

STATE OF CALIFORNIA  
**Budget Change Proposal - Cover Sheet**  
 DF-46 (REV 08/16)

Fiscal Year 2017-18	Business Unit 3600	Department California Department of Fish and Wildlife	Priority No.
Budget Request Name 3600-060-BCP-DP-2016-GB		Program <b>2595019 – COMMERCIAL FISHERIES MANAGEMENT</b>	Subprogram

Budget Request Description  
 Harmful Algal Bloom (HAB) Sampling Program

Budget Request Summary  
 The Department of Fish and Wildlife (Department) requests \$1,717,000 Fish and Game Preservation Fund to develop and implement a sampling program, in coordination with the California Department of Public Health (CDPH), to protect public health and prevent unnecessary fishery closures associated with harmful microalgae blooms (aka red tides).

Requires Legislation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Code Section(s) to be Added/Amended/Repealed	
Does this BCP contain information technology (IT) components? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>If yes, departmental Chief Information Officer must sign.</i>	Department CIO	Date

For IT requests, specify the project number, the most recent project approval document (FSR, SPR, S1BA, S2AA, S3SD, S4PRA), and the approval date.

Project No.                      Project Approval Document:                      Approval Date:

If proposal affects another department, does other department concur with proposal?  Yes  No  
*Attach comments of affected department, signed and dated by the department director or designee.*

Prepared By	Date	Reviewed By	Date
Department Director Original signed by G. Tiffany	Date 12/15/2016	Agency Secretary Original signed by P. Kemp	Date 12/15/2016

Additional Review:  Capital Outlay  ITCU  FSCU  OSAE  CALSTARS  Dept. of Technology

BCP Type:  Policy  Workload Budget per Government Code 13308.05

PPBA <b>Original Signed by Amanda Martin</b>	Date submitted to the Legislature <b>1-10-17</b>
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## Analysis of Problem

### A. Budget Request Summary

The Department of Fish and Wildlife (Department) requests \$1,717,000 Fish and Game Preservation Fund to develop and implement a sampling program, in coordination with the California Department of Public Health (CDPH), to protect public health and prevent unnecessary fishery closures associated with harmful microalgae blooms (aka red tides).

A statewide sampling program is needed for fish and shellfish species affected by biotoxin-producing Harmful Algal Blooms (HABs) that are predicted to be more prevalent under future climate change scenarios. The sampling program will include developing a sampling plan, contracting samplers and boats, maintaining chain of custody and proper collection, handling and shipping protocols, disseminating lab results to the public and industry, coordinating with CDPH and other health agencies, and formulating regulations to close and re-open fisheries as needed.

### B. Background/History

HABs are responsible for mortalities of humans and marine life. The frequency and intensity of HABs is increasing in marine systems worldwide. A recent review on the west coast reports indicates there has been a sharp increase in HAB related impacts to living marine resources, economics and human health. Coastal HAB events are estimated to have an economic impact of \$82 million/year (1996-2000), with more than half of the losses from fisheries. Furthermore, HABs are predicted to increase with future scenarios of ocean warming and climate change.

HABs have had major impacts in California. In central California, spring blooms of toxic microalgae are now a problem every year, leading to shellfish closures by the California Department of Public Health. In 2011, a HAB occurred in Sonoma County killing 60% of all the red abalone and red sea urchins on the southern fishing grounds. This HAB event triggered an emergency fishery closure and more restrictive bag limits which were enacted in 2014.

The Dungeness crab fishery, which is one of the state's most valuable fisheries, was impacted by a HAB in 2015-2016. The microalgae produced high levels of domoic acid that accumulated in the crab meat, which exceeded the Food and Drug Administration (FDA) toxin level resulting in the closure of the California Dungeness and rock crab fisheries for much of the season. These closures had enormous economic impacts resulting in the loss of millions of dollars and the industry was forced to seek federal disaster relief. When humans are exposed to domoic acid by eating contaminated seafood, poisoning can occur that causes intestinal distress and, at higher doses, progressively severe neurologic symptoms, including confusion, difficulty breathing, seizures, coma, permanent loss of short-term memory and death.

