

*Science, Service, Stewardship*



# Standardizing Protected Species Data Collection for Ocean Renewable Energy Projects

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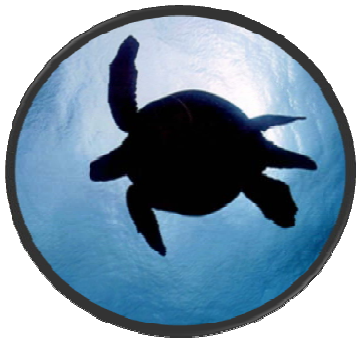
## Overview of Presentation

- Overview of potential impacts
- Drivers for data collection
- Types of Data Collection
- Data Program Elements and Standards
- Summary



## Protected Species: ESA and MMPA

- ◆ **marine mammals**
- ◆ **sea turtles**
- ◆ **smalltooth sawfish**
- ◆ **sturgeon**
- ◆ **salmon**
- ◆ **elkhorn and staghorn corals**
- ◆ **Johnson's seagrass**
- ◆ **critical habitats**





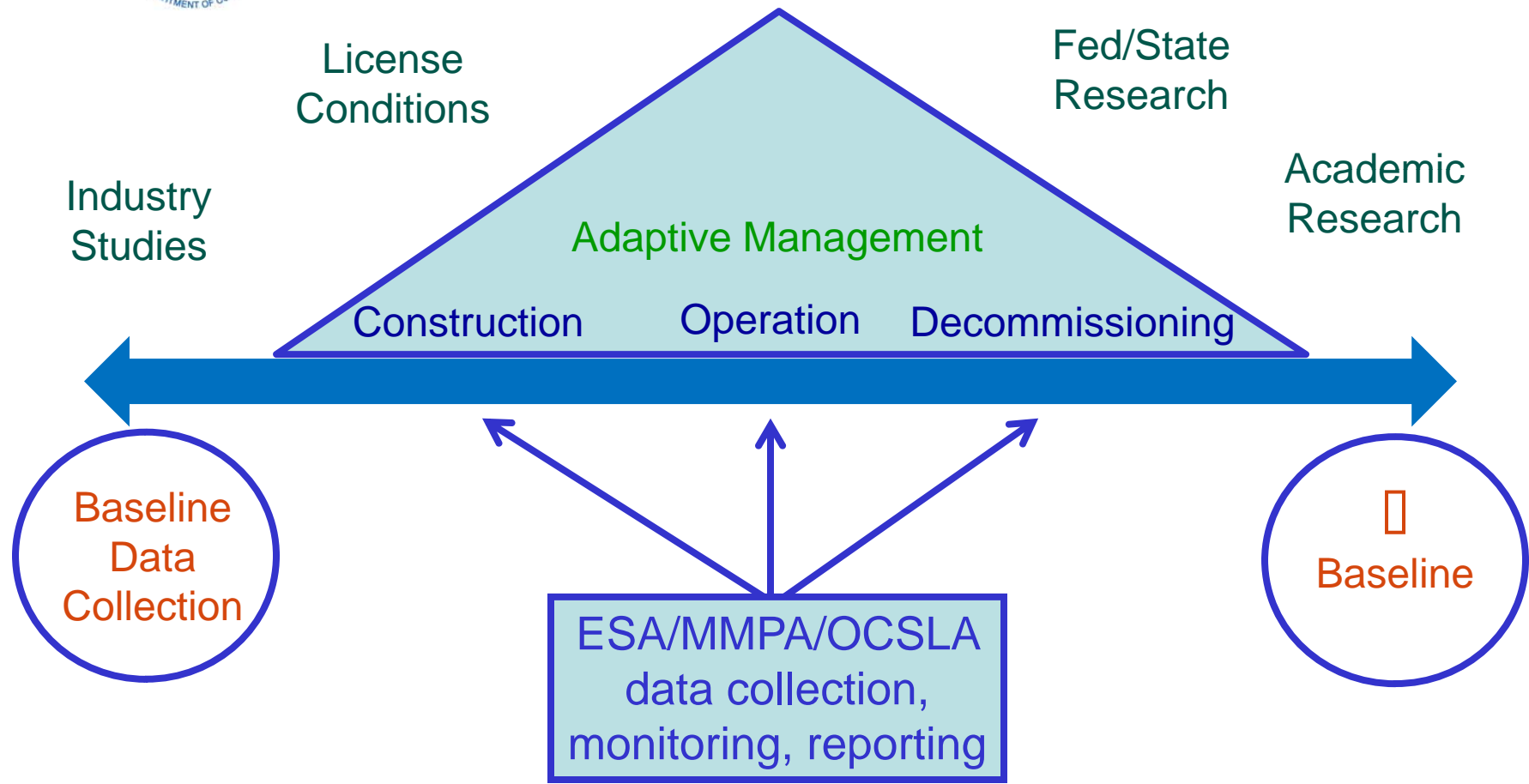
## Impacts from Ocean Renewable Energy

- ◆ Pilot Projects
- ◆ Surveying
- ◆ Construction
- ◆ Operation
- ◆ Decommissioning





