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# ***POTENTIAL EFFECTS OF OTEC FACILITIES***



# Major Effects

## Effects Categories from NOAA's Final EIS in 1981

- Platform presence
  - Biota attraction
- Withdrawal of surface and deep ocean waters
  - Organism entrainment and impingement
- Discharge of waters
  - Nutrient redistribution resulting in increased productivity
- Biocide release
  - Organism toxic response



# Minor Effects

## Effects Categories from NOAA's Final EIS in 1981

- Protective hull-coating release
  - Concentration of trace metals in organism tissues
- Power cycle erosion and corrosion
  - Effect of trace constituent release
- Implantation of coldwater pipe and transmission cable
  - Habitat destruction and turbidity during dredging



# Minor Effects (cont'd)

## Effects Categories from NOAA's Final EIS in 1981

- Low-frequency sound production
  - Interference with marine life
- Discharge of surfactants
  - Organism toxic response
- Open-cycle plant operation
  - Alteration of oxygen and salt concentrations in downstream waters



# Potential Effects from Accidents

## Effects Categories from NOAA's Final EIS in 1981

- Potential working fluid release from spills and leaks
  - Organism toxic response
- Potential oil releases
  - Organism toxic response



# Installation

- Platform
  - Noise, chemical releases
- Transmission cables
  - Destruction of benthic community
- Anchoring system
  - Destruction of benthic community
- Cold water pipe



# Physical Presence

- Platform
  - Fish attractant, toxic releases
- Power cables
  - Entanglement of marine mammals & sea turtles
- Anchoring system
  - Entanglement of marine mammals & sea turtles
  - Change benthic substrate
- Cold water pipe



# Water Intake

- Entrainment
  - Microscopic plants & animals
  - Fish eggs & larvae
- Impingement
  - Macrozooplankton (e.g. shrimp, jellyfish)
  - Small Fish
  - Sea turtles hatchlings



# Discharge Water

- Nutrient Enrichment
  - Increased productivity
  - Harmful algal blooms
- Chemical Releases
  - Biocide, metals, working fluid
- Secondary Entrainment
  - Algae, invertebrates, fish



# Noise

- Source
  - Pumps & generators
  - Water movement through cold water pipe
  - Discharge turbulence
- Impact
  - Disrupt marine mammal behavior



# Electromagnetic Fields (EMF)

- Source
  - Transmission cable
- Impact
  - Disrupt marine mammal and vertebrate fish behavior



# Accidents

- Spills
- Collisions
- Loss of cold water pipe



# Factors Influencing Effects

- Design
- Size
- Location



# Other Effects to Consider

- Socioeconomic
- Cultural
- Offsets