

CDFW Climate College: Lecture #9

Walk the Talk: CDFW Testimonials



Kevin Hunting



Gordon Leppig, R1



Mike Carion, LED



Debbie Aseltine-Neilson, MR

May 16th
1:30 - 2:30PM





April 2 - 4, 2013

• Denver Marriott City Center

• Denver, Colorado

- Create a community of adaptation practitioners.
- Accelerate the development of solutions.
- Bring multiple sectors together
- 55 Symposiums
- 12 training events
- 25 working groups
- 500 registrants
 - 44 states
 - 2 territories
 - 3 Canadian Provinces
 - 50 Tribal representatives
 - 73 peoples from CA
 - Gov't: 37%
 - NGO: 37%
 - University: 16%
 - Student: 5%
 - Corporate: 5%

Climate Science Program

Home >> Climate and Energy >> Climate Change >> Activities >> National Adaptation Forum >> Presentations

- >> Activities
- >> Resources
- >> CDFW Climate College
- >> CDFW Climate Stakeholders
- >> CDFW Going Green
- >> Climate Change Case Studies
- >> Vulnerability Assessment Tools
- >> For Teachers
- >> Western Association of Fish and Wildlife Agencies
- >> Director's Bulletins
- >> Legislation and Policy

CDFW Climate Science and Renewable Energy Branch
1416 9th Street
Sacramento, CA 95814
climatechange@wildlife.ca.gov

National Adaptation Forum Agenda and Presentations

Note: If you were a presenter at the Forum and do not see your presentation or would like to update your presentation, please email climatechange@wildlife.ca.gov.

>> [Agenda \(PDF\)](#)

S = Symposium
T = Training
WG = Working Group



TUESDAY, APRIL 2

CONCURRENT SESSION 1

(S) Advancing Understanding and Application of Adaptive Capacity to Inform Sustainable Resource Management in a Changing Climate

- >> [Session Introduction](#)
- >> [Gretchen Hofmann, University of California, Santa Barbara: "Adaptation as a response to ocean acidification - is it possible and how do we look for it?"](#)
- >> [Erik Beever, Ph.D., USGS Northern Rocky Mtn. Science Center: "Understanding which, where, and how wildlife species can adapt to a variable and rapidly changing climate"](#)
- >> [Adrienne Nicotra, The Australian National University: "Plasticity: it's relevance to Adaptive Capacity from an ecological and](#)



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Kevin Hunting, CDFW Chief Deputy Director



Climate Change and the Marine Environment



Debbie Aseltine-Neilson
CDFW Staff Environmental Scientist
Marine Region – San Diego

Marine Region

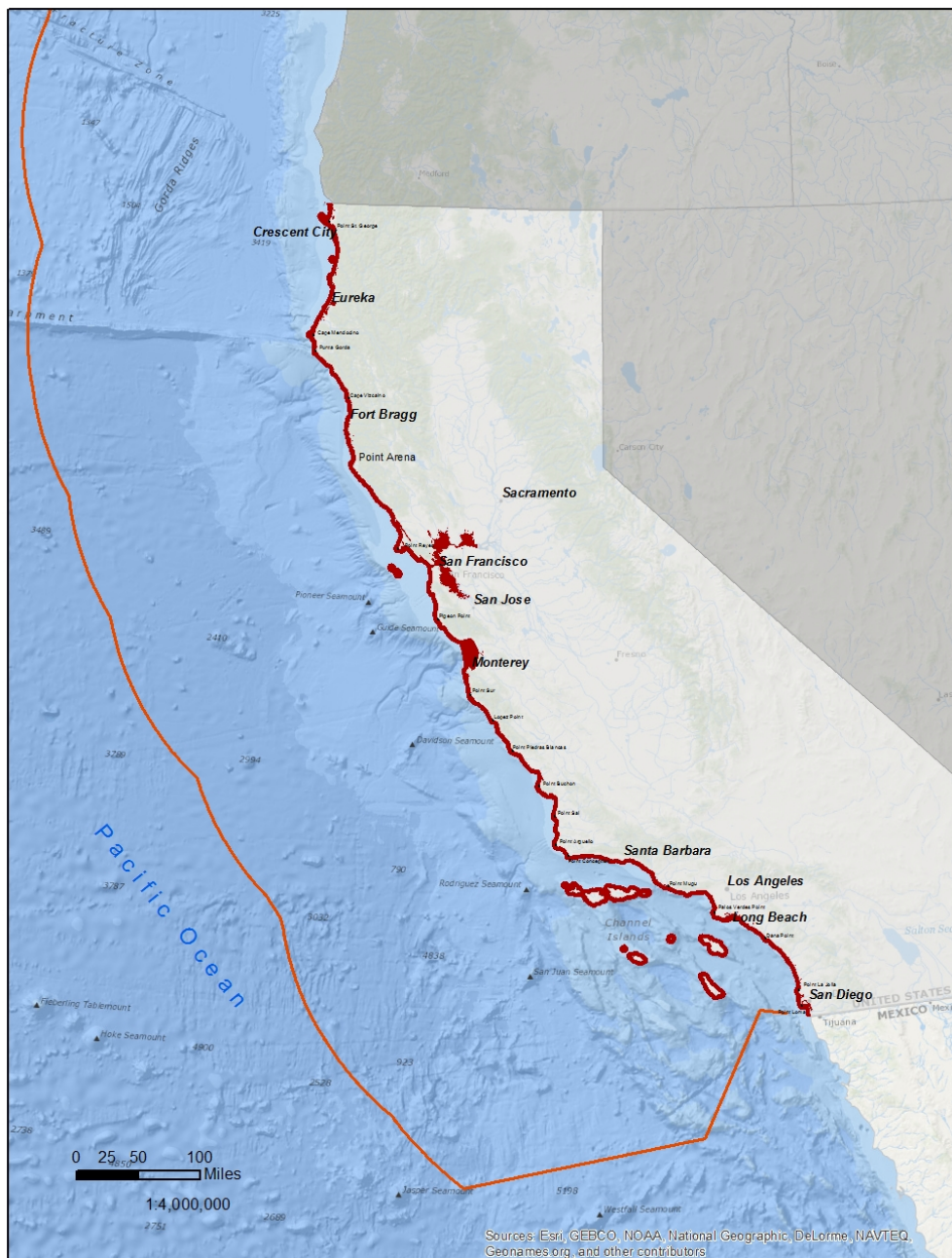


CDFW photo

Mission: To protect, maintain, enhance, and restore CA's marine ecosystems for their ecological values and their use and enjoyment by the public through good science and effective communication.

