Science, Service, Stewardship

Monitoring ACLs

ACL Workshop
February 15-17, 2011

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Fisheries Data Services Division
Northeast Regional Office

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Acknowledgements

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Rich Kang (NWFSC)

Jennifer Mondragon (AkRO)

James Nance (Galveston Lab)

Gail Smith (ADFG)

Andy Strelcheck (SERO)

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Purpose of Monitoring

- Determine catches wrt established ACLs /ALLs
- Advance warning of changes in fishing activity
- Avoid invoking Accountability Measures
- Provide final year end catch information

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Monitoring Complexity
Uncertainty

ACL

$$\sum Landings + \sum discards$$

Data Collections

Data Limited

Data Rich

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Monitoring Components

Data Collections
- **Timely**
- **Quality**
- **Accessible**

Analytics
- **Analysis**
- **Imputation**
- **Forecasting**

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Monitoring Challenges

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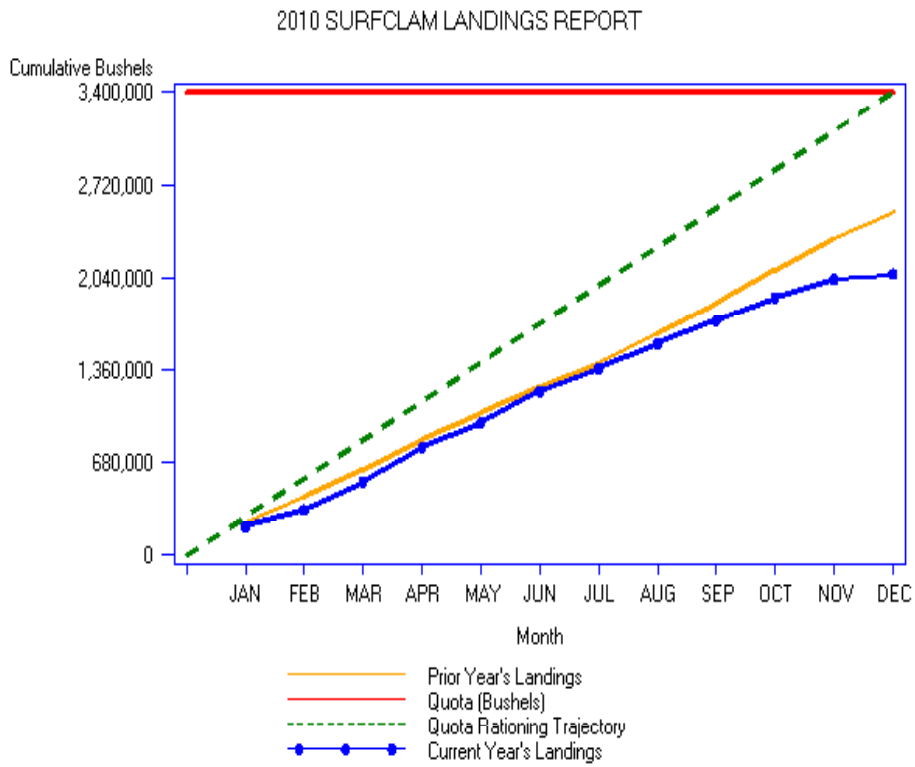