### Workload History

Workload Measure	FY10-11	FY11-12	FY12-13	FY13-14	FY14-15	FY2015-16
Public, media and fishing industry calls and emails regarding HAB and fishery closures/openings	0	0	0	Tens of hours of staff time	Tens of hours of staff time	Hundreds of hours of staff time
CDPH/OEHHA/CDFW weekly or bi-weekly updates/strategy conference calls	0	0	0	0	0	Tens of hours of staff time
Weekly calls/emails to fishermen in 10 ports to coordinate crab sampling efforts and shipments to CDPH lab	0	0	0	0	0	Hundreds of hours of staff time
Regulatory process to open/close fisheries based on CDPH recommendations.	0	0	0	0	0	Hundreds of hours of staff time

## Analysis of Problem

Outreach to public/industry/DCTF on fishery openings/closings including website/hotline updates/blogs	0	0	0	0	0	Hundreds of hours of staff time
Federal disaster relief – provide fishery statistics and updates	0	0	0	0	0	Hundreds of hours of staff time

### C. State Level Considerations

This proposal will integrate with existing state, regional, and federal efforts to prepare California's coastal resources and economy for a changing climate. The proposal will improve coordination with related agencies such as CDPH and the Office of Environmental Health and Hazard Assessment (OEHHA), as well as the fishing industry and other stakeholders. This is in keeping with the goals and objectives of the Department's core partners within state government, federal partners, the private sector, and non-governmental organizations.

This proposal supports the Department's Strategic Initiatives: Initiative 4 - Develop/Enhance Partnerships; and Initiative 6 - Enhance Organizational Vitality. This proposal is also consistent with State policies regarding fish and wildlife, including the approach to climate change. The Department is the State agency responsible for the protection, conservation, and management of fish and wildlife resources (Fish and Game Code §1802).

As the trustee agency for California's fish and wildlife resources, it is imperative that the Department and the State assume responsibility for the health and safety of state managed fishery resources and seafood products to help ensure conservation of fisheries resources and preservation of their commercial and recreational uses.

### D. Justification

A massive and persistent HAB off the U.S. west coast in 2015 led to domoic acid concentrations above federal and state health thresholds in a variety of species, resulting in the closures of the Dungeness, rock crab and razor clam fisheries for extended periods starting in Fall 2015. As toxicity levels decreased, areas were able to open; however, closures are still in place for the rock crab and razor clam fisheries in some areas along the California Coast. The fisheries closures resulted in significant financial impacts to fishermen and fishing communities. The scale of the event outstripped the ability of CDPH to collect sufficient and timely samples for testing. This also resulted in CDFW having to redirect staff and resources from other programs to facilitate a statewide sampling program in coordination with CDPH. The sampling program largely relied on volunteer efforts of commercial fishermen who were motivated to collect samples to facilitate the opening of the crab fisheries. This motivation did not exist for fisheries that had not been closed (e.g., spiny lobster) and it proved extremely difficult to obtain sufficient samples for other fisheries, possibly jeopardizing public health. The use of volunteer fishermen who had financial interest in a particular sampling outcome raised questions about accountability and chain-of-custody to ensure the credibility of samples collected.

A more rigorous statewide monitoring program that includes all fish and shellfish species affected by biotoxins produced by HABs is necessary to protect the public from potential health risks associated with these toxins. It is especially important since HABs are predicted to be more prevalent under future climate change scenarios. The monitoring program will require 2.0 Environmental Scientists, one in each region of the state, north and south, to develop a sampling plan of fishery species specific to their regions of the state, collect samples, and oversee the contracting of vessels to collect samples while maintaining proper collection protocols. These 2.0 positions will be redirected from existing resources. In addition, the redirected positions will be responsible for disseminating lab results to the public and industry, coordinating with CDPH and other health agencies, formulating regulations to close and re-open fisheries as needed and analyzing results of sampling for spatial/temporal patterns of contamination. Temporary staff and contracted personnel will also be critical to the coordination and sampling efforts. If the monitoring and sampling is not performed, it

## Analysis of Problem

could cause unnecessary, statewide, fishery closures due to lack of comprehensive information as to the specific impacted areas.

