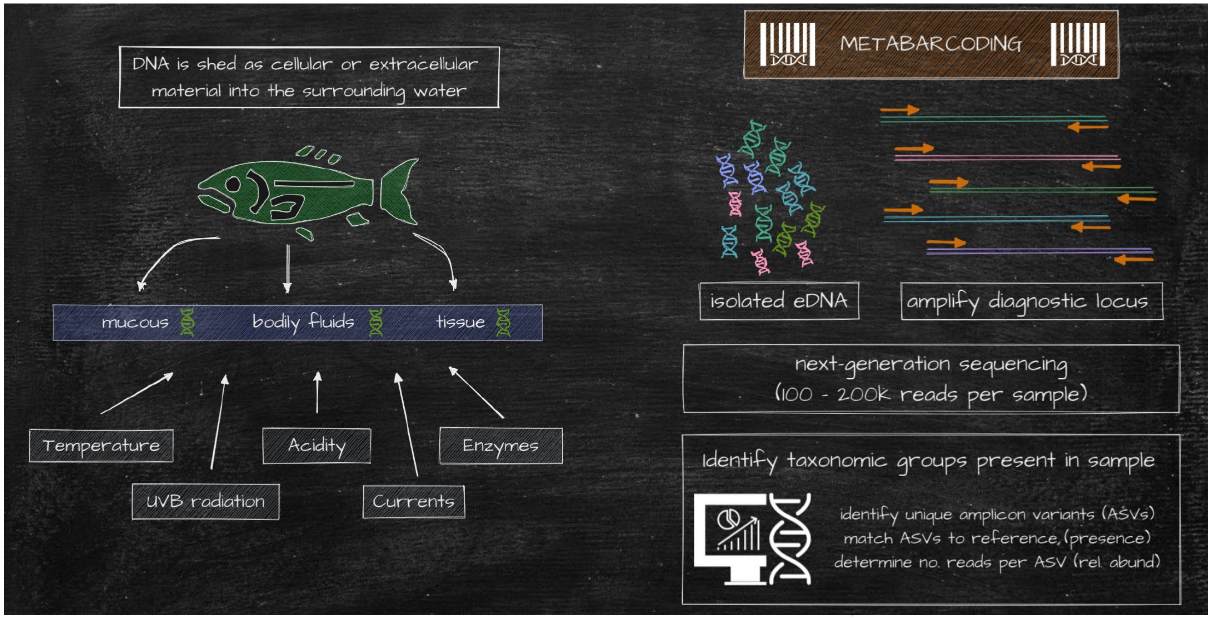
MONMOUTH UNIVERSITY | SCHOOL of SCIENCE

SAINT ANSELM COLLEGE

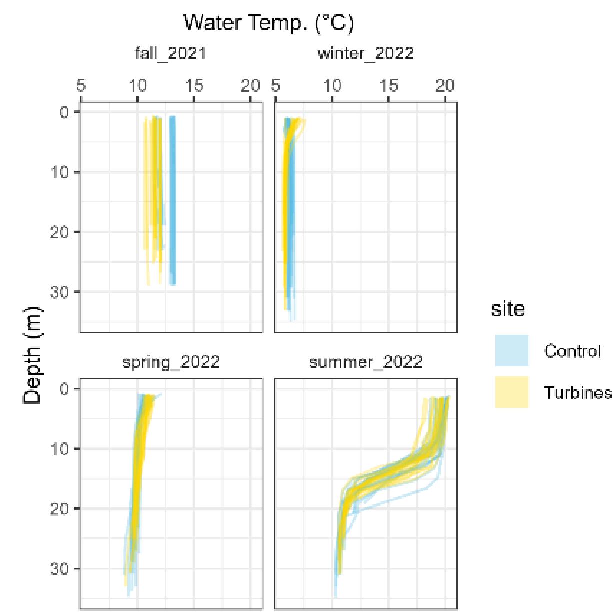
Jason E. Adolf, Keith J. Dunton, and Shannon O'Leary*

