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
• 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%
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 Mt., 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
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
Incorporating Climate Change Into the Update Of the State Wildlife Action Plan

Shore habitats

Nearshore zone

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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
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 CO₂.

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; 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.

Feely et al (2008)
Ocean acidification will likely affect important recreational and commercial shellfish species

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

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Ocean acidification is also expected to affect marine ecosystems

- Rocky substrate, kelp beds
  - Biogenic habitat
    - Soft corals, coralline algae
  - Food webs
- CA sheephead
  - Urchins
  - Kelp
Incorporating Climate Change Into the Update Of the State Wildlife Action Plan

Location of Marine Protected Areas

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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/](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
40w bulbs $1,775/year energy savings
Reduces our CO2 >5,000 LBS/year

28w bulbs
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
13 MPG

20 MPG
MPG ?
Wetland and Riparian Habitat Technical Memorandum
California Association of Professional Scientists

CAPS Targets Climate Change

Approved by the Board May 22, 2010

Scott Bauer
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 2
(1,344 ac)

Phase 3
(5,574 ac)

Ryan Creek
Sidalcea malviflora ssp. patula
USFS Land and Resources Management Plans (Forest Plans)

Warmer temperatures and drought

- Fire management
- Fuels management
- Forest management
CDFW’s Mission is the Confluence of Science and Public Policy
WE'RE GIVEN ONLY A SHORT WINDOW OF OPPORTUNITY TO MAKE CERTAIN THINGS HAPPEN! TAKE A CHANCE!
MORE Climate College!

Marine & TEK focus

California Department of Fish & Wildlife
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](http://www.dfg.ca.gov/Climate_and_Energy/Climate_Change/Climate_College/Project_Guidelines.aspx)
Thank you & Congratulations!!