Marine Region

- Responsible for resources along entire coast of CA
- Area includes state waters – out to 3 miles
- Requires collaboration with, and assistance from, numerous entities:
 - State and federal agencies
 - Fishing industry
 - Scientists
 - NGOs
 - Public



Produced by CDFW

Incorporating Climate Change Into the Update Of the State Wildlife Action Plan



Shore habitats



Nearshore zone

CDFW photos

Incorporating Climate Change Into the Update Of the State Wildlife Action Plan



CDFW



E. Kaarsemaker

Estuaries, bays, and lagoons (including mud flats and sea grass beds)

Incorporating Climate Change Into the Update Of the State Wildlife Action Plan

Extreme Events



NOAA's America's Coastlines Collection

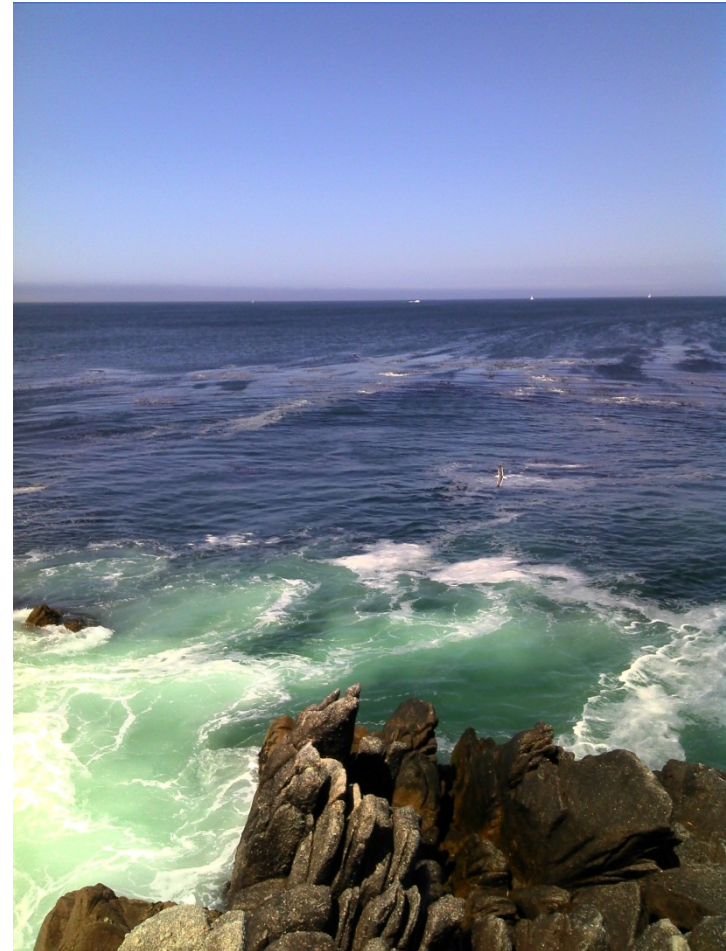


Sea Level Rise

CDFW photos

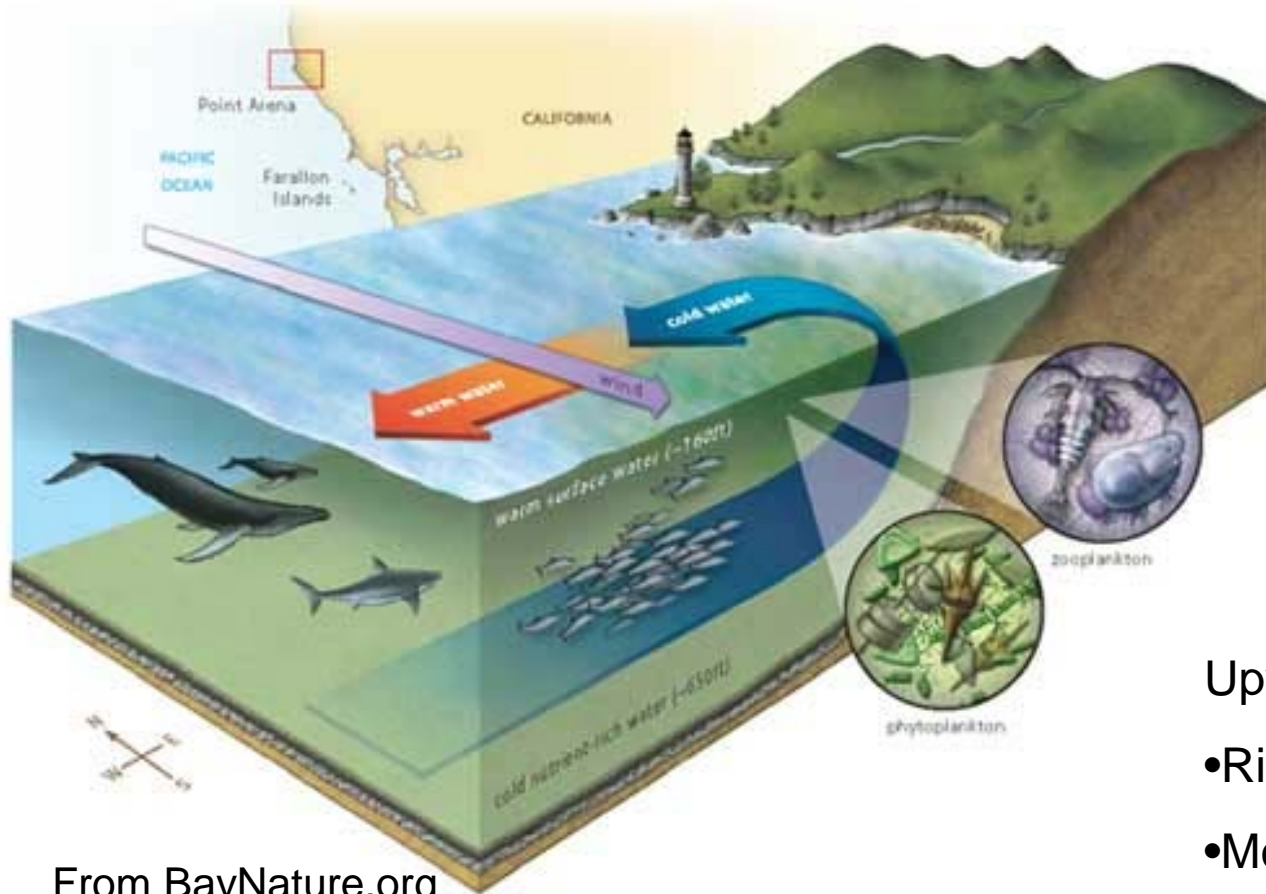
Incorporating Climate Change Into the Update Of the State Wildlife Action Plan

- Air temperature and humidity
- Freshwater runoff
- Water temperature
- Water chemistry (pCO₂, pH, aragonite concentrations, pO₂)
- Tides
- Currents
- Timing, duration, and strength of upwelling



CDFW

Incorporating Climate Change Into the Update Of the State Wildlife Action Plan



From BayNature.org

Upwelled waters are:

- Rich in nutrients
- More acidic ←
- Lower in oxygen

The source of the upwelled water takes a long time to get here.

