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Contrasting attitudes and perceptions of California sea lions by recreational anglers and the media

Zachary Schakner *, Canon Purdy, Daniel T. Blumstein

Department of Ecology & Evolutionary Biology, 621 Young Drive South, University of California Los Angeles, CA 90095-1606, USA

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ABSTRACT

The recovery of California sea lion (*Zalophus californianus*) populations is an environmental success story, but it has created new challenges given their interactions with sport fisherman. Economic losses to the Commercial Passenger Fishing Vessel (CPFV) stems both from the loss of fish, as well as the costs of fuel and time spent traveling to new fishing areas to avoid pinnipeds. Management solutions require a firm understanding of the public's perceptions of an issue. To address this shortcoming, we surveyed recreational anglers' perceptions of California sea lions and conducted a content analysis of media coverage of California sea lions in Southern Californian newspapers. We found that as anglers' knowledge of California sea lions increased, their subjective knowledge of the Marine Mammal Protection Act increased as well and they were less likely to advocate the use of lethal removal to manage sea lion issues. Avid fishers were more likely to consider shooting all sea lions as acceptable, and less likely to view controls to restrict human activity from sea lion areas as favorable. Anglers that expressed negative sentiments after an interaction with sea lions while fishing were more likely to view punishing the sea lion favorably, but less likely to view exposing the sea lions to pain as favorable. Our content analysis showed that most articles were about tourism and entertainment and the majority of articles focused on negative effects *to* sea lions. The media's framing might obscure the successful recovery of California sea lions and flame growing management concerns with stakeholders like anglers, dock workers, and marina occupants. Our survey showed that among stakeholders, increased understanding of the animals increased understanding of the regulatory context of their recovery and repellents as a socially acceptable means of managing the conflict. Thus, we have shown that knowledge among the public and stakeholders will enhance management efforts. Conservation management professionals can influence public attitudes by interacting with the media as well as using communications strategies that highlight the ecological mechanisms behind the conflict as well as the management actions.

1. Introduction

The Marine Mammal Protection Act of 1972 (MMPA 1972) offered sweeping protections for 125 species of marine mammals in US waters. Hailed as a conservation success story, the law has brought species from the brink of extinction and fully recovered many populations in the 40 years since it was enacted. In particular, California sea lion (*Zalophus californianus*; hereafter sea lions) populations have grown considerably [1,2,33]. An unintended consequence of the MMPA is increasing competitive interactions between sea lions and humans [34]. Along the West Coast of the United States expanding sea lion populations create conflicts from consumption of endangered salmonid species, interactions with fisheries, and damage to docks/personal vessels [3–5].

The Commercial Passenger Fishing Vessel (CPFV) fleet is the predominant type of recreational angling in California. California's CPFV fleet is unique in its long history, fleet size, and the amount of revenue it generates [6]. Many anglers use CPFVs daily, which creates billions of dollars for local economies [35]. Recreational anglers fishing from CPFVS are diverse, ranging from tourists seeking a once in a lifetime fishing trip to avid locals that fish several times a week.

In southern California, CPFV conflicts with sea lions are the most contentious and frequently brought up issues facing anglers. Sea lion interactions with fishing vessels have been observed for decades and these interactions are becoming routine as sea lion populations have increased dramatically since the 1970s [2,7]. Interactions result in damaged fish thrown overboard as by-catch, entanglement/ingestion of

* Corresponding author.
E-mail address: zschakner@ucla.edu (Z. Schakner).

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gear by marine mammals, direct socio-economic losses for fisheries, and retaliatory actions by fishermen.

Economic losses to CPFV operators stem not just from the loss of fish but are also incurred from the costs of fuel and time spent traveling to new fishing areas to avoid pinnipeds. While CPFV operators have greater financial losses, recreational anglers on CPFVs experience bait and catch loss, resulting in negative perceptions of sea lions and possibly of their fishing experience. For all of these reasons, understanding angler's perceptions of fishing from CPFVs and experiences involving sea lions is essential for wildlife managers tasked with reducing conflicts between sea lions and the fishing industry.