*Biology Department (*St. Anselm College, NH)*

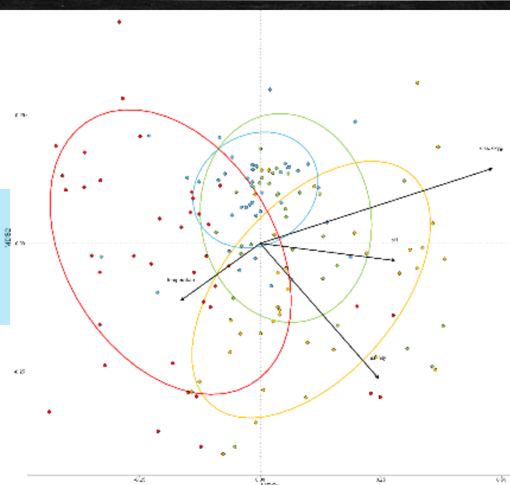
Integration of Environmental DNA Surveys in Fisheries Monitoring Plans for Offshore Wind



Environmental parameters are collected with each eDNA sample



Focused on community analysis of fish, exploiting a strength of eDNA metabarcoding



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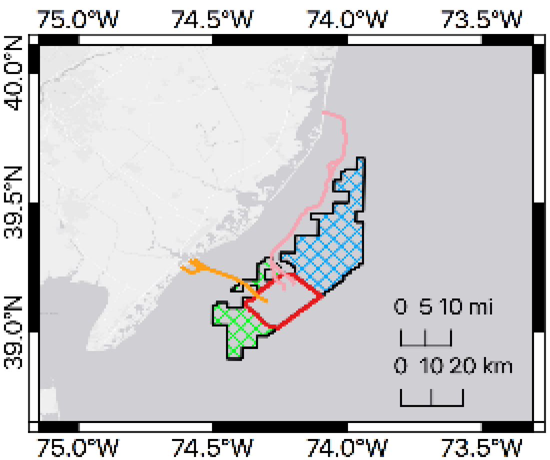
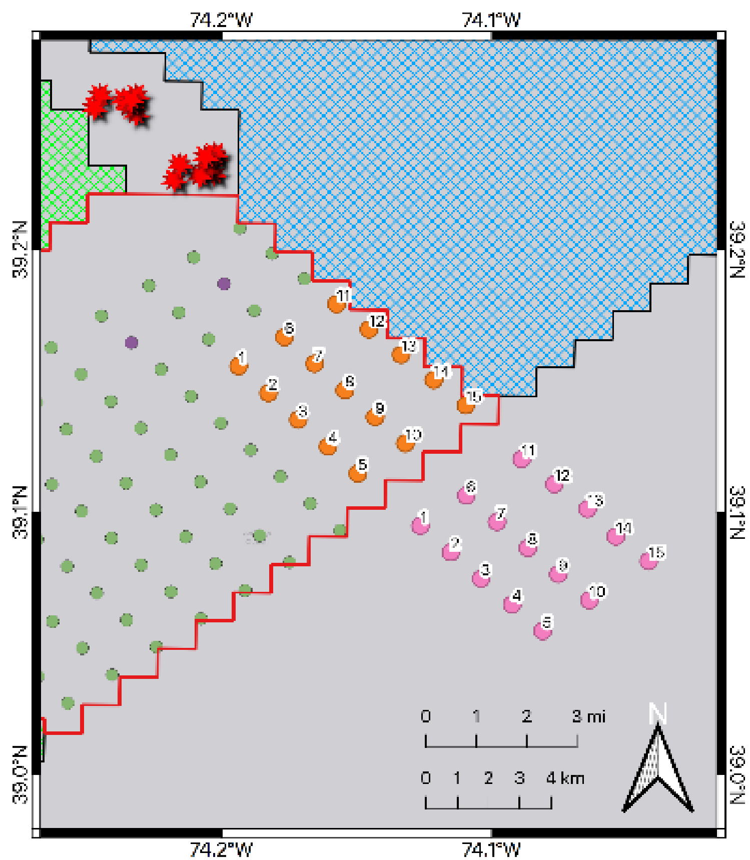
Douglas Zemeckis, *Department of Agriculture and Natural Resources*
Co-PI: Jason Morson, Department of Marine and Coastal Sciences

