Southern California Marine Monitoring Conference IV
Aquarium of the Pacific, Long Beach, CA
April 25, 2006

Break-Out Sessions Notes

GREEN GROUP

Qualities/Characteristics

- Depends on data type
  - Some needs to be processed
  - Some can go straight up
- Wide range of data—integrate
  - Physical/oceanographic
  - Biological
- Multiple mechanisms for data input
  - Automated vs. human visual surveys
- Easy to navigate, access
- Well described data—METADATA!
- Historical data sets
- Localized regionally-tailored products
- Raw vs. summarized vs. models

How to use/retrieve data

- Health advisory alerts
- Water contact and consumption
- Swimming/water sports
- Models showing extent/duration of swimming/water sports
- Go to SCCOOS site!
- Display of data/useful info
  - Health concerns
  - Ocean conditions
- Geographic display and index data available
- Multi-lingual
- Management decisions for government agencies
- Link to ecological society and other groups
- "top stories" major alerts

Barriers

- Language barriers
- Protection of data
- Delays in real-time data
- Multiple locations of similar data
- QA/QC data quality issues
- Data from other sites
  - Store data that may disappear

- How to get people to go to SCCOOS site
- Cross-community coordination
- PR
- Multiple/undeveloped standards
- Liability
- Accountability

Customers/Types of Data

- Beach User/Public/Resource Users
    - Health of water/closures
    - Local conditions—surf, weather
    - Forecasts, trends, models
- Consumers of seafood
    - Advisories
- Fishermen
- Scientists
- Maritime community
- Coastguard—search and rescue
- Educators
    - Links to sites with educational info
- State oil spill response
- Managers, advocacy groups
- Aquarium
- Boaters
- Media
- Homeland security

Public Health

Swimming advisories

Seafood

- Dispersal and propagation models
- Pollution levels
- DO levels
- HABs, DO levels
- Rainfall
- Atmospheric conditions
- Spill info

YELLOW GROUP

#1

1. Able to receive measured data
2. Site confidentiality
3. Referral to P.I.
4. Layered information
5. One stop source for information
6. Put information into context
    a. Temporal
    b. Within “limits
7. “Search Engine” style of information retrieval
8. Layered |BY|

#2

1. Via internet
    a. Pdf-for documents
    b. Downloaded

#3

1. Funding
2. Releasing raw data
    a. Ties in with misinterpretations
3. Processing data for transfer
4. Publishing results/data protection
5. Standards for measurement
6. Resource protection—site specific information
    a. Possibly password protection?

#4

1. General public
    a. Recreation
    b. Users of resource
2. Decision makers/ Resource managers/ “officials”
3. Educators
4. Environmental organizations
5. Academic/Researchers

#5

Decision Makers

- Transport models-surf zone
    - Predict
    - Back track to source
- Biology
    - Distribution and abundance of species
    - Measurement of temporal trends
- Sampling to document affects of “events” trajectory mapping
- Public safety uses

Educator

- Print
- Web
- Multilingual
- Suitable for teachers and students

General Public

- At the present (now) beach condition
- Historical beach condition (% of time)
- Real-time physical parameters (temperature, visibility, sub-surface temperature)
- Map tide pool locations
- Boating
    - Swell
    - Wind
    - Water temperature
    - Upwelling index
    - Red tide
    - Satellite
    - Surface currents
    - Spill information
    - Hazardous marine life
    - Marine mammals—whales

BLUE GROUP

1. Qualities to develop
- Standardized quality control
- Standardized output (what to give out)
- Recognize many forms of data
- agree on protocol for interoperability, so need strategies for exchange of many different forms of data (methods, and formats)
- Determining a delivery scheme – cafeteria vs gate keeper, delivering metadata or data itself
-Two tiers of data
- Common vs (sst/salinities vs phytoplankton productivity)
- Facilitating the distribution of an organization data
- Assign value (flag) to data
- Assimilating like data to ___ develop analytical modes
- Data is public domain (fed, at least, is required to be)
- Knowing the source of data is as important as data itself
- Recognize need for certificate, legal, and additional data that may addo to knowledge and future discussion … and that the preference between the two can be identified addition
- repository of data that would otherwise not be distributed (IT security, etc, not digitized?)