Human-wildlife conflicts (HWC) involving charismatic megafauna like sea lions go beyond simple resource competition models and require understanding both angler and public perceptions of the issues, the level of conflict that is tolerable, and types of management that may be socially acceptable [8–11]. Despite their robust population recovery, pinnipeds are still protected under the MMPA and may be perceived as either endangered or recovering by the public. These perceptions are likely to influence the nature of wildlife management efforts, as mass media can have a powerful influence over the public understanding of environmental issues [12,13]. In an increasingly urban world, the media's framing of the content may be the only exposure the public receives about wild animals like sea lions [14]. Wildlife management techniques may be controversial [5] or viewed unfavorably [15] when the media's portrayal of sea lions differs from those from wildlife management issues faced by anglers or other stakeholders. Thus, while knowledge of stakeholder's perceptions of this human-wildlife conflict is essential, wildlife managers have historically known little about recreational anglers' and the public's perceptions. To address this shortcoming, we surveyed recreational anglers' perceptions of California sea lions and conducted a content analysis of media coverage of California sea lions in Southern Californian newspapers.

2. Methods

2.1. Survey design and data collection

An in-person survey was conducted among recreational anglers while fishing on CPFV vessels across Southern California. The paper survey form was comprised of 32 questions separated into 3 sections: A) angler demographics and fishing experience; B) sea lion knowledge and population status; and C) management perceptions (see survey in Supplement). Section A contained basic questions on age, gender, home location, and fishing avidity, as well as what their experiences were with California sea lions while fishing, and how they felt from the interaction (s). Section B contained questions focused on the respondents' knowledge of the California sea lion's population status, regional abundance, and the Marine Mammal Protection Act. Section C contained questions related to California sea lion lethal or non-lethal management options and their perceptions of the National Marine Fisheries Service's role in management. Paper survey forms were distributed to anglers on actively fishing CPFVs across Southern California. All categorical independent variables were recorded on a 5-point Likert scale (see Supplement 2).

We analyzed the CPFV angler survey data using a generalized linear model (GLM) (ordinal regression). Specifically, we fitted three models to quantify the following effects:

1) The effect of perceived knowledge of sea lions on lethal and non-lethal management options;
2) The effect of fishing avidity on potential management solutions;
3) The effect of the angler feeling after interaction on using pain, punishment or lethal removal.

For all statistical analyses, we used R 2.14 [16] and the MASS package [17]. We calculated 95% confidence intervals using the 'confint' function (method 'Wald'). All model confidence intervals that were exponentiated are shown on the scale of the response variable and thus can be interpreted as proportional odds ratios (i.e., the odds of a one-unit increase or decrease in Likert score).

2.2. Content analysis

We focused on articles from five newspapers in the Southern California area. The newspapers were identified based on them having the highest circulation numbers in areas where people would encounter sea lions, and our search was restricted to the period of 1 January 2005 to 30 April 2016. To identify articles we searched for the term "sea lion" or "sea lion" to gather any and all articles about sea lions, regardless of the main topic [18,36]. We used standard content-analysis procedures [19] by manually classifying the articles into a **primary topic** (risks to humans, risks to sea lions, general biological information, nuisances or losses of property, aggressive (lethal) management, fishery interactions, stranding crisis, tourism, and entertainment, personal interest story, multiple) and **primary tone** (negative effects of sea lions, negative effects on sea lions, positive effects of sea lions, positive effects on sea lions, multiple, neither). See Supplement 2 for more detail. Duplicates, sports teams, police blotter reports, and letters to the editor were not included in the final data set. Coding categories were developed and defined based on Muter et al. [36]. Ten topic categories were developed based on the news article topics included in the survey. For example, "stranding" had been one topic, but due to the 2013 and 2015 large stranding events, the categories shifted to "stranding crisis" and articles not about the large events were coded as natural history or personal interest stories, as they were more commonly about an individual stranded sea lion. Articles mentioning sea lions in Canada or Alaska without mention of species were assumed to be referring to Steller sea lions and thus not included. News stories focusing solely on sea lions in aquariums/zoos outside Southern California with no connection to the region were not included.

