



NOAA
FISHERIES

Cost-Earnings Data Collection for the Hawaii Small Boat Fishery

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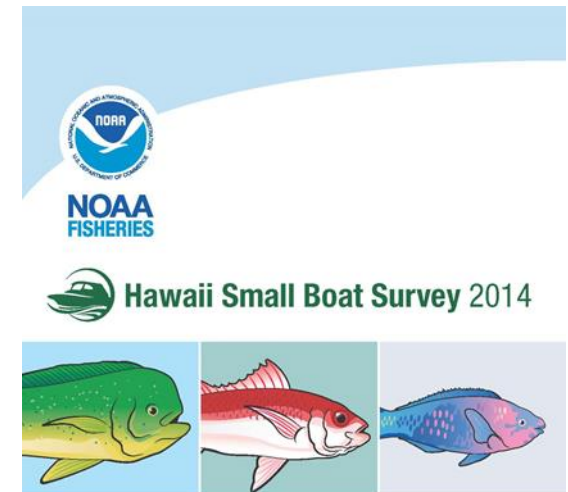
Study Background

- Previous studies on Hawaii small boat fishery, to better understand the important economic and cultural contributions that small boat fishing provided to the State of Hawaii:
 - ✓ 1996, Hamilton & Huffman -- Small boat fishery
 - ✓ 2007-2008, Hospital, Bruce, & Pan -- Small boat pelagic fishery
 - ✓ 2009-2010, Hospital & Beavers -- MHI bottomfish fishery
- New survey fielded in 2014



Study Background

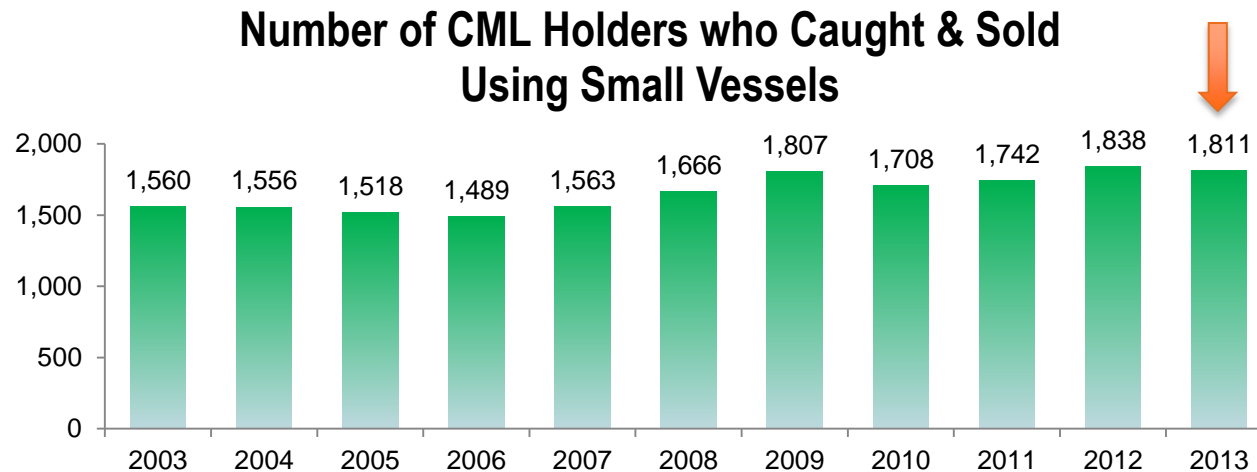
- This study presents a wide range of information to further our understanding of the fishery:
 - ✓ Update fishing costs
 - ✓ Fishing activities
 - ✓ Catch disposition
 - ✓ Market outlets
 - ✓ Fishermen motivations
 - ✓ How fishermen's motivations are associated with the elements above
 - ✓ Fishermen's opinions about management



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U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

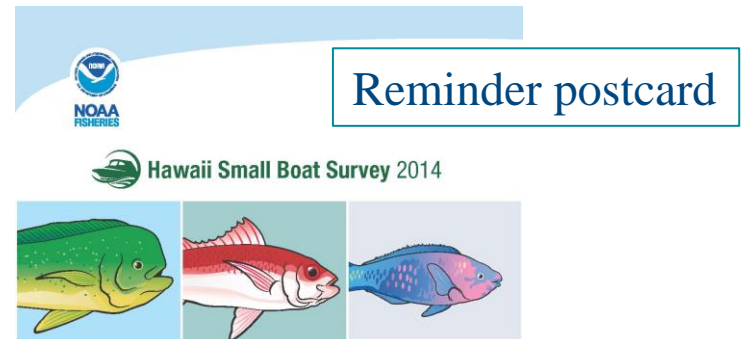
Population – 1,763 CML Holders



- Provided by State of Hawaii Division of Aquatic Resources (HDAR)
- 2013 list of HDAR's Commercial Marine License (CML) holders
- Caught and landed and sold at least one fish using small vessels during 2013 and with valid mailing address
- Excluded charter, longline, aquarium, and precious coral fisheries