2. Most useful data:
- Plume tracking/trajectory prediction ("fate and transport")
- historical oceanographic data (e.g. sst daily means)
- historical biological (e.g. population dynamics, fisheries counts)
- metadata/contact - (conflicts with repository function described above)
- simple models to display (visualize) data
- meteorology/stream discharge
- exchange of land-based data,
- pollution (domoic acid, toxins)
- Epidemiological trends (ad alternative indicators of human health)

2b. Applications
- Search and rescue
- Land use decisions
- Resource management
- Beach closure
- Coastal navigation
- Water resources (desalination)
- Tracking management decisions
- Anthropogenic inputs
- Spill response
- Sand deposition models
- Increase ocean literacy
- keep from reinventing the wheel
- harmful algal blooms

- improve existing models

3. How to retrieve the data:
- ascii
- graphical (basic interactive)
- automated data grabs (wgets)
- cd, hardcopy
- simple English query system
- bookmarks through google maps-type function
- list of common searches
- data range and binning capability (possibly cached)

4. Identify customers
Public (citizens)
Depts. of environmental health
Resource agencies (DEQ, NPS)
Coast guard
Research scientists
Regulators (RWQBs state water resource)
Dischargers (the regulated)
Ports
Teachers
Environmental interests
Stakeholder groups (surfers, anglers, beach combers)
Commercial (fishing, oil-gas, agriculture, transporation)
Municipalities, chambers of commerce
Legislators/politicians
Ngos

5. Barriers to implementation
- Marketing or lack of
- Proprietary data
- Funding
- diversity of endusers
- diversity of input sources
- lack of structured metadata
- Computational limits
- lack of shared software
- lack of ontologies
- scientific literacy

5b Potential users
International
Meterological

Top 2:
1. Resource agencies/regulators

2. Commercial

Resource agencies/regulators:

data type	trends/historical	realtime
oceanographic, water quality	statistics and timing of impacts at a site	surface currents, plume tracking
biological	y	y
meteorology	simple models or display	flood control
epidemiological		
water quality		concentration
buoy data		

Commercial

data type	trends/historical	realtime
oceanographic, sfc currents	trajectory tracking	surface currents (fish loc, bilge discharge)
biological	y	y
meteorology		y , (ag – timing of irrigation, weather conditions)
epidemiological	y	y
water quality	y	y
buoy data	y	y
who to contact	y	n

RED GROUP

1. What qualities/characteristics should SCCOOS develop to provide the framework for ingesting data/info collected by marine monitoring groups in So. Cal?

1. Accepting
    a. Submission in electronic format (access, SQL, ascii, linked/federation)
    b. Metadata must accompany submission
    c. If (1) is not available, electronic submission form on SCCOOS site—include documentation of VOC.
    d. User friendly submissions
    e. QA/QC—include in metadata specifics such as origin, quality control flags—editing and analysis techniques (controlled vocabulary, peer review)
2. Organizing:
   Database storage should allow queries by field:
    - By parameter
    - Spatial
    - Temporal
    - Author
    - Types/common names, etc.
3. Synthesizing:
    a. Flexible output dependant on user base need
    b. Query across databases
4. Dissemination
    a. All data are public and disseminated
    b. User friendly—easy to navigate
    c. Timeliness of delivery

1b. What are some products that will be most useful?

- Products should be at the appropriate level for the user

2. How can stakeholders retrieve and use data?

Web access
Graphical, query-able tabular, visual, network scalable, national and international signage (icons)
(don't include actual warnings—leave this to NWS)

Keep metadata download optional—don't want to overwhelm user

2b. What are the most important applications?

- Public safety
- Public health and well-being
- Environmental health and trends
- Economic

3. What are the barriers?

Input to SCCOOS

- Proprietary datasets—includes grad students, unpublished data, publishing good surfing, fishing areas, copyright
- Data not converted to electronic format
- Metadata incomplete or non-existent
- Association concerns about GA ranking
- Unawareness of SCCOOS
- Ease of use
- Funding
- Funding instrument infrastructure
- Data synchronization

Output

- Large variety, inconsistency and comparability of data sets
- Computing and network resources
- Longevity commitment
- Data stewardship

4. Existing and potential customers

Customer	**Data/Info valuable**
General public • Surfers • Beach recreational beach goers • outreach	High quality data Water quality, wave info, alongshore currents, rip currents, biological, economic
Policy/decision makers • utilities public • life guards • coastal managers • NWS	
Scientists	
Commercial • Fishermen • Oil industry • Pharmacy industry • divers	Economic

5.