# Ocean Renewable Energy Cradle to Grave Data Collection





## Potential Stressors on Protected Species

Lethal and non-lethal impacts may include:

- ◆ contact with turbines
- ◆ impingement and entanglement
- ◆ noise from surveying, construction, and operation
- ◆ electromagnetic fields
- ◆ explosive removal of structures

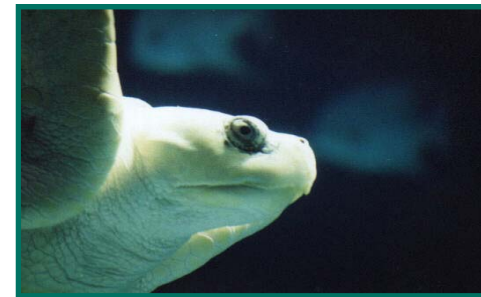
□ Scientific uncertainty associated with new technologies and new ocean regions associated with both direct, indirect, and cumulative impacts.



## Drivers

**Endangered Species Act (ESA):** The ESA prohibits the “take” of endangered or threatened species. Section 7 of the ESA requires Federal agencies to consult with NOAA to insure that any action authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any endangered species or threatened species or adversely modify or destroy designated critical habitat.

- ◆ Federal projects and permits (e.g., BOEM, ACOE, FERC, and NMFS).
- ◆ **ESA often requires monitoring and reporting conditions**





## Drivers

**Marine Mammal Protection Act (MMPA):** It is generally illegal to “take” a marine mammal without prior authorization from NOAA.

In the event that any aspect of a proposed energy activity will result in a “take” of a marine mammal, the project applicant, or the lead permitting agency would be required to obtain an incidental take authorization in advance from NOAA.

◆ MMPA permits usually pertain to effects from underwater noise and require monitoring and reporting conditions.







## Potential Impacts Resulting from Noise and Other Stressors

- ◆ Injury or mortality
- ◆ Behavioral and Spatial
  - Avoidance, migration corridors, feeding, calving areas
- ◆ Habitat Impacts
  - Construction impacts to benthic features and water quality
  - Changes to current and tidal flow
  - Physical changes
- ◆ Critical Habitats





## Roles of Observers

- ◆ Implement mitigation measures
- ◆ Monitor for protected species:
  - Presence
  - Injury
  - Behavior
- ◆ Collect data on environment and actions
- ◆ Submit reports

E.g., commercial fisheries, hopper dredging, rig removals, pile driving, seismic surveys



## PSO Data Program

NOAA Fisheries Service and the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEM) recently conducted a national review observer programs by recommended a PSO Program be established for seismic surveys. National standards in recommended for the PSO Program include:

- ◆ Establish a PSO Program
- ◆ Data Collection Standards
- ◆ PSO Qualifications
- ◆ Training Program
- ◆ National Database