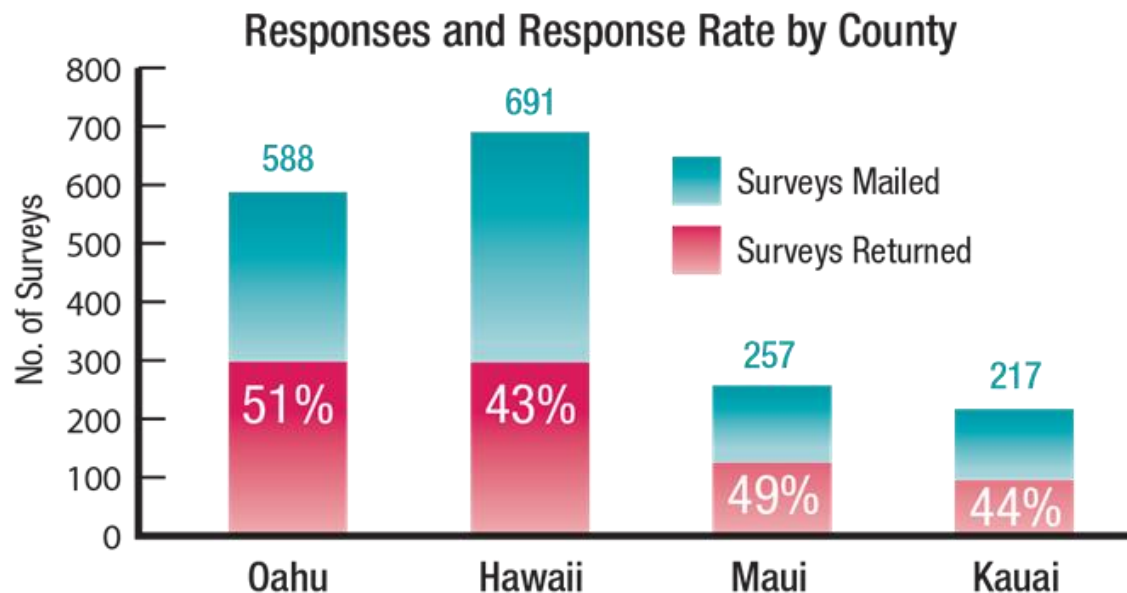
Survey Methodology

- A mail-out survey with Internet fillable option
- Implemented in summer 2014
- Four-wave mailing:
 - ✓ an advance letter notifying fishermen the upcoming survey,
 - ✓ first mailing of survey booklet,
 - ✓ a reminder postcard,
 - ✓ second mailing of survey booklet.
- First time implemented Online survey



Response Rate

- 824 returns (47% overall response rate)
 - ✓ 733 mail
 - ✓ 91 online
- Excluded 18 cases, total sample for analysis = 806
 - ✓ Seamount fishing
 - ✓ Targeted shrimp
 - ✓ Charters
 - ✓ No boat fishing trips in past 12 months
 - ✓ Fished with kayak



Responses by Day

- First survey mailout: June 30
- Reminder postcard: July 7
- Second survey mailout: August 4



Mail and Online Respondents Demographics

- Mail: Hawaiian, White , 55 years+, income <\$100k, high school or less
- Online: Asian, mixed, younger than 55 years, income \$100k+, bachelor's degree or higher

| Percentage of responses | | All respondents | Mail respondents | Online respondents |
|-------------------------|------------------------------------|-----------------|------------------|--------------------|
| Race | Asian | 41 | 40 | 50 |
| | Hispanic or Latino | 1 | 1 | 2 |
| | Native Hawaiian | 15 | 16 | 7 |
| | Other Pacific Islander | 3 | 3 | 2 |
| | White | 26 | 27 | 20 |
| | Mixed | 14 | 14 | 19 |
| | | | | |
| Age | Less than 25 years | 1 | 1 | 0 |
| | 25 - 34 years | 9 | 8 | 12 |
| | 35 - 44 years | 14 | 14 | 17 |
| | 45 - 54 years | 22 | 20 | 36 |
| | 55 - 64 years | 32 | 33 | 26 |
| | More than 64 years | 23 | 24 | 9 |
| | | | | |
| Income | Less than \$10,000 | 3 | 3 | 2 |
| | \$10,000 - \$24,999 | 9 | 9 | 7 |
| | \$25,000 - \$49,999 | 19 | 20 | 8 |
| | \$50,000 - \$99,999 | 40 | 41 | 36 |
| | \$100,000 or more | 29 | 27 | 46 |
| | | | | |
| Education | Less than high school | 5 | 5 | 1 |
| | High school graduate | 26 | 27 | 14 |
| | Some college or associate's degree | 46 | 47 | 44 |
| | Bachelor's degree or higher | 24 | 21 | 41 |



Data Quality Control

- Data entry file: Access database with quality control checks
 - ✓ Drop down boxes for multiple choice questions
 - ✓ Predefined value ranges
- Cleaned data in SPSS with syntax cross-checking responses for consistency and outliers
 - ✓ If answered “did not sell fish in past 12 months”, should not have responses for “distribution channels” and “value of fish sold”
- Compared survey results with fishermen reports and dealer reports submitted to the State of Hawaii HDAR for landings and value of fish sold (legally required to submit to HDAR)

Population vs. Survey Responses: Landings

- Linked survey data with landing data in the State of Hawaii HDAR's fishermen reports for population
- Survey responses are representative of the Hawaii small boat fleet
- E.g. landings over 500 lbs per CML holder: 66% population vs. 62% survey respondents

| Total landings per CML holder (lbs) | HDAR Population (July 2013-June 2014) (%) | Survey Responses (%) |
|-------------------------------------|---|----------------------|
| 0 | 0.4 | 2 |
| 1-50 | 5 | 4 |
| 51-100 | 4 | 5 |
| 101-500 | 25 | 28 |
| >500 | 66 | 62 |
| Total Landings | 5.9 mill lbs | 2.2 mill lbs |
| Landings per CML holder | | |
| Mean | 3,199 lbs | 2,798 lbs |
| Median | 984 lbs | 750 lbs |



