

A WATER QUALITY REPORT CARD FOR THE BAY

Jay Davis

San Francisco Estuary Institute

RMP REGIONAL MONITORING PROGRAM
ANNUAL MEETING
Pollutant Effects on Aquatic Life



*The
State
of
San Francisco Bay
2011*



Water Quality



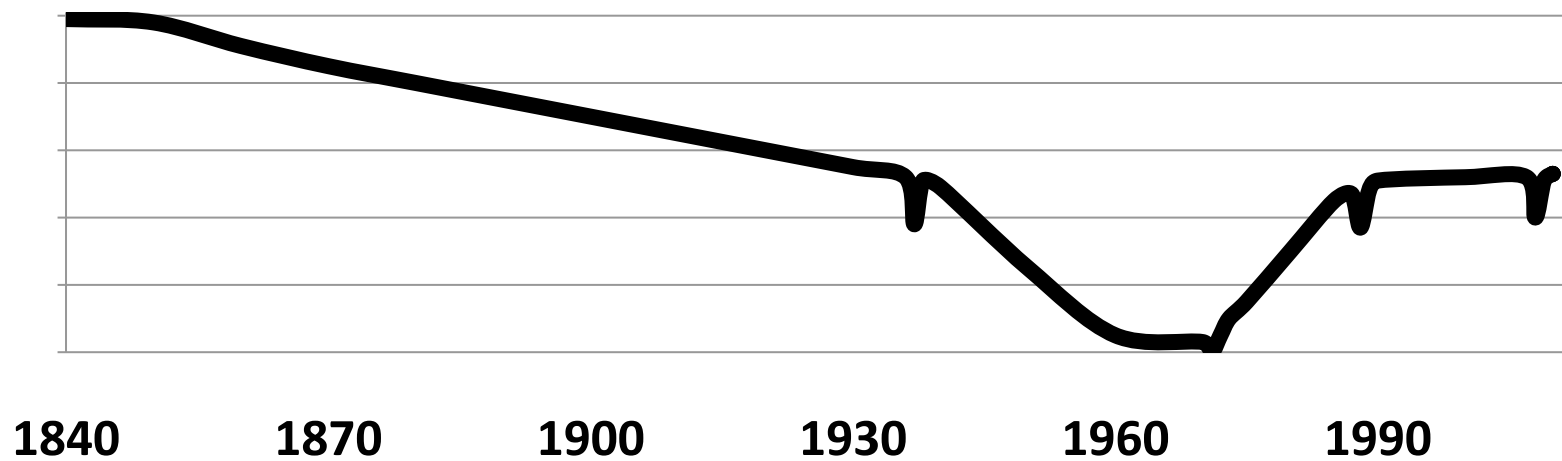
John Ross, SFEI

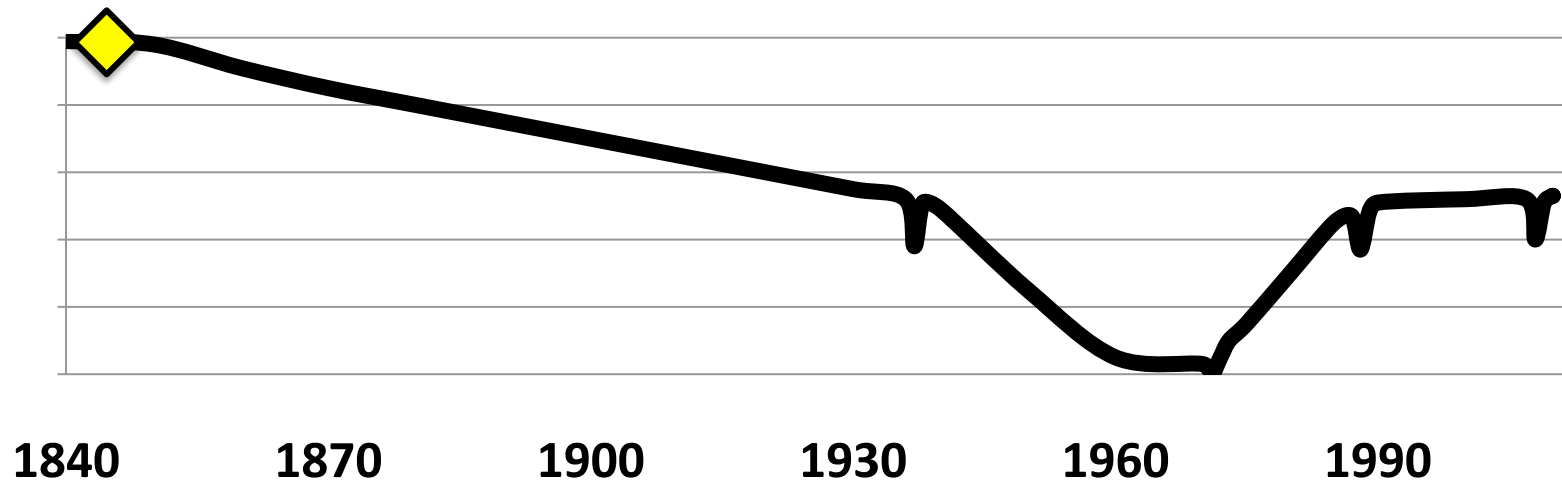
Michael Kellogg, City and County of San Francisco