## National PSO Standards: Main Components





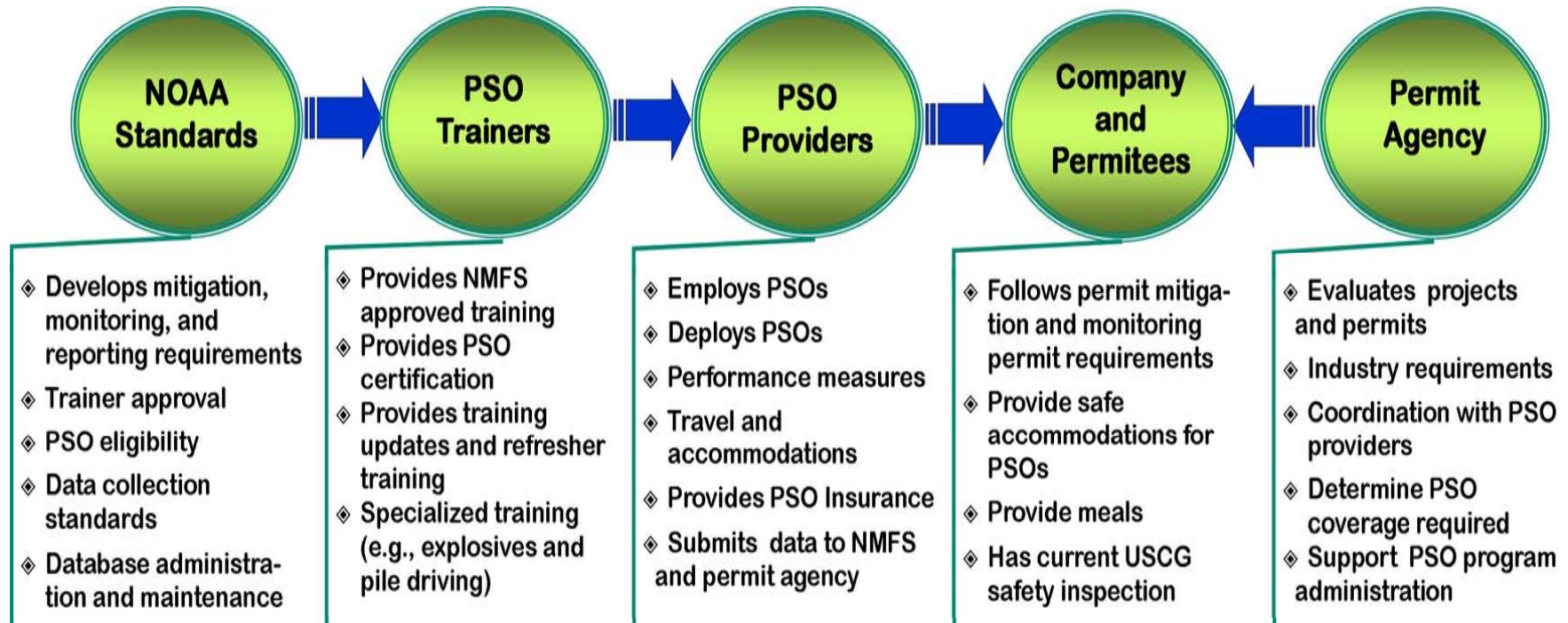
## Five Main Components



- A. Program Management (Roles of Players)**
- B. Data Collection Standards**
- C. PSO Qualifications**
- D. PSO Training Program**
- E. National Database(s)**

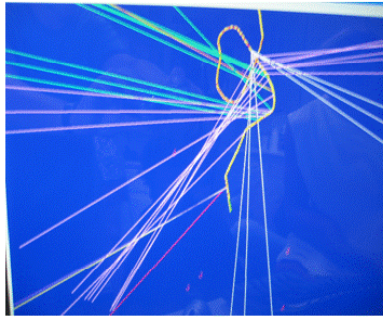


## A. PSO Data Program Management: Roles of Players





## B. Data Collection Standards



- ◆ Standardized forms
  - ◆ Common metrics and reporting units
  - ◆ Electronic data collection and submission
  - ◆ NOAA PAM standards
  - ◆ Acoustic data archiving
- 
- ◆ Behavioral reactions
  - ◆ Photo documentation
  - ◆ Quality control and assurance
  - ◆ Database management
  - ◆ Data analysis





## PSO Qualifications

- ◆ A bachelor's degree from an accredited university
- ◆ Major study in one of the natural sciences and a minimum of 30 semester hours in the biological sciences.
- ◆ At least one undergraduate course in math or statistics.
- ◆ Experience with data entry on computers.
- ◆ Successful completion of a NMFS-approved training course with a passing grade of 80% or greater.
- ◆ Meet minimum physical/medical conditions to perform duties.
- ◆ Be able to clearly and concisely communicate verbally and in writing in English.
- ◆ Have the ability to work legally in the U.S.
- ◆ Have no conflict of interest with activity.





