



# Squid Fishery Advisory Committee

## Review of California Market Squid Fishery Management and Proposed Recommendations

*18 July 2024*

*Presented to:*

**Marine Resources Committee  
Fish and Game Commission**

*Presented by:*

**Katie Grady  
Environmental Scientist  
Marine Region**



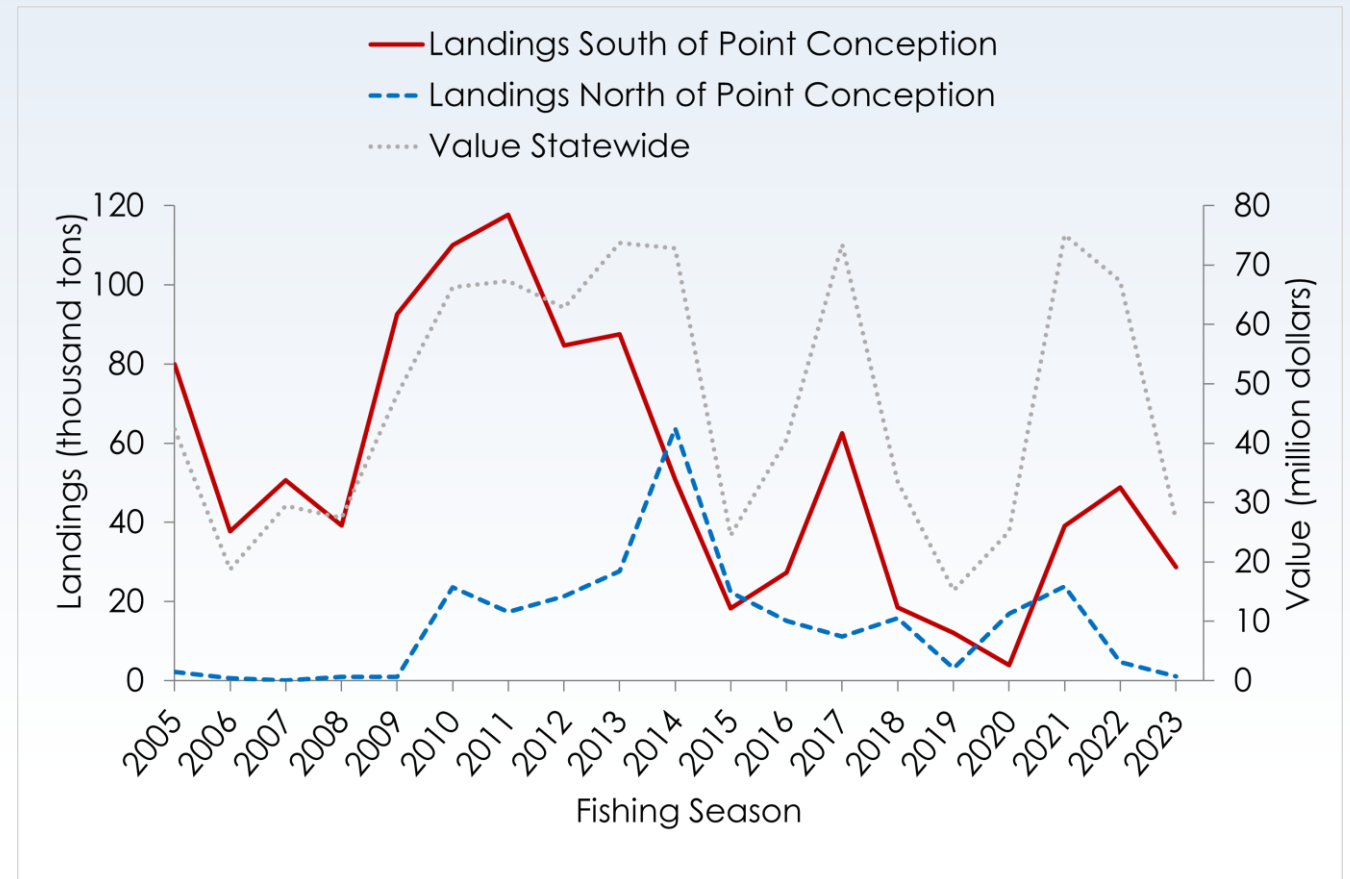
# Objectives

1. Review California market squid fishery dynamics and management
2. Summarize Squid Fishery Advisory Committee (SFAC) deliberations and emerging themes
3. Provide an overview of the options considered and Department recommendations