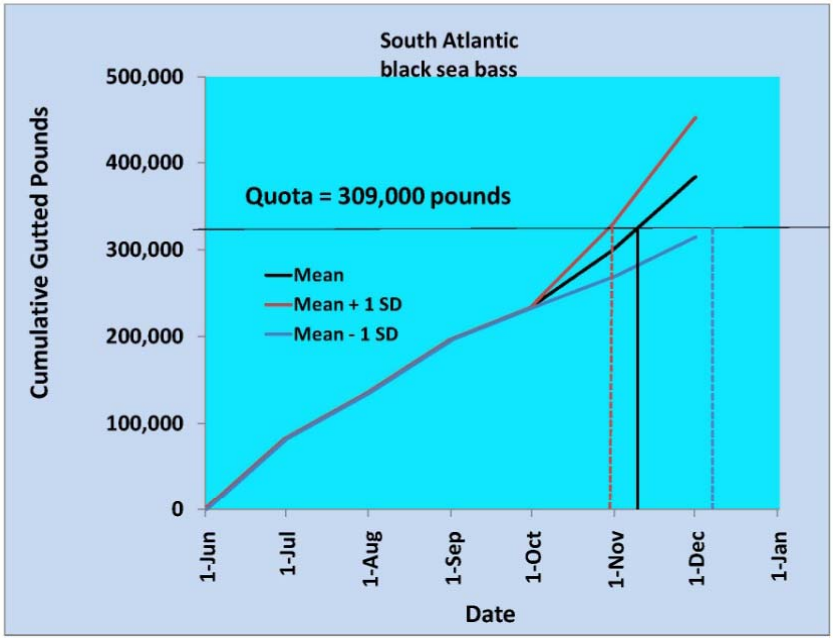

Fisheries Statistics Office, Northeast Regional Office

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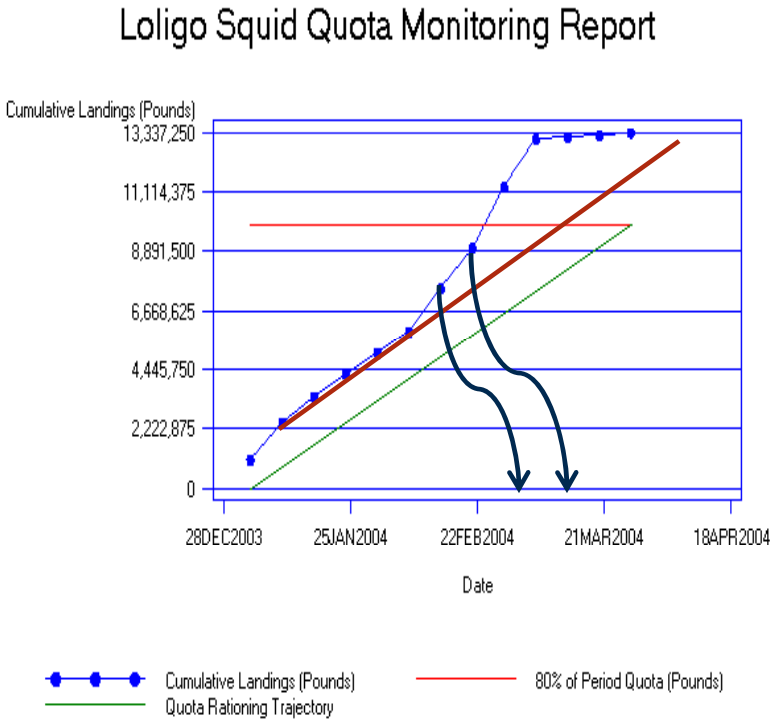

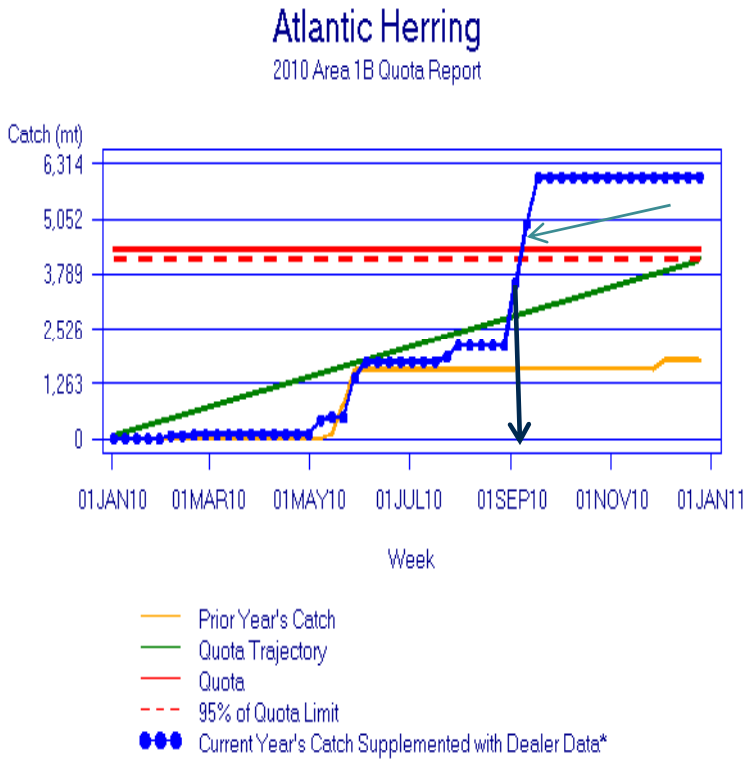

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Factors affecting Monitoring Programs