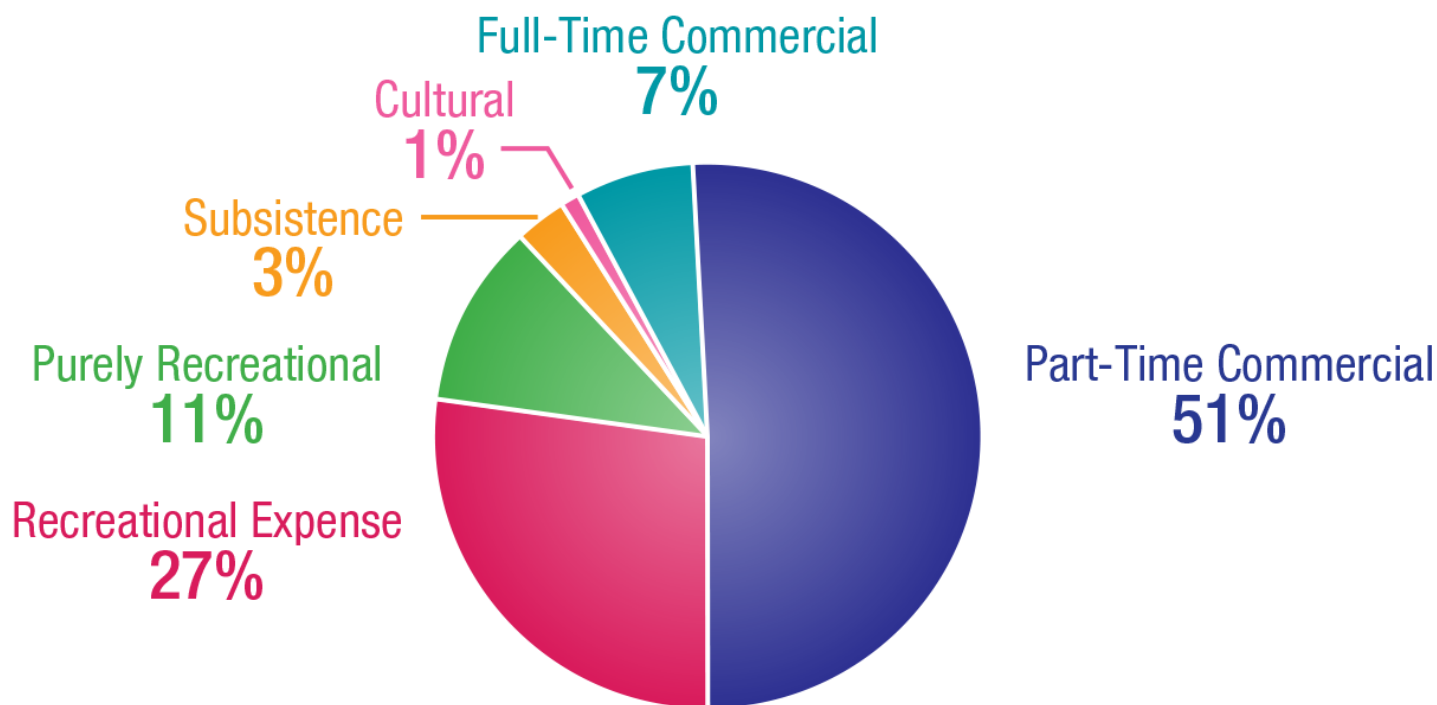
Vessel Characteristics

| | Mean | Median | Minimum | Maximum |
|----------------|----------|----------|---------|-----------|
| Length (feet) | 23 | 22 | 13 | 52 |
| Purchase price | \$39,661 | \$26,000 | \$300 | \$550,000 |
| Market value | \$43,039 | \$30,000 | \$500 | \$600,000 |



Fishermen Types: Self-defined Motivations

The question asked: “How do you define yourself as a fisherman?
(check one that applies)



Summary of Results



Fishing Costs by Gear Type and by Fisherman Type

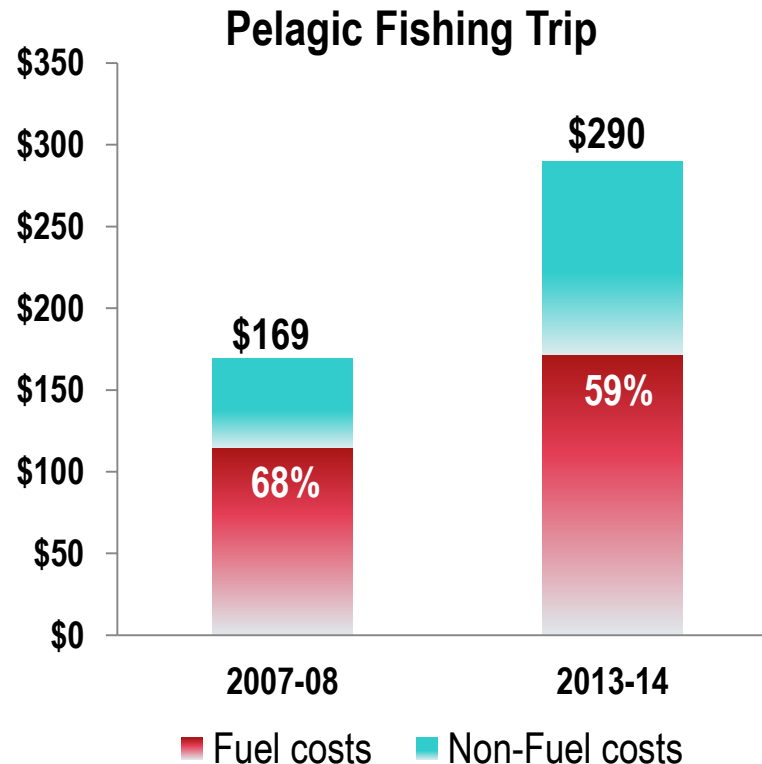
Fishing Trip Costs

- Fishing trip cost: mean = \$269, median = \$230
- Contribution by category:
 - ✓ Boat and truck fuels = \$156 (58%),
 - ✓ Ice = \$33 (12%),
 - ✓ Food & beverage, daily maintenance & repair, bait (~\$24, 9% each)

| | Trip Costs (\$) | % of Total Trip Costs |
|----------------------------|-----------------|-----------------------|
| Boat fuel | 131 | 49% |
| Truck fuel | 25 | 9% |
| Oil | 7 | 3% |
| Ice | 33 | 12% |
| Food & beverage | 25 | 9% |
| Daily maintenance & repair | 24 | 9% |
| Bait | 23 | 9% |
| Other trip | 1 | 0.3% |
| TRIP COSTS | \$269 | 100% |

