DATA MATTERS IN A COMMERCIAL MARINE FISHERY

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NAAFE Forum 2015: Economic Sustainability, Fishing Communities, and Working Waterfronts

OUTLINE

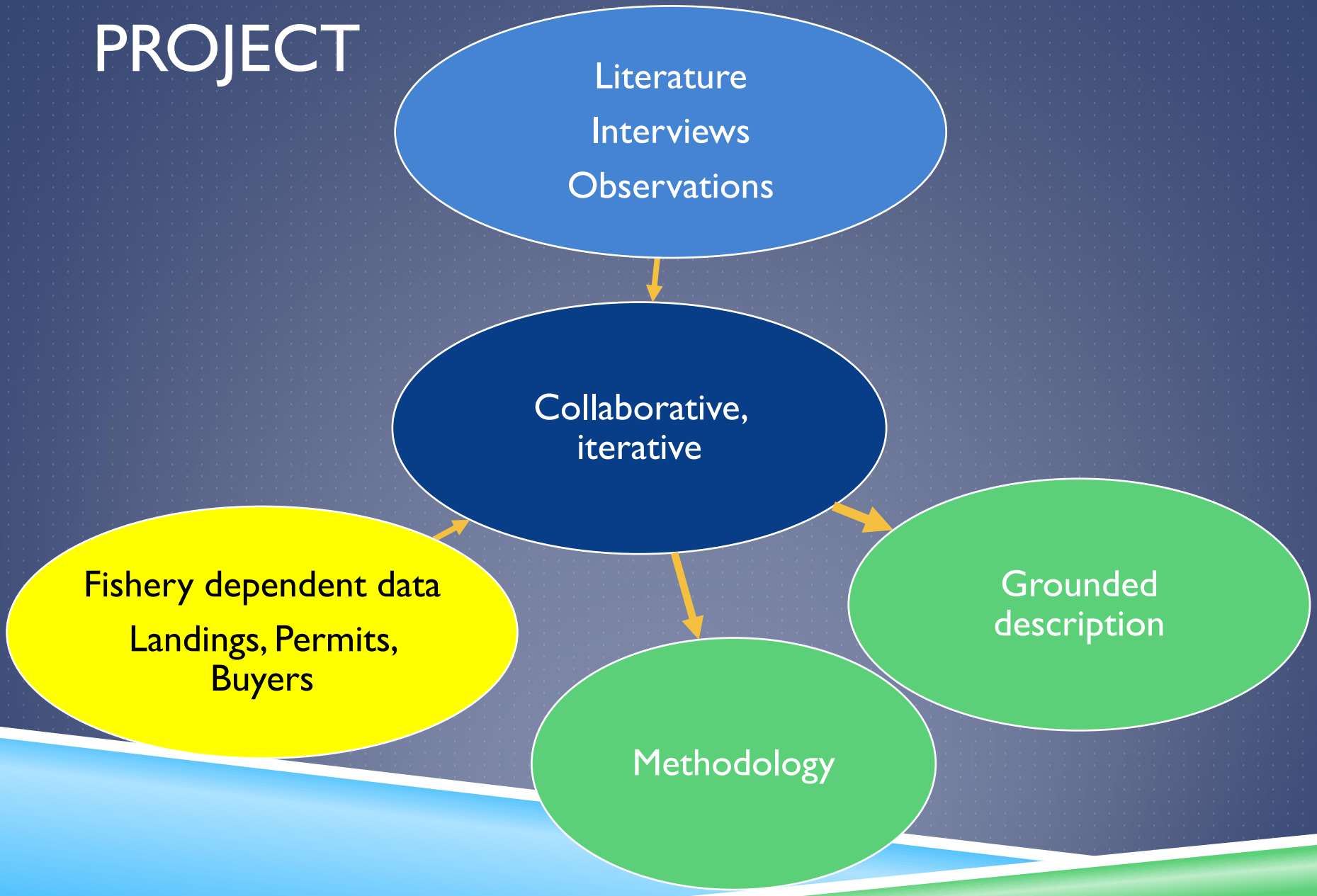
- Project
- Data types
- Data issues encountered
- Lessons learned