## NOAA Training Program



- ◆ Biology, behavior, and species identification
- ◆ Vessel, aerial, and acoustic survey methods
- ◆ Basics of underwater acoustics
- ◆ Software proficiency
- ◆ Life at sea and offshore operations
- ◆ Ethics/Conflicts of interest/Roles as PSOs
- ◆ Data collection and protocols
- ◆ Safety and health

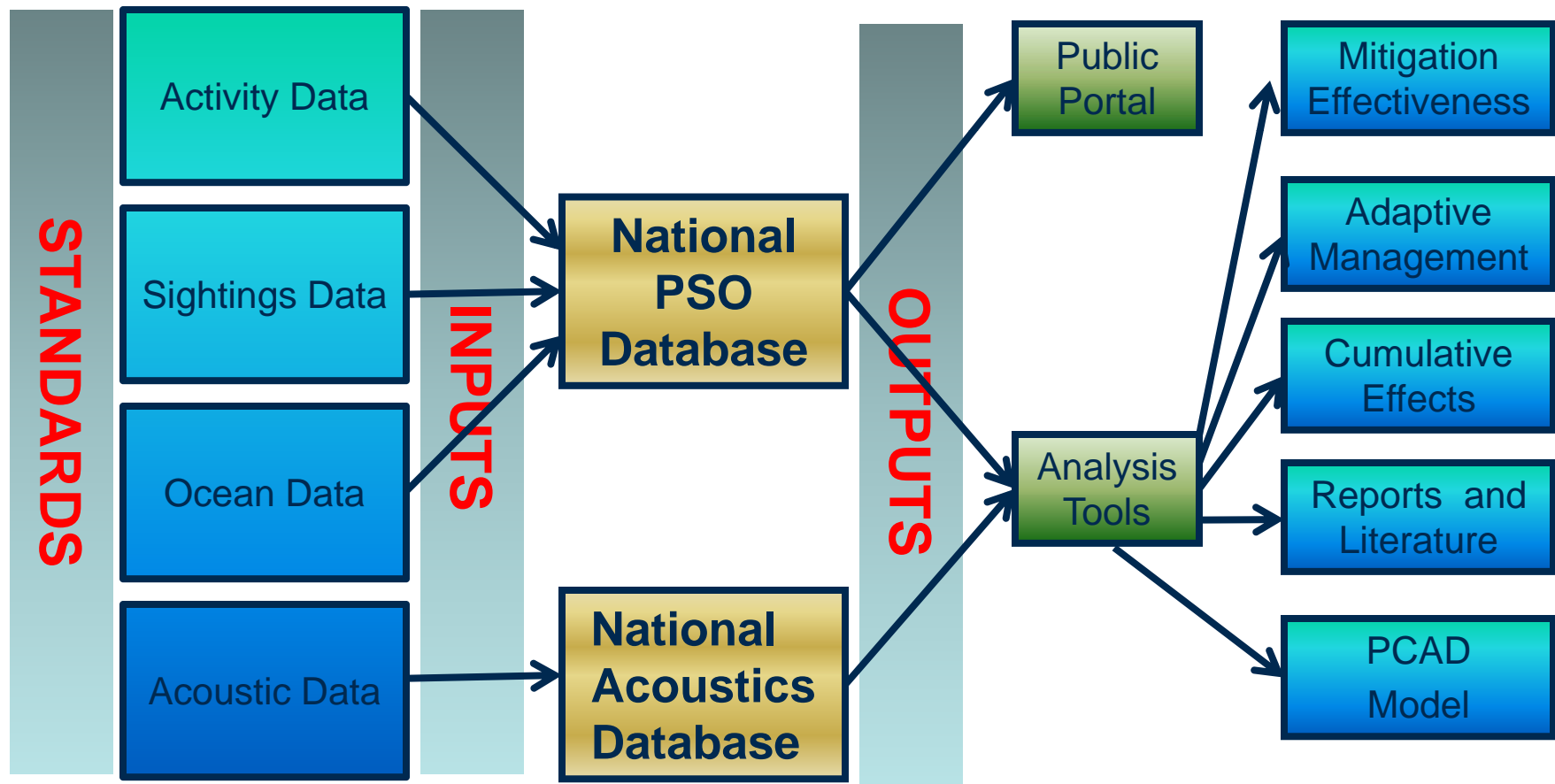
### Additional Certifications

- ◆ Passive Acoustic Monitoring (PAM)
- ◆ Activity-specific trainings (explosives, pile driving, etc.)





