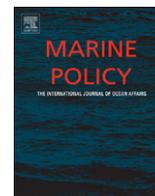




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Short Communication

Engaging Los Angeles County subsistence anglers in the California marine protected area planning process

Charlotte Stevenson¹, Sarah Abramson Sikich^{*}, Mark Gold

Heal the Bay, 1444 9th Ave, Santa Monica, CA 90401, USA

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ABSTRACT

Ecosystem-based management is more successful when a great diversity of stakeholders is engaged early in a decision-making process. Implementation of the California Marine Life Protection Act (MLPA) has been stakeholder-based, coordinating the participation of a wide range of people including divers, fishermen, conservationists, local officials, business owners and coastal residents. Although commercial and recreational fishermen have actively participated throughout the MLPA implementation process, and research related to California's sport and commercial fisheries has been integrated into the process, pier and shore anglers have been relatively unengaged as stakeholders. This study was completed to generate information about pier angler understanding and sentiment towards marine protected areas (MPAs), as well as to educate anglers on the MLPA implementation process in southern California and inform them on involvement opportunities. Of the 3030 pier anglers surveyed over 12 months, 78% only fish for subsistence from piers and from shore (never from boats); 84.6% are of non-White/Euro-American ethnicity and speak English as a second language; and 82% indicated that they were supportive of establishing a strong network of MPAs in southern California, specifically fully-protective no-take marine reserves. This study is an example of an alternative and customized method of outreach designed to reach a unique and previously unengaged stakeholder group, which stands to be affected by the implementation of the MLPA in California. Engaging such non-traditional stakeholders in public policy may be critical for decision makers to gauge all views from those standing to be affected by a policy—not just the views of those that regularly attend policy meetings—and for the ultimate success of policy implementation and community support.

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1. Introduction

Under the California Marine Life Protection Act (MLPA) [1] passed in 1999, the state is required to establish a network of marine protected areas (MPAs) to protect and conserve marine life and coastal habitats throughout California. The law states that there is a need to reexamine and redesign California's MPA system to increase its coherence and effectiveness at protecting the state's marine life, habitat, and ecosystems [1]. Well-designed MPAs have been shown globally to increase the abundance and diversity of organisms inside as well as outside their boundaries [2], including in southern California [3–6]. The Marine Life Protection Act Initiative (MLPAi), a public–private partnership, was established to help the state of California implement the MLPA on a regional basis. Southern California—from Point Conception to the border between the United States and Mexico,

including the southern Channel Islands—was the third of the five state implementation regions.

Implementation of ecosystem-based management has shown to be most successful when a great diversity of stakeholders is engaged early in a process, as opposed to a more top-down decision making process [7–9]. In each region, the MLPAi coordinates the participation of a wide range of stakeholders including divers, fishermen, conservationists, local officials, business owners and coastal residents, who recommend locations for MPAs. Although commercial and sport fishermen have actively participated in MLPA implementation, and research related to California's sport and commercial fisheries has been integrated into the process [10–13], pier and shore anglers have been relatively unengaged as stakeholders. This is partly due to the greater population of pier and shore anglers in southern California than the previous MLPA implementation regions of northern and central California.

In California, anglers are allowed to fish at all public piers without a sport-fishing license [14] and therefore do not have an official means to receive informational updates on regulations and policies from the California Department of Fish and Game (CDFG) through the angler licensing process. In 2003, Heal the Bay began implementing an Angler Outreach program as a component

^{*} Corresponding author. Tel.: +1 310 849 7006; fax: +1 310 496 1902.

E-mail addresses: CharlotteNStevenson@gmail.com (C. Stevenson), ssikich@healthebay.org (S.A. Sikich), mgold@healthebay.org (M. Gold).

¹ Present address: University of Southern California Sea Grant, University of Southern California University Park, Los Angeles, CA 90089-0373, USA.

of the Palos Verdes Shelf Fish Contamination Education Collaborative (PVS FCEC), a component of the Environmental Protection Agency's (EPA) Palos Verdes Shelf Superfund Site Remediation [15]. This program's primary aim is to educate pier and shore anglers in Los Angeles and Orange County on the risks of consuming locally caught, dichlorodiphenyltrichloroethane (DDT) and polychlorinated biphenyl (PCB) contaminated fish. From 2002 to 2009, Heal the Bay's Angler Outreach Program conducted over 100,000 pier angler interviews, engaging nearly 150,000 anglers. In 2009, the US EPA awarded the PVS FCEC Community Outreach Team with the agency's 2008 Citizen Excellence in Community Involvement Award [16] and the 2009 Environmental Justice Achievement Award [17].