FISHERY AND STUDY AREA

Paralichthys californicus

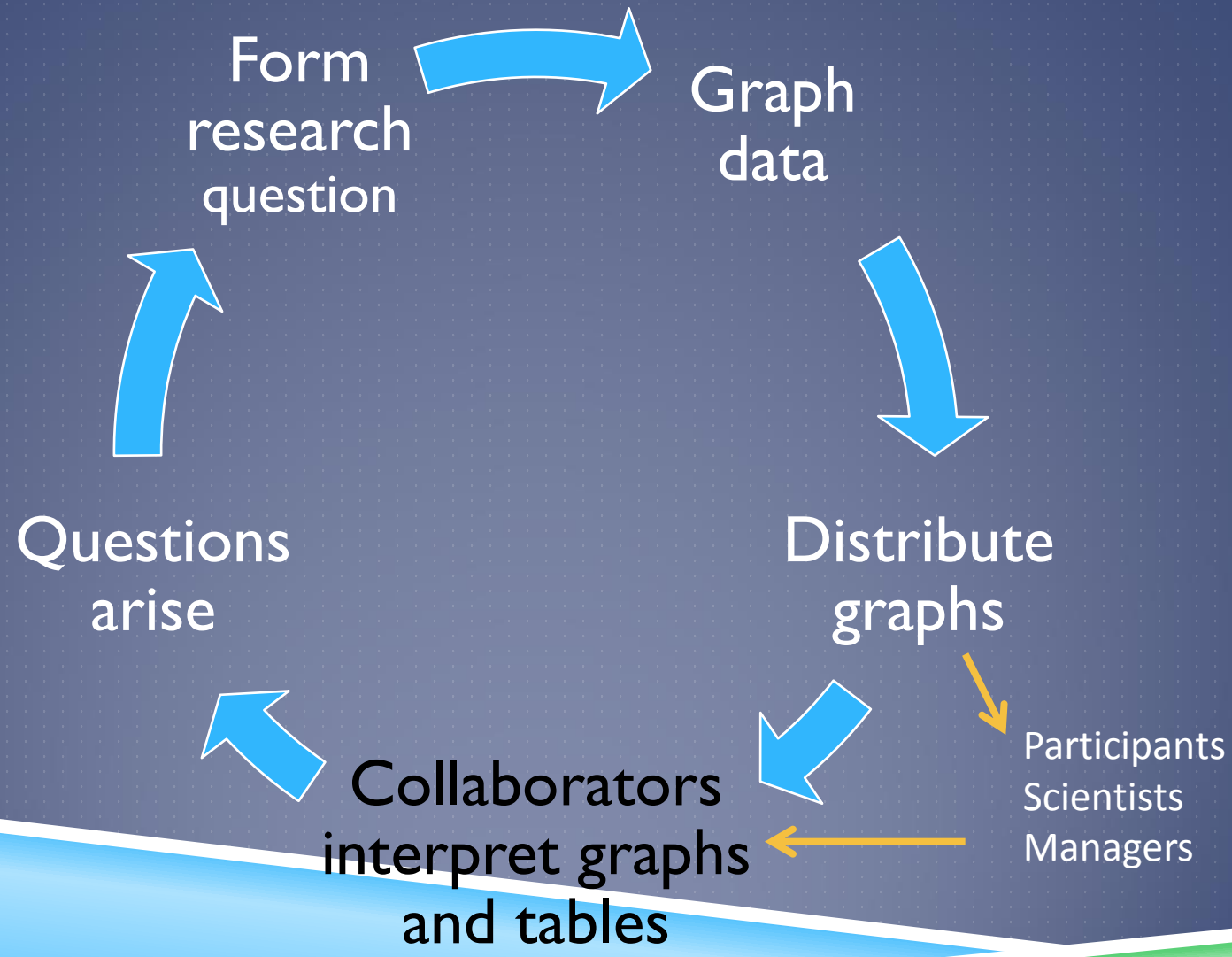
FISHERY AND STUDY AREA

PROJECT

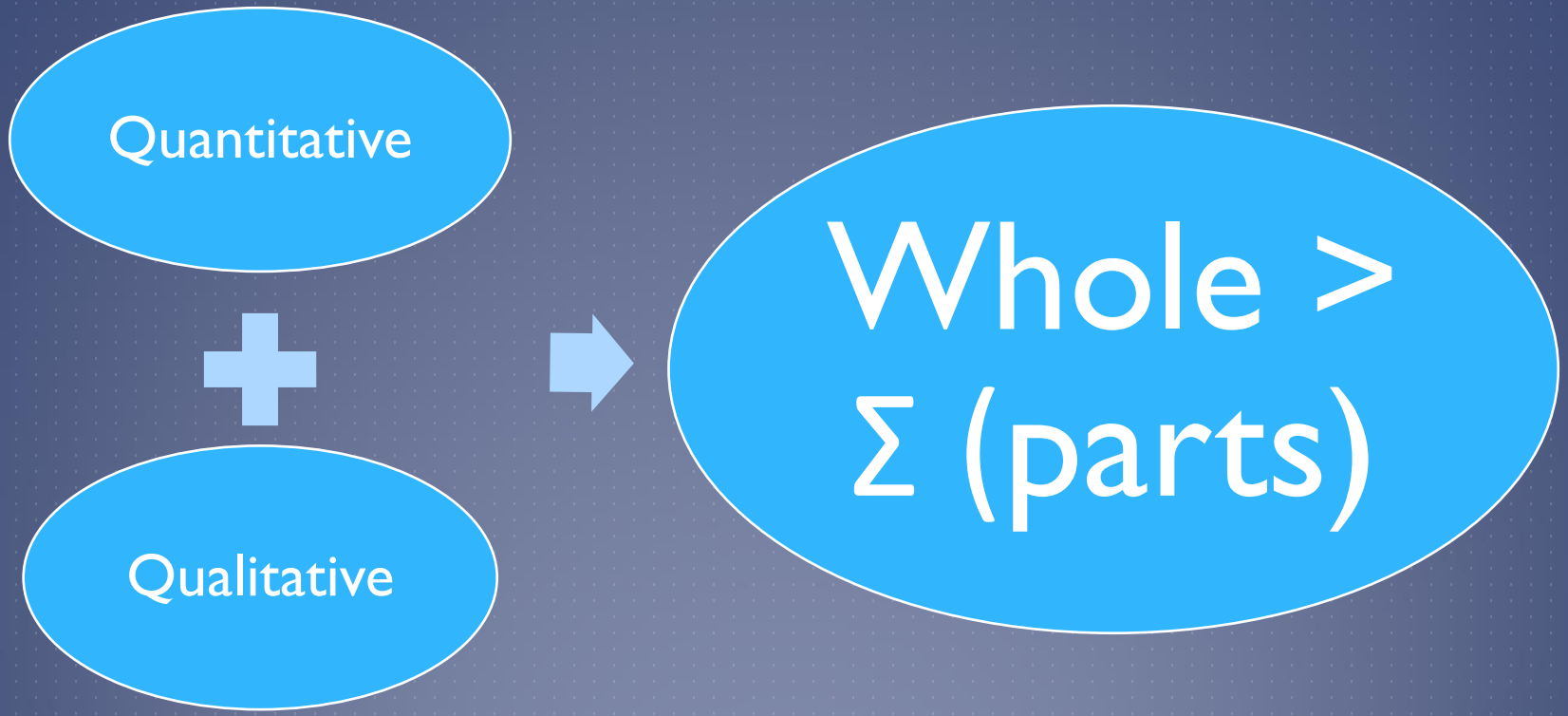

Literature
Interviews
Observations
Collaborative, iterative
Fishery dependent data
Landings, Permits, Buyers
Grounded description
Methodology

INTERDISCIPLINARY AND MULTI-FACETED

METHODS


Form research question
Graph data
Distribute graphs
Participants
Scientists
Managers
Collaborators interpret graphs and tables
Questions arise

INTEGRATING DATA



DATA MANAGEMENT & ANALYSIS

- Data management
  - Data types
  - Data protection and confidentiality
  - Software tools
- Data analysis
  - Quantitative data issues
- Lessons learned

WHAT DATA?

