

## A RICH NATURAL RESOURCE

Located on Monterey Bay, Elkhorn Slough and surrounding wetlands comprise a network of estuarine habitats that include salt and brackish marshes, mudflats, and tidal channels.

Estuarine wetlands are rare in California, and provide important habitat for many species. Elkhorn Slough provides special refuge for a large number of sea otters, which rest, forage and raise pups in the shallow waters, and nap on the salt marshes. Migratory shorebirds by the thousands stop here to rest and feed on tiny creatures in the mud. Leopard sharks by the hundreds come into the estuary to give birth.



Thousands of people come to Elkhorn Slough each year to enjoy the natural resources of the estuary. They kayak, boat, fish, hike, birdwatch, photograph, and study the wildlife and habitats.

The lands around the estuary are dedicated to a variety of functions— nature reserves, residential areas, farms, research organizations, and an active harbor, power plant, and railroad. All of these activities have some influence on the natural resources of the estuary. Water quality is particularly affected by agriculture in the surrounding landscape.



## YOU CAN HELP!

There are several ways we all can help improve water quality in Elkhorn Slough:

- Limit the use of fertilizers in your garden.
- Maintain septic systems to avoid leakages.
- Dispose of pharmaceuticals properly, and prevent harsh soaps and other contaminants from running into storm drains.
- Buy produce from local farmers applying sustainable management practices.
- Vote for the environment by supporting candidates and bills favoring clean water and habitat restoration.
- Let your elected representatives and district officials know you care about water quality in Elkhorn Slough and support efforts to reduce polluted run-off and to restore wetlands.
- Attend meetings of the Central Coast Regional Water Quality Control Board to share your concerns and support for action.

## JOIN OUR EFFORT!

The Elkhorn Slough National Estuarine Research Reserve - a combined effort of the California Department of Fish and Wildlife, the National Oceanic Atmospheric Administration, and the Elkhorn Slough Foundation- is dedicated to conducting research to better understand water quality and estuarine ecology, implement salt marsh restoration projects, and increase public awareness about the importance of estuaries.

Learn about opportunities to volunteer your time at the Reserve or support efforts by both the Reserve and Foundation to improve water quality in the estuary.  
[www.elkhornslough.org](http://www.elkhornslough.org)

This document was prepared by the Elkhorn Slough National Estuarine Research Reserve.

You can find a full length report at [www.elkhornslough.org/reportcard/](http://www.elkhornslough.org/reportcard/)  
Email John Haskins, [john@elkhornslough.org](mailto:john@elkhornslough.org), with questions or comments.

## Elkhorn Slough Estuary WATER QUALITY REPORT CARD



question: How is the water in Elkhorn Slough?  
answer: It could be a lot better . . .

Elkhorn Slough estuary hosts diverse wetland habitats, wildlife and recreational activities. Such diversity depends to a great extent on the quality of the water. Good water quality supports healthy and diverse ecological communities while poor water quality is harmful to wildlife and habitats.

Water quality monitoring at over 20 wetland sites has identified areas of poor water quality and the factors contributing to these poor conditions.

*Working together, we can support efforts to improve water quality so our wetlands can sustain healthier habitats, more abundant wildlife and more opportunities for people to enjoy them.*

Aerial photo courtesy of K. Ellenbogen



# WATER QUALITY IN THE ESTUARY

## Why water quality matters

Water quality affects life in and out of the slough. Studies show that poor water quality has reduced wildlife diversity in Elkhorn Slough wetlands. Other studies indicate that the value of Elkhorn Slough as a nursery for the Monterey Bay flatfish fishery depends on water quality conditions.



The estuary would provide more healthy habitats for diverse wildlife and produce more flatfish if water quality were improved in wetlands with poor water quality.

## How water quality is monitored

Elkhorn Slough National Estuarine Research Reserve monitors water quality at over 20 stations around the estuary. Measurements are recorded in the field with hand-held instruments and in the lab by analyzing water samples.

## How the grading system works

Nine different water quality attributes considered essential for ecological health were compared to thresholds of concern identified by the regional water quality control board. These attributes include oxygen levels, essential for animal health, and nutrients, which, in excess, can overstimulate growth of algae. Neither pesticides nor bacteria are sampled. The final grade assigned to each site integrates the nine water quality attributes.