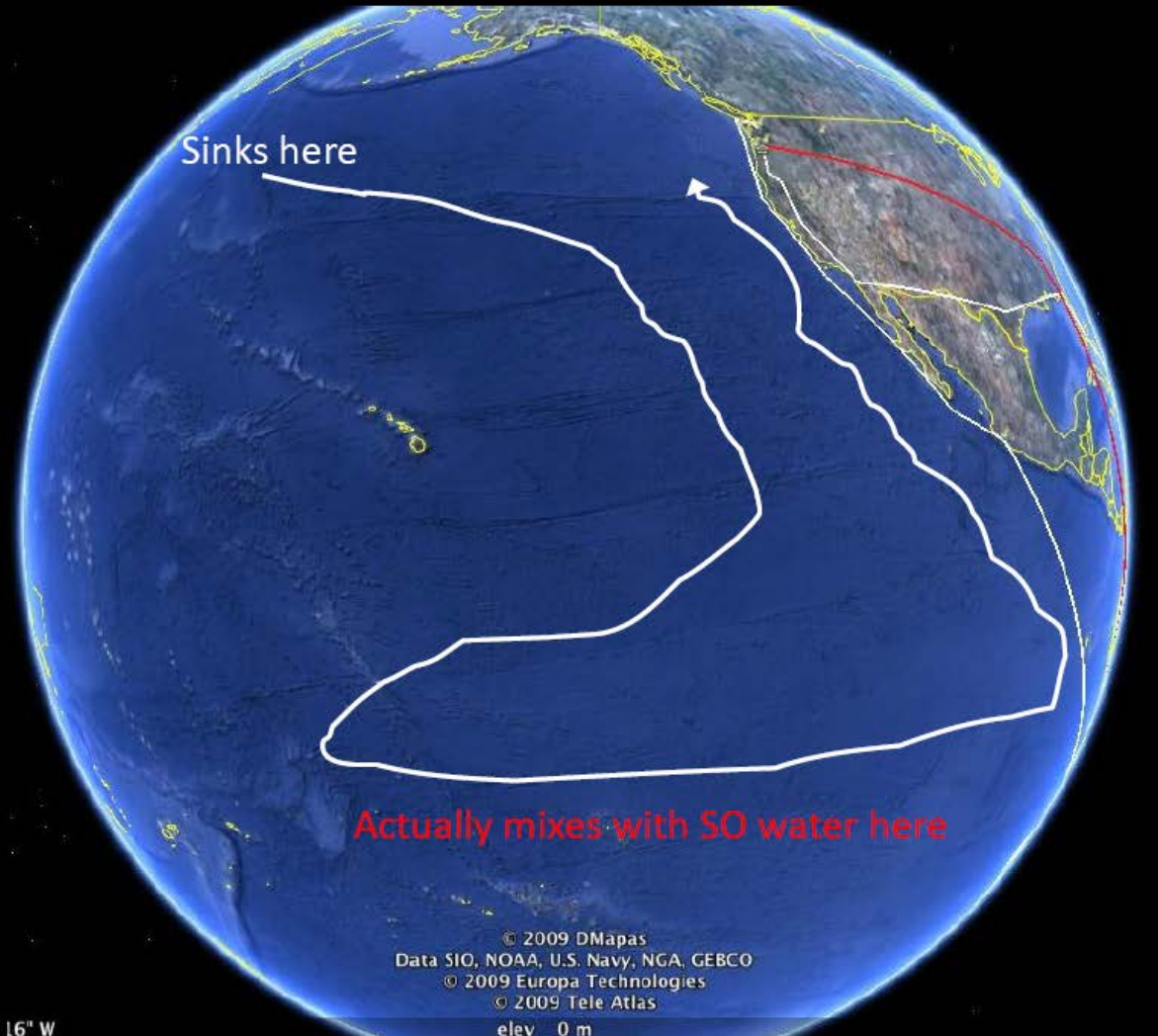
Water takes a circuitous path to upwelling centers.

Takes decades (3-5?) to get here.

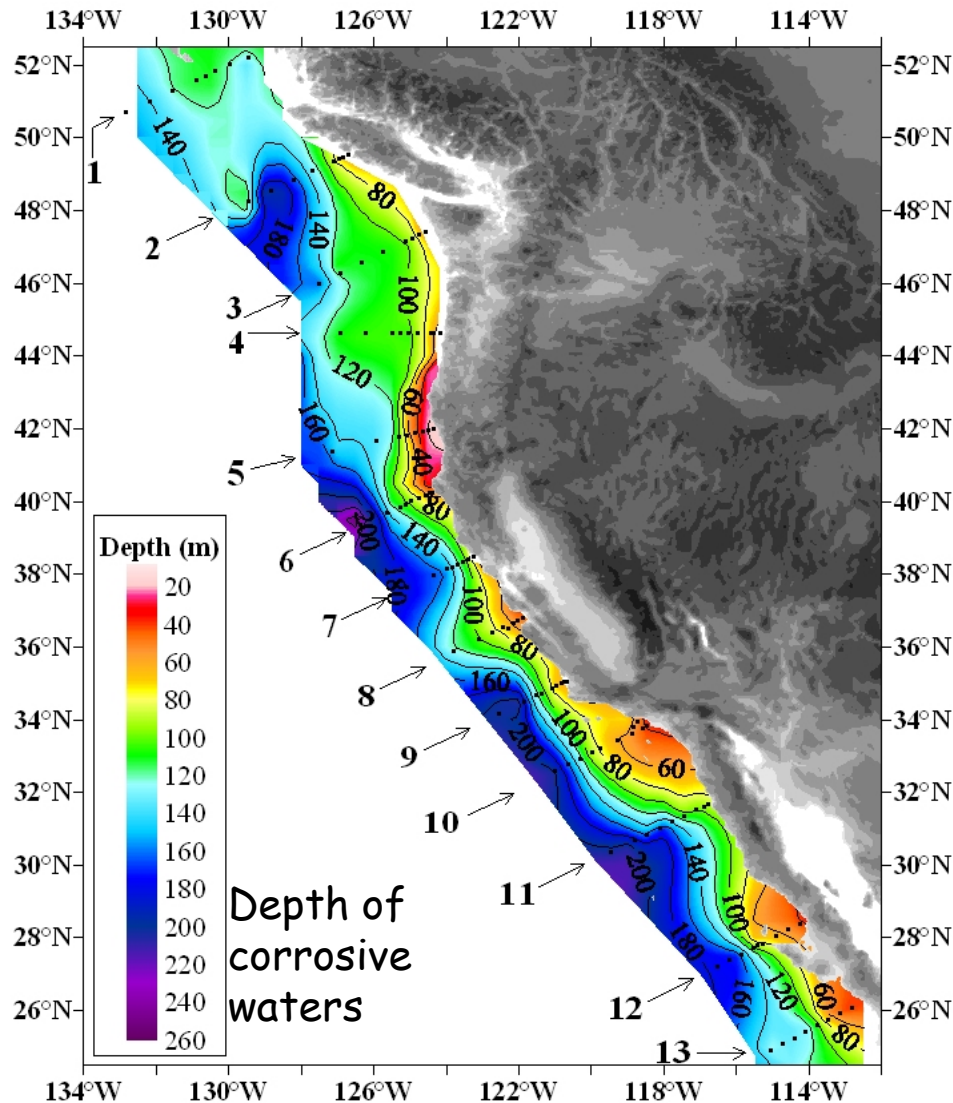
Water gets as deep as ~500m along its route.

During its entire transit, metabolic processes add CO_2 .