In Los Angeles County, the pier angler community is demographically distinct from the commercial and recreational angling communities; in general, they only fish from piers (never from boats), they do not have licenses, and they primarily speak English as a second language [18]. It is anticipated that the pier angler community throughout southern California is demographically similar to that of Los Angeles. These population characteristics help explain, why, despite their high numbers, pier and shore anglers tend to be less informed and have little input in CDFG public processes. Therefore, this approach to outreach—on piers, in person, and in multiple languages—is critical for educating and learning from this unique and critical angling community.

Consequently, Heal the Bay expected that pier angler community engagement in the MLPA process in southern California would require a similar method. In this case, the MLPA Initiative and other state agencies involved did not have the capacity to engage the pier angler community in the southern California MLPA process; however, Heal the Bay's engagement of the pier angler community was verbally supported by the MLPA Initiative and Heal the Bay attended numerous conference calls with other "Key Communicators," as labeled by the MLPA Initiative, to hear and give updates on other stakeholder communication efforts. Heal the Bay conducted an independent study to generate information about pier angler understanding and sentiment towards MPAs and the MLPai, as well as an effort to educate and pursue ways to involve the anglers in the MLPA implementation process in southern California.

2. Methodology

Pier angler surveys began in November 2008 and continued through October 1, 2009 at 10 piers in Los Angeles and Orange Counties: Pier J, Seal Beach, Belmont, Santa Monica, Venice, Redondo Beach, Hermosa Beach, Huntington Beach, Cabrillo and Malibu. Hired outreach workers were first trained on the science of MPAs and the MLPA process. Field training was conducted on piers until the surveyor's methods and knowledge of the subject matter were adequate. Outreach workers used a paper survey form to record answers and a visual aid in English and Spanish to help explain difficult concepts during the education portion of the survey. The visual aid contained maps, definitions and some diagrams courtesy of The Partnership for Interdisciplinary Studies of the Coastal Ocean (PISCO) [19] as well as the MLPai [20], all of which were available to the public in hard copy and online. In addition, Heal the Bay worked in partnership with the MLPai Communications Team to design and post large CDFG informational posters on the MLPA on all piers in Los Angeles and Orange Counties in English and Spanish.

2.1. Surveys

Survey questions measuring attitudes were developed using Likert Scale response choices, from 1 to 5, to indicate level of

Table 1

Information collected by a questionnaire administered to recreational anglers during the Heal the Bay Pier Angler Marine Protected Area (MPA) Survey, November 2008–October 2009.

No.	Information
1	Interviewer(s)
2	Date, Time of day
3	Location
4	Has the angler already spoken to someone about marine protected areas?
5	Where does the angler usually fish? (Piers, shore, boat; circle all that apply)
6	Assessing angler's perception of ocean health and relative state of marine life (a) Does the angler think that anglers in the vicinity are catching less than what they used to catch? (Yes; Somewhat; No; Not Sure; Refused to Answer) (b) Does the angler think that the fish which anglers are catching now are smaller than they used to catch? (Yes; Somewhat; No; Not Sure; Refused to Answer)
7	Does the angler know what a marine protected area (MPA) is? (Yes; No; Refuse)
MPA Education	<ul style="list-style-type: none"> Scientific evidence of decline in fish populations Definition of MPAs in accordance with the MLPA: specifically, the difference between marine reserves (no-take) and other types which allow some types of fishing How they work; basic science behind marine reserves Examples of successful MPAs MLPA: what will be happening in southern California in the next year? Context for pier angling: in past regions, fishing from piers has generally remained accessible. It is likely that piers will be considered in the same way in southern California
8	Is the angler supportive of putting a network of marine protected areas composed primarily of <i>fully-protected</i> (no-take) marine reserves in Southern California? (Yes; No; Maybe; Don't know/refused) (a) If No, why not? (Worried about pier fishing access; MPAs=unnecessary; MPAs=ineffective; MPAs=unfair; Don't Know)
9	Would the angler like to sign the petition to support a network of marine protected areas in southern California composed primarily of <i>fully-protected no-take</i> marine reserves? (Yes; No; Maybe; Don't know/refused)
10	Which ethnic/racial group does the angler most closely identify? (Latino/a; White/Euro-American; Chinese; Filipino; Korean; Native America/Alaska Native; African/African American; Vietnamese; Pacific Islander; Other; Refused)
11	Angler's home zip code?
12	Gender
13	Was the survey conducted in a group? If so, how many were included?
14	Language in which the survey was conducted: (Cantonese; Mandarin; English; Chamorro; Fijian; Khmer; Korean; Marchaltese; Samoan; Spanish; Tagalog; Tongan; Vietnamese; Russian; Other)