# California Market Squid Fishery Dynamics

- Routinely largest California fishery (*volume and value*)
  - **2022/23 landings**
    - 112 million pounds
    - \$67 million
- Squid are highly responsive to environment
  - Large fluctuations in landings
- Short-lived
  - 6 to 10 months
  - Die naturally after spawning
- Fishing areas North and South of Point Conception





# Fishery Management Context

## Market Squid Fishery Management Plan (MSFMP), 2005:

- Primary Management Mechanisms:
  - Fishery Control Rules
    - A **seasonal catch limit (SCL)** of 118,000 tons
    - 48-hour **weekend closure** to allow for uninterrupted spawning
    - **Lighting restrictions** (i.e., wattage and shields)
    - **Monitoring programs** to evaluate the impact of the fishery
  - **Restricted access** program
  - **Special area closures**



PC: Katie Grady



# Fishery Management Review



## Market Squid Enhanced Status Report (ESR)

### Topics for Review

- Monitoring
- Fishing Dynamics / Fishing Effort
- Gear and Habitat
- Fishery Access
- Climate considerations

Enhanced Status Report (ESR)

<https://marinespecies.wildlife.ca.gov/market-squid/true/>





# Squid Fishery Advisory Committee (SFAC)

## SFAC Charge

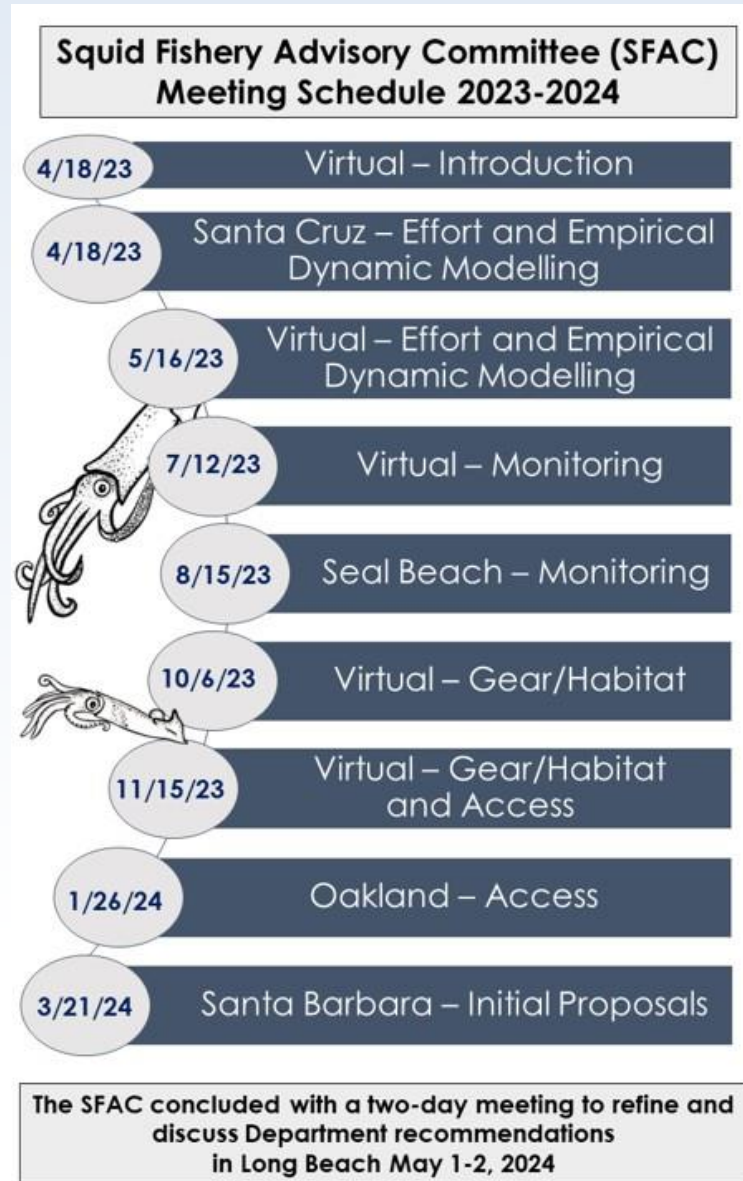
Review and advise the California Department of Fish and Wildlife (CDFW or Department) on potential changes to California market squid fishery management