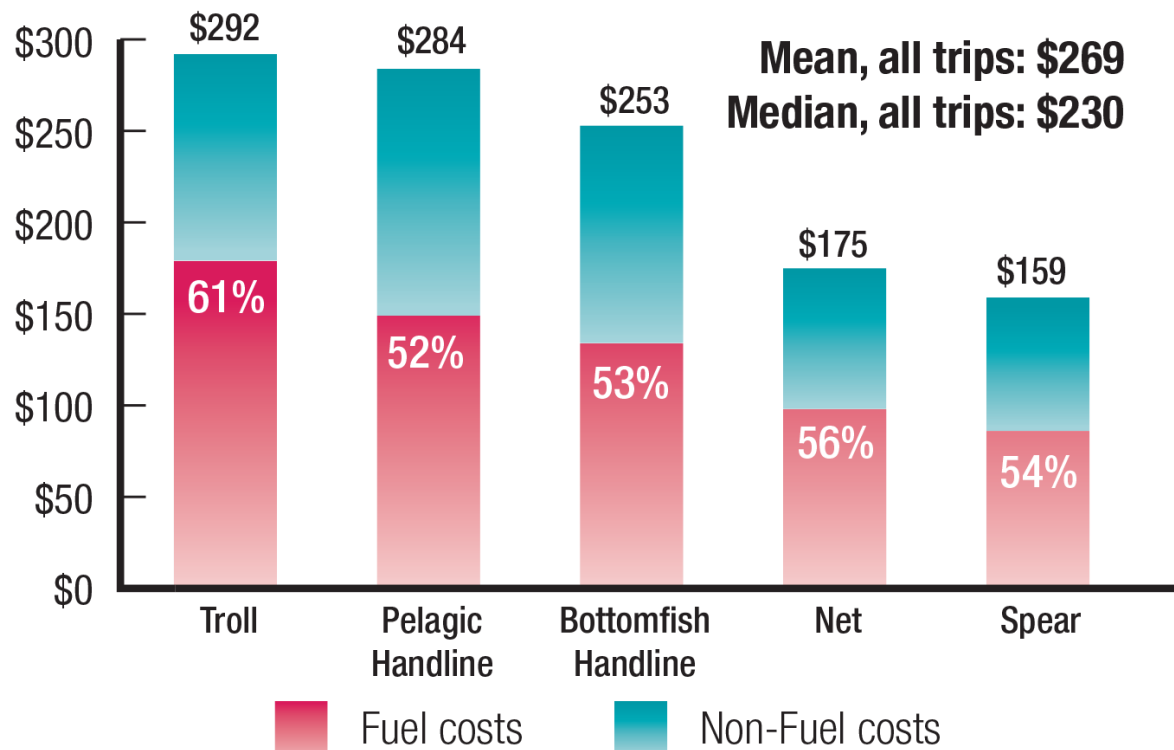
Fishing Trip Costs: Comparison with Past Studies

- Higher trip costs in the current study
 - ✓ Pelagic fishery: 71% increase over 6 years in nominal values, 46% increase in real values
 - ✓ Fuel costs: 50% increase in nominal values, 28% increase in real values (fuel price increase)