- Qualitative
  - Literature
  - Interviews
  - Observations
- Quantitative data
  - CDFW landings
  - Associated permits & vessels

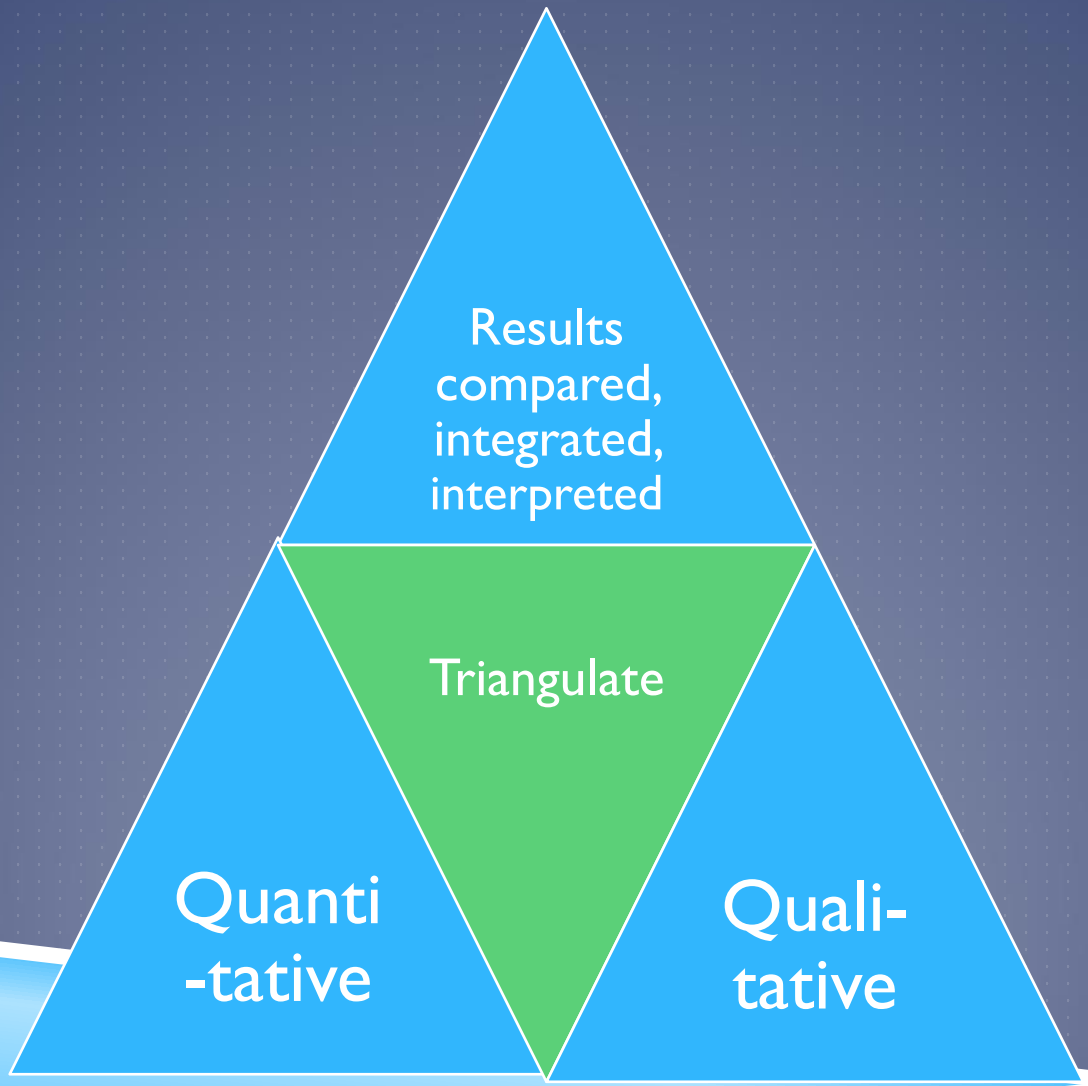
WHAT LITERATURE?

