**Fishing Community Resilience and Offshore Wind Energy: Key Concepts and Considerations**

Deliverable 1: Draft summary that identifies, defines and explains the relevance of social cohesion, social capital, adaptive capacity and resilience to fisheries, fishing communities and OSW development; and how these concepts have been addressed in relevant contexts. Note: This summary is in outline form as the narrative taking shape is more lengthy than the envisioned 2- to 3-page summary.

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- Introduction
  - Problem: As offshore wind (OSW) energy development proceeds in California, the state's 7C Working Group, comprised of state, OSW industry, and the fishing community representatives, is developing a plan for a Fisheries and OSW Resiliency Fund to help mitigate adverse impacts on the fishing community. While mitigation tends to focus on compensating for loss,investing in forward-looking community resilience – the capacity to cope, adapt or transform in response to change – is also essential.
  - Task: Outline key concepts and considerations for maintaining and enhancing fishing community resilience (FCR) amid offshore wind energy (OSW) development, how these concepts have been addressed in relevant contexts, and how a resiliency fund could be used to maintain and enhance the resilience of California's fishing communities going forward.
  - Approach: review refereed and grey literature, web-based materials, and utilize experience conducting research on the human dimensions of California fisheries and marine policy related to fishery management, marine spatial planning, marine renewable energy development, and related topics.

- Fishing community resilience (FCR)
  - Fishing communities[1] can be identified as place- and/or interest-based (Brooksfield et al. 2005 in Hogan et al. 2023)
    - importance of including fishing communities at sea and the relationships and interdependencies between such communities and shoreside places and groups of people (St. Martin and Hall-Arber 2008)
    - connected to the seafood supply system which includes fishermen, seafood handlers, vendors and consumers, the relationships among them, the products produced, and how they move from producer to consumer
    - altogether, these constitute the fisheries social system (Pomeroy et al. 2018).
  - Community resilience is the "existence, development, and engagement of community resources by community members to thrive in an environment characterized by change, uncertainty, unpredictability and surprise" (Magis 2010); the ability to withstand shocks and stresses without upheaval (White 2015), by coping, adapting, transforming in response to change (Hogan et al. 2023, Magis 2010, Pomeroy et al. 2024).

[1] *Community*, more generally, is defined as "a group of people living in the same place or having a particular characteristic in common" or "a feeling of fellowship with others, as a result of sharing common attitudes, interests, and goals." https://languages.oup.com/google-dictionary-en/, accessed 12/18/24.

- Community resilience depends on availability, accessibility and activatability of community capacities to solve problems, address challenges, and take advantage of opportunities related to community objectives (Magis 2010, Schobert et al. 2023)
- Community capitals include social, cultural, political, human, financial, built, and natural capital (Emery et al. 2006 in Richmond and Casali 2022, Magis 2010) and indicate the degree to which a community can collectively develop and engage resources to improve well-being (Magis 2010)
- Social cohesion is the degree to which individuals within a society feel connected, share values and cooperate (Friedkin 2004 in Gómez-Andújar et al. 2022)
  - the "glue that holds communities together, fostering a sense of belonging, trust, and cooperation among individuals"[2] (See also Moustakas 2023)
  - a source of social capital, which includes norms that facilitate trust, reciprocity, and the exchange of information, knowledge and resources in a community (Dacks et al. 2020)
  - can be an asset (toward positive goals and outcomes) or a liability (toward negative goals and outcomes) (Gómez-Andújar et al. 2022)
- Social structures are the networks of relationships and institutions (informal norms, rules, strategies, formal rules, organizations). Social structures and institutions are the networks of relationships, norms (informal, mostly unwritten, rules that shape how people interact and play a crucial role in fostering social cohesion, especially a sense of belonging and unity (Ostrom 1990, Isham 2000).

