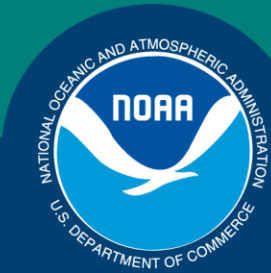


Science, Service, Stewardship



Economic Data & Alaska Fisheries: A History of the Economic Data Report Program

Presentation to:

NPFMC Social Science Planning Team Inaugural Meeting-in-Public

May 8, 2018

Anchorage, Alaska

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Economics and Social Science Research Program

Alaska Fisheries Science Center

**NOAA
FISHERIES
SERVICE**

Alaska Fisheries and Economic Data Collection

- Overview and context
- EDR Programs: Then and Now
- Database and access
- Economic data by other means: voluntary economic surveys
- Analytical applications
- Future considerations

Overview: Commercial Fisheries & Economic Data

Why collect economic data?

MSA and National Standards: Conservation and management measures shall(s)...

- ...optimum yield
- ...fair and equitable..., excessive share...
- ...consider efficiency
- ...minimize costs
- ...minimize adverse economic impacts

NEPA, RFA, EO 12866:

- Maximize net benefits
- Economic impacts
- Distributional effects

Overview: Commercial Fisheries & Economic Data

Rationalization in Alaska Fisheries

- Halibut/Sablefish IFQ (1995)
- AFA (1998/99)
- BSAI Crab (2005)
 - Council CR motion (2002):
 - *A mandatory data collection program shall be developed and implemented as part of the crab rationalization program... Cost, revenue, ownership and employment data will be collected... to study the impacts of the crab rationalization program... to analyze the economic and social impacts of future FMP amendments on industry, regions, and localities.*
 - *...required to fulfill the Council problem statement requiring a crab rationalization program that would achieve “equity between the harvesting and processing sectors” and to monitor the “...economic stability for harvesters, processors and coastal communities”.*

Overview: Economic Data Pre-2005

Early Organizational Initiatives

- Interagency Data Collection Working Group (2000-2001)
- Alaska Cost, Earnings and Employment Survey (AFA; 2000-2001)
- NPFMC Social & Economic Data Committee (2000-2002...)
 - Crab EDR Advisory Committee (2002-2004)
 - Comprehensive Data Committee (2006-2008)

Crab EDR Program Development

- Council FMP process 2002-2005
 - EDR Advisory Group
 - Performance metrics/objectives for EDR data
 - Detailed alternatives: specifications of cost elements, levels of aggregation, statistical confidence
 - Concerns re: confidentiality, limits on NMFS use of EDR data
 - Draft EDR forms developed/approved as Council's preferred alternative

Crab EDR Program Design (50 CFR 680)

- Annual census of CRP sector participants
- Third-party data collection agent (PSMFC)
- Agency access limited to blind form data records
- Third-party verification audit
- Questionnaires specified in regulation
- EDR submission required for Crab IFQ/IPQ issuance
- Historical EDR forms due June, 2005
- Annual EDR forms due beginning June, 2006

Crab EDR Program Design

Data category: stratification

Crab crew and processing labor

employment and cost

revenue share terms

crew residence & permits

Crab-only costs

general

by fishery

by location

bait and fuel detail

other crab-only cost (description)

quota lease costs

raw crab purchased

Annual costs

general

by location

other annual cost (description)

Production and revenue

ex-vessel sales

crab finished production

crab processed sales

custom processing sales and costs

Crab operational activity

Annual operational and sales totals

Table 7.1: Costs for BSAI Crab Production Only

| COST CATEGORY | | TOTAL COST |
|---|-------------------|------------|
| a. Insurance Premiums (Hull, Property and Indemnity, and Pollution) | | \$ |
| b. Insurance Deductibles | | \$ |
| c. Crab Pots Purchased for Use in BSAI Crab Fishery | | |
| Location Code: | Quantity: | \$ |
| Location Code: | Quantity: | \$ |
| Location Code: | Quantity: | \$ |
| d. Line and Other Crab Gear Purchases | | |
| Location Code: | | |
| Location Code: | | |
| Location Code: | | |
| e. Bait Used in BSAI Crab Fishery | | |
| CR Fishery Code: EAG | Location Code(s): | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |
| CR Fishery Code: WAG | Location Code(s): | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |
| CR Fishery Code: BST | Location Code(s): | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |
| CR Fishery Code: BSS | Location Code(s): | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |
| CR Fishery Code: BBR | Location Code(s): | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |
| Bait Species: | Pounds: | |