Fisheries Monitoring of an Offshore Windfarm: Structured Habitat Survey

- Evaluate the impact of windfarm construction on structure-associated species.
- Six years of surveying (Winter, Spring, Summer, Fall) before, during, and after construction.
- Three gears: Chevron traps, benthic and pelagic videos (BRUVs), and rod-and-reel





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Sean Duffy

Psychology – Rutgers Camden
Environmental Psychology

- History of the problem of climate change – why we need this
- Solutions and wind's advantage
- History of wind energy and how people think about it
- Environmental Psychology – what is it, how it can help
- How psychologists promote sustainable beliefs and behaviors
- Review of literature on resistance to wind energy
- How psychology can be used as a means to improve support for wind energy projects
- 13 Common arguments against wind energy and proposed rebuttals

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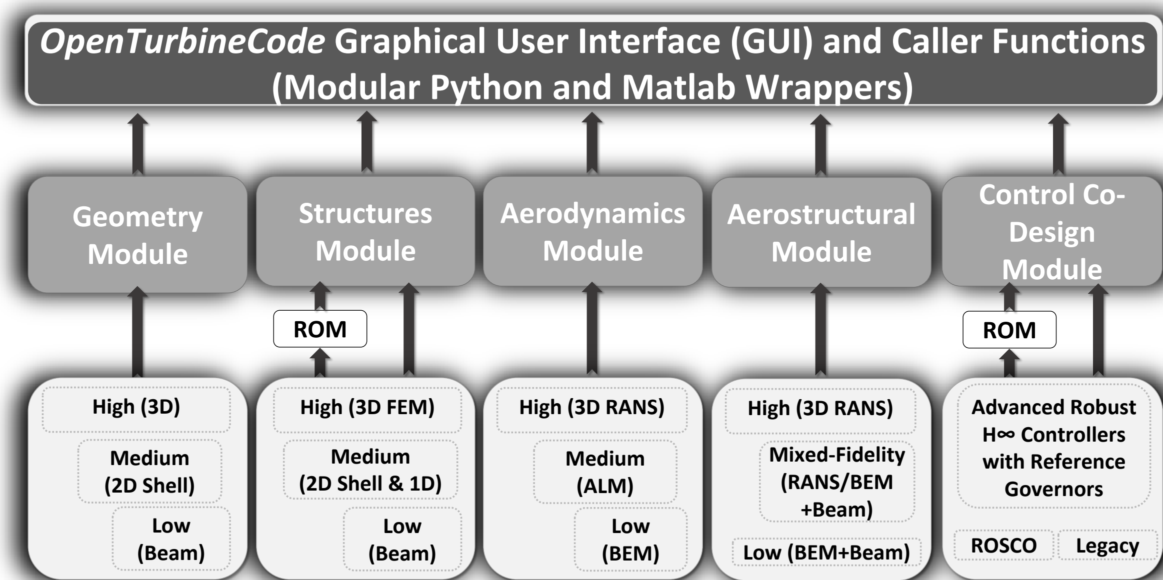
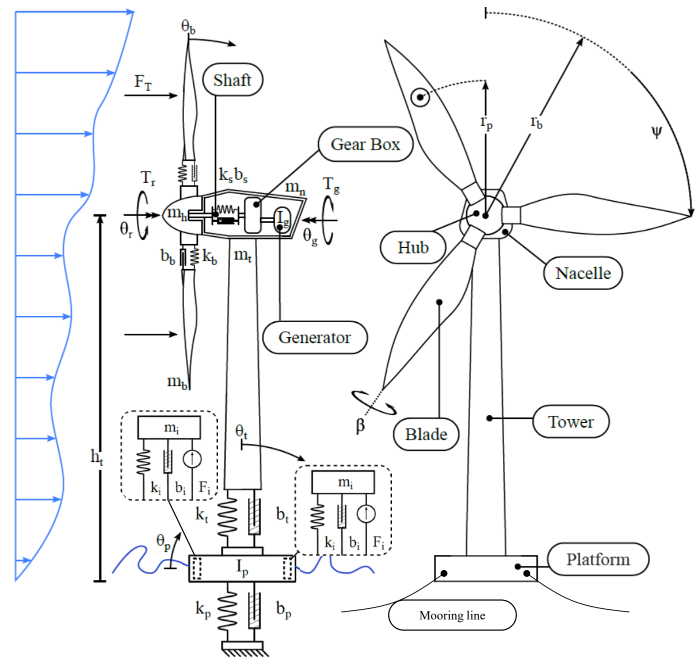
Onur Bilgen, Department of Mechanical and Aerospace Engineering