We used a single reviewer and thus did not assess inter-rater reliability. We evaluated the differences in the frequency of content and tone using χ^2 tests under the null assumption of identical frequency distributions and with significance determined from 10,000 resamples of the data without replacement [20,21] using the statistical package *chi.perm* in R [20].

3. Results

3.1. Survey

A total of 155 surveys were distributed and collected from eight CPFVs across Los Angeles, Orange and San Diego counties in Southern California. Respondents were majority male (87%) with a mean age of 43 years old (Table 1). We note that there may be gender differences in self-reporting and perceptions of knowledge, with males more likely to respond and self-report [22]. Anglers varied in their fishing avidity, with a mean of 26 days fishing a year (range: 1–100 days). Interactions with sea lions were common (85%) and most anglers described that interaction as negative (55%). General favorability for a variety of sea lion management options is shown in Fig. 1. The majority of fishers approved of private citizens' use of repellents but the majority did not think private citizens should be allowed to lethally remove sea lions without a permit (Fig. 1).

We observed a significant, positive relationship between an anglers' perceived knowledge of California sea lions with their subjective knowledge of the MMPA and the use of repellents to ameliorate conflict (Table 2). Specifically, anglers that self-rated themselves as more knowledgeable of sea lions were 5.28 times more likely to self-rate higher knowledge of the MMPA and 2.3 times more likely to advocate for the use of repellents. Conversely, anglers that self-rated higher knowledge of sea lions were 64% less likely to advocate the use of lethal removal to manage sea lion issues.

Table 1
Socioeconomic variables, pinniped interaction information, and subject knowledge responses.

Socioeconomic Variables	N Respondents	Pinniped Interaction Responses	N Respondents	Subjective Knowledge Responses	N Respondents
Gender		**Did a sea lion or seal interact with your fishing line?**		**Do you know what the Marine Mammal Protection Act of 1972 is?**	
Male	135	Yes	133	Yes	34
Female	20	No	22	No	125
Age		**Has a seal/sea lion ever taken a fish (including bait) from your line?**		**How common do you think sea lions were in Southern California before federal protection under the Marine Mammal Protection Act in 1972?**	
0–20	35			Abundant	14
20–30	71	Yes	140	Common	101
31–40	37	No	12	Rare	10
41–50	6			Extinct	0
51 or older	5			Don't know	31
Days Spent fishing a year		**How did you feel when the sea lion interacted with your gear? (Write in response)**		**How common do you think sea lions are in Southern California today?**	
0–20	89	Positive	28	Abundant	131
20–40	15	Neutral	32	Common	20
41–60	23			Rare	2
61–80	9	Negative	90	Extinct	0
81–106	19			Don't know	0