- Synchronization of data collection capabilities, ACL level, fleet capacity & management requirements
- Desire to get the last fish – not leave any fish on the table (derby fisheries)
- Varying levels of temporal resolution in data collections
- Changes in fishing activities
- Observer Effects

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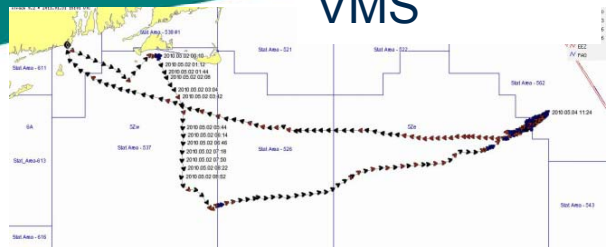
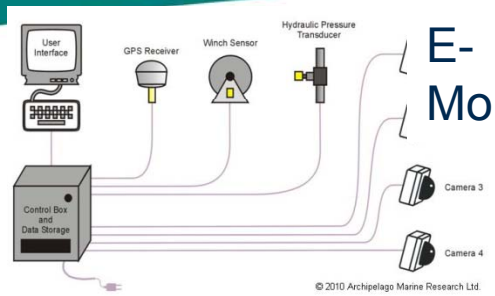
DATA

VMS



Office of Law Enforcement, Northeast

E-Monitoring



At-Sea Observers

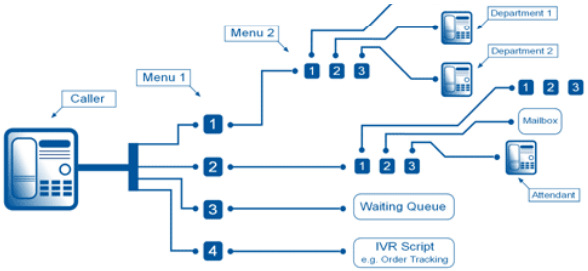
Photo Credit: Amy VanAtten, NEFSC

Recreational Fisheries Surveys

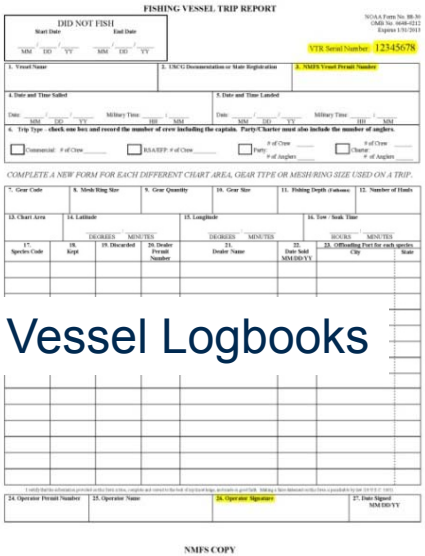