## SFAC Members

Fishing Community, Conservation, Non-Consumptive, Research

Squid Fishery Management Web Page

<https://wildlife.ca.gov/Conservation/Marine/MSFMP>





# Market Squid Fishery Management Plan

- Marine Life Management Act (MLMA) Goals in the Market Squid Fishery Management Plan (MSFMP):
  1. Ensure long-term resource conservation and sustainability
  2. Employ science-based decision-making
  3. Increase constituent involvement in management
  4. Balance and enhance socio-economic benefits
  5. Identify implementation costs and sources of funding



# SFAC Deliberations and Themes

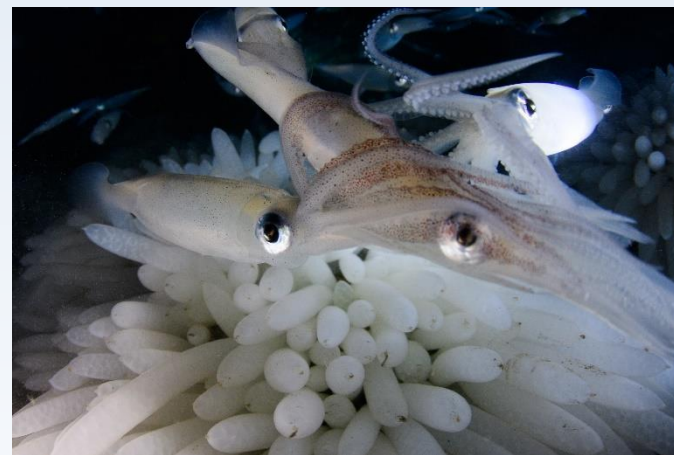
## Monitoring

**RECORD A FISHING EVENT**

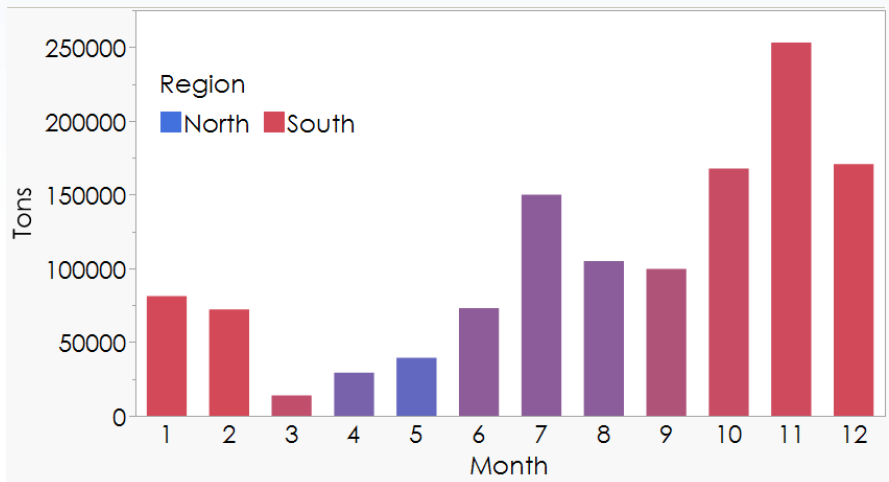
SEARCHING	Start	Stop
LIGHTING	Start	Stop
BRAILING	Start	Stop
SEINING	Start	Stop