CDFW vessels and staff time will be utilized to collect samples when feasible and efficient. In areas of the state where CDFW vessels are not available or do not have the capacity to sample, contracts will be developed and implemented with commercial fishermen and/or other vessels to augment these sampling efforts. Operating costs will include operating and maintaining CDFW vessels as well as establishing contracts.

Without increased funding and staffing, a growing number of the state's primary fisheries and aquaculture businesses will be severely curtailed or forced to close. Socio-economic impacts on the fishing industry and coastal communities will occur in the form of decreased seafood safety, lost fishing opportunities, more constrained harvest limits or unpredictable market availability.

### E. Outcomes and Accountability

The Department, in collaboration with CDPH, will develop and implement a finfish and shellfish biotoxin sampling program. This program will have the geographic breadth and sampling frequency to maintain baseline conditions and will have the flexibility to increase sampling frequency and geographic focus when blooms and/or hot spots are detected. The baseline program will maintain semi-monthly sampling from 20 coastal ports along the entire California Coast.

The expected outcomes will be measured by the ability of the program to efficiently and accurately detect and monitor biotoxin levels in a variety of species along the entire California coast. The specific quantitative metric of accountability will be the total number of samples obtained through this proposed program and analyzed by CDPH.

#### Projected Outcomes

Workload Measure	CY	BY	BY+1	BY+2	BY+3	BY+4
Development of finfish and shellfish HAB biotoxin sampling program		X				
Implementation of program		X	X	X	X	X

### F. Analysis of All Feasible Alternatives

**Alternative 1:** Approve \$1,717,000 Fish and Game Preservation Fund (includes semi-monthly sampling of fishery resources from 20 coastal ports).

Cost: \$1,717,000 Fish and Game Preservation Fund

Advantage: This alternative would result in a coordinated statewide HAB sampling program that builds off synergies and coordination between CDFW, CDPH and the commercial fishing sector. This program will prevent unnecessary, statewide, fishery closures and avoid socio-economic impacts on the fishing industry and coastal communities that would occur in the form of decreased seafood safety, lost fishing opportunities, more constrained harvest limits or unpredictable market availability.

Disadvantage: Requires additional funding.

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**Alternative 2:** Redirect existing resources.

Cost: \$0

Advantage: Does not require additional positions or funding.

Disadvantage: Other high priority resource conservation issues or services to the public, such as developing management initiatives for the commercial sea urchin and sea cucumber fisheries and full and effective participation in the whale entanglement mitigation process, would not be met and the HAB sampling program would continue to rely on volunteer fishermen and vessels to collect and transport samples. Compared to Alternative 1, sampling rates would continue without full coverage of ports and species, thereby impacting the Department's ability to address HAB biotoxins on a timely basis to protect the seafood consuming public's health.

**Alternative 3:** 2.0 positions and \$2,494,000 (includes weekly sampling of fishery resources from 20 coastal ports)

Cost: \$2,494,000

Advantage: This alternative would double the proposed sampling rate at the Department's major coast ports and thereby increase the accuracy and precision of finfish and shellfish monitoring efforts and the ability to detect HAB biotoxins.

Disadvantage: Requires additional funding and position authority.

**Alternative 4:** 2.0 PYs and \$575,000 (includes monthly sampling of fishery resources from 20 coastal ports)

Cost: \$575,000

Advantage: This alternative reduces the overall funding while still improving the Department's capacity to sample HAB biotoxins in a changing climate.

Disadvantage: Compared to Alternative 1, sampling rates would be reduced, thereby impacting the Department's ability to monitor HAB biotoxins on a timely basis to prevent unnecessary, statewide, fishery closures.

### G. Implementation Plan

Implementation of this proposal would begin on July 1, 2017 and/or upon approval of the FY 2017-18 Budget.

### H. Supplemental Information

None.