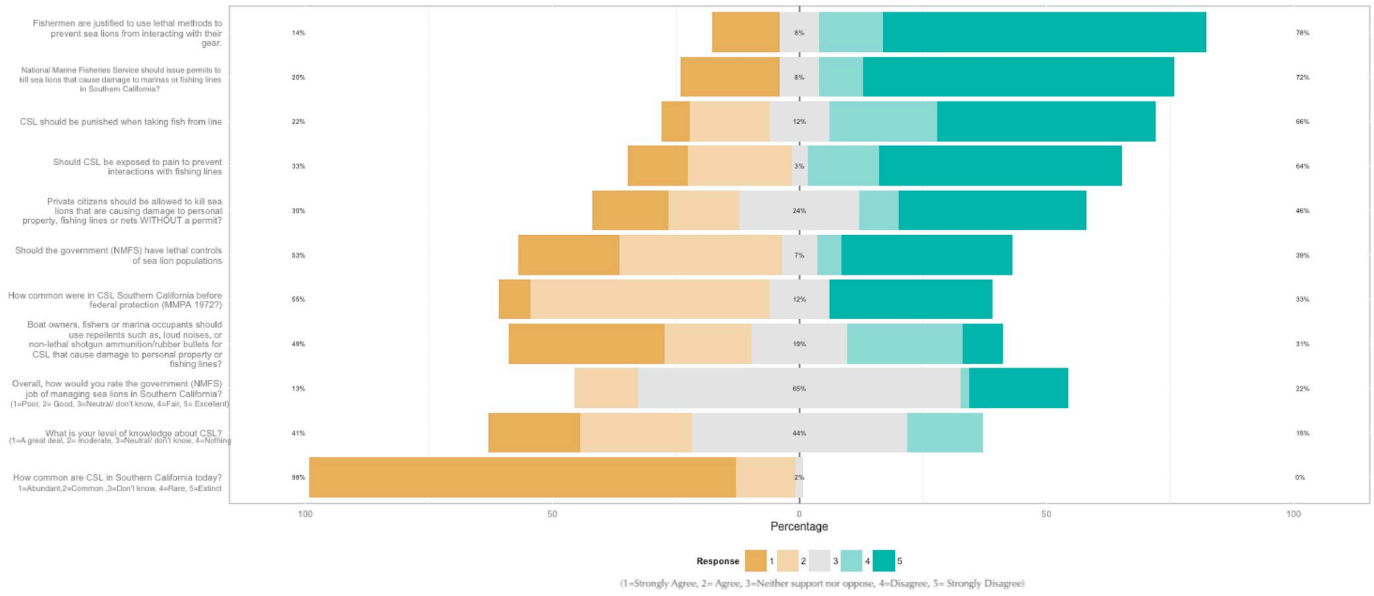

Fig. 1. Distribution of responses to CSL management options.

Table 2
The effect of angler knowledge of California sea lions on regulatory knowledge, use of pain, punishment, and lethal management of sea lions. Model coefficients are proportional odds ratios and presented on the scale of the response variable. To interpret them, consider the exponentiated coefficient value of 5.28 for Knowledge MMPA. A 1-point increase in knowledge of sea lions is associated with a 528% (i.e., 5.28 times) increase in the odds of an angler marking the knowledge of MMPA one point higher (after controlling for all other predictors). Confidence intervals (exponentiated) not containing 1.0 are significant and are highlighted in bold.

	Estimate	CI (95%)	
Knowledge MMPA	**5.28**	**1.42**	**20.71**
NMFS	0.94	0.45	1.95
Should use repellents?	**2.29**	**1.41**	**3.88**
Lethal removal	**0.36**	**0.16**	**0.80**
Private Citizen Lethal	1.53	0.73	3.25
Fisherman Lethal	0.85	0.41	1.73
NMFS Lethal	1.50	0.99	2.16

We found a significant relationship between fishing avidity and the response "shoot all sea lions" and negative response to restrict humans from sea lion areas (Table 3). Avid fishers were 2 times as likely to view shooting sea lions as favorable and 22% less likely to view restricting humans from sea lion areas as favorable. There was no effect of fishing avidity on the use of fines, restricting sea lions, relocation, deterrents, or community education programs, or designating a region for sea lions to haul out (Table 3). In addition we found an effect of perceived feeling after interaction with a sea lion on views of pain, punishment or lethal removal (see Table 4).

4. Content analysis results

4.1. Topic

A total of 792 articles were coded, with the Orange County Register representing the most at 301 (38.0%), followed by the San Diego Union-Tribune with 266 (33.6%), the Los Angeles Times with 123 (15.5%), La Jolla Light at 78 (9.8%) and The Log with 24 articles (3.0%). During the study period, the highest coverage was given to the topics of tourism and entertainment (Table 1), followed very closely behind by general risks to

Table 3
Generalized linear model for the effect of fishing avidity on potential management options. Model coefficients have been exponentiated and are presented on the scale of the response variable. Confidence intervals (exponentiated) not containing 1.0 are significant and are highlighted in bold.