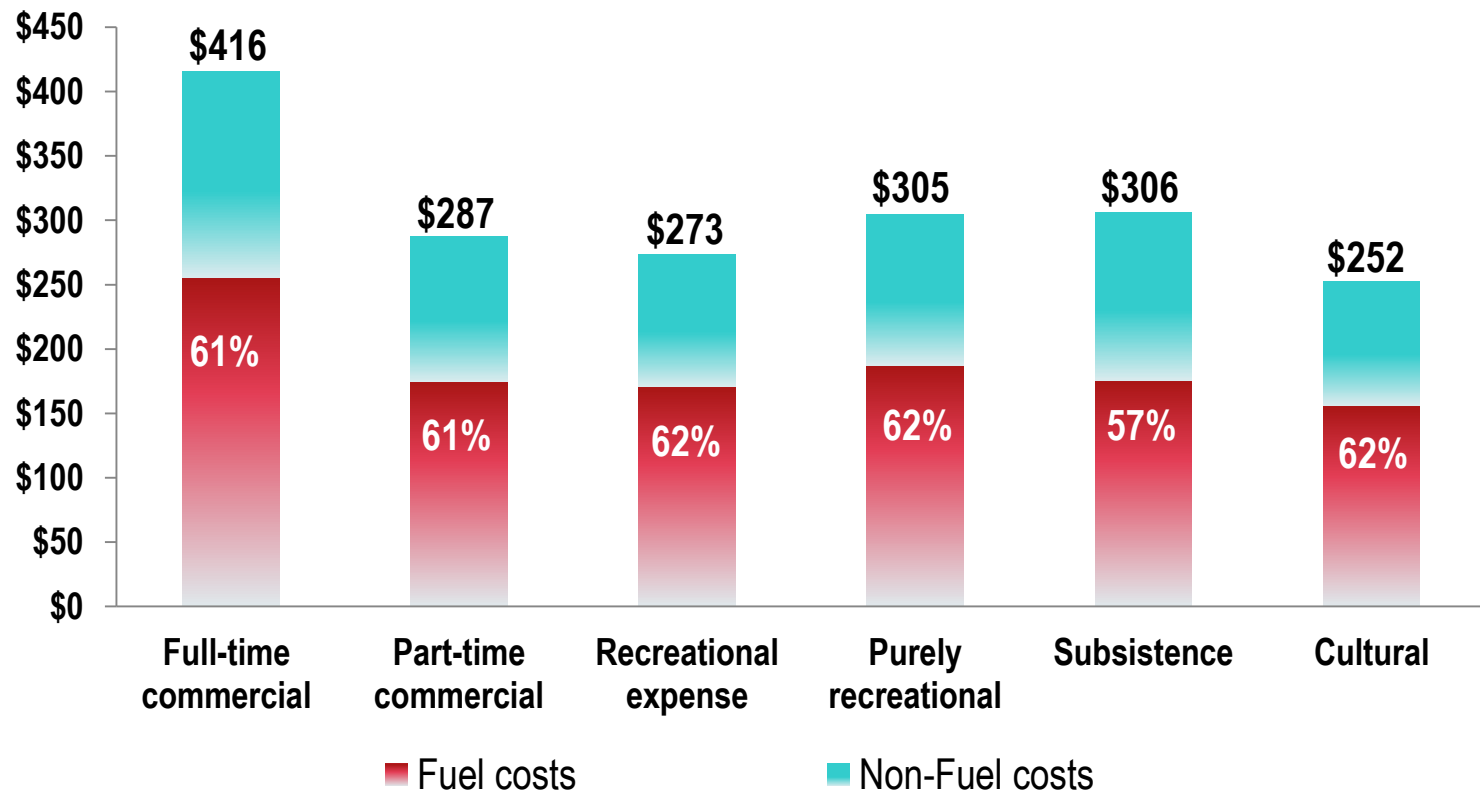
Fishing Trip Costs by Gear Type

- Based on the trip costs fishermen spent for their most common and second most common gear type trips in the past 12 months
- Higher trip costs for trolling trips and pelagic handline trips
- More than half of the trip costs were for boat and truck fuels



Trolling Trip Costs by Fisherman Type

- Higher trolling trip costs for full-time commercial fishermen
- Lower costs for cultural and recreational expense fishermen
- Similar composition across fisherman type



Annual Fixed Costs

- Lower fixed cost in current study, mainly in boat and trailer repair/maintenance/improvements
- Two possible reasons:
 - ✓ Fishermen really spent less in maintenance
 - ✓ Different survey methodologies: previous studies used in-person interviews, less likely to capture non-commercial fishermen

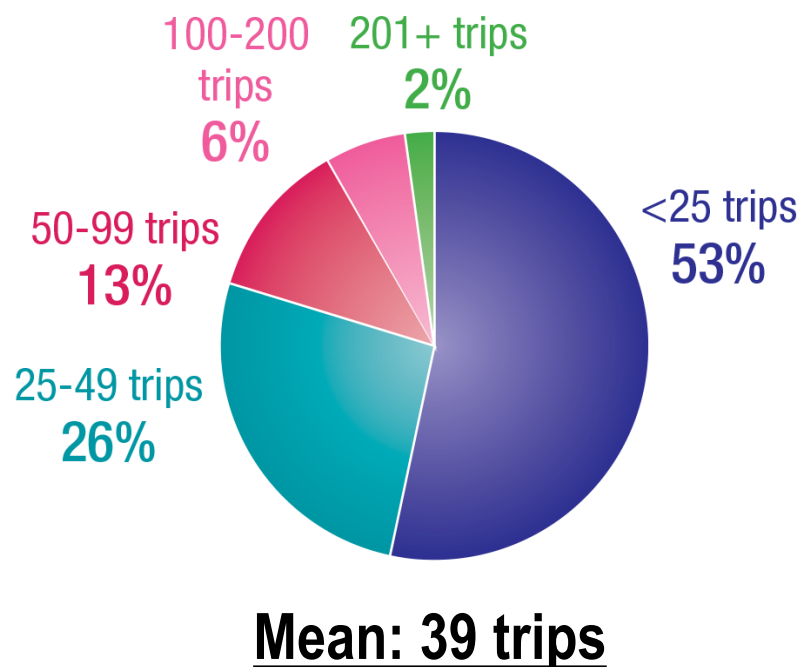
| | Pelagic Fishery | |
|---|-------------------------------------|--|
| | Past study, 2007 expenditures | Current study, 2013 expenditures |
| Boat and trailer repair/ maintenance/ improvements | 6,880 | 1,635 |
| Others | 4,222 | 3,922 |
| ANNUAL FIXED COSTS | 11,102 | 5,557 |



Fishing Activities in the Past 12 Months

Number of Boat Fishing Trips Per Year

- Majority of the fishermen took < 50 trips a year
 - ✓ 53% took < 25 trips per year (< 2 trips per month)
 - ✓ 26% took 25 to 49 trips per year (~2 to 4 trips per month)
 - ✓ 8% over 100 trips per year



