Community Profiles: Fishing Communities of the Western U.S.

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Introduction: Significance of Fishing Communities

Magnuson-Stevens Fisheries Conservation and Management Act National Standard 8 (section 301(8)) requires that :

Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

Significance of Fishing Communities continued…

The term "fishing community" means a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community. 16 U.S.C. 1802 §3 (16).

Phase 1 Tasks:
Enumerating communities potentially impacted by North Pacific (NPFMC) and Pacific Fishery Management Council (PFMC) regulations

- Use indicators pulled from existing data to link communities to fisheries
- Develop method to order communities
- Define "substantially engaged" or "substantially dependent" and develop means of analyzing existing data according to these definitions
- Organize list and/or lists of dependent and engaged communities

Phase 2 Tasks:
Selecting and profiling communities potentially impacted by North Pacific (NPFMC) and Pacific Fishery Management Council (PFMC) regulations

- Develop means of selecting from list of communities linked to fishing (via threshold or "natural breaks" or other means of reducing the list size) for short-form profiling
- Design profile outlines
- Produce profiles of selected communities

Phase 3 Tasks:
Finalizing and Updating Profiles

- Distribute profiles within NOAA as well as to community representatives for comment
- Integrate comments, edit profiles, and produce profile visuals and graphs
- Finalize profiles document (introduction, methodology, profiles, appendices)
- Update profiles with new fisheries data

Western States Profiles as Extensions of Alaskan Profiles

- Alaskan community profiles of 2003 provide excellent templates and approach is modified based upon lessons learned and distinctions from Alaska

- Western states communities frequently involved in fisheries in the North Pacific management region and/or the Pacific fishery management region

- Joint profiling efforts allow for efficiency and discussion of engagement and dependence on both fisheries areas, if necessary

Moss Landing, CA: Photo by Robin Petersen

Fishing Community Indicators

From an initial list of 12 potential MSAFC indicators, we were able to use 5 of the first 6…..

- **Indicator 1: Metric tons of fish landed in the community compared to appropriate standard**
- **Indicator 2: Value of fish landed in the community compared to appropriate standard**
- **Indicator 3: Number of vessels delivering fish to that community compared to appropriate standard**
- **Indicator 4: Number of permits/permit holders residing in the community compared to appropriate standard (3 elements: count of all permits, count of individuals holding state permits, individuals holding federal permits)**
- **Indicator 6: Number of fishing vessels owned by residents of the community compared to appropriate standard**

Indicator 5 – crew member residences (not used because not available for West Coast)

Dependence vs. Engagement: Data Envelopment Analysis (DEA) Model as Method for each

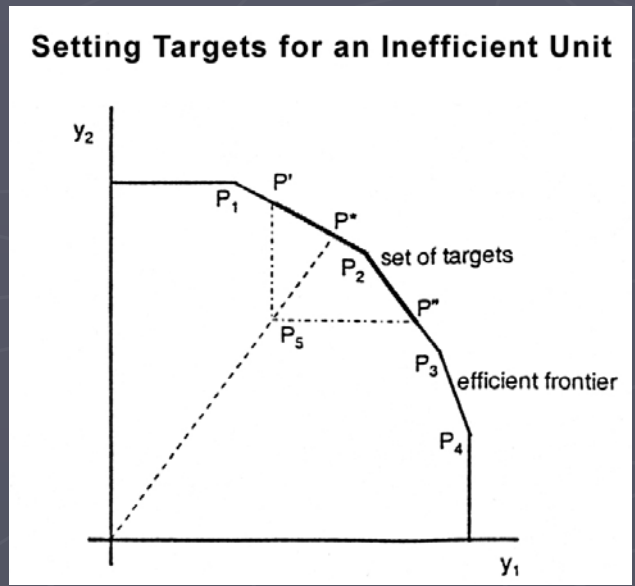
DEPENDENCE:

Dependence refers to the level of involvement in *fishing in general* for a particular community.

ENGAGEMENT:

Engagement refers to the level of participation by a particular community in a *specific fishery*.

DEA model analysis produces a score between 1.0 and 0.0 for both dependence and engagement. The closer a community to the frontier for each analysis, the closer the score is to 1.0. Higher scores reflect more dependence on or engagement in fishing.



Two dimensional representation of the n-dimensional DEA model

Dependence vs. Engagement
Dependence Score

- The first run of the DEA model for communities refers to a combined score for West Coast (WC) and North Pacific (NP) dependence.
- These communities are "dependent" on fishing coastal Alaska or the Pacific West Coast or both.
- Communities that have a DEA dependence score equal to or greater than the mean score for all communities (0.0870) plus one standard deviation (0.1948) will be profiled.
- Thus, the "dependence" score must be at least 0.2819.