	Estimate	CI (95%)	
Fine any individual caught feeding the sea lions	1.03	0.82	1.23
Shoot all sea lions	**2.20**	**1.46**	**3.30**
Shoot individual sea lions involved in negative human interactions	0.97	0.59	1.59
Shoot individual sea lions that enter fishing areas	0.69	0.37	1.29
Relocate individual sea lions	1.11	0.87	1.43
Restrict humans from areas frequently used by sea lions	**0.78**	**0.64**	**0.97**
Restrict sea lions from human use areas	1.10	0.93	1.28
Develop community education programs	0.99	0.74	1.32
Use non-lethal deterrents (stimuli that create negative tastes, sights, sounds, or feelings)	1.07	0.79	1.44
Develop visitor education programs	1.00	0.77	1.32
Influence the mass media	1.12	0.93	1.36
Designate a region (unoccupied dock) for sea lions to haul out in marinas	1.07	0.84	1.38

Table 4
Results from the generalized linear model for the effect of perceived feeling after interaction with a sea lion on views of pain, punishment or lethal removal. Model coefficients are presented on the scale of the response variable. Confidence intervals not containing one are significant and are highlighted in bold.

	Estimate	CI (95%)	
Punish	5.9	2.83	13.16
Pain	0.64	0.4	1.41
Repellents	1.62	1.06	2.5
Lethal Removal	0.22	0.11	0.41

sea lions. The most actively covered interaction considered negative toward humans, nuisances and losses of property, represented 10.45% (n = 82) of the media coverage. Articles about physical risks to humans from sea lions only represent 1.52% (n = 12) of all coverage, despite the fact that two people were bitten by sea lions in 2015. Balanced articles, defined as articles that did not focus solely on one tone – such as referencing the sea lions as nuisances to fishermen but also mentioning recent stranding crises, were also not very common at less than 1% (n = 4). Personal interest stories (subjects focused on people with only passing mentions of sea lions) were more common (n = 102, 12.88%).

4.2. Tone

Of the 5 content areas of emphasis, the majority of articles focused on negative effects on sea lions (30.6% $p < 0.001$). A smaller, but significant ($p < 0.001$) proportion of articles than expected under equal frequency (6.94%) focused on positive effects on sea lions. There was no significant difference in articles that focused negative/positive effects of sea lions from the expected frequency distribution.

5. Discussion

The recovery of marine mammal populations has created new management challenges from a growing overlap with fisheries and predation of endangered species [23]. The media plays a critical role in framing environmental issues [18,24] and can sway the public's acceptance of conservation/environmental issues. We aimed to build on previous investigations into anglers' perceptions of sea lion conflict (see Ref. [15] by examining the media's representation of California Sea lions. We compared and contrasted perceptions of California sea lions among recreational fishermen and the media. Understanding the social dimensions of wildlife conflicts is necessary to achieve socially acceptable management activities [9]. Among anglers, interactions and depredation events were common (occurring 85% of the time) and perceived negative feelings after an interaction were correlated with advocating the use of punishment and repellents, but not the use of pain or lethal removal of sea lions. By and large, lethal removal of California sea lions was viewed unfavorably by anglers (Fig. 1), despite some support for lethal population control by NMFS. Avid anglers were much more likely to view shooting sea lions as favorable and avid angles were 22% less likely to view restricting humans from sea lion areas as favorable. But most anglers had mixed views on the ranges of management options (Table 3). Additionally, there may be differences in attitudes among different angler groups (ie. CPFV vessels and anglers fishing from piers— [15].

California sea lions are charismatic megafauna [25], making them an ideal topic for human interest stories in the media. Our findings indicate the majority of media coverage had a tone that focused on the negative effects on sea lions. The topics involving sea lions were predominantly focused on tourism and entertainment, followed by general risks to sea lions (Table 5). It is also important to acknowledge the local, Southern California socio-cultural context and how in other geographical locations, the media tone may involve more topics related to fishery interactions and less on risks to pinniped, pinniped biology and ecology, and tourism. Analyzing the media framing of the issue is the first step, but further studies should endeavor to directly survey the attitudes and perceptions among all sectors of the public as well as other stakeholders (dock workers, marina owners, vessel occupants, wildlife tour operators, marine wildlife tours occupants). We hope that this study points to the role of media messaging as a part of the politics around human-pinniped conflicts.