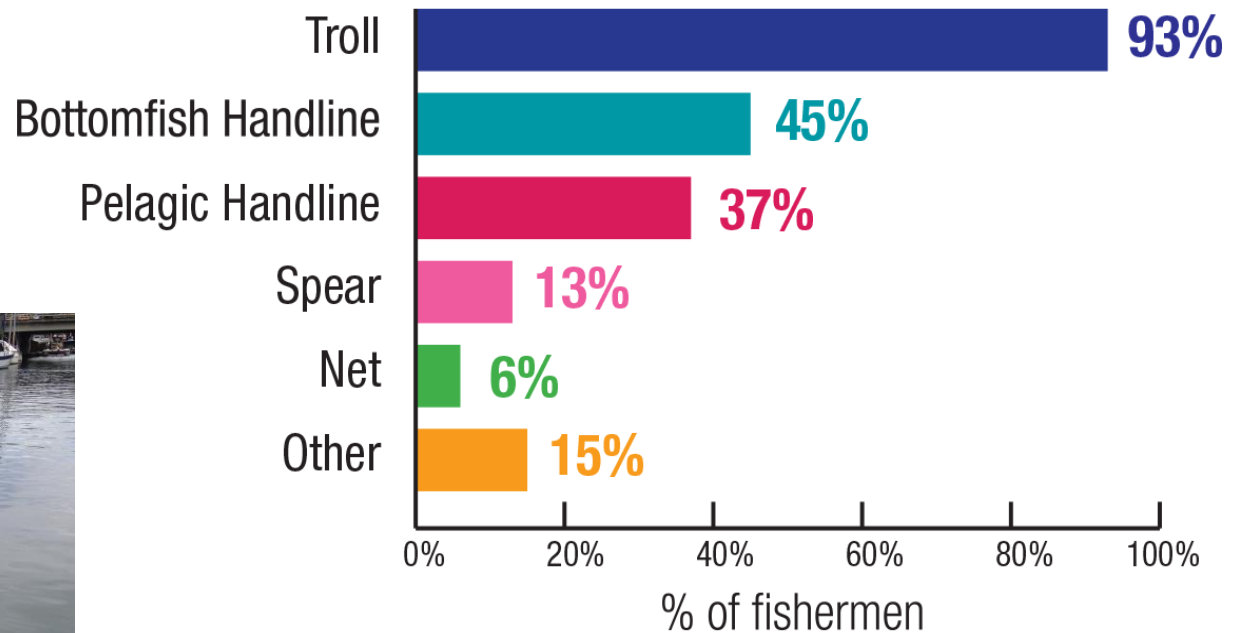
Number of trips varied by fisherman type

| | # of trips |
|----------------------|------------|
| Full-time commercial | 99 |
| Part-time commercial | 41 |
| Recreational expense | 28 |
| Purely recreational | 20 |
| Subsistence | 28 |
| Cultural | 18 |

Type of Gear Used

Survey asked percent of boat fishing trips

- Trolling (93% fishermen had trolling trips)
- Handline for Pelagic
- Handline for Bottomfish
- Spearfishing
- Nets
- Other gear

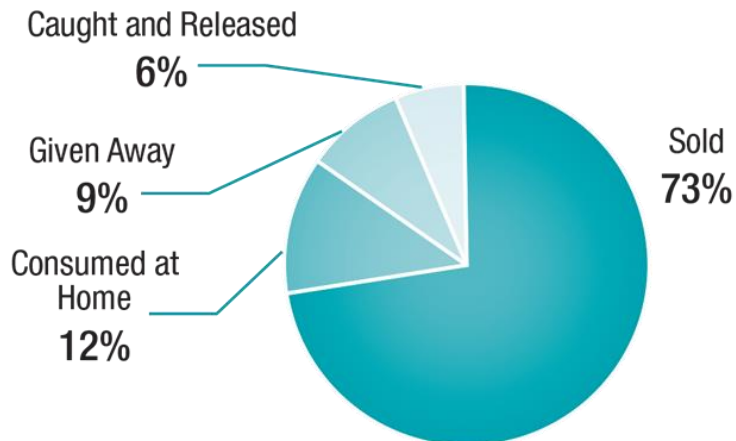


Catch Disposition

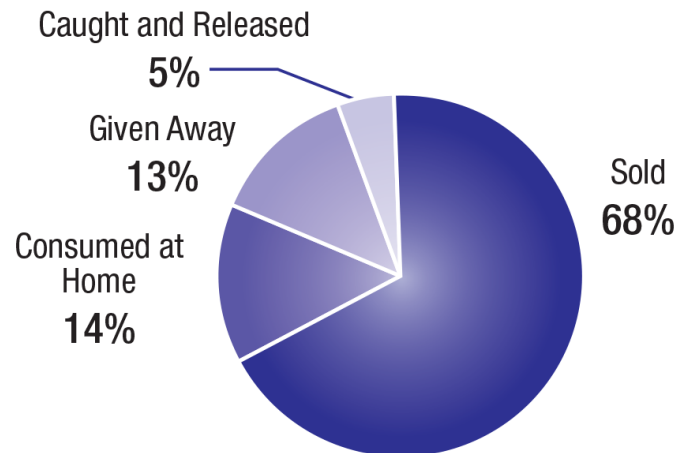


Catch Disposition by Fisherman Type (%)