Dealer Reporting

Photo Credit: Fisheries Statistics Office, NERO

IVR



Vessel Logbooks



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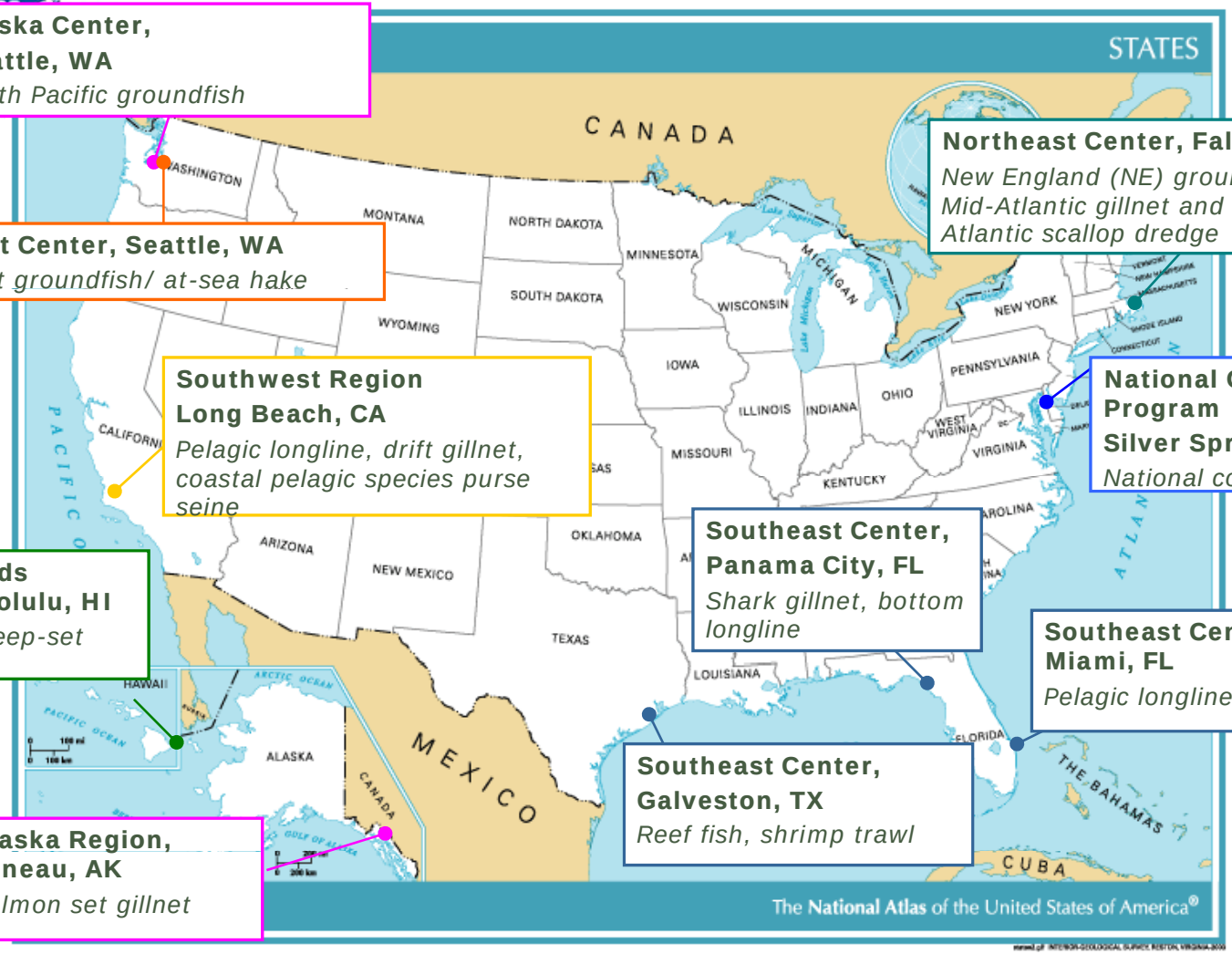

Alaska Center, Seattle, WA
North Pacific groundfish

Northwest Center, Seattle, WA
West Coast groundfish/ at-sea hake

Southwest Region Long Beach, CA
Pelagic longline, drift gillnet, coastal pelagic species purse seine

Pacific Islands Region, Honolulu, HI
Pelagic and deep-set longline

Alaska Region, Juneau, AK
Salmon set gillnet

Northeast Center, Falmouth, MA
New England (NE) groundfish, NE & Mid-Atlantic gillnet and trawl fisheries, Atlantic scallop dredge