Despite their robust population recovery, continued media coverage about emerging threats to sea lions may contribute to a general misunderstanding of their status among the public. It appears the media's framing might obscure the successful recovery of California sea lion populations and flame growing management concerns with stakeholders like anglers, dock workers, and marina occupants [26–28].

Potentially emerging management concerns are echoed in the surveyed perceptions of recreational anglers, who frequently experienced interactions and often noted perceived negative effects of California sea lions on their fishing experience. Among anglers, we found a positive relationship between an angler's perceived knowledge of California sea lions with their subjective knowledge of the MMPA. Thus, it appears that greater knowledge of sea lions facilitates understanding of the regulatory context of marine mammals, as well as how to manage them. More knowledgeable anglers advocated the use of repellents to ameliorate conflict, along with decreasing support for lethal removal. We note there are limitations of using a single item survey with self-reported knowledge measures. The majority of respondents to our survey were male,

Table 5
Media Content analysis results. Significant ($P < 0.05$) variables are highlighted in bold.

Primary Article Topic	N	%	P
risks to humans	**12**	**1.52%**	**<0.001**
nuisance/loss of property	82	10.35%	0.819
aggressive management	**18**	**2.27%**	**<0.001**
fishery interaction	58	7.32%	0.072
general risks to sea lions	**152**	**19.19%**	**<0.001**
stranding crisis	71	8.96%	0.509
general biology/information	**138**	**17.42%**	**0.001**
tourism/entertainment	**154**	**19.44%**	**0.001**
personal interest story	102	12.88%	0.089
multiple	**4**	**0.51%**	**<0.001**
Primary Article Tone	N	%	
negative effects of sea lions	132	16.67%	1
negative effects on sea lions	**240**	**30.30%**	**<0.001**
positive effects of sea lions	176	22.22%	0.012
positive effects on sea lions	**55**	**6.94%**	**<0.001**
multiple	**17**	**2.15%**	**<0.001**

and studies have shown that males tend to over-rate their knowledge, skills, grades, etc and females tend to under-rate their performance [29]. It does appear, however, among stakeholders, increased understanding of the animals increased understanding of the regulatory context of their recovery and repellents as a socially acceptable means of managing the conflict. Therefore, we have shown that knowledge among the public and stakeholders should enhance management efforts.

Understanding both stakeholder and broader public perceptions of California sea lion conflicts is necessary to effectively manage charismatic/protected species [30,31]. Charismatic species like sea lions elicit strong, wide-ranging responses among the public, especially when there is little understanding of the negative impacts on fisheries and other stakeholders. Left unaddressed, multiple stakeholder views may become more negative and create conflicts between management efforts and groups that value the animals [32]. For California sea lions, we show that the media, by and large, portrays issues that negatively affect sea lions while neglecting their negative impacts. We suggest that conservation management professionals can influence public attitudes by interacting with the media as well as using communications strategies that highlight the ecological mechanisms behind the conflict as well as the management actions. For sea lions, the ecological and regulatory backgrounds are intertwined, and managers may benefit from communicating potentially unintended consequences of their protected status.

California sea lions are ultimately a conservation success story. The Marine Mammal Protection Act (1972) facilitated a robust population recovery. As an unintended consequence, however, sea lions are increasingly impacting fisheries, docks, and marinas. We believe that conflicts with sea lions are a lose-lose situation for all parties involved. Our study shows that managers could help by effectively communicating through media and other forms of outreach the role of sea lion protections, the ecological reasons for their recovery, and how effective non-lethal management techniques can potentially benefit sea lions by breaking their reliance on human-derived resources. This study highlight the complexities of managing protected charismatic species and how social factors like media portrayal might impact conservation/management outcomes.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.marpol.2019.103710.