- Four dynamic and changing contexts where social cohesion and FCR are needed to respond to past, current and/or anticipated shocks or stressors
  - At sea
    - climate change affecting abundance and distribution of species, habitats, ecosystems (Free et al. 2019, Dudley et al. 2021)
    - historic and ongoing marine space use coordination (e.g., Crabber-Towboat Lane Agreement[3]; Industrial Economics Inc. 2012)
    - expanded and new uses of marine space and the ocean environment, e.g., OSW, mariculture, subsea cables, maritime commerce (and off CA, offshore oil and gas production, decommissioning) - resulting in displacement, disruption (Pomeroy et al. 2015, Hoegh-Guldberg et al. 2023; see also Ounanian and Howells 2024)
  - Shoreside/working waterfront - infrastructure, goods and services at the land-sea interface – and larger coastal community
    - gentrification (Gale 1991, Thompson et al. 2016).
    - expanded/new uses of (industry at) working waterfront
    - loss, deterioration of infrastructure, goods and services needed for viable fisheries (Pomeroy et al. 2010, Richmond and Casali 2022)
  - Seafood supply system
    - seafood business/market consolidation and/or loss (Pomeroy et al. 2010)
    - disruptions to supply leading to market (share) loss (Waite et al. 2024)
    - increased - and growing interest in - alternative/more direct (to consumer) seafood markets (Culver et al. 2015, Wilcox 2020, Advani et al. 2024)
  - Fishery and broader ocean management arenas
    - access to and allocation of fishing opportunities

[2] https://www.graygroupintl.com/blog/social-cohesion, accessed 12/20/24.

[3] https://wsg.washington.edu/community-outreach/outreach-detail-pages/crabbertowboat-lane-agreements-download-charts-data-and-meetings/, accessed 12/30/24.

        - need for data, information and knowledge to inform "good-fitting" management measures
        - increasing costs of entry and participation
        - stagnant/declining income-generating opportunities

- These contexts, individually and cumulatively, require fishing community capacities for resilience
    - Not about individual people or businesses alone, but interdependent groups of people, social structures and institutions within and, often, beyond the fishing community
    - Multiple examples in California working across many and diverse contexts toward California FCR
        - e.g., regional, port- and fishery-based organizations; issue-driven organizations (e.g., Joint Oil/Fisheries Liaison Office; cable committees); community-building organizations (e.g., Alliance of Communities for Sustainable Fisheries; West Coast community sustainability cooperatives/fishery trusts)
        - activating capacities to cope, adapt and transform (Aguilera et al. 2018, Selden et al. 2024, Waite et al. 2024), developing new capacities (e.g., California Fishermen's Resilience Alliance (CFRA), Monterey Bay Fisheries Trust (MBFT))
    - These demonstrate capacity for flexibility and resilience, however limited by shortages of/strains on existing community capitals
        - suggest potential and opportunities for leveraging support

- Recommendations for resilience mechanisms and strategies to enable development, maintenance and use of capacities toward fishing community resilience
    - Community-centered visioning and planning: to collectively and iteratively identify and prioritize current and future needs, opportunities and challenges; to assess capacities and determine how best to use them; and where these capacities may be lacking, how to build them
        - Fosters social cohesion (Richmond and Casali 2022)
        - Demonstrates and supports optimism and sense of agency/deliberateness in addressing or enacting change (Johnson et al. 2014, Richmond and Casali 2022)
    - Physical/built infrastructure: fishery/seafood supply system facilities, designated places for direct interaction to build community capitals
    - Training: for fishing and seafood handling (e.g., CA Sea Grant Fishing Apprenticeship Program[4]; Alaska Young Fishermen's Summit (Cullenberg et al. 2017)), and for engagement in fishery- and management-related contexts (e.g., Marine Resource Education Program[5] (MREP))
    - Cooperative arrangements to facilitate communication and collaboration within the fishing community and between the fishing community and others to: a) coordinate space use and activities, minimize conflict and enhance safety and effectiveness of operations (e.g., Joint Oil/Fisheries Liaison (St. Martin and Hall-Arber 2008, Knaster et al. 1998, Beck 2023), and b) identify and conduct research to address information needs (Olson and Pinto da Silva 2024).
    - Representing fishing and seafood heritage and culture: e.g., oral history projects (e.g., NOAA's Voices of the Fisheries[6]; Bartsch et al. 2009)), community events (e.g., Morro Bay Maritime Family Fun Days[7], museum and other publicly accessible cultural heritage displays (Johnson et al. 2014))

[4] https://caseagrant.ucsd.edu/california-commercial-fisheries/california-commercial-fishing-apprenticeship-program, accessed 12/30/24.
[5] https://www.gmri.org/projects/marine-resource-education-program-mrep/, accessed 12/30/24.
[6] https://voices.nmfs.noaa.gov/, accessed 12/30/24.
[7] https://morrobaymaritime.org/family-fun-day/, accessed 12/30/24.

- Conclusion: Financial investment in this suite of resilience mechanisms is essential for expanding these capacities to enable fishing community resilience.

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