agreement (i.e. "Strongly agree" to "Strongly disagree"). Likert-type response questions have been shown to be easy for people to answer, and to provide more detailed participant information than yes/no questions. Surveys were conducted during weekdays and weekends in order to capture a large spectrum of pier anglers. The data from these interviews was entered into a database and analyzed. Information collected in the survey is listed in Table 1.

3. Results

3.1. Demographics

Between November 2008 and October 1, 2009, 3030 pier anglers were surveyed. The totals by pier in number of interviews

and percentage of total interviews were: Belmont (387) 12.77%; Cabrillo (154) 5.08%; Hermosa (298) 9.83%; Huntington (287) 9.47%; Malibu (129) 4.26%; Pier J (316) 10.43%; Redondo (393) 12.97%; Santa Monica (461) 15.21%; Seal (241) 7.95%; Venice (364) 12.01% (Fig. 1). The zip codes collected during the demographic portion of the survey indicate that anglers surveyed ranged from Long Beach northward to Simi Valley, and from Santa Monica eastward to Artesia, with high residential densities in inland areas (Fig. 2). Of the 3030 anglers interviewed, a variety of ethnic groups were surveyed: Latino (60.4%); White/Euro-American: (15.4%); Filipino: (8.5%); African American: (8.2%); Chinese: (2.2%); Korean: (1.9%); Asian: (1.2%); Armenian: (0.7%); Other-not specified: (0.4%); Japanese: (0.3%); Cambodian (0.2%); Thai (0.2%); Russian: (0.13%); Native American/Alaskan (0.1%) and Egyptian (0.03%). Ninety-two percent of the total anglers interviewed were male. English was used in 61% of the interviews, Spanish was used in 38% of the interviews, and Mandarin was used in 0.2% of the interviews. Of the anglers interviewed, 78% of them *only* fish for subsistence (for personal meals; not for recreation or for commercial sale) from piers and from shore (never from boats).

3.2. Baseline view of coastal resources and MPAs

Of the anglers interviewed, 2585 of them or 85.3% said they were catching less fish and smaller fish than they or people they know used to catch in the past couple decades. Before the educational portion of the survey, the majority (56%) of the anglers indicated they were unfamiliar with MPAs.

3.3. Post-educational support for MPAs

After the educational portion of the survey, 2474 of the anglers (82%) indicated that they were supportive of putting a strong network of MPAs in Southern California, specifically fully-protective no-take marine reserves.

4. Discussion

Based on previous observations in the PVS FCEC study and the results of this study, it is clear that the pier angler community in Los Angeles and Orange County is distinct from the traditional vessel-based commercial and recreational fishing communities. The vast majority (78%) of pier anglers only subsistence fish from public piers where no fishing licenses are required by the state. The pier angler community represents a large diversity of ethnicities, with the majority (60%) being Latino and native Spanish-speakers.

Although interviews were evenly distributed across the 10 piers surveyed in Los Angeles and Orange counties, the number of interviews per pier over the entire study period varied, ranging from 129 interviews at Malibu Pier and 461 interviews at Santa Monica Pier, with an average of 303 interviews per pier. Because time of day and day of week were controlled for, the total number of interviews was affected by the number of anglers present on each pier and their willingness to engage in the survey. The data were not normalized because the primary goal of the study was to survey and educate as many pier anglers as possible, not to compare results between piers.