References

[1] J.V. Carretta, K.A. Forney, E. Oleson, U.S. Pacific Marine Mammal Stock Assessments: 2011, NOAA-Tech. Memo.-NMFS-SWFSC-476, 2011.
[2] J.L. Laake, M.S. Lowry, R.L. Delong, S.R. Melin, J.V. Carretta, Population growth and status of California sea lions, J. Wild. Manag. (2018), https://doi.org/10.1002/jwmg.21405.
[3] S.J. Jeffries, J. Scordino, Efforts to protect a winter steelhead run from California sea lion predation at the Ballard Locks. and issues, in: Pinniped Populations, Eastern North Pacific: Status, Trends and Issues. New England Aquarium, Boston, Massachusetts, USA, and Monterey Bay Aquarium, Monterey, California, US, 1997.
[4] J. Scordino, West Coast pinniped program investigations on California sea lion and Pacific harbor seal impacts on salmonids and other fishery resources, Pac. States Mar. Fish. Comm. Portland (2010).
[5] J. Marshall, Protected sea lions gorge on threatened salmon, Nat. News (2012) 08–22.
[6] L. Bellquist, B. Semmens, S. Stohs, A. Siddall, Impacts of recently implemented recreational fisheries regulations on the Commercial Passenger Fishing Vessel fishery for Paralabrax sp. in California, Mar. Policy 86 (2017) 134–143, https://doi.org/10.1016/j.marpol.2017.09.017.
[7] Z.A. Schakner, T. Götz, V.M. Janik, D.T. Blumstein, Can fear conditioning repel California sea lions from fishing activities? Anim. Conserv. 20 (2017) 425–432.
[8] S. Bhatia, V. Athreya, R. Grenyer, D.W. Macdonald, Understanding the role of representations of human–leopard conflict in Mumbai through media-content analysis, Conserv. Biol. 27 (2013) 588–594, https://doi.org/10.1111/cobi.12037.
[9] A.J. Dickman, Complexities of conflict: the importance of considering social factors for effectively resolving human–wildlife conflict, Anim. Conserv. 13 (2010) 458–466, https://doi.org/10.1111/j.1469-1795.2010.00368.
[10] F. Madden, Creating coexistence between humans and wildlife: global perspectives on local efforts to address human-wildlife conflict, Hum. Dimens. Wildl. 9 (2004) 247–257.
[11] A. Treves, K.U. Karanth, Human-carnivore conflict and perspectives on carnivore management worldwide, Conserv. Biol. 17 (2003) 1491–1499.
[12] M.T. Boykoff, S.R. Rajan, Signals and noise. Mass-media coverage of climate change in the USA and the UK, EMBO Rep. 8 (2007) 207–211, https://doi.org/10.1038/sj.embor.7400924.
[13] S.K. Jacobson, Conserving Wildlife: International Education and Communication Approaches, Columbia University Press, New York, 1995.
[14] J.B. Corbett, When wildlife make the news: an analysis of rural and urban north-central US newspapers, Public Underst. Sci. 4 (1995) 397–410, https://doi.org/10.1088/0963-6625/4/4/004.
[15] T.C. Cook, K. James, M. Bearzi, Angler perceptions of California sea lion (*Zalophus californianus*) depredation and marine policy in Southern California, Mar. Policy 51 (2015) 573–583, https://doi.org/10.1016/j.marpol.2014.09.020.
[16] R Development Core Team, R: A Language and Environment for Statistical Computing, R Foundation for Statistical Computing, Vienna, Austria, 2014.
[17] W.N. Venables, B.D. Ripley, Modern Applied Statistics with S, fourth ed., Springer, New York, 2002, ISBN 0-387-95457-0.
[18] S.K. Jacobson, C. Langin, J.S. Carlton, L.L. Kaid, Content analysis of newspaper coverage of the Florida panther, Conserv. Biol. 26 (2012) 171–179, https://doi.org/10.1111/j.1523-1739.2011.01750.x.