Provided by Burke Hales, OSU



Ocean Acidification of the North American Continental Shelf

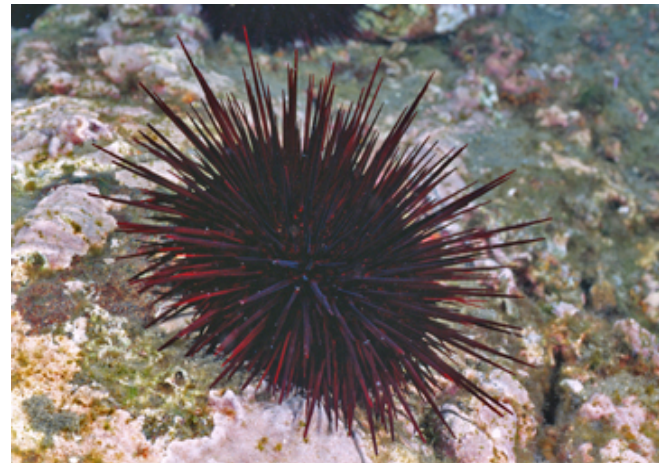


Distribution of the depths of the corrosive water (aragonite saturation < 1.0 ; $\text{pH} < 7.75$) on the continental shelf of west coast from Queen Charlotte Sound, Canada to San Gregorio Baja California Sur, Mexico.

On transect line 5 the corrosive water reaches all the way to the surface in the inshore waters near the coast.

Ocean acidification will likely affect important recreational and commercial shellfish species

- Clams, oysters
- Abalone, other “snails”
- Sea urchins



CDFW photos

Incorporating Climate Change Into the Update Of the State Wildlife Action Plan

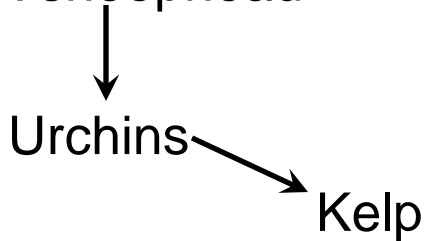
Ocean acidification is also expected to affect marine ecosystems

- Rocky substrate, kelp beds

- Biogenic habitat
 - Soft corals, coralline algae

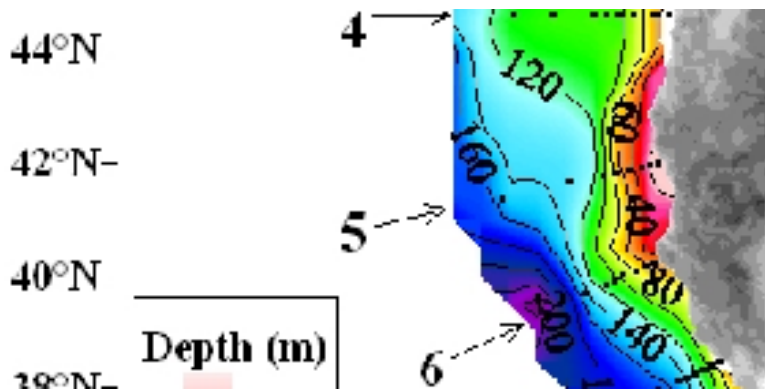
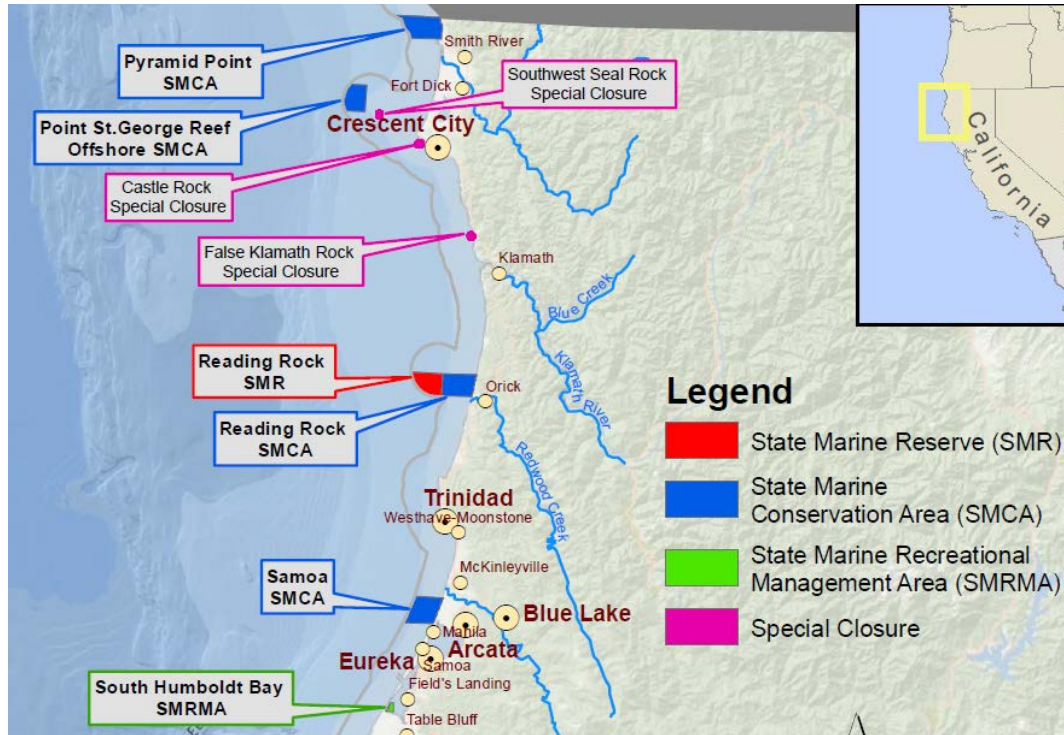
- Food webs

CA sheephead



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Incorporating Climate Change Into the Update Of the State Wildlife Action Plan



Location of Marine Protected Areas

It takes a collaborative approach!

- Marine Region ecoregion team
- Marine climate change team
- SWAP Technical Team
- Outside experts

Some current collaborations:

- California Ocean Science Trust, MPA Monitoring Enterprise

“Monitoring climate effects in temperate marine ecosystems:

A test case using California’s MPAs”

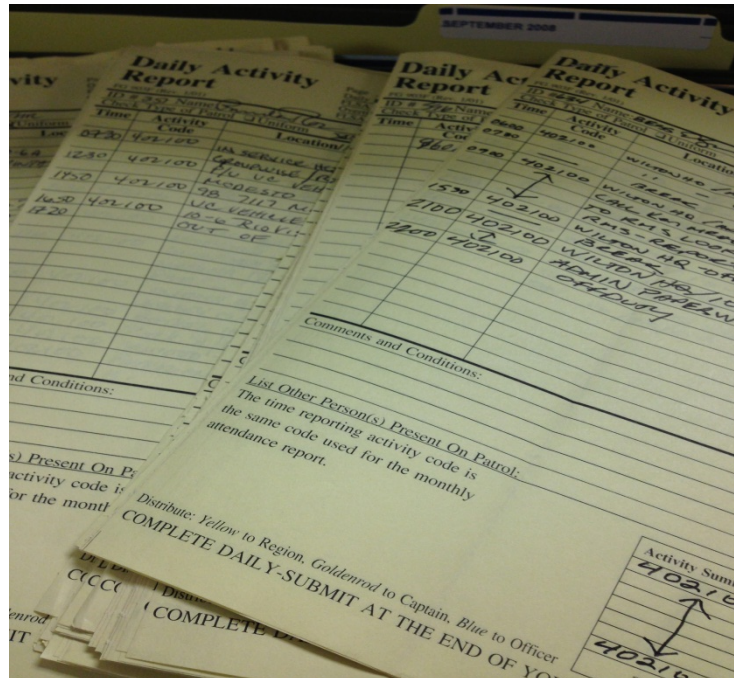
- California Current Acidification Network, <http://c-can.msi.ucsb.edu/>

Law Enforcement Division
Wildlife Officers
Going Green!