| COST CATEGORY | | | TOTAL COST |
|---|------------------|-------------------------|---|
| f. Fuel, Lubrication, and Fluids Used in BSAI Crab fishery | | | Cost includes lube/fluids? <input type="checkbox"/> Yes <input type="checkbox"/> No |
| CR Fishery Code | Location Code(s) | Fuel Quantity (gallons) | Total Cost |
| EAG | | | \$ |
| WAG | | | \$ |
| BST | | | \$ |
| BSS | | | \$ |
| BBR | | | \$ |
| g. Food and Provisions for Crew | | | |
| h. Other Crew Costs (describe below) | | | |
| i. Processing and Packaging Materials, Equipment, and Supplies | | | |
| j. Re-packaging Costs | | | |
| k. Broker Fees and Promotions for BSAI Crab Sales | | | |
| l. Crab Landing and Sales Taxes and Fees | | | |
| m. Storage, Wharfage, and Delivery | | | |
| n. Observer Costs, by fishery | | | |
| CR Fishery Code: EAG | | | \$ |
| CR Fishery Code: WAG | | | \$ |
| CR Fishery Code: BST | | | \$ |
| CR Fishery Code: BSS | | | \$ |
| CR Fishery Code: BBR | | | \$ |
| o. Freight and Handling Costs for Processed Crab Products from the Vessel | | | |
| p. Product Storage | | | |
| q. Fishing Cooperative Costs | | | |
| r. Other Crab-specific Costs (describe below) | | | |
| | | | \$ |
| | | | \$ |
| | | | \$ |
| | | | \$ |

Table 7.2 Annual Vessel Costs

| COST CATEGORY | TOTAL | CRAB ONLY COST |
|--|-------|--|
| a. Investments in Vessel and Equipment | | |
| Location Code: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Location Code: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Location Code: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| b. Repair and Maintenance for Vessel and Equipment | | |
| Location Code: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Location Code: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Location Code: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| c. Number of Employees and Salaries for Foremen, Managers and other Employees | | |
| Number of Employees: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| d. Insurance Premiums (Hull, Property and Indemnity, and Pollution) | | |
| | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| e. Fuel, Lubrication, and Fluids | | |
| Location code: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Location code: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Location code: | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Fuel Cost includes lube/fluids? <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| f. Other Vessel-specific Costs (describe below) | | |
| | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| | \$ | <input type="checkbox"/> Yes <input type="checkbox"/> No |