User	**Products**
General public Recreational users Non-scientific community	Weather, swell, water quality, biological, harmful algae blooms, coastal erosion, real-time, forecasts
Document with FAQ's	

Customer	**Data sets/products**
Policy and decision makers	Specific, more details, customize products (interactively, updated)

BLACK GROUP

1. Qualities and characteristics should SCCOOS develop to provide the framework?

1a. Qualities/Requirements:

- Ability to have permissive data or make data permissible (capacity, authority, relationships?)
- Ability to tailor and disseminate data for different audiences
- Ability to receive data from different technical levels
- Element of timeliness; some data is just not of real-time nature. Sort data into real-time and other than real-time data (recent, not necessarily historic or archived)
- Flexibility in the way data is organized (geographic, type, time element, etc…)
- Ability to go from large perspective to more specific, and as simplistic as possible

1b. Data and informational products

- Water quality and pollution impacts at Channel Islands. Hasn't been a lot of work done on impacts to offshore islands, and how does it fold into the biological ramifications? (i.e. fisheries)
- Direct human health information (Red Tide, HAB, coliform bacteria, plume models)
- Long-term historical databases, both physical and biological
- Baseline information and account for baseline changes when they happen

2. How can stakeholders retrieve and use these data and information?

- Recognizing and accounting for different levels of computer literacy. (Related question: SCCOOS role?)
- Aggregated data on CD annually to make available
- Standardized formatting
- Readily available data inventory or archived not currently housed at SCCOOS (metadata, user driven, DB)

2b. Applications

- Ability to separate anthropogenic vs. natural causes for changes in fished species
- Ranking or rating QA/QC
- Ability to predict changes based on historical trends
- Identifying environmental impacts and other requirements of a CEQA process
- Use for oil spill impacts
- Ability for public agencies to make public health and safety decisions in a timely manner. Ability to advise and notice the public; make aware

3. Potential Barriers

- Proprietary data
- Agreeing on a common set of formats
- Computer literacy
- Level of participation by those contributing data (metadata availability, QA/QC)
- Timeliness of data
- $--funding

- Lack of manpower in relation to complexity of the system
- Hardware infrastructure (compatibility, current technology)
- Software infrastructure
    - Flexibility
    - Ability to scale
- Public relations re. site installations (particularly significant to our partners; SCCOOS assist them)
- Lack of awareness by stakeholders of SCCOOS

4. Existing and potential customers….data and information most useful

- As part of MLPA, for example:
  Consumptive:
    - Commercial fishermen
    - Recreational anglers
      (kinds of info: oceanographic info: sea surface temps; swell models; current; fresh water plumes from estuaries; El Nino events; upwelling events)
    - Scientific collectors
    - Aquaculturists
    - Ports and harbor districts
- Non-consumptive:
    - Conservation organizations and other NGOs
    - Research and education
    - State, local, federal government
- Other kinds of Info:
    - Biological monitoring data
        - Ecosystem
        - Fisheries trends
        - Species trends
- General public
- Private environmental consultants
- Recreational groups
    - Divers
    - Sailors
- Wildlife watching groups
- Private businesses
    - Whale watching services/bus
    - Business owners in coastal communities
    - Tourism businesses
- Agriculture industry

Kind of Info:

1. Water quality info
    - Event driven is most typical
    - Trend information
        - Document potential impacts to coastal resources

5. Two customers and data of use

1. Commercial fishermen and recreational
    - All the oceanographic data listed
        - Historical and bigger picture
    - Biological info listed

2. State, local, and fed regulatory agencies:
    - Raw data, possibly
    - Data from region's other than their own
    - Access to geographic data
    - Oceanographic and biological (ex. F&G)
    - Ecosystem management (ex. F&G)
    - Local: water quality (cities, lifeguards—they want results, not analyze themselves)

Questions/issues not covered?

- What can you practically monitor or not monitor in the ocean?
- What practically can citizen monitoring groups support?
    - Limitations of volunteer use—ways to overcome limitations?
- How much at the current time does SCCOOS have in biological data?