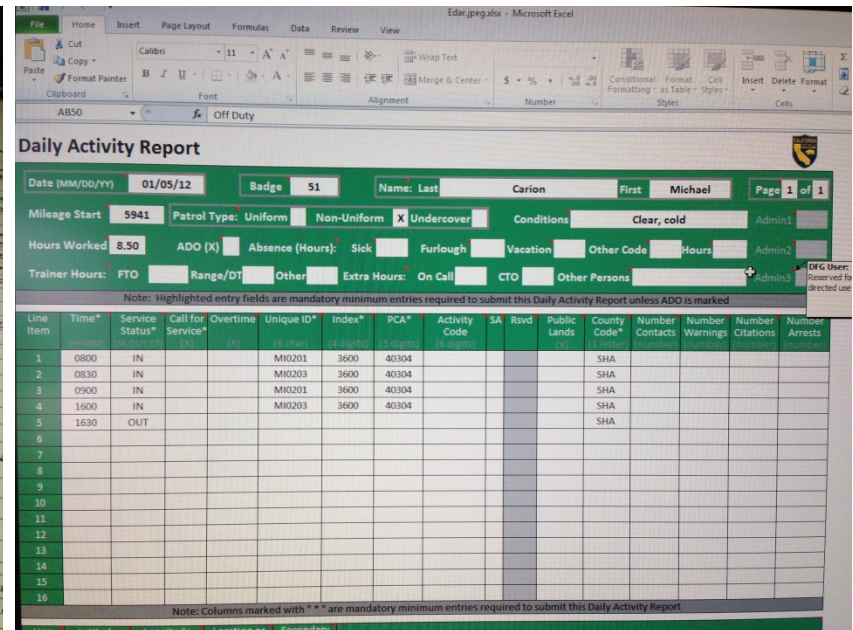


LED's Greener Approach

Before: Daily Activity Reports
3 Copies/Day



Now All E-based!



LED Going Greener...

Old Training Bulletins



E-Version in the works for a shared drive!

LAW ENFORCEMENT DIVISION

TRAINING BULLETIN

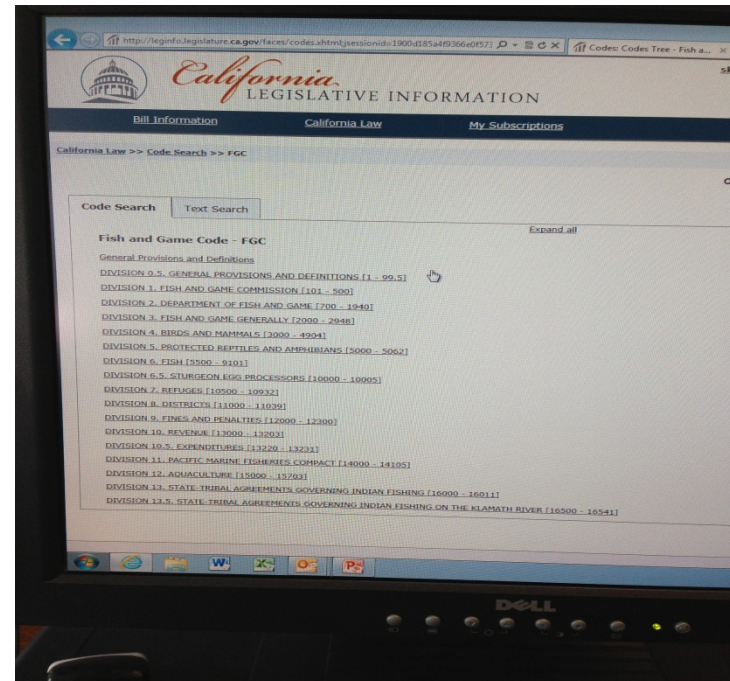
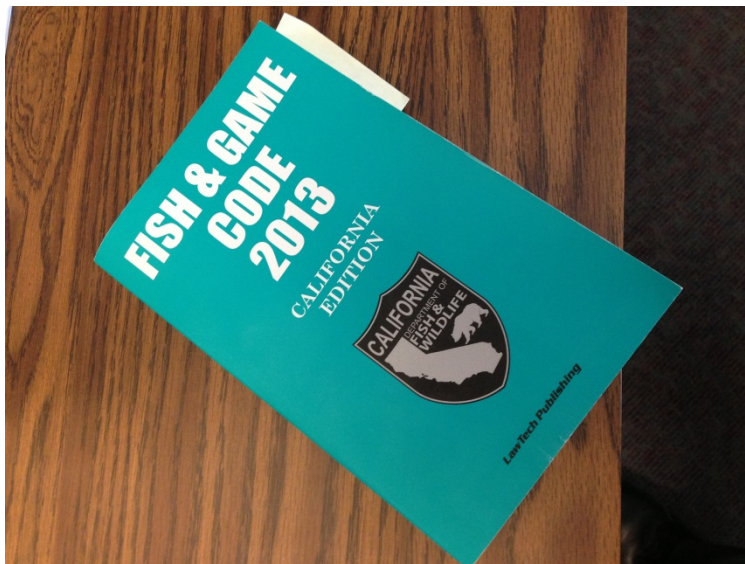
2013



Less Books... More Apps!

From Half the Hard
Copies

To Apps on Smart
Phones and Web Based

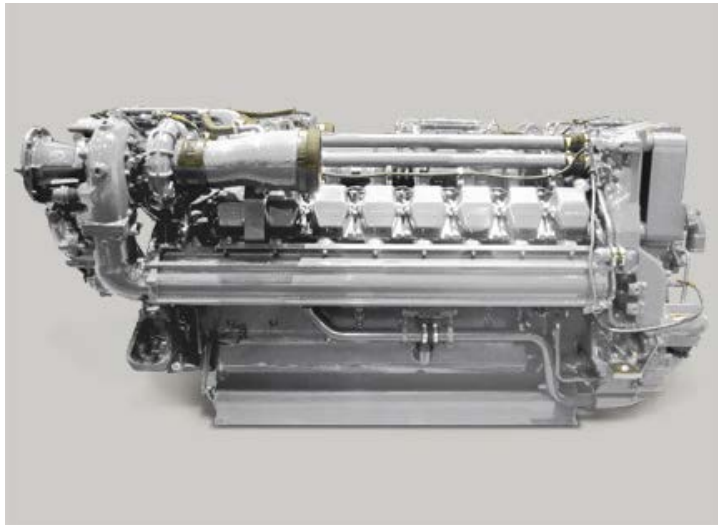


Other Green Options!