Port Orford, OR: Photo by Karma Norman

Dependent Community List:

North Pacific and West Coast Dependence (ascending beginning with smallest population)

Mean Score = .0870 / Total communities = 1560 /Total to profile = 77

YEAR	STATE	COMUNITY	Score
2000	WA	TOKELAND	1.0000
2000	CA	FIELDS LANDING	1.0000
2000	CA	MOSS LANDING	1.0000
2000	WA	CATHLAMET	1.0000
2000	OR	PORT ORFORD	1.0000
2000	CA	BODEGA BAY	1.0000
2000	CA	TERMINAL ISLAND	1.0000
2000	WA	WESTPORT	1.0000
2000	WA	BLAINE	1.0000
2000	CA	CRESCENT CITY	1.0000
2000	CA	FORT BRAGG	1.0000
2000	OR	NEWPORT	1.0000
2000	OR	ASTORIA	1.0000
2000	WA	BELLINGHAM	1.0000
2000	CA	SAN PEDRO	1.0000
2000	CA	SANTA BARBARA	1.0000
2000	WA	SEATTLE	1.0000
2000	CA	SAN DIEGO	1.0000
2000	WA	SHELTON	0.9434
2000	CA	PRINCETON	0.9091
2000	OR	TOLEDO	0.8929

Dependence vs. Engagement
Fishery Engagement Score

- The second run of the DEA model for communities produced three engagement scores - engagement in fisheries in the *WC only*, *WC/NP combined*, and *NP only*.
- Lists for *WC only* and *WC/NP combined* are used.
- The *NP only* communities list is compared against 2003 profiles (7 communities must be added to the Alaskan profiles of 2003)
- Communities with at least one std. deviation above the mean for "engagement" will be added to our dependent list

Port Orford, OR: Photos by Karma Norman

Fisheries Engagement Community Lists:

Part II for West Coast and North Pacific (WC/NP) Combined Score

Mean = .0699 / Total communities = 1477 /Total to profile = 94

1	YEAR	STATE	COMMUNITY	SCORE
2	2000	WA	SEATTLE	1.0000
3	2000	WA	ANACORTES	1.0000
4	2000	WA	OLYMPIA	1.0000
5	2000	WA	BLAINE	1.0000
6	2000	WA	WESTPORT	1.0000
7	2000	WA	TOKELAND	1.0000
8	2000	VA	SEAFORD	1.0000
9	2000	OR	HARBOR	1.0000
10	2000	OR	NEWPORT	1.0000
11	2000	OR	HAMMOND	1.0000
12	2000	OR	BANDON	1.0000
13	2000	OR	ROSEBURG	1.0000
14	2000	OR	PORT ORFORD	1.0000
15	2000	OR	GARIBALDI	1.0000
16	2000	CA	TERMINAL ISLAND	1.0000
17	2000	CA	TARZANA	1.0000
18	2000	CA	FORT BRAGG	1.0000
19	2000	CA	SANTA BARBARA	1.0000
20	2000	CA	SAN PEDRO	1.0000
21	2000	CA	SAN DIEGO	1.0000
22	2000	CA	CRESCENT CITY	1.0000

Fisheries Engagement Community Lists:
Part II for West Coast (WC) Only
Mean = .0853 / Total communities = 904 /Total to profile = 65

YEAR	STATE	COMMUNITY	WC ONLY
2000	WA	SEATTLE	1.0000
2000	OR	NEWPORT	1.0000
2000	WA	BELLINGHAM	1.0000
2000	OR	PORT ORFORD	1.0000
2000	CA	CRESCENT CITY	1.0000
2000	WA	WESTPORT	1.0000
2000	CA	FORT BRAGG	1.0000
2000	CA	SAN DIEGO	1.0000
2000	WA	BLAINE	1.0000
2000	OR	BANDON	1.0000
2000	WA	OLYMPIA	1.0000
2000	OR	HAMMOND	1.0000
2000	CA	SANTA BARBARA	1.0000
2000	OR	GARIBALDI	1.0000
2000	OR	ROSEBURG	1.0000
2000	CA	TERMINAL ISLAND	1.0000
2000	WA	TOKELAND	1.0000
2000	OR	HARBOR	1.0000
2000	CA	TARZANA	1.0000
2000	CA	BODEGA BAY	0.9901
2000	WA	GIG HARBOR	0.9174

Both Dependent and Engaged Communities
77 WC/NP Dependent + 94 WC/NP Engaged + 65 WC only = a total of **122** distinct communities to profile

