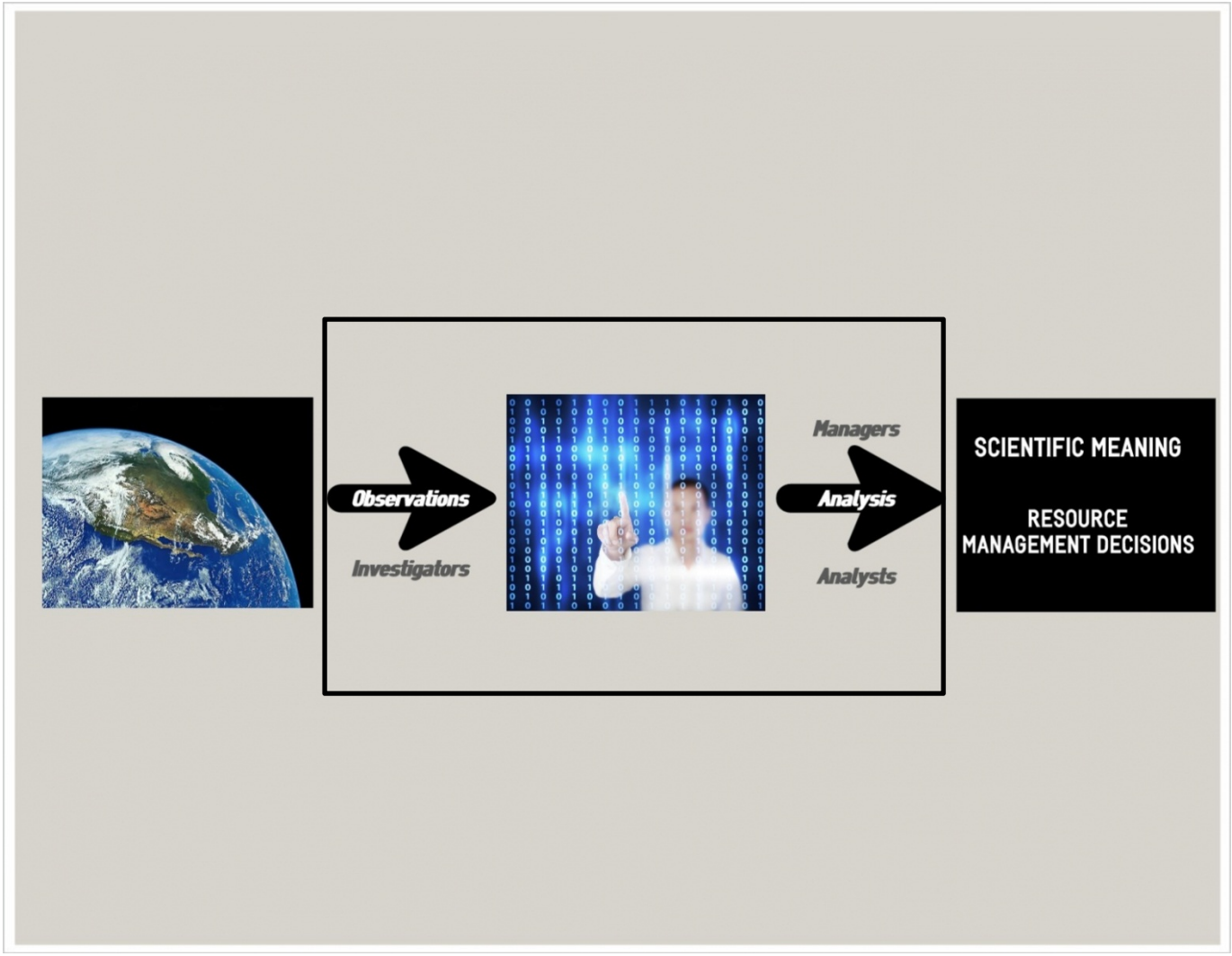
Best Practices

NMFS EDM

Context


Observations
Investigators
Managers
Analysis
Analysts
SCIENTIFIC MEANING
RESOURCE
MANAGEMENT DECISIONS

EDM Scope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EDM Goals

- Capability
- Speed
- Efficiency
- Accuracy
- Confidence

Best Practice Concepts

- **Integration & Consistency** – All parts have to work together.
- **Access** – Data only has value if you can get to it.
- **Understanding** – Data only has value if you understand it.
- **QA/QC** – It's only worth something if it's right.
- **Design & Modernization** (other than integration) – Everything works better with a great design.

Integration & Consistency

- Controlled vocabularies
- Proper use of database keys
- Design of super-systems precedes subsystems
- All observations of a single event share a single report (e.g. multistream fishing reporting)

Integration & Consistency

- Data collection
  - Eliminate redundant reporting
  - Don’t collect data unless used
  - Automation: reduction of human data entry or processing eliminates errors and speeds the process

Integration & Consistency

- Data collection
  - Better ergonomics
    - Prefill electronic forms
    - Provide only appropriate choices.
    - Reject initial invalid entries.
    - Provide immediate feedback for invalid entries.
    - Accept, quarantine, and report all persistent invalid entries.

Integration & Consistency

- Consistency between regulations and data (e.g. trip definitions by regulation are not the same as by VMS)
- Use a master data store.
  - Data is discoverable
  - Repeatable and consistent analyses
  - System is carefully designed and data Qced.
- Use calibration factors when combining data into a meta-analysis.

Integration & Consistency

- Standardize use of data types
  - Dates
  - Numeric vs. strings

Access

- Permissions
  - All NOAA Analysts & Managers should have read access to all fisheries data.
- Discoverable
  - Metadata
  - Controlled vocabularies
  - Master data store
  - Effective search engines

Access

- Protection
  - Security
  - Archiving

QA/QC

- All detected errors must be corrected!
- Automatically check all records for validity.
- Automatically detect duplicates.
- Automatically check for orphans in potentially integrated data.
- Other errors are primarily human detectable
  - Provide immediately accessible reporting mechanism (suggestion box)
  - Follow up assurance mechanism

Understanding

- Documentation
  - Description of process
  - Down to the columns
- Streamline processes (see Design)

Design

- Use state of the art communication systems at sea or buffer data and transmit from shore.
- Single use columns in tables – avoid kludgy codings

Design

- For bulk data, such as acoustic, store data on a server and provide analysis service at the same location. This allows collaboration of multiple investigators on a shared data set.
- Streamline processes - use the simplest possible design.
- Automate repetitive analyses