National Observer Program Silver Spring, MD
National coordination

Southeast Center, Panama City, FL
Shark gillnet, bottom longline

Southeast Center, Miami, FL
Pelagic longline

Southeast Center, Galveston, TX
Reef fish, shrimp trawl

Amy Van Atten. Personal Communications Northeast Fisheries Science C enter

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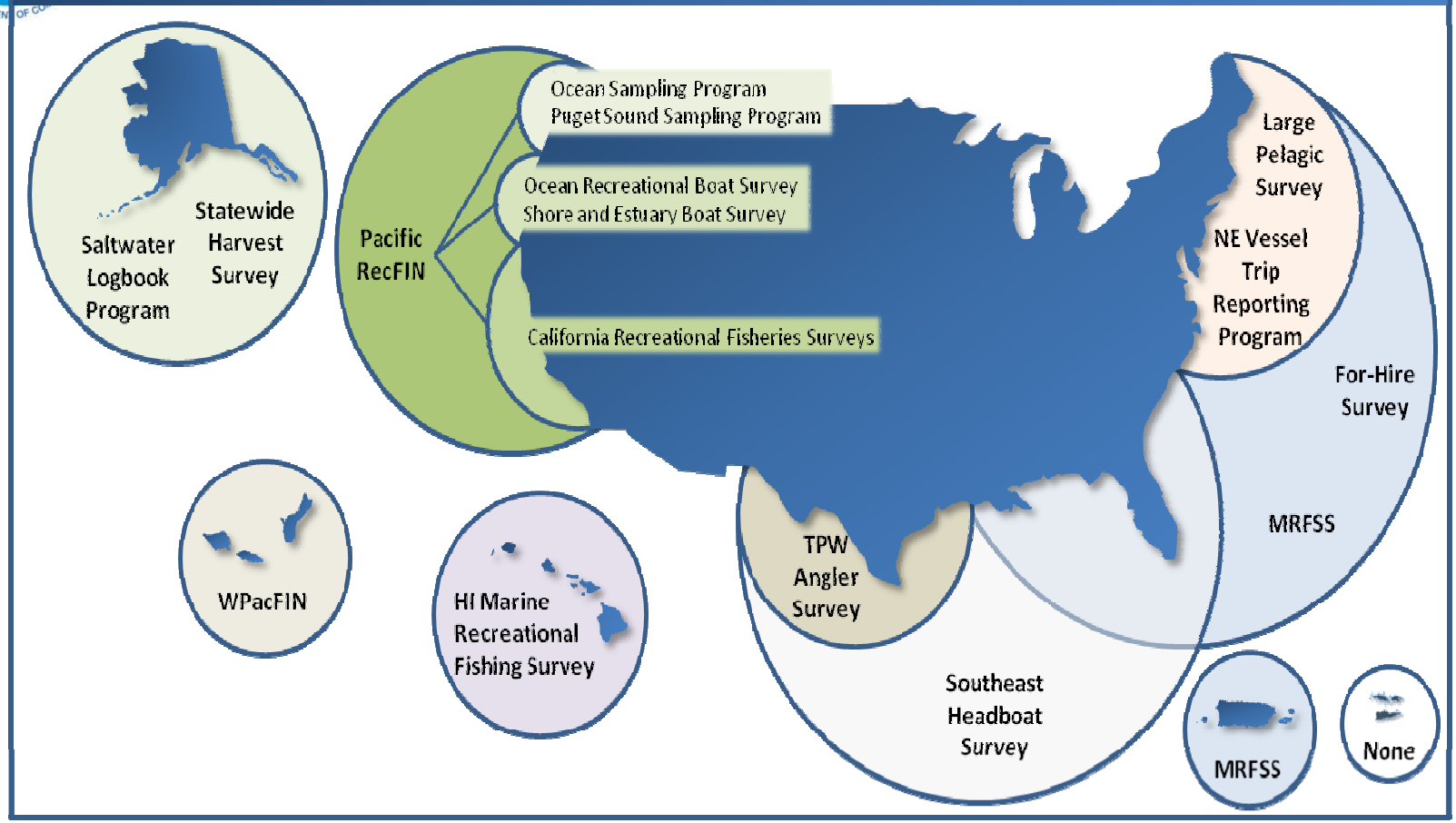
Existing Regional Recreational Angler Data Collection Programs