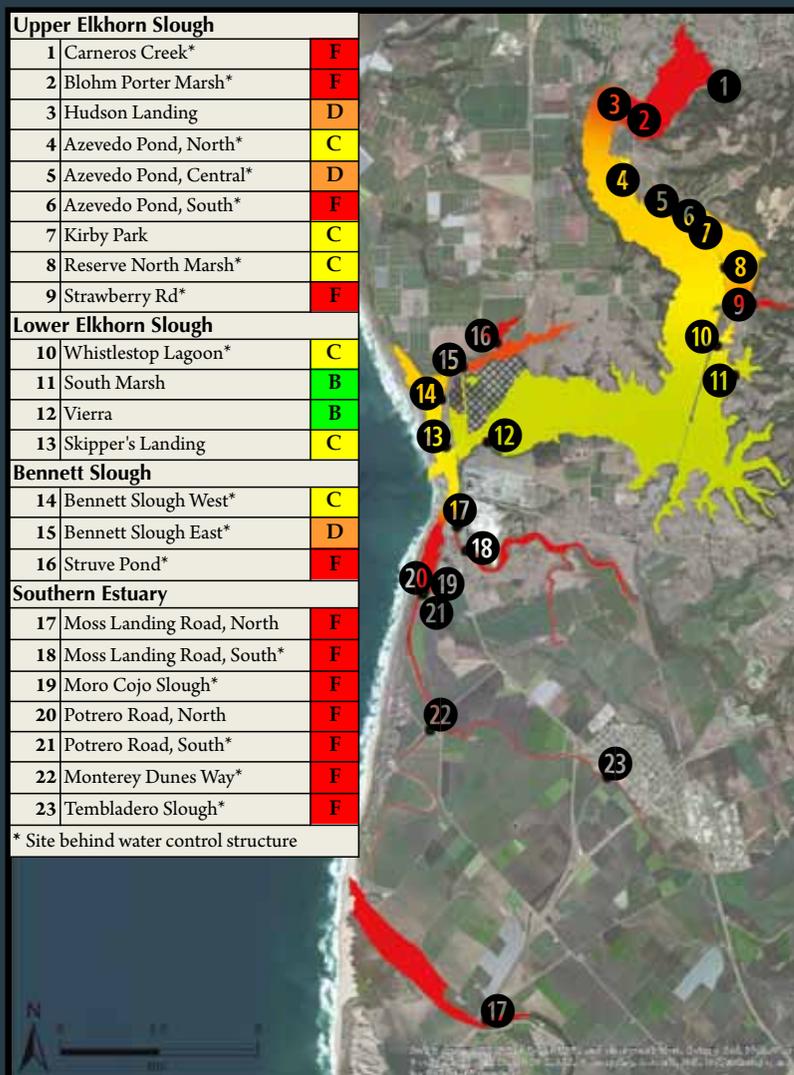


## A report card of water quality

The report card shows mixed results for Elkhorn Slough water quality. Overall, no site got an “A”, 2 sites got a “B”, 6 sites got a “C”, 3 sites got a “D”, and 12 sites got an “F”. Sites in lower Elkhorn Slough have the best water quality, abundant fish, migratory shorebirds and sea otters. Sites located behind water control structures generally have lower grades because of stagnant conditions.

Upper Elkhorn Slough		
1	Carneros Creek*	F
2	Blohm Porter Marsh*	F
3	Hudson Landing	D
4	Azevedo Pond, North*	C
5	Azevedo Pond, Central*	D
6	Azevedo Pond, South*	F
7	Kirby Park	C
8	Reserve North Marsh*	C
9	Strawberry Rd*	F
Lower Elkhorn Slough		
10	Whistlestop Lagoon*	C
11	South Marsh	B
12	Vierra	B
13	Skipper's Landing	C
Bennett Slough		
14	Bennett Slough West*	C
15	Bennett Slough East*	D
16	Struve Pond*	F
Southern Estuary		
17	Moss Landing Road, North	F
18	Moss Landing Road, South*	F
19	Moro Cojo Slough*	F
20	Potrero Road, North	F
21	Potrero Road, South*	F
22	Monterey Dunes Way*	F
23	Tembladero Slough*	F

\* Site behind water control structure



# WORKING TOGETHER TO IMPROVE WATER QUALITY

*Water quality will improve in the estuary when less polluted run-off enters the wetlands, wetlands are fully restored and the management of water control structures is improved.*



## Reducing polluted run-off

Farmers are always looking for ways to improve their practices while enhancing the productivity of their lands. Local and national organizations are working with farmers to develop and implement practices that will reduce polluted run-off. Land trusts such as the Elkhorn Slough Foundation are also purchasing some farmlands and restoring them to open space, which reduces pollution.

## Restoration of wetlands

Healthy marshes can take up some of the polluting nutrients and improve water quality. Restoration of Elkhorn Slough marshes that have been lost over the past century will improve water quality. The Elkhorn Slough Reserve has completed and proposes several major marsh restoration projects.

## Improved management of water control structures

Many of the wetlands that received a grade of F for water quality are behind water control structures that artificially limit tidal exchange. Recent studies show that increasing tidal flow even slightly to these areas improves the water quality grades they receive. The Elkhorn Slough Reserve has just completed one restoration project to return more natural tidal flow to a wetland, and is seeking funding for another such project.