- Refereed & otherwise
- Agency & other reports
- Policy documents & regulations
- Newspapers
- Web sites

WHO?

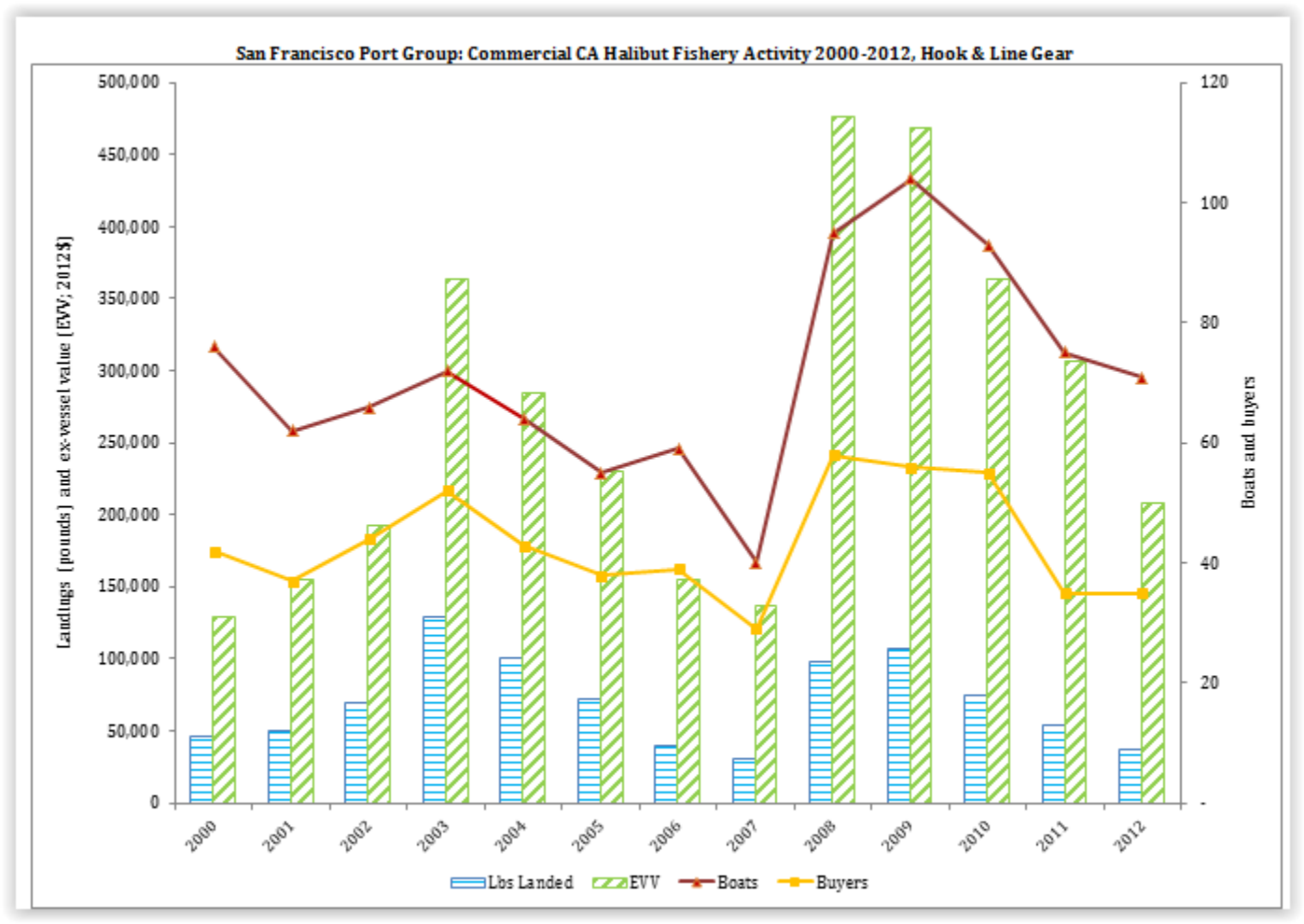
- Fishery collaborators
  - Respected for knowledge, experience
  - Represent diverse port groups & gear types
- Non-fishery collaborators
  - Resource managers
  - Non-agency social scientists