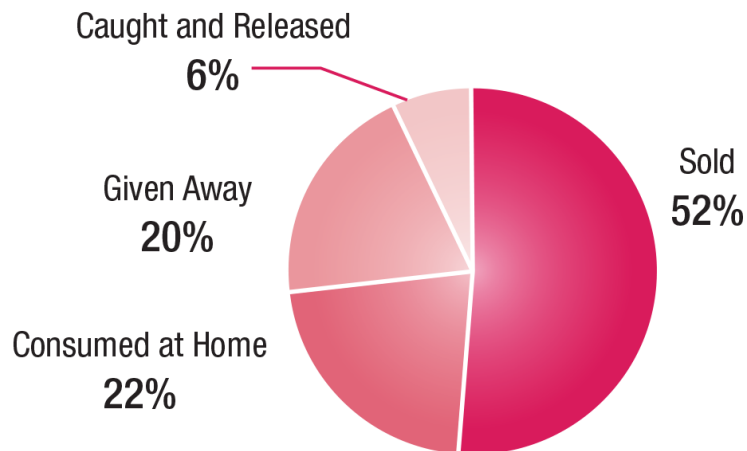
Full-Time Commercial Fishermen



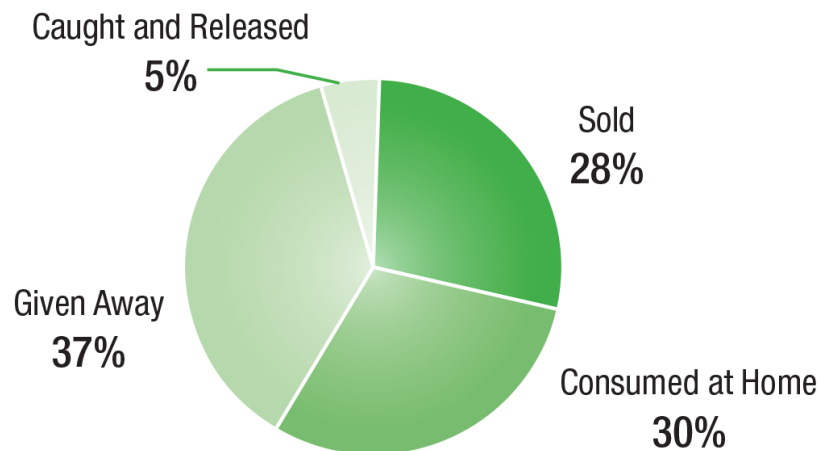
Part-Time Commercial Fishermen



Recreational Expense Fishermen

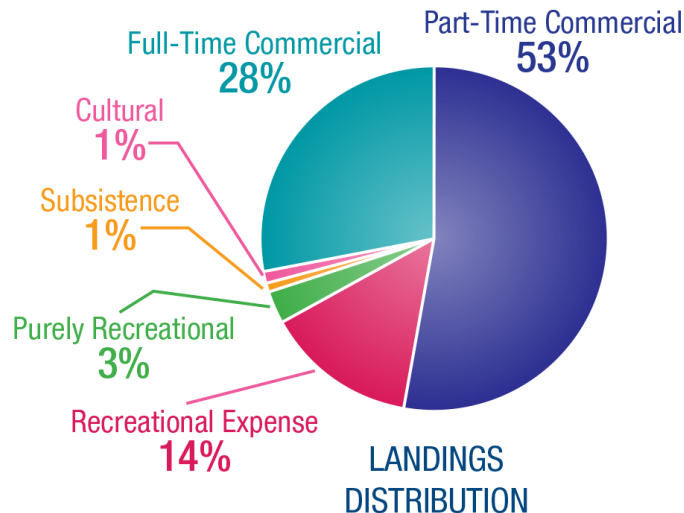


Purely Recreational Fishermen



Landings by Fisherman Type

- The total landings of pelagic fish, bottomfish, and reef fish by all respondents were 2.2 million pounds
- Commercial (part-time and full-time) fishermen landed 81%

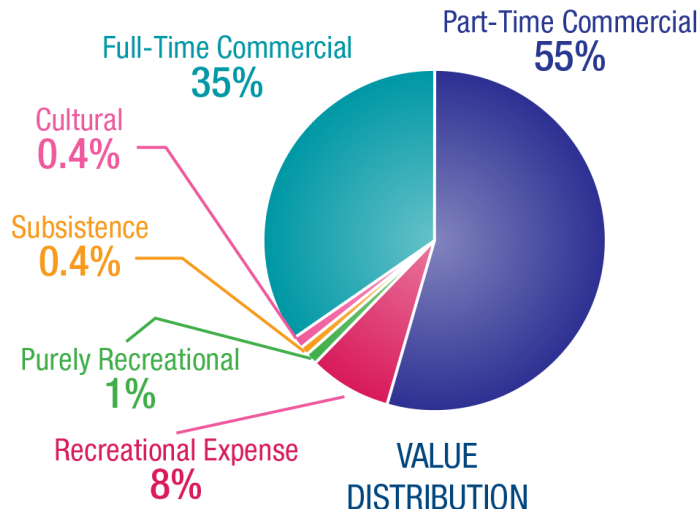


Annual and per trip landings varied by fisherman type

| | Annual landings per CML (lbs) | Landings per trip (lbs) |
|----------------------|-------------------------------|-------------------------|
| Full-time commercial | 10,632 | 150 |
| Part-time commercial | 2,837 | 89 |
| Recreational expense | 1,485 | 53 |
| Purely recreational | 624 | 35 |
| Subsistence | 922 | 39 |
| Cultural | 3,581 | 126 |

Value of Fish Sold by Fisherman Type

- The total value of fish sold valued at \$5.5 million
- Commercial fishermen represented 90% of total fish sold value

