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FISHERIES

Recreational fishing in California's Central Valley: results of a 2015 study

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Motivations for this research

- 10 Endangered Species Act-listed anadromous species in CA:
 - Central CA Coast coho salmon evolutionarily significant unit (ESU)
 - Sacramento River winter-run chinook salmon ESU
- To estimate benefits associated with restoring or improving fish passage to areas that are currently not accessible to anadromous species
- To develop a tool that can be used by fisheries managers to project the potential effects of fish passage over Central Valley dams on recreational salmon fishing

California's Central Valley

- Sacramento River
- San Joaquin River
- The Delta



Challenges for anadromous species

- Habitat loss: agriculture, water volume



Source: <https://www.ucdavis.edu/news/study-floodplain-farm-fields-benefit-juvenile-salmon/>



Source: <http://almondinsights.com/blue-diamond-almond-bloom-report-march-5-2013>

More challenges for anadromous species

- Habitat impediments: dams, culverts
- Habitat degradation: temperature, oxygen
- Climate change: drought
- Commercial, recreational fishing



Source: https://www.usbr.gov/mp/ncao/shasta/virtual_tour.pdf

Fish passage for salmon



Photo credits: J. Notch, UCSC/SWFSC



Central Valley fishing



Central Valley fishing



Photo credits: J. Notch, UCSC/SWFSC

2015 Central Valley Angler Survey

Purpose: To learn whether and under what conditions Central Valley anglers 'may be' interested in new salmon fishing opportunities in areas above dams

Target population: adult California fishing license holders who fished on the Sacramento River system in the previous year

Method of data collection:

- Random telephone survey of license holders to identify anglers who fished in the Sacramento River in the past year; and
- Mail follow-up survey

More about the survey

- Telephone survey:
 - 80,000 households were called to recruit just over 6,000 participants
- Mail survey: 2,053 completed
 - 34% response rate
- Types of data collected:
 - Fishing participation, effort (days), expenditures (durables, trip-related)
 - Target species, habitat conditions/amenities/aesthetics at fished sites
 - Demographics

Central Valley Sport Fishing



Photo credits: Matt Johnson (top left), Cyril Michei (top right), Cindy Thomson (bottom right), Jeremy Notch (bottom left)

We want to learn about your fishing experience in the Central Valley!
Participation in this survey is voluntary.

Your Response is Important!
Please address any questions you have regarding this survey to:
888-978-1767 or fishingsurvey@cicresearch.com



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Some results

- During the 2014-15 season, approximately 94,065 anglers fished on the Sacramento River system and took 532,465 trips.
- These anglers spent about \$142.9 million:
 - \$53.4 million on trip-related expenses (\$100.21 per angler trip)
 - \$89.4 million on equipment/vehicles/boats used primarily for fishing (\$951.08 per angler)

Central Valley anglers

	Central Valley anglers	California's adult population
Older than 54 years	48%	30%
Male	90%	50%
Non-Hispanic White	78%	44%
At least 4-year college degree	40%	31%

Angler Characteristics	Salmon anglers	Non-salmon anglers
Days fished on the Sacramento River system in past year	7-12	3-6
Boat owner	48%	28%
Average annual expenses on durable items purchased primarily for fishing: fishing equipment, boats and vehicles	\$1,751	\$1,106
Years of fishing experience	21-30	21-30
Water bodies fished in past year:		
Rivers only	31%	18%
Rivers and lakes	40%	32%
Rivers and Delta	7%	10%
Rivers, lakes and Delta	23%	40%

More results

- About 76% of anglers 'may be' interested in new salmon fishing opportunities above dams
- Angler interest in new fishing opportunities was highly contingent on conditions above dams, including:
 - Species availability and abundance
 - Habitat conditions (e.g., water quality/flow)
 - Regulations (e.g., bag limits, catch-and-release)
 - Distance between angler residence and fishing site (one-way travel distance for trips below dams: median=29 miles, mean=65 miles)
 - Availability of amenities (E.g., boat ramps which are commonly used by salmon anglers but not common above dams)



Other relevant issues

- Aesthetic conditions are notably important to non-salmon anglers who currently fish above dams
 - Includes scenic beauty, peace and quiet, lack of crowding
- If salmon fisheries are established above dams and attract many new anglers, this could adversely affect aesthetics sought by anglers who currently fish above dams.

Next steps and challenges

- Continue working on a model to estimate the probability that fishing will occur at a particular location relative to site conditions (amenities) and angler characteristics
- Define and limit the number of fishing sites in an anglers' choice set
 - Many fishing sites, how to aggregate these?
 - Not all sites have the same information available (e.g., effort, catch)
 - Will consider different site aggregation strategies
- Incorporate site attribute variables such as boat launch, parking, restrooms, etc.

Thanks!



Photo credit: C.Michel (UCSC/NOAA Fisheries)