Control Co-Design Optimization of Floating Offshore Wind Turbines:
OpenTurbineCoDe (A DOE ARPA-E ATLANTIS project by Bilgen, Martins, Ning, Burlion, et al.)





PRESENTATIONS
on YouTube:
www.obilgen.com
(or use QR Code)

CODE REPOS
on GitHub:
https://github.com/OpenTurbineCoDe
(to be Public in Spring 2023)

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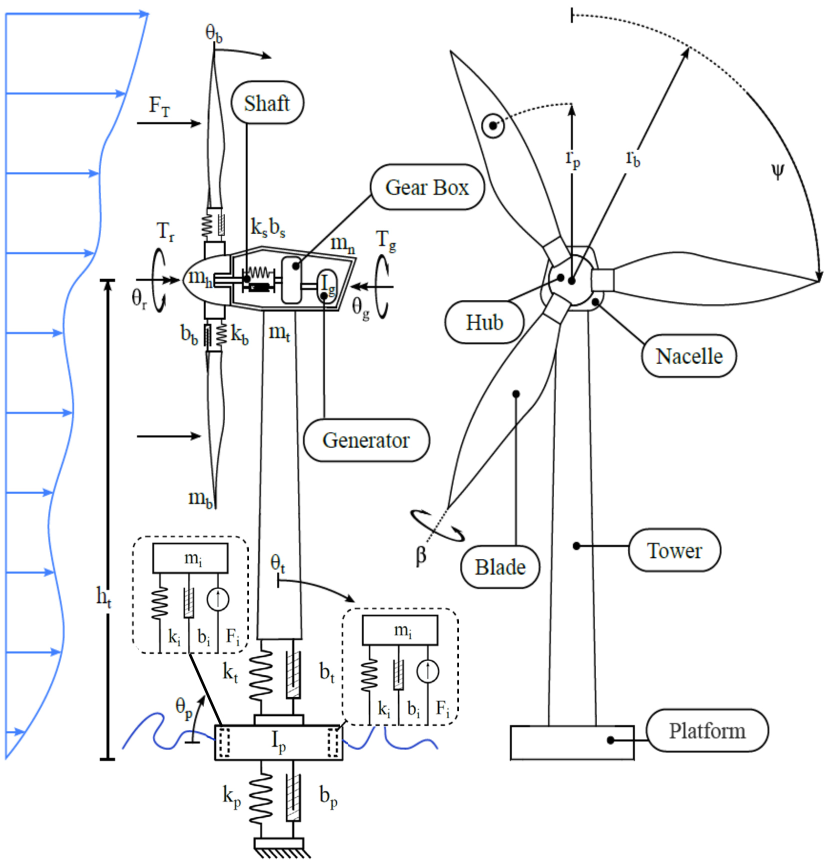
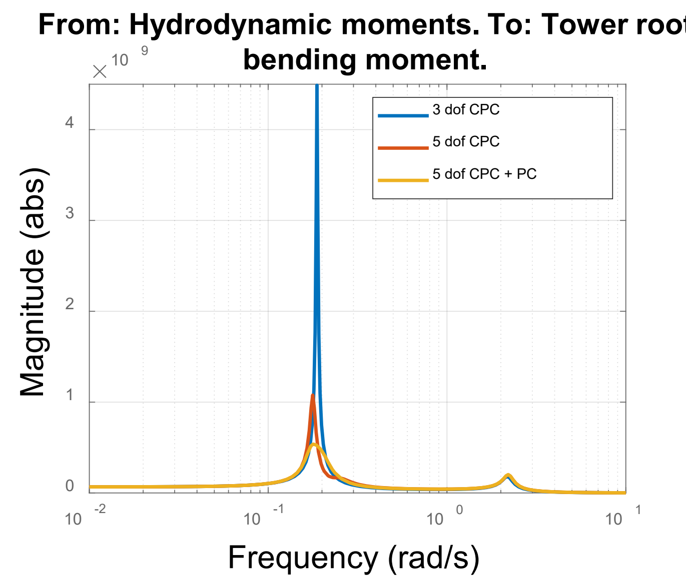
Laurent Burlion