Unlike the pier angler community, the traditional vessel-based sport-fishing and commercial fishing communities in California have existing networks for the dissemination of information, such as changes to fisheries regulations and state projects like the MLPA. They are often organized into fishing clubs, associations or trade groups, and communicate with each other and work together to follow fishing regulations and policy development through regular meetings, newsletters, websites and blogs. Furthermore, informational materials pertaining to regulations and policy development processes are provided by the CDFG through informational materials presented with the purchase of a fishing license. Finally, a substantial amount of research has gone into surveying and engaging the sport-fishing and commercial fishing communities through the MLPA implementation process. For example, southern California commercial and recreational fishing surveys were conducted in advance of the South Coast

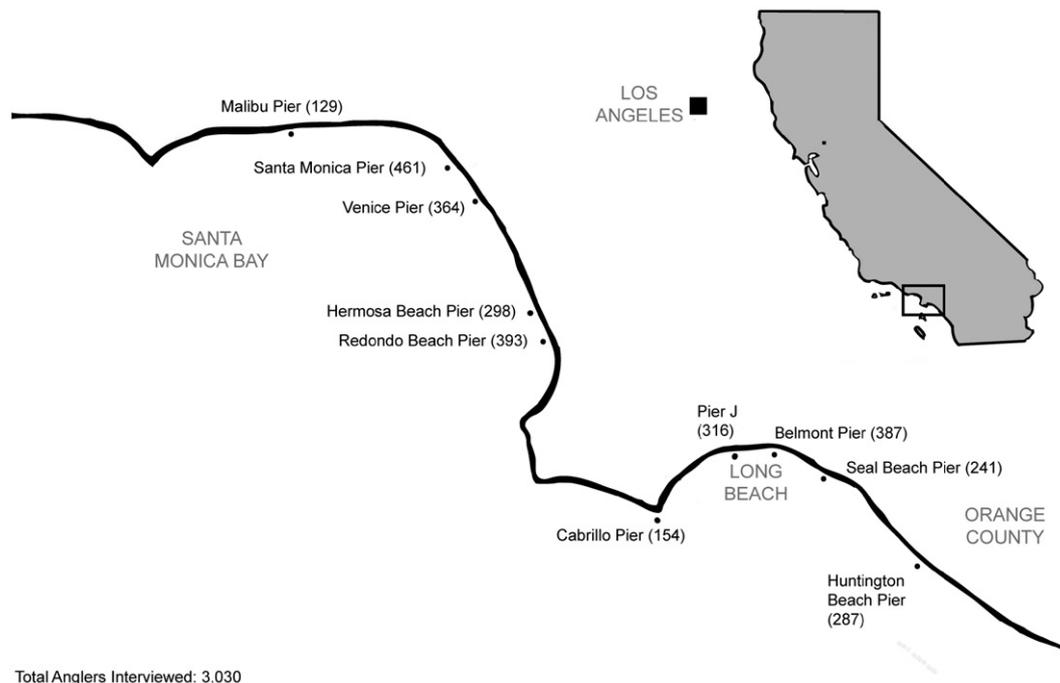


Fig. 1. A total of 3030 anglers were surveyed between November 2008 and October 2009 at 10 piers in Los Angeles and Orange Counties.

