

## HABITAT COMMITTEE REPORT ON HABITAT MATTERS

### *Diablo Canyon Nuclear Power Plant*

On June 21, 2016 Pacific Gas & Electric announced the intention to close the Diablo Canyon nuclear power plant in 2025. The closure will result in the removal of the largest single point source of fish entrainment and impingement on the coast of California.

### *Artificial Reef Workshop*

Atlantic States Marine Fish Commission (ASMFC) sponsored a workshop on artificial reefs in Alexandria, Virginia. The Pacific Fishery Management Council (Pacific Council) does not consider artificial reefs to be essential fish habitat (EFH). The Council may be contacted by the ASMFC regarding how this Council addresses artificial reefs, and the potential for NOAA to develop a new national policy on artificial reefs.

### *National EFH Summit*

An EFH Summit was held in May, 2016 in Annapolis, Maryland attended by National Marine Fisheries Service, Council members, Council staff, and others from around the country. Three members of the Habitat Committee (HC) attended. Presentations focused on the state of science related to EFH, EFH review processes, and emerging issues. There was a recognized need to enhance interactions between NOAA, Councils and states. Other Councils and National Marine Fisheries Service (NMFS) have developed processes to improve communication on non-fishing activities that may adversely affect EFH. Some Councils empower their staff to respond to such activities outside of the Council meeting process and provide guidance for doing so, or map EFH consultations to help describe trends in impacts and potential emerging issues. Other Councils were well-represented at this meeting. It was unfortunate that Pacific Council staff could not attend; their absence was noticed.

The HC has been reviewing policies and guidance developed by other Councils and NMFS to address non-fishing impacts on EFH. These policies provide general guidelines on how to respond to actions that may adversely affect EFH, allowing Council staff to comment on activities when comment deadlines don't sync with Council meetings. The HC will continue to evaluate and report back to Council at a later date on their review of this issue.

### *West Coast Ocean Acidification and Hypoxia Science Panel (Panel)*

The HC heard a presentation by Dr. Terrie Klinger, University of Washington, on the West Coast Ocean Acidification and Hypoxia Science Panel. The panel is a team of 20 scientists from California, Oregon, Washington, and British Columbia, Canada. The panel recently summarized the current state of knowledge on ocean acidification and hypoxia and identified management actions to address these problems. In April 2016 they released a final report that described their major findings, recommendations, and actions.

The main finding of the Panel is that ocean acidification and hypoxia will have profound ecological and economic consequences for the West Coast, and requires a concerted regional focus. The West Coast is particularly vulnerable due to increasing dissolved CO<sub>2</sub>, cold stormy ocean conditions, and changes in wind stress and upwelling, productivity, and terrestrial inputs of nutrients.

Other findings are that 1) global carbon emissions are the dominant cause of ocean acidification and hypoxia; 2) there are actions we can take to lessen exposure to ocean acidification; 3) we can enhance the ability of ecosystems and organisms to cope with ocean acidification; 4) accelerating ocean acidification science will expand the number of management options available; and 5) inaction now will reduce options and impose higher costs later.

Research has demonstrated that ocean acidification causes biological effects across all critical life stages, but sensitivity to ocean acidification varies widely between species. Pteropods, a key salmon prey species, appear to be among the most sensitive species, and polychaetes and jelly fishes the least sensitive.

Fish are affected in at least three distinct ways: through physiochemical processes to freshwater, estuarine, pelagic, and seafloor habitats; through changes to prey resources; and through changes to physiology, sensory capabilities, and behavior that can affect growth and survival. The HC observes that while all three of these are relevant to EFH, the Council may have a greater ability to respond to changes in prey resources than to either physiochemical processes or changes to sensory systems and behavior, through management measures that affect important prey species such as krill, sardines, and juvenile rockfishes.

The Panel suggested that reducing other stressors could help organisms be more resilient to ocean acidification impacts. This includes reducing nutrient and temperature impacts, restoring and protecting eelgrass and kelp, and using EFH conservation areas and other marine protected areas as tools.

The Panel provided a roadmap of management options for addressing ocean acidification and hypoxia that concentrates on reducing exposure to these stressors and enhancing the ability of organisms to cope. These products were submitted to the West Coast Governors Alliance on Ocean Health and is being used by building on the Panel's work. The state of California has started using the recommendations in two ways: first, the Southern California Coastal Water Research Project is starting to model nutrient inputs within the Southern California Bight to address acidification and hypoxia; second, there is California legislation in the works to create a task force in California to work with and address the recommendations by the panel.

PFMC  
06/23/16