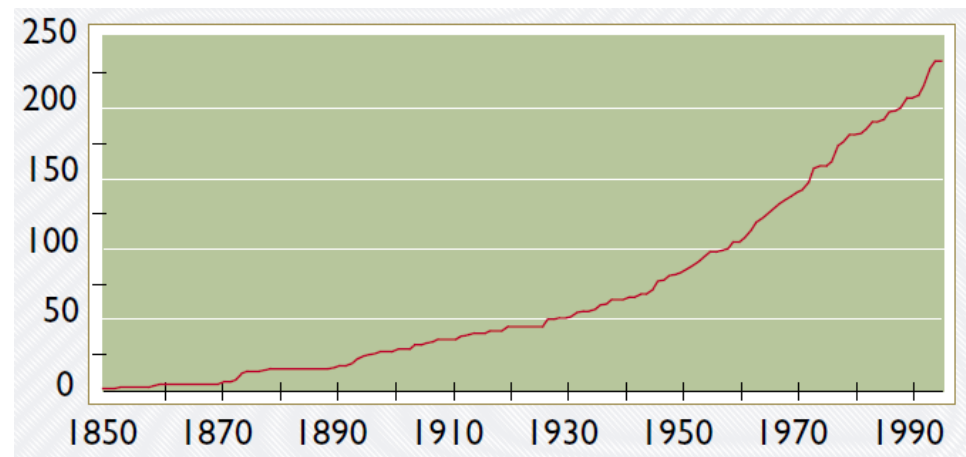
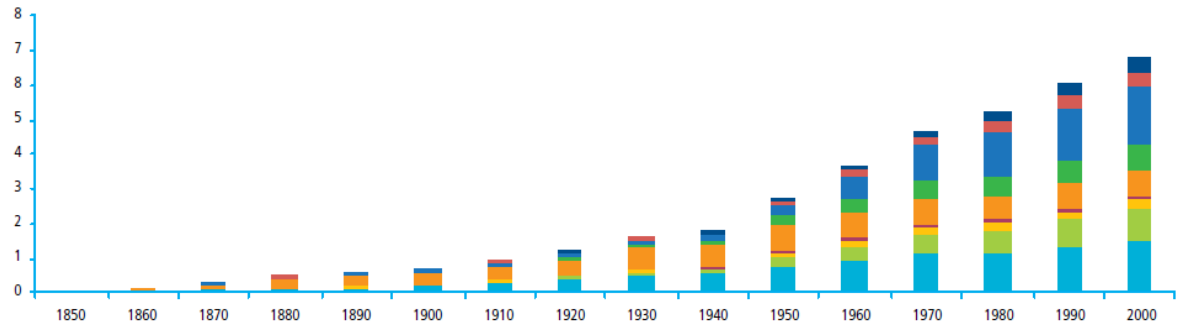
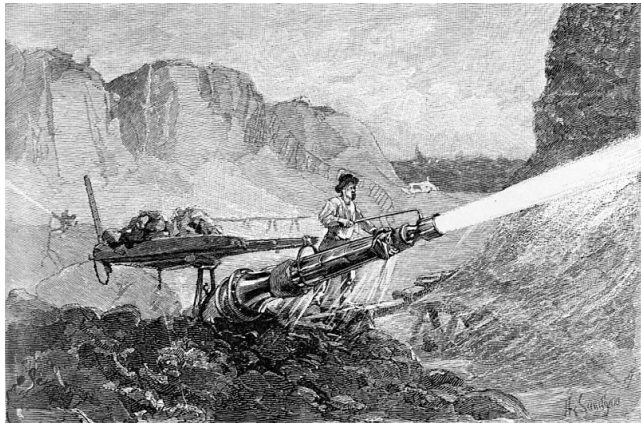
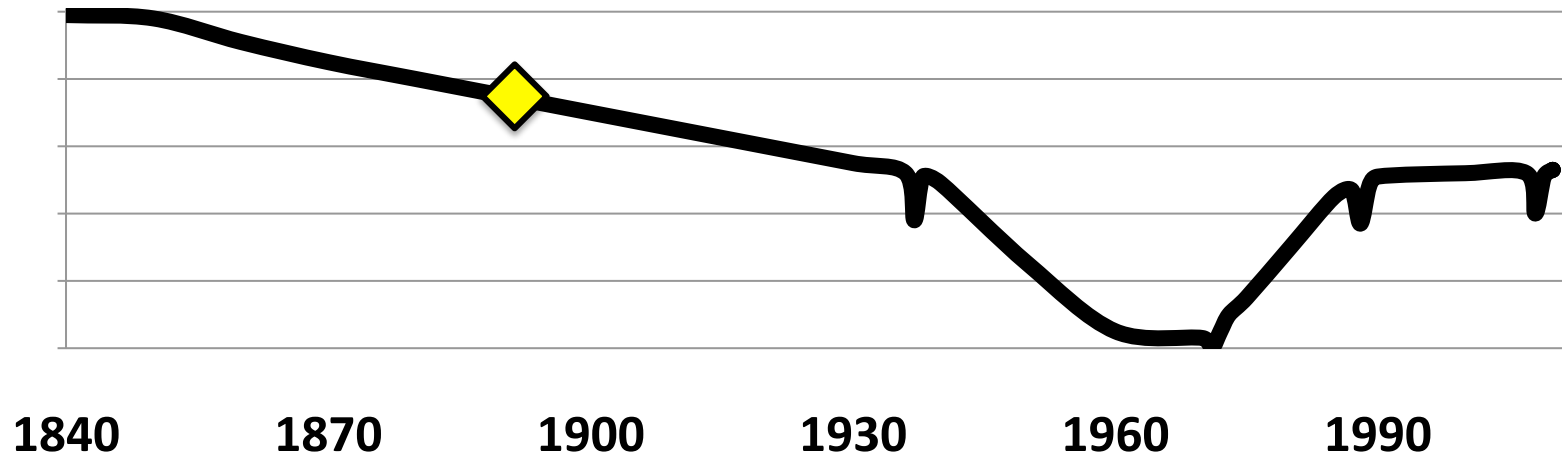
**Andrew Cohen, Center for Research on Aquatic
Bioinvasions**

