Open Ocean Aquaculture: the Future for Florida and the Gulf of Mexico?

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Environment Matters

- Advocacy services: lobbying, pre-litigation, presentations, reports, grant writing and administration, etc.
- Non-profit and private clients: long and short term projects
- Focused on environmental issues:
  - Water quality
  - Sustainable development
  - Public education and engagement
  - Coastal and ocean management
  - Fish
    - Aquaculture: Center for Food Safety, Gulf Restoration Network, Wild Fish Campaign (Institute for Fisheries Resources) in collaboration with many others
Relevant Professional Affiliations

- Vice Chair of Gulf Council Offshore Aquaculture Advisory Panel: guide development of Council/NMFS regs for Gulf Federal waters

- Member State of Florida Task Force: comment on development of FL DACS BMPs
Concerns re: OO/Offshore Aquaculture

- Gulf Council
  - Biological pollution
  - Environmental pollution
  - Habitat damage
  - Inefficiency
  - Safety
  - Unique resources
  - Use of oil rigs

- FL DACS
  - Biological pollution
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  - Safety
  - Unique resources
  - User conflicts
Biological Pollution

• Escapement of “different” fish – whatever source (human error, severe weather, predators, equipment failure, etc.)
  – Intermixing: “frankenfish”
  – Overtaking natural populations (displacing/extinction)

Exotics
GMOs/mutants/early stages selective breeding
Environmental Pollution

- Water quality
- Marine health
  - Concentrated and excessive
    - Fish wastes
    - Food wastes
    - Antibiotics
    - Chemicals (e.g. antifouling agents)
  - Diseases
  - Stress
Habitat Damage

- Huge anchors
- Anchor chains
- Chemicals
- Excess, concentrated fish waste
- Excess feed
Inefficiency

- Often aquacultured fish are fed food made with fish meal or fish oil, from wild caught fish. Many wild fish are often required to produce one aquacultured fish.
Safety

- Underwater cages
- Underwater anchor lines
- Far offshore facilities (EEZ)
- Debris
Unique Local Resources

- White sandy beaches
- Clear blue waters
- Marine wildlife (fish, manatee, dolphin, whales)
- National Marine Sanctuary/ Pristine Florida waters/ National Parks (underwater!)
- Corals, seagrass meadows, mangroves

Economic, intrinsic, recreational and hereditary values
Florida dependant on ocean and coast

- Tourism, tourism, tourism: beaching, diving, snorkeling, swimming, boating, wildlife watching, jet skiing, kite surfing...on and on
- Waterfront restaurants, bars, hotels
- Fishing: commercial and recreational
- Water based lifestyle
User Conflicts

- Construction of facilities in areas previously open to other uses
- Cages as fish attractants: focus fish in a potentially inaccessible area
- Pollutants impact other opportunities: fishing, swimming, diving, etc.
- Aesthetic problems with near shore facilities
Oil Rigs in the Gulf

- Original requirement: decommissioned rigs to be removed and site returned to natural state
- Expensive/time consuming for companies
  - rigs to reefs program
  - rigs to aquaculture facility program
Hurricanes in Gulf batter oil rigs

Need to be concerned about:

- escapement (biological pollution)
- liability
- marine debris
- other pollutants
- safety
Recommendations

- Ban exotics and GMOs
- Limit stock to first generations or control intermixing ability through hyper domestication/sterility
- Stringent effluent standards, ban potentially harmful chemicals
- Ban aquaculture in and near certain fragile areas: marine sanctuaries, national parks, etc.
- Create buffer zones to protect unique resources, prevent habitat damage and promote safety
- Marine zoning to prevent user conflicts and promote safety
- Establish a trust fund or bond requirement for bankruptcy, abandonment, unexpected damages
- Prevent use of oil rigs for aquaculture
Current Status

- Gulf Council Regs & Policy
  - Biological Pollution
  - Environmental Pollution
  - Habitat damage
  - Inefficiency
  - Safety
  - Unique resources
  - Use of oil rigs

- FL DACS BMPs
  - Biological Pollution
  - Environmental Pollution
  - Habitat damage
  - Inefficiency
  - Safety
  - Unique resources
  - User conflicts

Has great potential: includes recommended issues, except ban on oil rigs, not complete at this time

No ban on GMOs, no buffer zones, no zoning, no trust fund/bond, no ban in fragile areas
Summary

- Moving forward in state waters and began federal process in Gulf region
- Need to be mindful of serious environmental concerns
- Are ways to address them, but haven’t done so entirely
- Should create stringent guidelines to deal with potential problems before permitting facilities to open
- Need to complete state and regional federal processes with good standards: we are in best position to protect unique local resources