Flex Fuel Engines



Marine Motors with Less Pollutants!



- LED is replacing the PB Bluefin engine with a **ultra-low sulfur diesel engine** which **surpasses the EPA standard for emissions with longer maintenance intervals!** This engine is found on the **Greenest** ferries in the country!

Enforcement for a Greener CA

- Streambed Alteration Violations
- Pollution Violations

- And... what may be causing the largest environmental damage of them all!

Illegal Marijuana Gardens Water Pollution



Marijuana Garden Damage Extensive Litter



Indiscriminant Wildlife Damage

- Poached Ringtail, Deer and Bear



- Poached trout from the Golden Trout Wilderness



Marijuana Garden Clean-up and Eradication Efforts



LED will strive to become even Greener!

- Better Fuel Options wherever possible
 - More efficient marine outboards
- Use of alternate power sources wherever possible
 - Solar Chargers
 - Greener batteries(re-chargeable etc.)
 - Etc.

Thank you for allowing us to share!



CDFW Climate College

May 16, 2013



Gordon
Leppig

Eureka CDFW Office



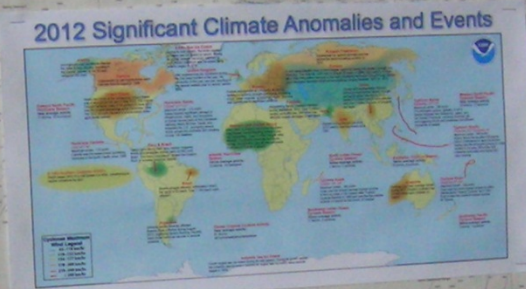
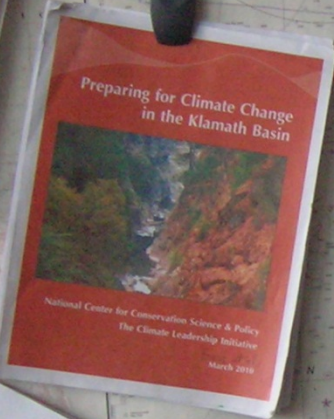
Focus on the
Klamath Basin



CLIMATE
CHANGE



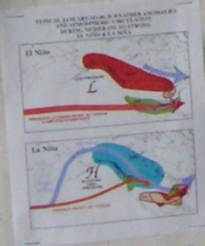
ENERGY and
GREEN HOUSE GAS
EMISSIONS



California Global Warming Solutions Act of 2006
Assembly Bill 32

AB 32 Fact Sheet
California Global Warming Solutions Act of 2006

4. Basin Report: Klamath
4.1 Basin Setting



Papers to take and read.
Ask Gordon for electronic copies.



REVIEW
Approaching a state shift in Earth's
bumpers

Warmer Air
Warmer Water



CLIMATE CHANGE



ENERGY and
GREEN HOUSE GAS
EMISSIONS

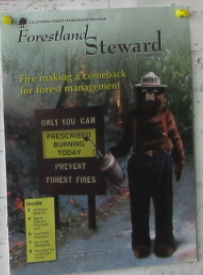
Evolution of Regions
and Global Temperatures
for the Past 12,000 Years

Evolution of Regions
and Global Temperatures
for the Past 12,000 Years

In Sign of Global Warming, 1,600 Years of Ice in Peru's Andes Melted in 25 Years

Table with multiple columns and rows of data, likely related to energy and greenhouse gas emissions.

Summary for Policymakers



Forests, Fuels,
and Fire
Papers to Borrow.
PDFs available on Drive, Climate Change Folder.



Table with multiple columns and rows of data, possibly related to energy or emissions.

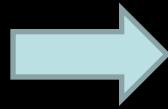
Fortuna Vanpool

Multiple papers and documents pinned at the bottom of the board, including reports and articles.



1.0 GPM

40w bulbs



28w bulbs

\$1,775/year energy savings

Reduces our CO2 >5,000 LBS/year





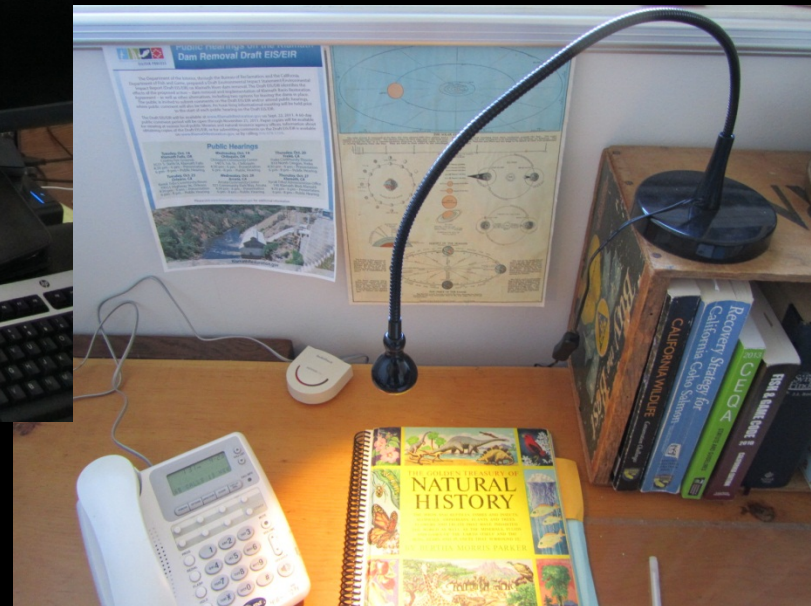
100 Watt Halogen



18 Watt CF



3 Watt LED



\$217/year energy savings
Reduces our CO2 ~670LBS/year



STATE TRANSIT INCENTIVES

75% reimbursement up to a maximum of \$65/month



	1	3	5	7	9	13	15	17	21	23	25	27	29	31	33	35	39	41	43	45	47	
United Park & Ride			8:55				10:50								3:18		5:01					
Westhaven PD			8:51				10:46								3:14		4:57					
Microstate Beach			8:49				10:44								3:12		4:55					
Clam Beach Inn			8:44				10:40								3:08		4:51					
Grange Road			8:43				10:38								3:06		4:49					
Airport Terminal	7:48	8:40	9:28				10:35	11:01		12:41		1:48			3:03	3:22	4:46		5:29			
Central & Murray	7:44	8:36	9:24				10:31	10:57		12:37		1:44			2:59	3:18	4:42		5:25			
MoK. High School	7:42	8:34	9:22				10:29	10:55		12:35		1:42			2:57	3:16	4:40		5:24			
Rainbow Ave. & Central			8:32	9:20			10:27	10:53		12:33		1:40			2:55	3:14	4:38		5:22			
McKinleyville Shops			8:29	9:17			10:24	10:51		12:30		1:37			2:52	3:11	4:35		5:19			
School Road			8:27	9:15			10:22	10:49		12:28		1:35			2:50	3:09	4:33		5:17			
Bella Vista Avenue			8:25	9:13			10:20	10:47		12:26		1:33			2:48	3:07	4:31		5:16			
Valley East			8:21				10:16			12:22					2:44		4:27					
Valley West			8:19				10:11			12:19	12:44		1:57	2:28	2:41		4:24	4:49				
Home: State Library	7:02	7:34	8:13	8:51	9:07	9:47	10:07	10:40	11:35	12:13	12:42	1:28	1:51	2:22	2:35	3:00	3:53	4:18	4:43	5:08	5:59	6:27
14th & S St - Arcata	7:00	7:32	8:11	8:48	9:04	9:45	10:05	10:38	11:33	12:11	12:40	1:26	1:49	2:20	2:33	3:00	3:53	4:18	4:43	5:08	5:59	6:27
State Street Center																						