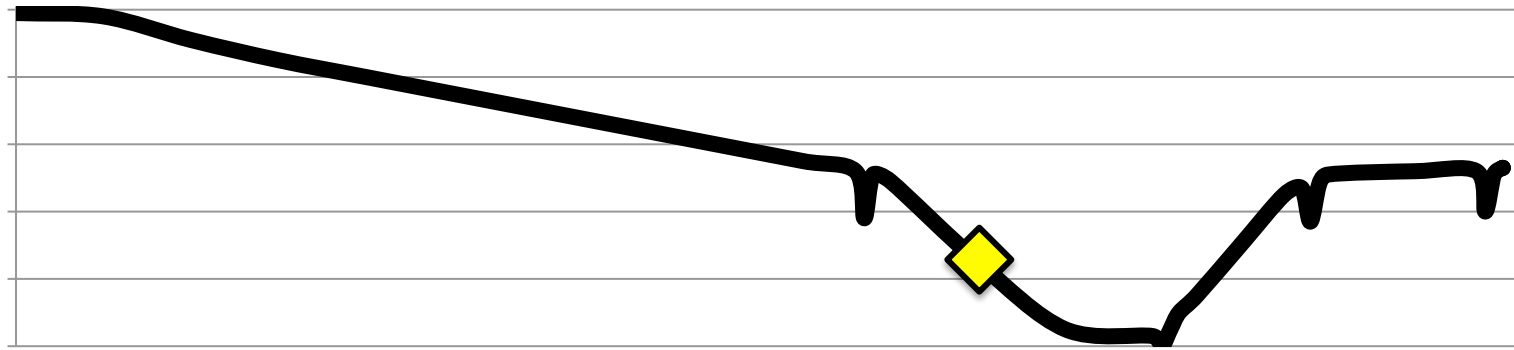


A Brief History of Water Quality in the Bay









1840

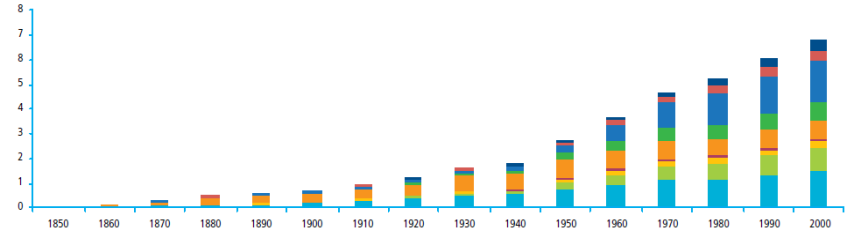
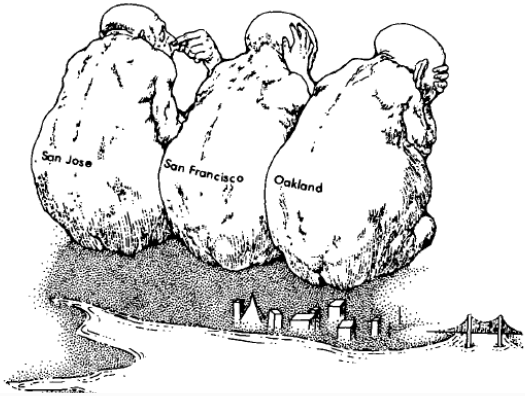
1870