## Create and Maintain a Database





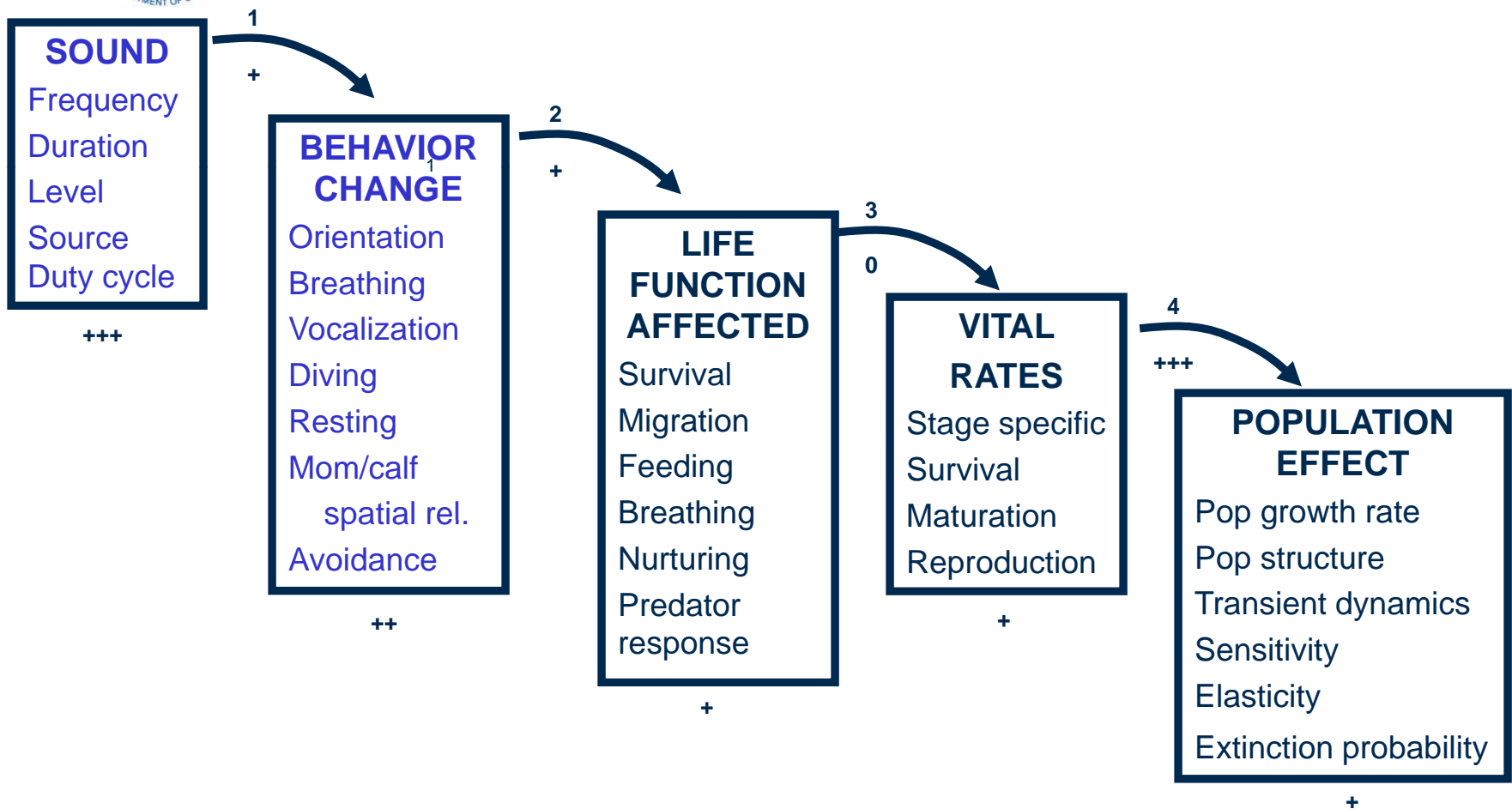
## Database Management

- ◆ Funding
- ◆ Maintenance
- ◆ Data Analysis
- ◆ Data Sharing





# Population Consequences of Acoustic Disturbance (PCAD)





## Summary: Science and Management

Standardized data collection and quality assurance measures will allow for more rigorous analysis of renewable ocean energy effects on protected species from observations in the field. Quality PSO data will contribute to:

- ◆ The conservation of marine species
- ◆ Information on behavioral effects of noise
- ◆ Information of industry activities
- ◆ Acoustics databases of noise and marine animal sounds
- ◆ Evaluations of mitigation effectiveness
- ◆ Effects analyses of noise on protected species
- ◆ Sightings from platforms of opportunity



## Summary: Benefits



- Standard data collection methods
- Develop data quality standards
- Independent data collection, integrity
- Implement PSO eligibility standards
- Provide expectations to industry
- Infrastructure to deal with adaptive management needs and new issues
- Mechanism to disseminate information to stakeholders



## Acknowledgements

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Thanks!