[19] K. Krippendorff, Content analysis, in: E. Barnouw, G. Gerbner, W. Schramm, T. L. Worth, L. Gross (Eds.), International Encyclopedia of Communication, vol. 1, Oxford University Press, New York, NY, 1989, pp. 403–407. Retrieved from, http://repository.upenn.edu/asc_papers/226.
[20] G. Alberti, "chi.perm"hi.perm16. 2016. R Package Version 1.14.4, 2016.
[21] E.J. Beh, R. Lombardo (Eds.), Correspondence Analysis, Wiley Series in Probability and Statistics, Wiley, West Sussex, 2014.
[22] S. Beyer, E.M. Bowden, Gender differences in self-perceptions: convergent evidence from three measures of accuracy and bias, Personal. Soc. Psychol. Bull. 23 (2) (1997) 157–172.
[23] K.N. Marshall, A.C. Stier, J.F. Samhouri, R.P. Kelly, E.J. Ward, Conservation challenges of predator recovery, Conserv. Lett. 9 (2015) 70–79.
[24] K. Cockerill, Context is Key: the media role in shaping public perceptions about environmental issues, 10.1017/, Environ. Pract. 4 (2) (2002) 107–113. Cambridge University Press (ISSN: 1466-0474).
[25] E.C. Barney, J.J. Mintzes, C. Yen, Assessing knowledge, attitudes, and behavior toward charismatic megafauna: the case of dolphins, J. Environ. Educ. 36 (2) (2005) 41–55, https://doi.org/10.3200/JOEE.36.2.41-55.
[26] R.C. Fletcher, Exploding populations of California sea lions: a crisis with no political solution on the horizon, Proc. Vertebr. Pest Conf. 23 (2008) 178–180.
[27] A.J. Keledjian, S. Mesnick, The impacts of El Nino conditions on California sea lion (*Zalophus californianus*) fisheries interactions: predicting spatial and temporal Hotspots along the California Coast, Aquat. Mamm. 39 (2013) 221–232.
[28] M.J. Weise, J.T. Harvey, Impact of the California sea lion (*Zalophus californianus*) on salmon fisheries in Monterey Bay, Cal. Fish. Bull. (2005) 685–696.
[29] A. Furnham, T. Hosoe, T.L.-P. Tang, Male hubris and female humility? A cross-cultural study of ratings of self, parental, and sibling multiple intelligence in America, Britain, and Japan, Intelligence 30 (1) (2002) 101–115.
[30] J. Jackman, L. Bettencourt, J. Vaske, M. Sweeney, K. Bloom, A. Rutberg, B. Brook, Conflict and consensus in stakeholder views of seal management on Nantucket Island, MA, USA, Mar. Policy 95 (2018) 166–173, https://doi.org/10.1016/j.marpol.2018.03.006.
[31] A. Dayer, A. Williams, E. Cosbar, M. Racey, Blaming threatened species: media portrayal of human–wildlife conflict, Oryx (2017) 1–8, https://doi.org/10.1017/S0030605317000783.
[32] A.L. Metcalf, E.C. Metcalf, K. Khumalo, J. Gude, Q. Kujala, M.S. Lewis, Public wildlife management on private lands: reciprocity, population status, and stakeholders' normative beliefs, Hum. Dimens. Wildl. 22 (6) (2017) 564–582.
[33] M.S. Lowry, O. Maravilla-Chavez, Recent abundance of California sea lions in western Baja California, Mexico and the United States, in: Proceedings of the Sixth California Islands Symposium, 2005, pp. 485–497.
[34] A.J. Read, P.R. Wade, Status of marine mammals in the United States, Conserv. Biol. 14 (2000) 929–940.
[35] Z.A. Schakner, National Marine Fisheries Service. Saltwater Recreational Fisheries on the West Coast, 2017. https://www.fisheries.noaa.gov/feature-story/saltwater-recreational-fisheries-regional-snapshots.
[36] B.A. Muter, M.L. Gore, K.S. Gledhill, C. Lamont, C. Huveneers, Australian and U.S. news media portrayal of sharks and their conservation, Conserv. Biol. 27 (2013) 187–196, https://doi.org/10.1111/j.1523-1739.2012.01952.x.