DATA INTEGRITY



Source: http://xaperezsindin.com/2013/03/27/combining-qualitative-and-quantitative-research/

INTERPRETATION



DATA PROTECTION

- Common storage
- Naming conventions
- Backups
- Handoffs

CONFIDENTIALITY: NECESSITY

- California Fish and Game Code §8022(a): records are confidential
- Interagency sensitivity
- Professional and personal concerns

California Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
1416 Ninth Street
Sacramento, CA 95814
http://www.wildlife.ca.gov

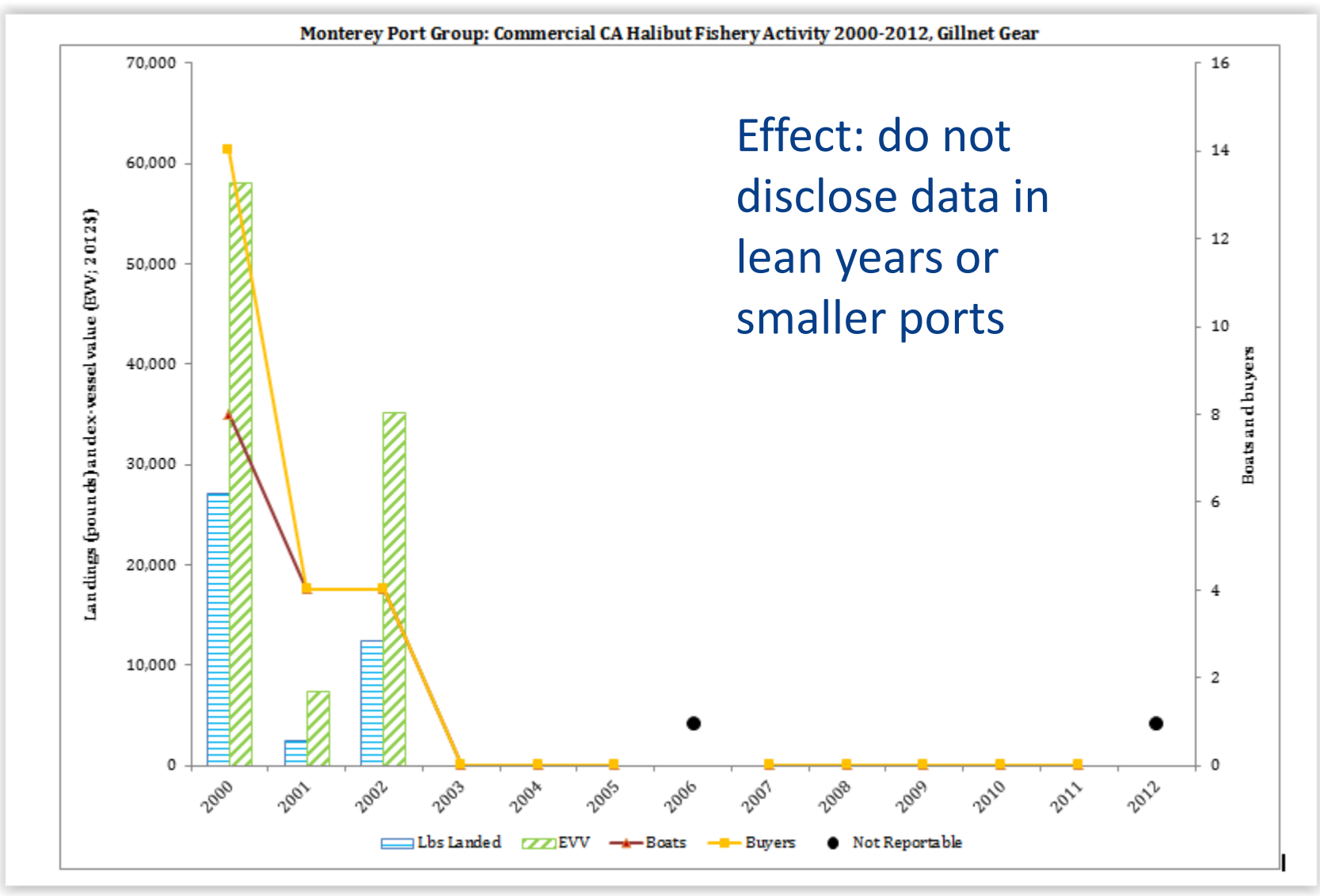
EDMUND G. BROWN, Jr. Governor
CHARLTON H. BONHAM, Director