0 p.m.	person that gives you unlimited travel anywhere between Scotia and Trinidad	
0 p.m.	31 DAY MONTH PASS	
0 p.m.	This pass is good for 31 days from the date of activation	
5 p.m.	Regular	\$55.00
0 p.m.	Reduced	\$50.00
0 p.m.	WEEK PASS	
0 p.m.	Good for one week from the date activated (RTS does not operate on Sunday).	
5 p.m.	Regular	\$15.00
	Reduced	\$13.00
	REGIONAL TRANSIT PASS	
	These passes are available for \$10 or \$20 which allows you to ride the six regional transit systems for the new discounted rate. If you are entitled to a reduced fare, inform the driver before you insert your card or you will be charged the full price. Passes available from the driver or HTA office.	
\$4.00	System	Regular
\$3.50	Redwood Transit	\$1.75
\$2.75	Eureka Transit	\$1.10
\$2.25	Arcata & Mad River	\$1.00
\$7.00	Willow Creek	\$2.75
\$75.00	Garberville Intercity	\$3.50
\$70.00		



Tony LaBanca







13 MPG



20 MPG

MPG ?



Wetland and Riparian Habitat Technical Memorandum



California Association of Professional Scientists



Scott Bauer

California Association of Professional Scientists (CAPS)
Environmental Sustainability Policy
Approved by the Board May 22, 2010