Dave van Voorhees, Personal Communication, Office of Science & Technology

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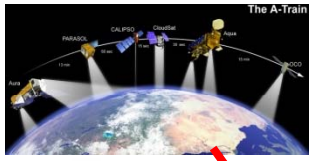
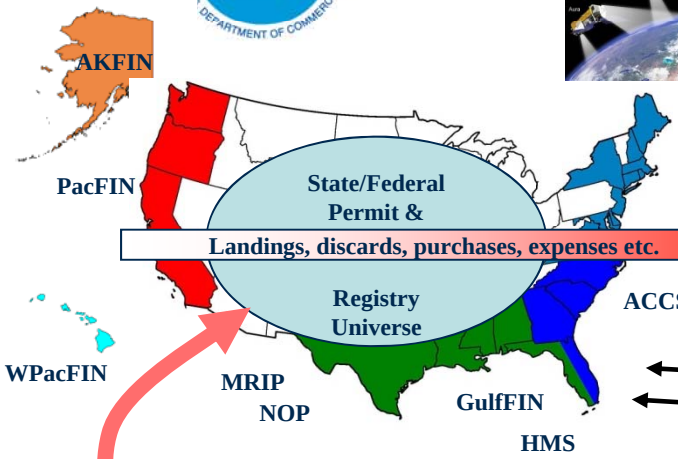
Integration of Systems & Capabilities





Electronic Reporting Toolbox

Filters

Quality Failure

Reconciliation Failure

State-Federal Fishery-Dependent Information Base

Fisheries Information Networks

Federal Information Systems

Confidentiality Filters

Metadata Information Portal

Fisheries One-Stop Shop

National

Regional

Commercial & Recreational

Landings | Bycatch Discards | Effort | Economics | Biological

FINS

Recreational Collections

Annual Catch Limit Monitoring

Identify / Report	Capture / Audit	Information Management	Access / Disseminate

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The future Development of Integrated Systems – One Stop Shops

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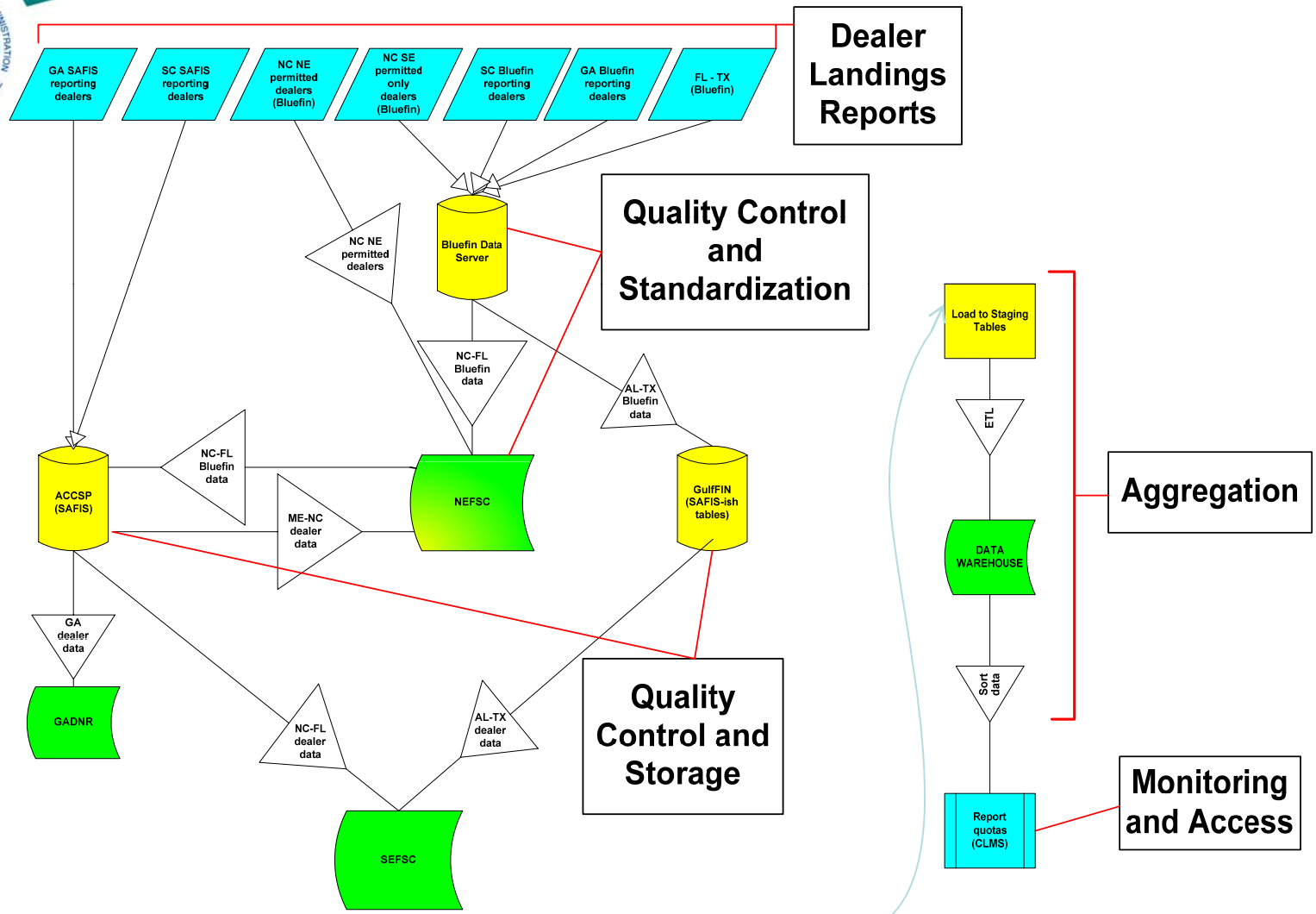
Landings monitoring data flow (SE)