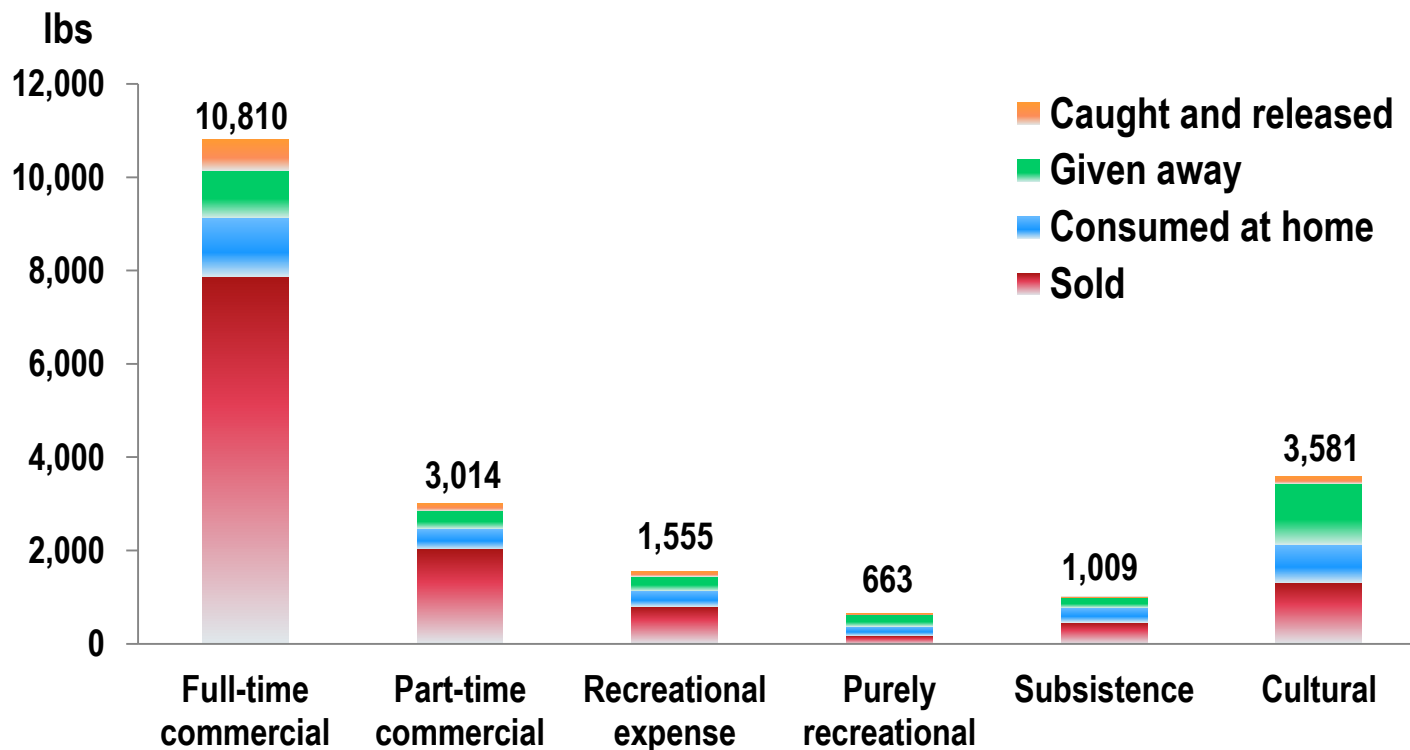


Annual and per trip value of fish sold varied by fisherman type

| | Annual value of fish sold per CML (\$) | Value of fish sold per trip (\$) |
|----------------------|--|----------------------------------|
| Full-time commercial | 35,528 | 558 |
| Part-time commercial | 8,391 | 245 |
| Recreational expense | 2,690 | 95 |
| Purely recreational | 995 | 58 |
| Subsistence | 1,905 | 79 |
| Cultural | 3,900 | 150 |

Catch Disposition by Fisherman Type (lbs)

- Commercial fishermen play important social role:
 - ✓ significant portions of catch for home consumption/given away
- Selling fish are common for non-commercial fishermen, but limited
 - ✓ 800 lbs per recreational expense, 180 lbs per purely recreational annually
- “Cultural” fishermen apparently are different from others



Did You Sell Fish in the Past 12 Months?

- Time between survey implementation and drew population:
 - ✓ Overall, 83% sold some fish they caught in the past 12 months
- Purely recreational and subsistence fishermen are less likely to sell

| | Yes (%) | No (%) |
|---------------------------------|------------|-----------|
| Full Sample | 83 | 17 |
| By Fisher Classification | | |
| Full-time commercial | 100 | 0 |
| Part-time commercial | 91 | 9 |
| Recreational expense | 81 | 19 |
| Purely recreational | 50 | 50 |
| Subsistence | 44 | 56 |
| Cultural | 75 | 25 |

Market Outlets

- 72% sold to wholesaler/auction
- 42% to restaurants/stores
- 27% to friends/neighbors/coworkers
- 8% to roadside/farmers' market
- Variation by county
- Slight variation by fisherman type: wholesaler/auction was most commonly used



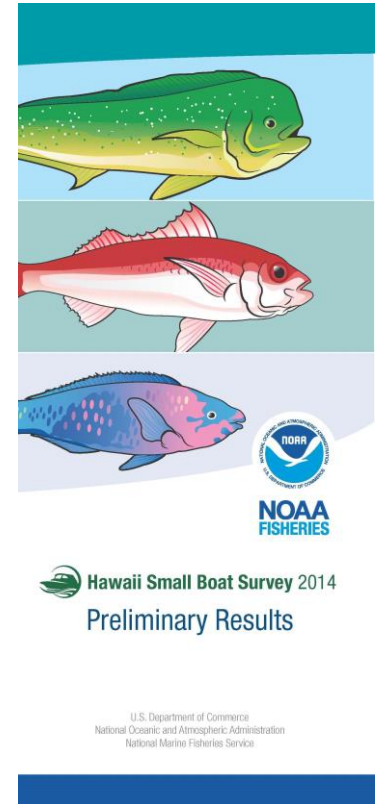
| Market Outlet | % of Fishermen | | | | |
|-----------------------------|-----------------|------|--------|------|-------|
| | State of Hawaii | Oahu | Hawaii | Maui | Kauai |
| Wholesaler/auction | 72% | 79% | 79% | 49% | 54% |
| Restaurants/stores | 42% | 28% | 43% | 65% | 56% |
| Friends/neighbors/coworkers | 27% | 28% | 22% | 42% | 24% |
| Roadside/farmers' market | 8% | 7% | 7% | 16% | 4% |

Summary

- Fishing activities and fish disposition reflected their motivations
- Commercial fishermen made more trips, had higher catch per trip, and higher percentage of sale
- Commercial fishermen also had substantial amount of catch for non-commercial purposes
- Non-commercial fishermen also sold their catch, but the amount of fish sold was much lower
- Trip cost increased

Current Status

- A brochure of key preliminary findings was published and distributed in April 2016 to all the small boat fishermen who received the survey
- Detailed information will be documented in forthcoming NOAA technical report
- Further study on commercial fishermen's motivations and their economic and cultural contributions in 2017



Mahalo!

Questions?