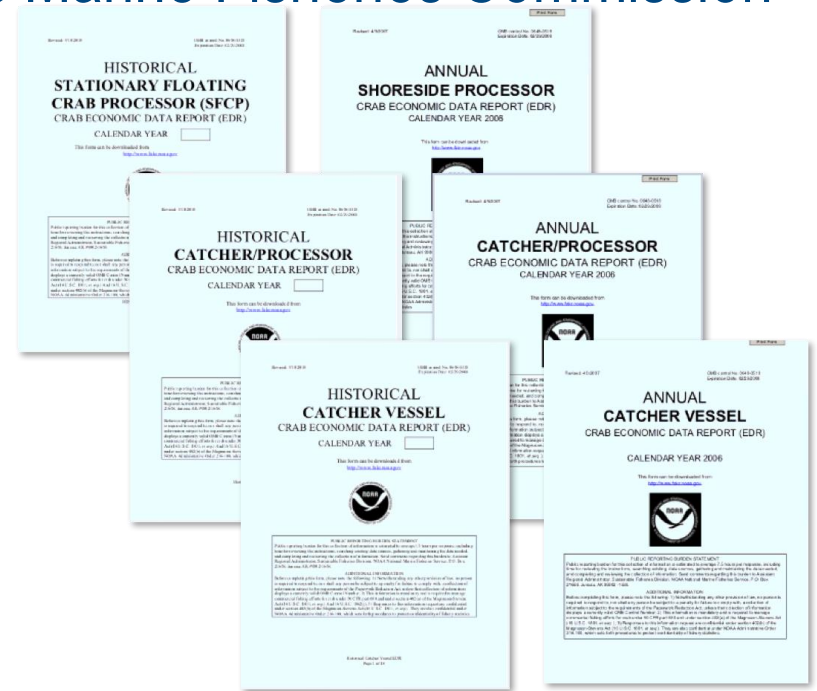
Crab EDR Program Design

EDR Administration – Pacific States Marine Fisheries Commission

- Data collection
- Database administration

Data quality measures

- Process monitoring
 - Support logs
 - Submitter feedback survey
- Verification audit



Crab EDR Forms Completed and Submitted

| Sector | 1998 | 2001 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|-----------|
| C/P | 8 | 7 | 10 | 8 | 5 | 5 | 5 | 5 | 3 | 3 |
| CV | 218 | 219 | 237 | 166 | 97 | 82 | 91 | 84 | 76 | 74 |
| FSP | 12 | 6 | 6 | 4 | 3 | 3 | 2 | 2 | 4 | 2 |
| SP | 13 | 17 | 14 | 14 | 11 | 12 | 14 | 15 | 14 | 17 |
| Total | 251 | 249 | 267 | 192 | 116 | 102 | 112 | 106 | 97 | 96 |

Crab EDR Data Review (2006 - 2011)

Council/industry metadata review (2008)

- Qualitative: submitter feedback
- Statistical results from verification audits
- Data quality rankings: ~1/3 of EDR data found “not reliable for analysis of economic performance of the crab fisheries”

CIE Review: Crab EDR Program (2011)

Crab EDR Revision (2012)

- Drops fixed costs
- Corrects IFQ leasing and fuel cost variables

Current EDR Program

- BSAI Non-AFA Trawl/Amendment 80 (2008 -)
- Crab EDR (*Revised 2012 -*)
- AFA Chinook Bycatch/Amendment 91 (2013 -)
- GOA Trawl (2015 -)

BSAI Non-AFA Trawl/Amendment 80

- C/P coop rationalization; 18 active vessels in 2015
- Annual comprehensive cost/earnings (18 pg)
 - Vessel/plant characteristics
 - Processing capacity, fuel consumption by activity
 - Vessel activity days
 - Revenue: fish product; tendering' LLP sale, lease royalties
 - Capital investment (5)
 - Overhead and variable costs (19)
 - Employment: crew counts, shift length, settlement terms
 - Crew license numbers (added 2015)