NON-DISCLOSURE AGREEMENT

CONFIDENTIALITY: METHODS

- Rule of 3: do not disclose data that don't represent ≥ 3 entities (boats, fishermen, buyers)
- Custody: non-agency PIs and staff handle all interview data; no one else sees raw data
- Password protection

CONFIDENTIALITY: METHODS



SOFTWARE TOOLS

- NVivo for qualitative data analysis

- R project for statistical computing
- MS Excel

- Text editor
  - Double check data
  - Store long formulae

QUANTITATIVE DATA ISSUES

- Large files
  - Some software chokes
  - Solutions: Use R to parse; MS Excel PowerPivot
- Unexpected values in data
  - Legitimate reason
  - Iterative analysis to correct & add fields
  - Store unaltered version

FIELD ANALYSIS

- Find outliers → identify affected records
- Ask data manager
- Devise solution or workaround *if* we need the field
- Verify solution with data manager

FIELD ANALYSIS EXAMPLE: UNIT PRICE

- Expect fluctuations by condition, port, possibly gear
- Unit price anomalies
- Analyze unit prices by condition, port, gear, and landing date
- Add field of recalculated value

SAVE TIME AND FRUSTRATION

- Document, document, document
- Always keep a working model
- Save early and often

SUMMARY

- What did we do well?
- Lessons learned

WHAT WORKED WELL

- Involvement by CDFW
  - Begets enthusiasm
  - Iterative analysis impossible without them
- Team meetings
- Method of identifying experts

WELL DONE (TECHNICAL)

- Timely, thorough documentation
- Extensive tracking
- Target charts to each individual's scale & scope
- Multiple formats of response
- Follow up on responses

WELL DONE (HUMAN)

- Diverse interests, communications styles/preferences, sensitivities, understanding
- Recognize & address factors affecting participation (social, cultural, time)
- Maintain participants' trust

LESSONS LEARNED: QUALITATIVE DATA

- Different communication styles
- Sensitivities
- Update frequency

LESSONS LEARNED: QUANTITATIVE DATA

- Data manager input
  - Eagle eye
  - Found problem in graph that reflected problem in underlying data

LESSONS LEARNED: PRESENTATION & COMMUNICATION

- Consistent symbology
- Tractable, to elicit reliable information
- Communication methods (email & post)
- Feedback methods

LESSONS LEARNED

- Thorough data analysis at outset
- Graphics
- In-person communications

THANK YOU: DATA & FUNDING

- Fishery dependent data
  - California Department of Fish and Wildlife
- Funding and in-kind contributions
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THANK YOU CO-AUTHORS

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