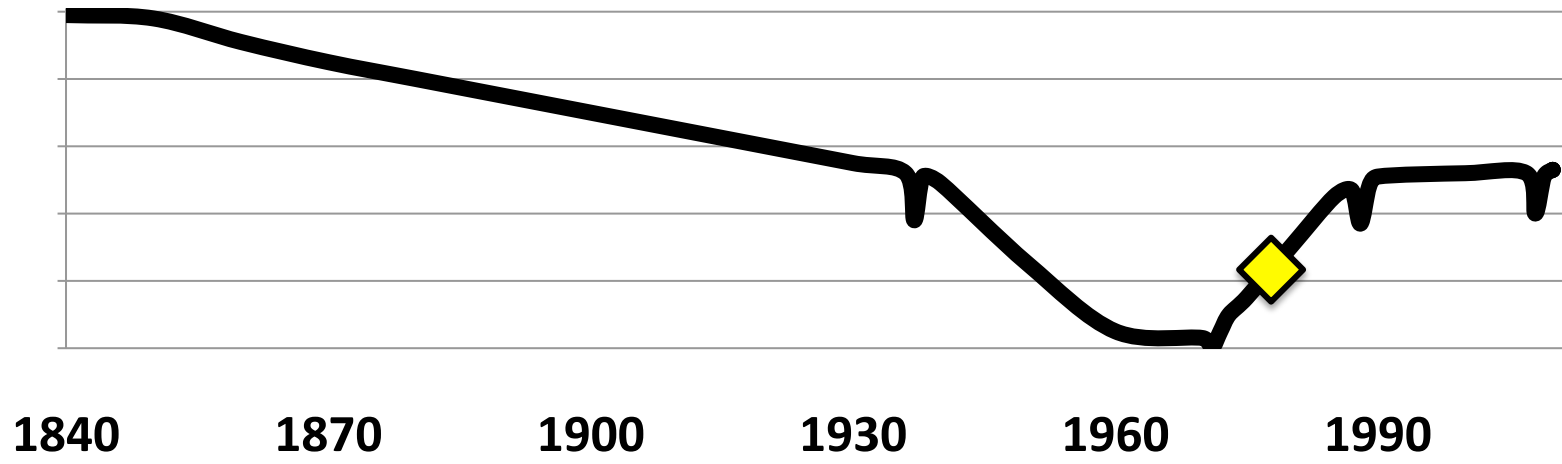
1900

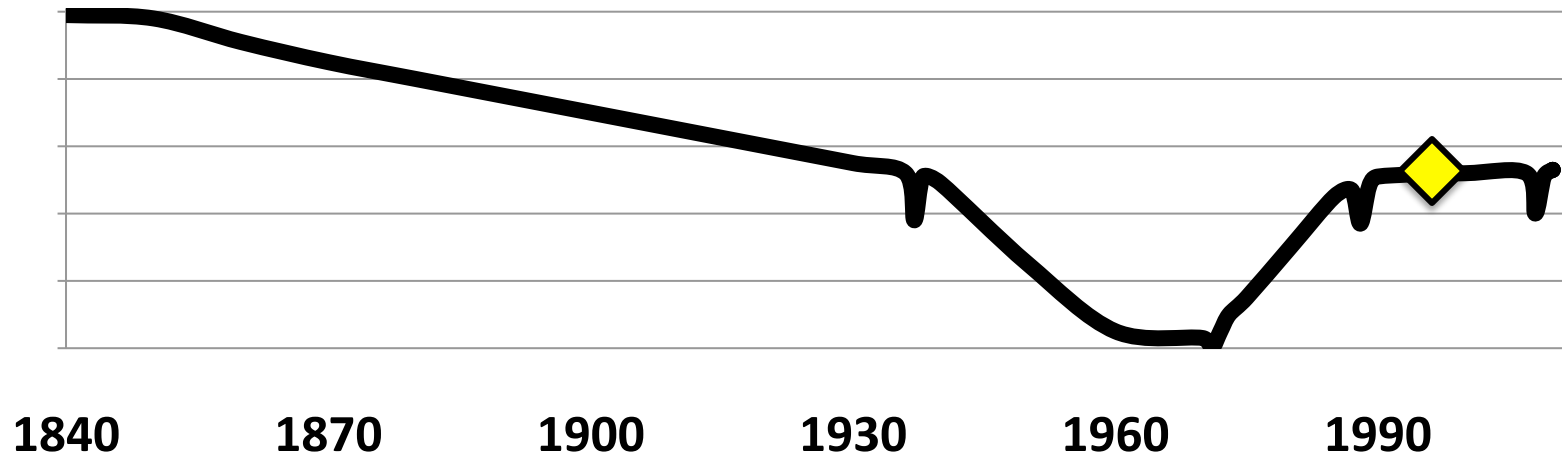
1930

1960

1990







Diazinon

Copper

Metals

**Suspended
Sediment**

Phytoplankton

Pyrethroids

PBDEs

Corbula

Cosco Busan

SUMMARY OF BAY HEALTH, 2011

	STATUS	TREND
WATER		
Safe for aquatic life	Fair	Improving
Fish safe to eat	Fair	No change
Safe for swimming	Good	No change

Is the Bay safe for aquatic life?

	HIGH CONCERN	MODERATE CONCERN	LOW CONCERN	GOALS ATTAINED
Rapid Progress Likely	Exotic Species**	Trash	Copper	Dissolved Oxygen Silver
Rapid Progress Unlikely	Methylmercury	Sediment Toxicity	*	Other Priority Pollutants: arsenic, cadmium, chromium, nickel, lead, zinc, alkytin; diazinon, chlorpyrifos, dachtal, lindanes, endosulfans, mirex, oxadiazon; cyanide

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SAFE FOR AQUATIC LIFE	
Methylmercury	•
Exotic Species	••
Sediment Toxicity	••
Trash	•••
Copper	••••
Dissolved Oxygen	•••••
Silver	•••••
Other Priority Pollutants	•••••
Selenium	?
PAHs*	?
PBDE*	?
PFOS*	?
Emerging Contaminants	?



poor	•
poor to fair	••
fair	•••
fair to good	••••
good	•••••
goals not established	?

SAFE TO EAT	
PCBs*	●
Methylmercury	●●
Dioxins	●●
Legacy Pesticides	●●●●●
Selenium	●●●●●
PBDEs*	●●●●●
Other Priority Pollutants*	●●●●●
Emerging Contaminants	?



SAFE FOR SWIMMING

Beach Bacteria (Summer)