CAPS Targets Climate Change





CALIFORNIA
NATIVE PLANT SOCIETY



**CNPS 2015
Conservation Conference
San Jose, CA**

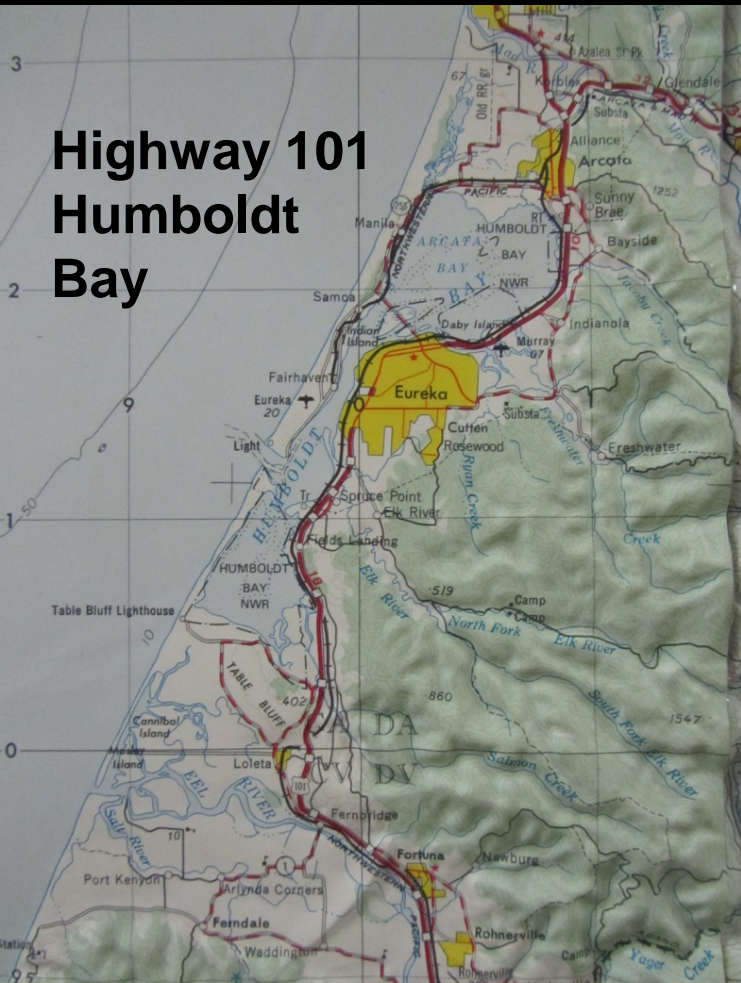


Humboldt Bay Sea Level Rise Adaptation Planning



Caltrans Climate Change Adaptation Pilot Strategy

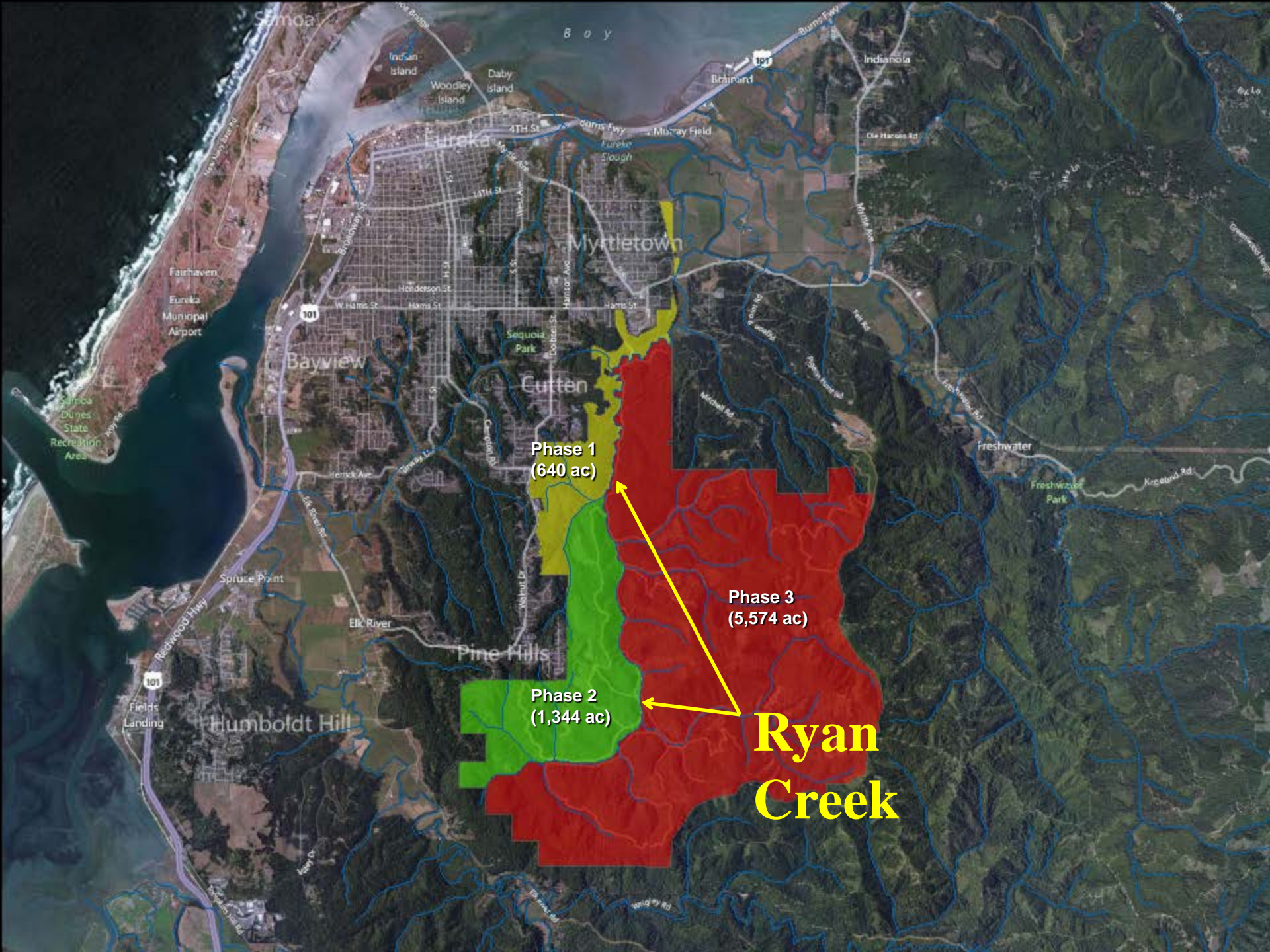
Highway 101
Humboldt
Bay



Last Chance Grade, Del Norte Co.

Garcia River Estuary, Mendocino Co.





Phase 1
(640 ac)

Phase 3
(5,574 ac)

Phase 2
(1,344 ac)

**Ryan
Creek**



Mike Wallace



Recovery Strategy for California Coho Salmon

Report to the California Fish and Game Commission
February 2004



Linda Miller



Sidalcea malviflora ssp. patula



USFS Land and Resources Management Plans (Forest Plans)



Warmer temperatures and drought

- Fire management
- Fuels management
- Forest management

Bill Condon



Mark Stopher



CDFW's Mission is the Confluence of Science and Public Policy



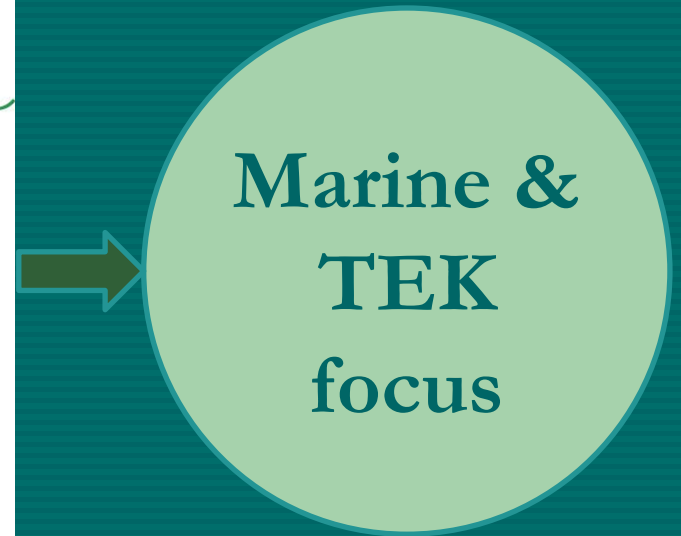
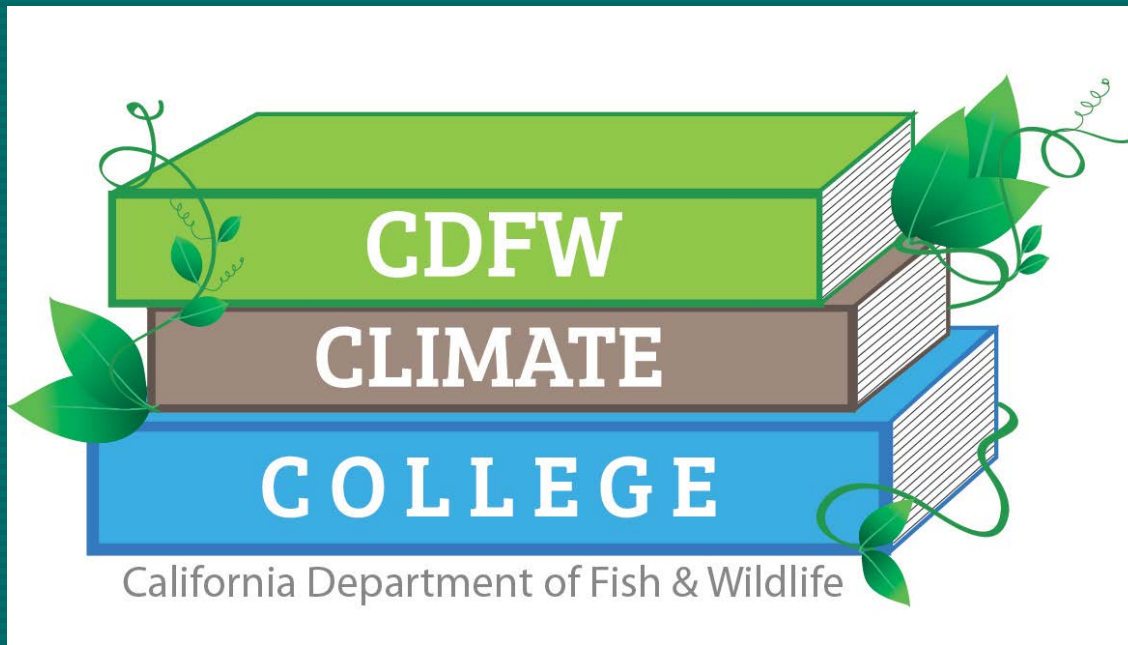
Mary Worth

Saunders and Joe Giella



Saunders and Giella 2013

MORE Climate College!



Save the Date!

- CDFW Climate College Awards Ceremony:

Tuesday June 25th, 1:00-3:00PM

Natural Resource Building Auditorium-Sacramento

- Celebrate projects completed by your colleagues!
- Watch 7 of 9 lectures & submit a project
 - Receive certification from DFW/OTD and a certificate of completion from the Director



Reminder: Projects due May 31st!

- What to submit:
 - The final project coversheet
 - 1-3 page summary describing your project OR a poster summarizing your project (3X4 ft)
 - Any additional documentation as appropriate (e.g. your presentation slides, excerpt from a document where you incorporated climate change, etc.)

Project guidelines and coversheet online:

www.dfg.ca.gov/Climate_and_Energy/Climate_Change/Climate_College/Project_Guidelines.aspx

A vibrant field of orange poppies stretches across the foreground and middle ground. In the background, dark, rugged mountains rise against a deep blue sky with wispy clouds. The overall scene is bright and celebratory.

Thank you &
Congratulations!!