Dept. of Mechanical & Aerospace Engineering

Advanced control of Floating Offshore Wind Turbines



- Considering more Degrees of Freedom allows to design advanced controllers for load alleviation



- What's next? Control Co-Design..

Todd E. Vachon

School of Management and Labor Relations

"The Offshore Wind Workforce: Challenges & Opportunities"

OSW offers many career opportunities, but also poses some challenges. What is the projected mix of job skills? How do they match current labor supply? How can new jobs serve to reduce inequality, particularly for historically marginalized groups and displaced workers?

Table 3. Projected Job Growth and Salaries by Occupational Group for a 3,500MW Offshore Wind Project in New Jersey

Occupational Group	Projected Number of Jobs Created for 3,500MW Project	Average Annual Salary in New Jersey
Management Occupations	2,000-2,200	149,770
Business and Financial Operations Occupations	600-800	84,950
Computer and Mathematical Occupations	100-200	100,540
Architecture and Engineering Occupations	1,200-1,400	91,490
Life, Physical, and Social Science Occupations	40-60	95,430
Legal Occupations	40-60	112,690
Education, Training, and Library Occupations	40-60	59,840
Arts, Design, Entertainment, Sports, and Media Occupations	80-100	60,030
Protective Services	40-60	55,700
Food Preparation and Serving Related Occupations	80-100	26,320
Building and Grounds Cleaning and Maintenance Occupations	80-100	31,400
Sales and Related Occupations	100-200	45,470
Office and Administrative Support Occupations	500-700	40,690
Construction and Extraction Occupations	400-600	60,710
Installation, Maintenance, and Repair Occupations	3,800-4,200	53,170
Production Occupations	4,000-4,500	39,100
Transportation and Material Moving Occupations	700-900	37,300
	Total Jobs: 14,000-16,000	**Average Salary:** 67,329

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Richard E. Riman and Hani Nassif

Materials Science and Engineering

Renewable Materials for the next wave of renewable wind energy

- Millions of dollars of materials comprise an OSW generator (OSWG)
- Several serious problems must be overcome
  - Wind energy generator manufacturing generate more CO2 than they avoid
  - Wind energy generator materials are not recyclable
  - Wind energy materials are not inexpensive to manufacture
  - Wind energy magnets are based on scarce material supply chains
- OSWG materials generate CO_2 1 to 10,000 Kg-CO_2/kg-material
- The first generation of OSWGs deplete all magnet mineral sources
- No extraction technologies for the next generation of minerals
- Proposed Project
  - Reduce cost of OSWG materials from $2 to 0.50/kg
  - Reduce overall carbon footprint to carbon neutral or negative
  - Create low-cost manufacturing and recycling technologies for magnets
  - Create carbon-negative concrete and advanced composite materials