The START and STOP buttons would automatically generate timestamps and record GPS locations

## Gear and Habitat



## Fishing Effort



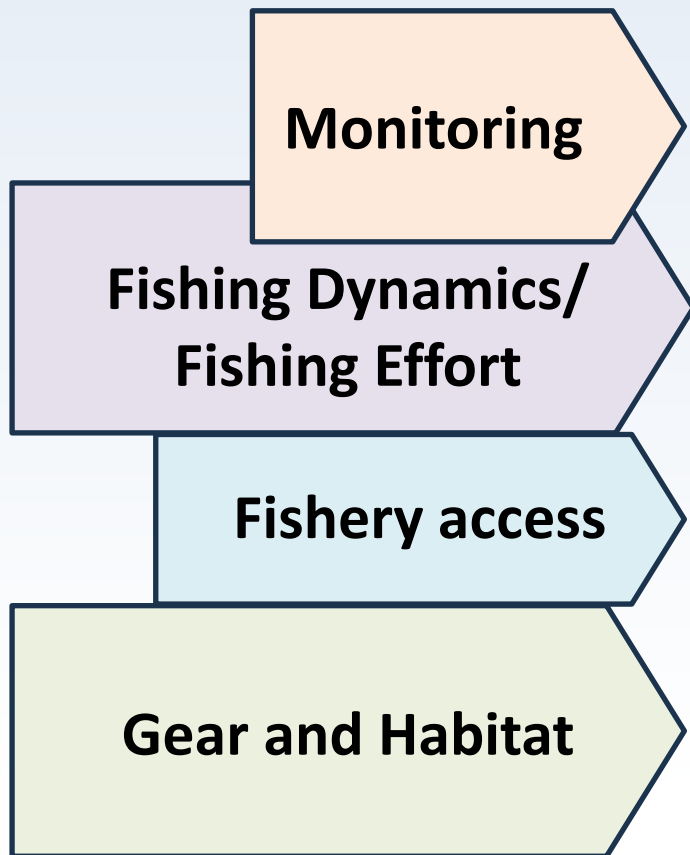
## Fishery Access







# Recommendation Topics



- Monitoring
- Empirical Dynamic Modelling (EDM)
- Fishing effort and temporal closures
- Small-scale fishery access
- Nets and squid spawning habitat
- Lighting and seabird habitat



# Monitoring Options

- Electronic Logbook
  - Developing proposal to fund a pilot study
  - Multiple volunteers from SFAC

## Sample E-log Interface

**RECORD A FISHING EVENT**

SEARCHING	Start	Stop
LIGHTING	Start	Stop
BRAILING	Start	Stop
SEINING	Start	Stop

Additional event questions ...

The START and STOP buttons would automatically generate timestamps and record GPS locations

Mockup by Kate Wing



# Monitoring Recommendation

## Department Recommendation:

- Electronic logbook
  - Market squid e-logs as pilot for Department-wide effort
  - Once funded, ideally start pilot in 2025



# Empirical Dynamic Modelling (EDM)

## 2022-2024 Postdoctoral Scholar Objectives and Outcomes:

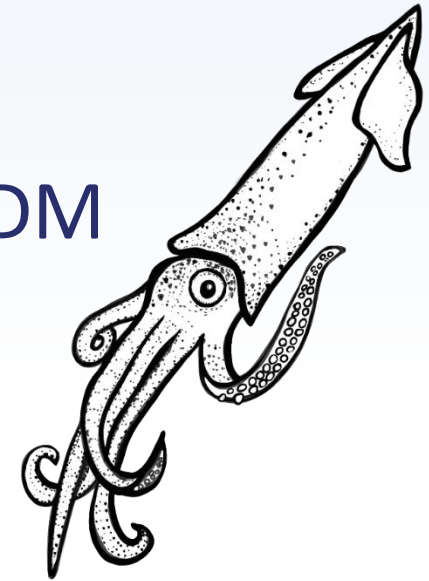
- Forecast future squid landings and catch per unit effort (CPUE)
  - Fishery CPUE correlates with fishery-independent data
  - Strong predictability
- Explore fishery dynamics with environmental metrics
  - Informed transition to an E-log
  - Separate models for “North” and “South” of Point Conception
  - Sea Surface Temperature (SST) key input and informative
- Analysis of different fishing effort and climate scenarios
  - Reduction in time fishing in North may improve yields and CPUE