### I. Recommendation

**Alternative 1.** Approve \$1,717,000 Fish and Game Preservation Fund (includes semi-monthly sampling of fishery resources from 20 coastal ports).

# BCP Fiscal Detail Sheet

BCP Title: Harmful Algal Bloom (HAB) Monitoring Program

BR Name: 3600-060-BCP-2017-GB

## Budget Request Summary

	FY17					
	CY	BY	BY+1	BY+2	BY+3	BY+4
Salaries and Wages						
Earnings - Permanent	0	111	111	111	111	111
Overtime/Other	0	206	206	206	206	206
<b>Total Salaries and Wages</b>	<b>\$0</b>	<b>\$317</b>	<b>\$317</b>	<b>\$317</b>	<b>\$317</b>	<b>\$317</b>
Total Staff Benefits	0	54	54	54	54	54
<b>Total Personal Services</b>	<b>\$0</b>	<b>\$371</b>	<b>\$371</b>	<b>\$371</b>	<b>\$371</b>	<b>\$371</b>
Operating Expenses and Equipment						
5301 - General Expense	0	10	10	10	10	10
5302 - Printing	0	2	2	2	2	2
5304 - Communications	0	2	2	2	2	2
5306 - Postage	0	2	2	2	2	2
5320 - Travel: In-State	0	10	10	10	10	10
5322 - Training	0	5	5	5	5	5
5324 - Facilities Operation	0	22	22	22	22	22
5326 - Utilities	0	4	4	4	4	4
5340 - Consulting and Professional Services - Interdepartmental	0	700	0	0	0	0
5342 - Departmental Services	0	141	162	162	162	162
539X - Other	0	448	406	406	406	406
<b>Total Operating Expenses and Equipment</b>	<b>\$0</b>	<b>\$1,346</b>	<b>\$625</b>	<b>\$625</b>	<b>\$625</b>	<b>\$625</b>
<b>Total Budget Request</b>	<b>\$0</b>	<b>\$1,717</b>	<b>\$996</b>	<b>\$996</b>	<b>\$996</b>	<b>\$996</b>
<b>Fund Summary</b>						
Fund Source - State Operations						
0200 - Fish and Game Preservation Fund	0	1,717	996	996	996	996
<b>Total State Operations Expenditures</b>	<b>\$0</b>	<b>\$1,717</b>	<b>\$996</b>	<b>\$996</b>	<b>\$996</b>	<b>\$996</b>
<b>Total All Funds</b>	<b>\$0</b>	<b>\$1,717</b>	<b>\$996</b>	<b>\$996</b>	<b>\$996</b>	<b>\$996</b>
<b>Program Summary</b>						
Program Funding						
2595019 - Commercial Fisheries Management (Marine and Inland)	0	1,717	996	996	996	996
<b>Total All Programs</b>	<b>\$0</b>	<b>\$1,717</b>	<b>\$996</b>	<b>\$996</b>	<b>\$996</b>	<b>\$996</b>

**Personal Services Details**

	CY	BY	BY+1	BY+2	BY+3	BY+4
Salaries and Wages						
0762 - Environmental Scientist	0	111	111	111	111	111
VR00 - Various	0	206	0	0	0	0
<b>Total Salaries and Wages</b>	<b>\$0</b>	<b>\$317</b>	<b>\$111</b>	<b>\$111</b>	<b>\$111</b>	<b>\$111</b>
Staff Benefits						
5150450 - Medicare Taxation	0	2	2	2	2	2
5150500 - OASDI	0	7	7	7	7	7
5150600 - Retirement - General	0	29	29	29	29	29
5150900 - Staff Benefits - Other	0	16	16	16	16	16
<b>Total Staff Benefits</b>	<b>\$0</b>	<b>\$54</b>	<b>\$54</b>	<b>\$54</b>	<b>\$54</b>	<b>\$54</b>
<b>Total Personal Services</b>	<b>\$0</b>	<b>\$371</b>	<b>\$165</b>	<b>\$165</b>	<b>\$165</b>	<b>\$165</b>