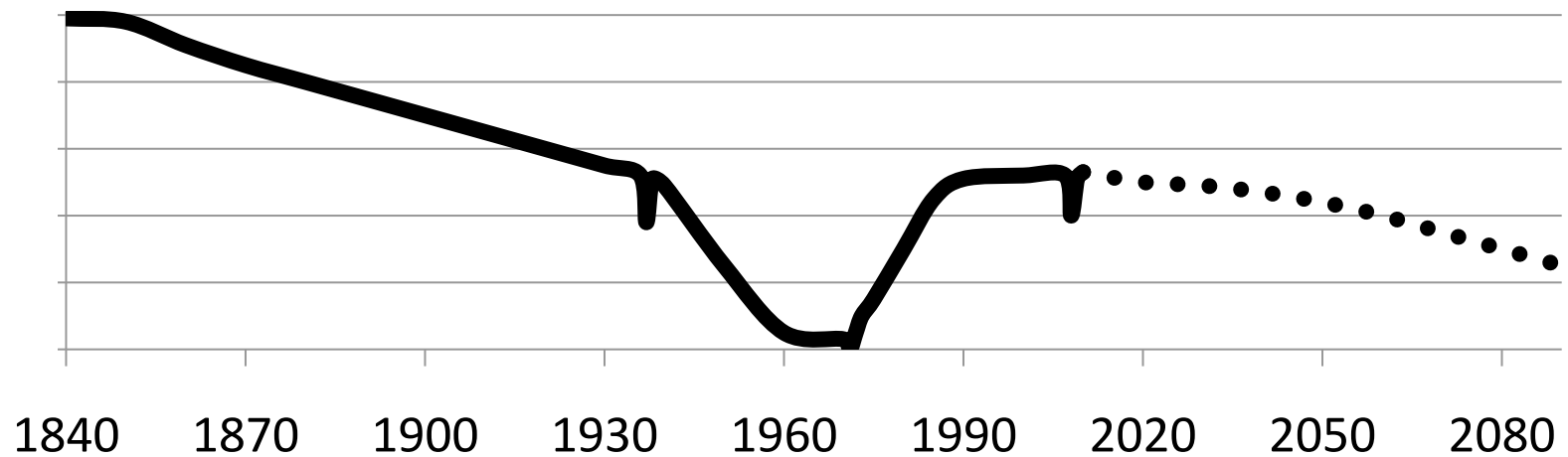
● ● ● ●

Beach Bacteria (Wet)

● ● ●



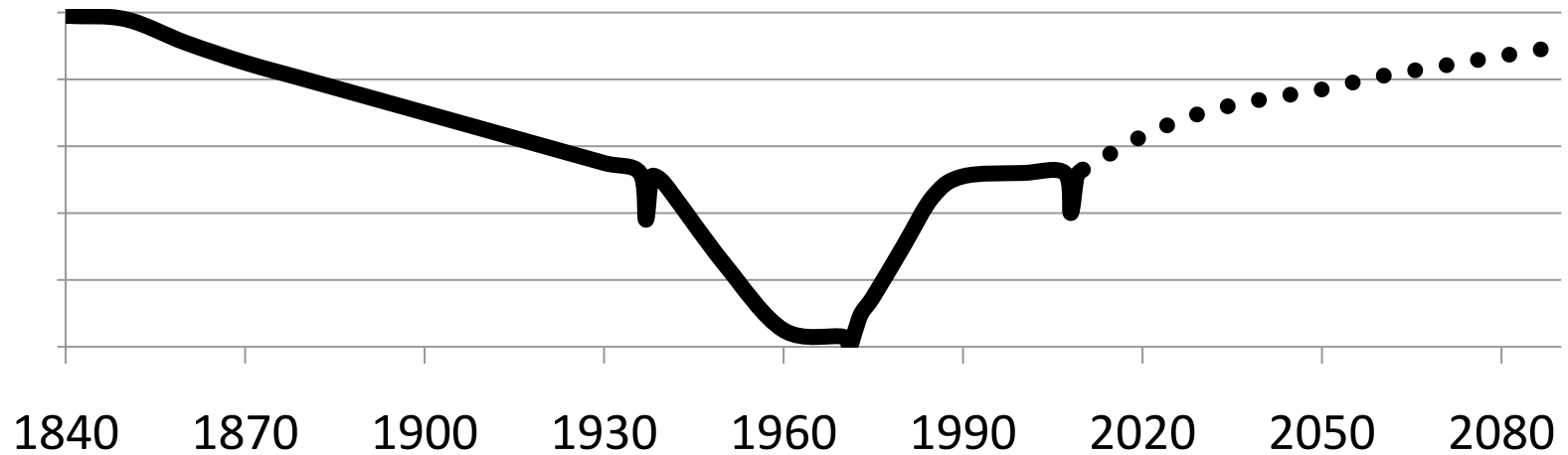
Future: Worst Case



- Excessive algae
- New bioinvasions
- Emerging contaminants
- Increased selenium
- Increased mercury
- Deteriorating infrastructure
- Earthquake, tsunami



Future: Best Case



- Follow through on existing plans and regulations
- Detection and prevention of emerging problems
- Address tractable elements of challenging pollutants
- Upgraded infrastructure: stormwater, sewage collection, treatment plants