# EDM Recommendation

## Department Recommendation:

- Continue forecasts with EDM (2024 onward):
  - Test forecasting for industry and management planning
  - After testing period and development of electronic log explore the potential use of EDM for management procedures and further evaluation under climate change









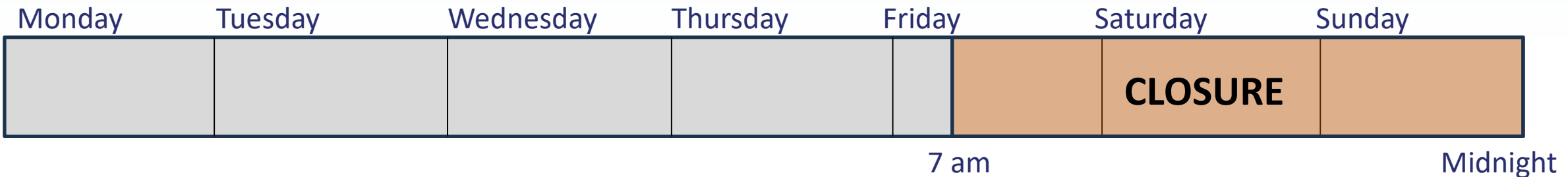
# Fishing Effort Recommendation

## Department Recommendation:

- Extend weekend closure
  - 7am Friday to noon Sunday, Statewide



- Monterey Bay Area extends to Sunday at midnight





# Small-Scale Fishery Access Options

- Experimental Fishing Permit (EFP)
  - Small scale/low volume
  - Develop local markets
  - Dead bait, farmers markets, local restaurants
  - Low volume gear (i.e., hand jig and hand brail)
  - Outside current major fishing areas
- Open Access Small-Scale





# Small-Scale Fishery Access Recommendation

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# Nets and Squid Spawning Habitat

- A. Require a ribline
- B. Require a ribline when fishing shallower than a specified depth boundary
- C. Require rope purse lines, no cable or chains (i.e., no metal lines)



## Department Recommendation:

- Require a ribline and rope purse line.





# Lighting and Seabird Habitat Options

- Fishery “Best Practices”
- Evaluate potential wildlife interactions (primarily nocturnal seabirds at the Channel Islands National Park) with squid fishery log data
- Close night-time fishing on Anacapa, San Miguel, and Santa Barbara islands from February through October to provide additional protection for the breeding State-listed (Threatened) Scripps’s murrelet.



# Lighting Recommendations

## Department Recommendation:

- Fishery “Best Practices”
- Evaluate potential wildlife interactions (primarily nocturnal seabirds at the Channel Islands National Park) with fishery logbook data





# Summary – Department Recommendations

**Proposed  
FMP  
Amendment and/  
or Regulatory  
Changes**

- Electronic logbook
- Extend weekend closure Statewide to begin at 7am on Friday / Monterey Bay Area to Sunday midnight
- Require ribline and rope purse line

**Outreach**

- Provide a fishery “Best Practices” in 2024

**Continued  
Research**

- Small-scale opportunities through EFP
- Continue forecasts with EDM (2024 onward)
- Evaluate potential wildlife interactions (primarily nocturnal seabirds) with squid fishery log data

# Thank You



For questions please contact:  
[SFAC@wildlife.ca.gov](mailto:SFAC@wildlife.ca.gov)