WA	TOKELAND	1.0000
WA	CATHLAMET	1.0000
WA	OLYMPIA	1.0000
WA	WESTPORT	1.0000
WA	BLAINE	1.0000
OR	ROSEBURG	1.0000
WA	BELLINGHAM	1.0000
WA	SEATTLE	1.0000
CA	TARZANA	1.0000
OR	PORT ORFORD	1.0000
OR	NEWPORT	1.0000
OR	CHARLESTON	0.9009
OR	ASTORIA	1.0000
CA	FIELDS LANDING	1.0000
CA	UKIAH	0.6211
CA	MOSS LANDING	1.0000
CA	BODEGA BAY	1.0000
CA	PEBBLE BEACH	0.5988
CA	SAN JOSE	0.3597

white = Part I *dependent* yellow = Part II WC/NP combined *engaged*

red = WC only *engaged*

Data Sources

- **Selection Process Data Sources:**

  PacFIN, WA, OR, CA, AK state agencies, U.S. Census

- **Additional Profile Content Data Sources:**

  Web research, Processed Products Survey, Sportfish business and license databases, ADF&G, field visit data, research team survey

Port Orford, OR: Photo by Karma Norman

Profile Content

Profile Outline

I. People and Place

a) Location
b) Demographics
c) History

II. Infrastructure

a) Current economy
b) Governance
c) Facilities

III. Involvement in West Coast Fisheries

a) Commercial fishing
b) Sport fishing
c) Subsistence

IV. Involvement in North Pacific Fisheries

a) Commercial fishing
b) Sport fishing
c) Subsistence

V. Additional Information

2004 Narrative Community Profile Outline

The following citations indicate the appropriate Table # within the US Census database at the "Place" geographic type (Red = SF3, **Blue = SF1**). Use the **SF1** data where available. *Italicized* items are optional: see individual footnotes.

People and Place

- Location:
  a) description of geographic location:
     i. lat/long[1]
     ii. distance (in driving miles) to nearest of Seattle, Portland, San Francisco, Los Angeles, and San Diego[2]
  b) area in square miles (both land and water)[3]
- Demographic profile:[4]
  a) number of inhabitants, (P1) **(P1)**
  b) short demographic evolution[5]
  c) gender structure **(P12)**
  d) median age **(P13)**
  e) *age structure* **(P12)**[6]
  f) level of educational attainments for 18+ (PCT25)[7]
  g) *% individuals living in family households* **(P27)**[8]
  h) racial and ethnic composition, **(P7, P8)**
  i) foreign born (PCT19)[9]
  j) *ancestry* (PCT16)[10]
- History:
  a) brief account of local history

Infrastructure

- Current Economy:
  a) major employers/businesses in community
  b) employment structure
     i. employment status (P43)[11]
     ii. for agriculture, forestry, fishing, and hunting (P49)[12]
     iii. *elaborate on any major employers/businesses listed in 'a' above* (P49)[13]
     iv. *percent of population in military* (P43)[14]
     v. percent employed by government (P51)[15]
  c) *presence of subsistence*
  d) per capita income (P82)
  e) median household income (P53)
  f) percent below poverty level (P87)
  g) number of housing units **(H3)**
  h) percent of housing units occupied/vacant **(H3)**
  i) owner occupied vs. renter occupied **(H4)**
  j) *percentage of vacancies that are due to seasonal use, migrant workers, etc...* **(H5)**[16]

Project Status

- Initial data analysis complete
- 45 profile rough drafts complete
- Profiling field visits complete for WA, OR, CA
- Established priority list for remaining profiles

Moss Landing, CA: Photo by Robin Petersen

CONCLUSIONS:
Data Challenges

- **Substantial lead time:**

  Early requests for data from multiple and varying sources is required.

- **State and Federal Data Commensurability:**

  Considering engagement by fishery depends upon squeezing state data into federal fisheries management categories (e.g. states permit specific species and gear types which then must be placed into categories like HMS, Groundfish, Salmon, etc.)

- **PacFIN Improvements:**

  Many of the additions in the works even as the project began were beneficial or will be beneficial to community profiling work in future, but further integration of state data into PacFIN is desired.

- **Confidentiality Issues:**

  PacFIN clumps data for smaller communities into port-complexes for confidentiality reasons. This can cloud our analysis and makes descriptions of fisheries involvement in the profiles difficult.

CONCLUSIONS cont'd: Project Design and Management Challenges

Project Aspect	Challenges	Solutions for Future?
Team Approach	Communication: is each team member notified of decisions? Information management: new data made accessible to all?	Single team member to centralize new information flow and ensure communication
Disparate data sources	Data trickles in or is substantially delayed, new analyses push team efforts into new directions	Use established quantitative means of limiting communities
Condensed project schedule	Data gathering period, analysis period, and write-up period all overlapping	Protocols will make planning easier, and allow separate research periods
Uniformity	Quality qualitative social science writing made difficult: how to cope with distinctive situations in communities?	Consider revising approach based on management feedback