AFA Chinook Bycatch/Amendment 91

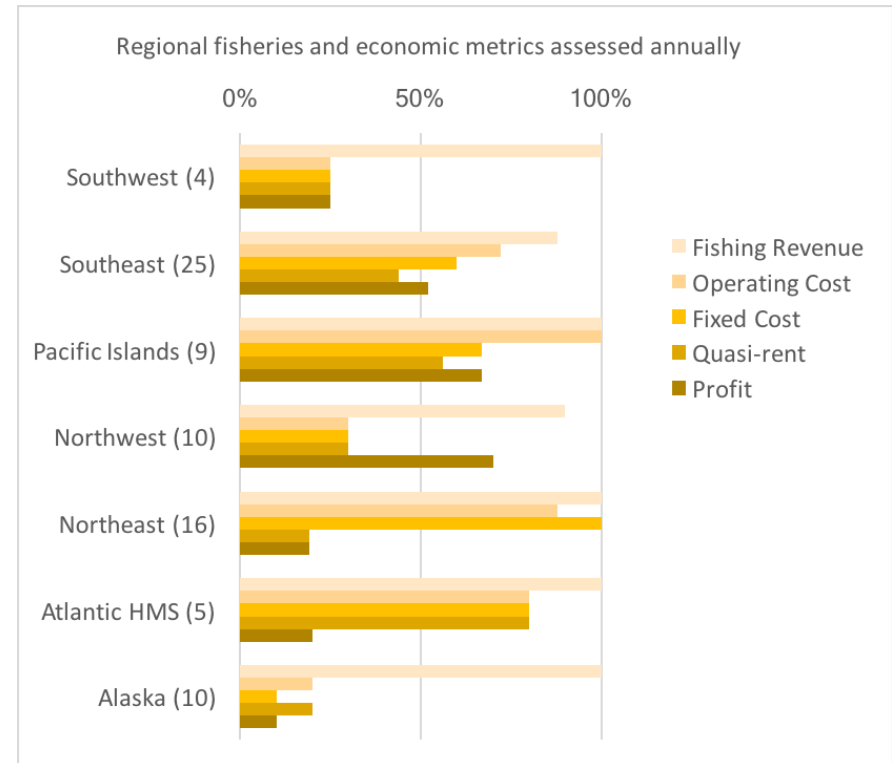
- Developed to support evaluation of A91 Chinook bycatch incentives
 - Vessel fuel survey – consumption rates and annual cost
 - Vessel master survey – descriptive response
 - Compensated transfers of Chinook PSC
- Mandatory census: AFA CVs, AFA C/Ps, PSC Allocation holders
- On-line submission required
- No general operating costs, fixed costs, or employment

GOA Groundfish Trawl

- GOA Trawl rationalization - suspended
- Baseline economic data
- Mandatory annual census
 - Catcher vessel survey: fuel, gear, crew cost
 - Processors: monthly processing employment and wages; monthly utility costs
 - CPs: A80 form
 - No general operating costs or fixed costs

EDR Program - limitations

- Fishery-specific EDRs
- Narrow analytical objectives
- Limited cost data
- Design variation limits generalizability
- Management inefficiencies
- Cost data remains unavailable for most Alaska fisheries





NOAA FISHERIES Collection of U.S. Commercial Fisheries Costs

Overview In 2001, NOAA Fisheries implemented a strategic initiative to improve commercial fisheries economic data. Prior to 2001, cost data collections were sporadic with no data collected in some regions. All regions have improved their cost data coverage.

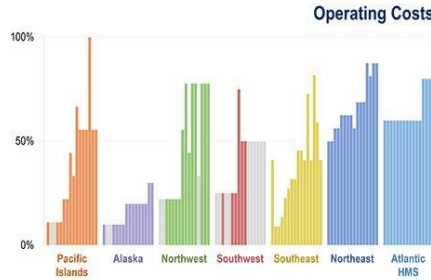
Cost data are collected using a variety of methods such as mail, telephone, in-person, web, and add-ons to existing logbook and observer programs. Some surveys are mandatory while others are voluntary. For some fisheries, a census of trips are surveyed but most are sampled. Some collections are ongoing (logbook/observer programs) while others are one to seven year intervals.

Use of Cost Data in Management and Research:

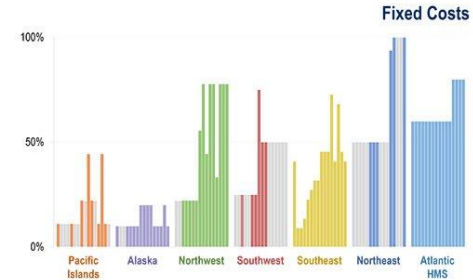
- Estimate net revenue and profits
- Conduct cash flow assessments
- Estimate economic impacts (jobs, sales, etc.)
- Benefit-cost analysis of fisheries regulations (e.g., gear restrictions, time and area closures, bycatch limits, rebuilding plans).
- Benefit-cost analysis of proposed projects affecting fisheries (e.g., dam removal).
- Natural resource damage assessments (e.g., oil spills).
- Ecosystem modeling, including climate-related affects.