Dave Gloeckner, Personal Communication, Southeast Fisheries Science Center

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Components of the Interagency Electronic Reporting System (IERS) in Alaska

eLandings web application

QA/QC

Agency Interface for editing and submitting data

Timeliness

Access

- seaLandings for at-sea fleet to report via email
- tLandings for tenders to reports via thumbdrive or email

Interagency repository database

Shared by the 3 fishery management agencies in Alaska: NMFS, International Pacific Halibut Commission, and Alaska Dept. Fish & Game

Jennifer Mondragon, Personal Communication, Alaska Regional Office

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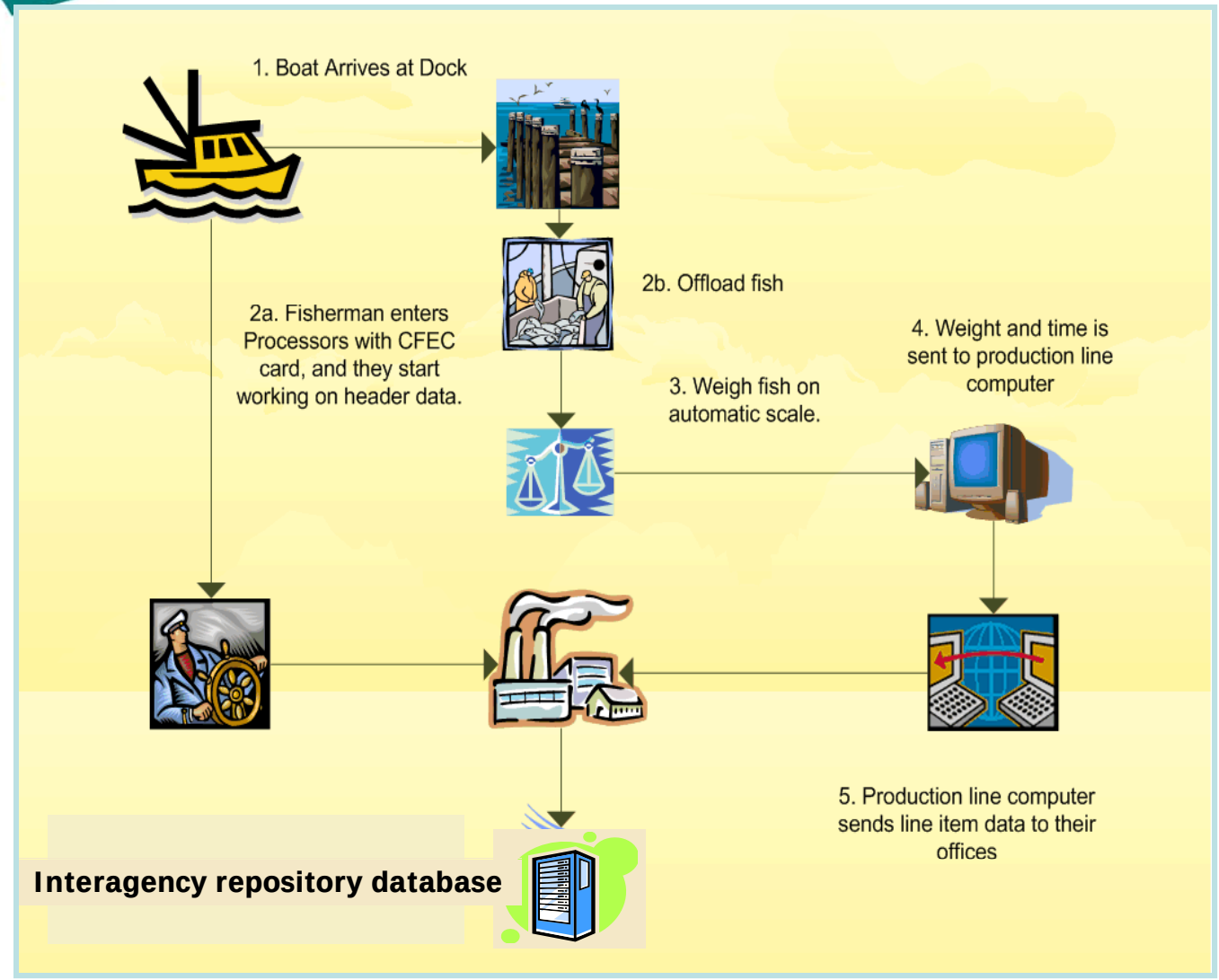
Integration of shoreside processor reports with eLandings and Interagency repository database



Jennifer Mondragon, Personal Communication, Alaska Regional Office

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Recreational Fisheries

- Catches are significant for some species
- Survey based data collections present challenges
- Marine Recreational Information Program – developing protocols and standards
- Needs are similar to those in commercial fisheries
  - Timeliness of data
  - Spatial resolution
  - Quality of data including conformance with survey design
  - Accessibility to data

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What’s Needed?

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Improving Timeliness

Across the board

- Broaden use of electronic reporting
- Electronic monitoring
- Improvements in data access systems

Recreational Fisheries

- More frequent updates to catch statistics
- Survey designs that are scalable for needed temporal resolution
- More timely delivery of data and survey estimates (e-reporting)

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Improving Quality

