

# Participatory Marine Protected Area Design Using a Web-Based Open Source Tool

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# Outline

- California Marine Life Protection Act (MLPA) Initiative
  - What is it?
  - The people Stakeholders, Science Advisory Team, Blue Ribbon Task Force

## • Decision Support System

- o Database
- o MarineMap

## California Marine Life Protection Act Initiative

- Marine Life Protection Act (1999)
  - Mandates establishment of a managed network of MPAs to:
    - × Protect marine life, habitat, ecosystems and natural heritage.
    - Improve recreational, educational and study opportunities provided by marine ecosystems.
  - Must use best, readily available science to guide decisions.
- MLPA Initiative a Public-Private Partnership
  - Initiative Staff
  - Stakeholders
  - o Science Advisory Team
  - Blue Ribbon Task Force

# **MLPA Initiative Study Regions**

## • To be completed by 2011

 Completed Phase I and II (29 new MPAs established for Central California in August, 2007)

# Now: Southern California Includes Channel Islands











## MarineMap.org

- Consortium of scientists and technologists
  - o TNC
  - Ecotrust
  - o UCSB
- Contracted by MLPA Initiative to develop and host decision support system



# **Geospatial Information Used in Process**

- Habitat
  - Distribution of kelp, seagrass, substrate types, bathymetry.
- Biological
  - Distribution of fish, birds, mammals, invertebrates, corals.
- Physical
  - Sea surface temperatures, upwelling, salinity, currents, impaired water bodies

## • Cultural

• Distribution of ports, coastal access points, cities

### Socioeconomic Data

• Consumptive and non-consumptive activities (e.g., commercial and recreational fishing, recreational boating, diving, educational

## • Base (reference) Layers

o Existing MPAs, Study Area, Graticules, Nautical Charts



# **Participatory Process**

#### **Stakeholders Design MPAs**

#### At stakeholder meetings

- Real time collaboration
- •High pressure environment

#### At home

Low pressure environment







# Software Stack

- Database: PostgreSQL/PostGIS
- Web map services / handler: GeoServer / OpenLayers
- Web framework: GeoDjango
- **Operating System**: Ubuntu Linux
- In the next six months we will replace OpenLayers with Google Earth API

# Summary

Large geospatial database

## • Web-based application for:

- Viewing data
- Drawing MPAs
- o Analyzing MPAs
- Sharing MPAs
- Place-based discussions

• MarineMap system may be applied to any geography!

• Our team is extending MarineMap to other planning efforts.

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 MarineMap Development Team:

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