Regional Overview: Percent of Fisheries with Fishing Vessel Cost Data (2001-2016)

No Data Collected



OPERATING COSTS = Expenses that vary with the length and number of fishing trips.
Examples: Cost of fuel, food, fishing supplies, hired crew, etc. Actual cost items collected may differ among regions.

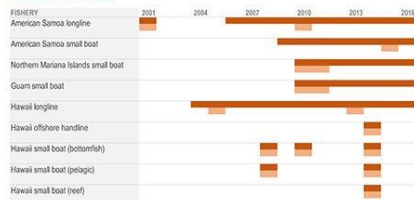


FIXED COSTS = Expenses that are incurred regardless of the level of fishing effort.
Examples: Cost of insurance, interest, accounting/legal fees, etc. Actual cost items collected may differ among regions.

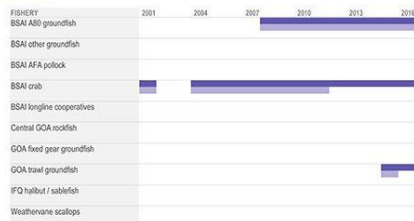
Fishing Vessel Cost Data Collections by Region (2001-2016)

LEGEND Bars = Data Collected | **FOR EACH FISHERY:** Operating Cost = Top bars | Fixed Cost = Bottom bars

Pacific Islands



Alaska



Northwest



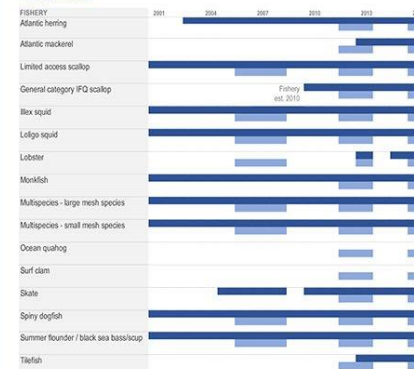
Southwest



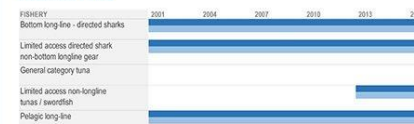
Southeast



Northeast



Atlantic HMS



CITATION Thunberg, E., et al. 2015. A Snapshot of NOAA Fisheries Data Collection of Commercial Fishery Costs. U.S. Dept. of Commer., NOAA Technical Memorandum NMFS-F/SPQ-154, 331 p.

EDR Program - Strengths

- PSMFC/AKFIN
 - Robust data collection platform
 - Online web portal – flexible, stable, efficient
 - Database integration provides rapid validation, analytical reporting
- Experience designing economic data collections
- Improved collaboration with industry

Voluntary Commercial Economic Surveys

SW Alaska Regional Economic Information Survey

- Supplements EDR data
- Designed for minimal burden
- Phase 1/ Phase2
- Industry support/collaboration
- > 50 % response rate



Charter Business Survey

Collaboration with charter industry

- Survey development
- Member participation

This research is endorsed by:



| Year | Population/ Sample Size | Sample rate | Unit Responses | Survey Response Rate | Online (% of n) |
|------|----------------------------|----------------|-------------------|----------------------------|--------------------|
| 2011 | 650 | 1.0 | 174 | 28% | 33% |
| 2012 | 592 | 1.0 | 141 | 24% | 30% |
| 2013 | 572 | 1.0 | 125 | 22% | 50% |
| 2015 | 561/421 | 0.75 | 84 | 21% | 29% |

Comprehensive cost & earnings

- Employment & wages
- Revenue: Charter trips (type, length), services, permits
- Costs: trip/operating, overhead, capitalized
- Client profiles & sources
- Business/household characteristics

Charter Business Survey

Collaboration with charter industry

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Administration

- Pacific States Marine Fisheries Commission
- Mail and EDR Web portal

Non-response adjustment

- Non-respondent survey
- Ancillary data