Across the board

- Validate self reported data through independent monitoring (e.g., dockside monitoring/surveys, at-sea observers)
- Compliance with mandatory reporting requirements in commercial fisheries
- Capture data at its source
- Provide finished data products
- Develop metrics for assessing quality/accuracy of data
- Promote ownership of the data by the providers

Recreational Fisheries

- More precise estimates of total catch
  - Increased sampling levels to provide greater precision
  - Specialized monitoring for key species
- Greater geographic resolution of statistics

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Improving Access

Across the board

- One Stop Shops
- Inventory of all data used in monitoring
- Documentation of all data used in monitoring
- Identified authoritative source of data for monitoring
- Monitoring data and products as inputs to stock assessments and other analysis
- Finished data products for stock assessments, fishing industry, academia, NGOs, …

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Improving Analysis and Forecasting

- Evaluate methods for imputing missing data
- Develop “toolbox” of forecasting methods for use with different types of fisheries
  - Review and standardize forecasting approaches
  - Wide variety of methods should be evaluated
  - Methods should provide measures of uncertainty
  - Include time series methodologies that account for covariances and autocorrelation
  - Systematic collection and use of “anecdotal” information – i.e., fishermen’s knowledge
  - Bayesian approaches

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Other Considerations

How much should we spend on monitoring?

What's the appropriate balance between

- monitoring costs and value of fishery?
- monitoring costs and value of species to the ecosystem?

Questions?