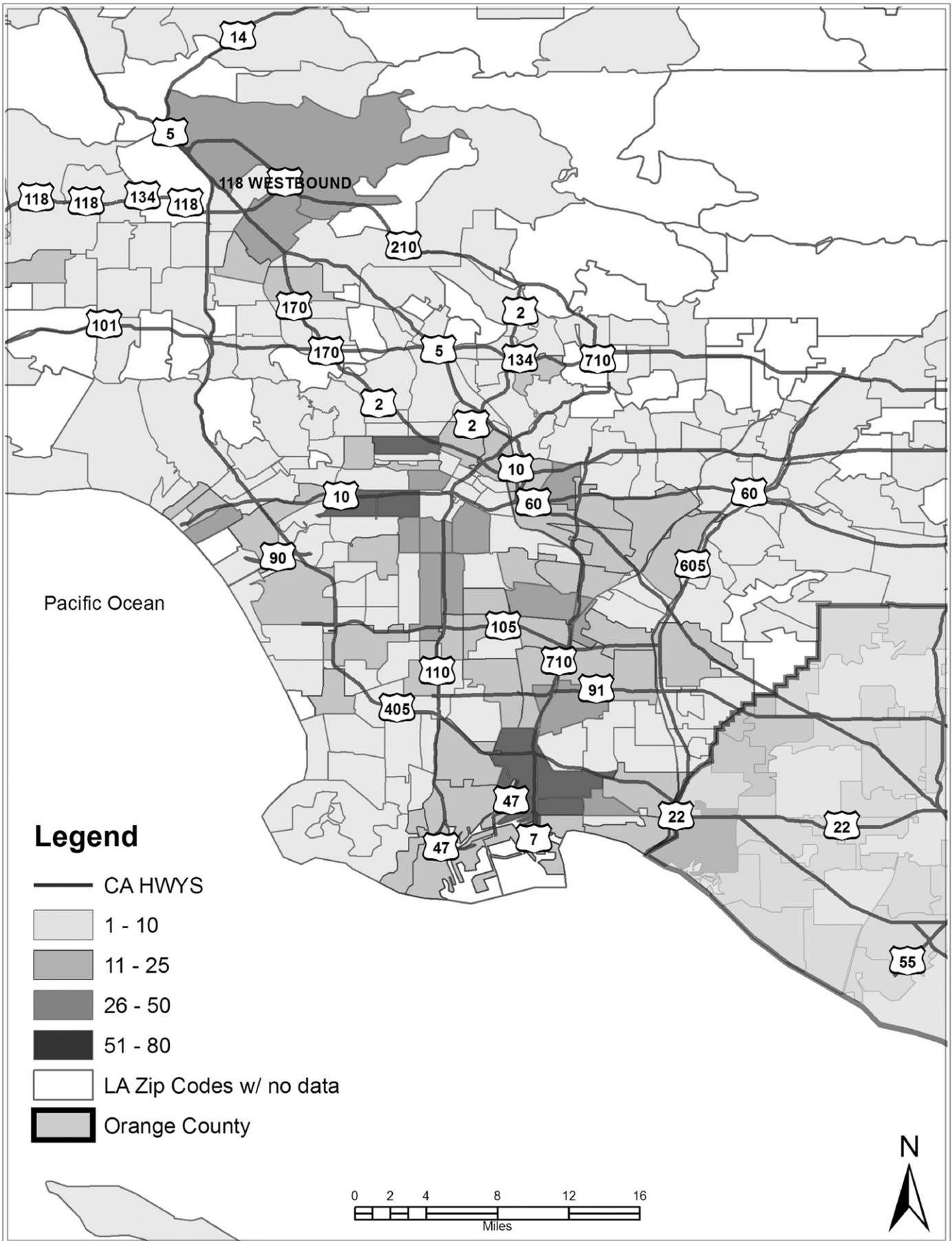


Fig. 2. Through zip-code analysis, pier anglers interviewed were found to travel to the piers from many areas throughout Los Angeles and Orange Counties. On the map above, black and dark gray indicate the areas from which the greatest number (black; 51–80) and second greatest number (dark gray; 26–50) of interviewed anglers traveled to the piers.

MLPAi process, and information from these surveys was used to inform MPA design [21].

Pier anglers often expressed interest in personally engaging in the MLPA implementation process after participating in the surveys, but with work and family obligations, language barriers and limited transportation options, they were typically unable to attend the official meetings. Several anglers, who were very interested in the MLPA process but unable to attend any of the official public meetings, recorded video interviews on the piers about their experience fishing in southern California and their thoughts on marine protected areas in California. These video interviews were presented to the MLPAi staff and decision-makers during the southern California MLPA implementation process.

This study is an example of an alternative and customized method of outreach designed to reach a unique stakeholder group, which stands to be affected by MLPA implementation in California. Face to face, on the ground, multilingual communication was required to engage the subsistence pier angling communities in Los Angeles and Orange Counties. Engaging such non-traditional stakeholders in public policy may be critical for decision makers to gauge all views from those standing to be affected by a policy—not just the views of those that regularly attend policy meetings—and for the ultimate success of policy implementation and community support.

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