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Australian Beach Safety and the Politics of Shark Attacks

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There are no simple government solutions when sharks bite people. These rare and sometimes fatal incidents are fraught with uncertainties and command a disproportionate amount of psychological space in the minds of the public, as well as a large degree of policy space and funding from many governments. Responses to mitigate shark bite incidents involve public policies that contend with the needs of public safety as well as the responsibility to protect endangered predators. Little study to date has been done examining the politics of shark attacks, yet these events are among the most geographically dispersed human–wildlife conflicts in the world. I examine the underlying concerns that drive this policy process by asking how problem definition framing by policy entrepreneurs affects government responses following shark bite incidents. Through a case study of shark bite incidents in Sydney, Australia in 1929, 1934, and 2009, I identify three competing problem definitions: behavioral, psychological, and conservation. The psychological definition, building confidence in the minds of the public, is shown to be the most successful. Building on previous research, I argue that policy entrepreneurship is a central feature in the strength of problem definitions. I conclude by suggesting lessons for the balanced coastal management of human–marine life conflicts including the selection of trusted spokespeople, prioritizing measures to relieve short-term public anxiety, reframing beach ecosystems as “the wild,” and connecting public safety education to personal behavior.

Keywords  beach safety, human–wildlife conflict, problem definition, shark attack, shark conservation

Introduction

There are no simple government solutions when sharks bite people. These rare and sometimes fatal incidents are fraught with uncertainties regarding what happened, why it occurred, and how best to respond. Shark bites represent an unresolved puzzle for coastal managers, scientists, policymakers, and conservationists, who attempt to balance the protection of endangered predatory marine animals with the harm the public can experience.
from human–marine life conflicts. This dilemma is complicated by the low probability and dreadful consequences of these events, the high degree of public emotion they elicit, and policy responses that can deplete endangered species’ populations. Yet, shark bite incidents are reported annually in nations across the globe, usually without policy changes. It is when human behaviors or perceptions change, not shark behavior, that problems are observed and government action is requested. Balancing these issues requires an understanding of the underlying social and political tensions of these events, that is, the politics of shark attacks. In this article I reviewed responses to shark bite incidents in Sydney in 1929, 1934, and 2009. The question being asked is how problem definition framing by policy entrepreneurs affects government responses following shark bite incidents. I identify three competing problem definitions: behavioral, psychological, and conservation. This study shows that the strongest and most dominant problem definition following shark bite incidents is the need to restore confidence in the minds of the public.

A “problem definition” framework highlights the social and political processes that strategically manipulate objective conditions of nature into problems that governments need to solve (De Neufville and Barton 1987; Stone 1989; Bardwell 1991; Houston and Richardson 2000). Political actors selectively choose elements that emphasize the moral imperatives of their problem to increase its salience with the public (Entman 1993; Rochefort and Cobb 1994). Entman (1993) describes salience as “making a piece of information more noticeable, memorable or meaningful to audiences” (Entman 1993, 53). Houston and Richardson’s (2000) model measures the strength of a definition for achieving policy outputs by reviewing the role of policy entrepreneurs, including whether their definition attracts a consensus, provides a complete solution, and aligns with other definitions (Houston and Richardson 2000, 495). The strongest problem definition is expected to produce the leading policy solutions.

Building on previous research, I argue that policy entrepreneurship is a central feature of problem definition success. Zhu (2008) defines policy entrepreneurs broadly as, “those who are willing to devote their time, energy, reputation and money to make policy changes” (Zhu, 2008, 316). Politicians, scientists, researchers, and surf lifesavers each articulated different problems, narratives and solutions following these shark bite incidents. The actors whose definitions were judged believable by the public, provided a complete and workable solution, and shared compatibility with other problem definitions, were the most likely to be successful.

I find that in 1929, bather behavior on beaches was considered the leading problem; however, this was not a successful definition because it lacked an effective policy entrepreneur and comprehensive solutions to ease the immediate concerns of beachgoers. In 1935, placement of netting (or meshing) off beach shorelines to catch sharks, and in 2009, aerial patrols to lookout over beaches, were the successful policy outputs of entrepreneurs because these were seen as practical, affordable and visible methods of boosting beach morale. This psychological problem definition was dominant due to strong confidence-building narratives that came from two trusted and credible sources, the president of the Surf Lifesaving Association in 1935 and the Minister for Primary Industries in 2009. The combination of well-regarded advocates and well-packaged problems directed the selection and success of solutions even as a competing conservation definition emerges. These conclusions suggest that coastal managers of human–marine life conflicts can better balance the needs of beach communities and endangered species by considering the strongest elements of problem definition development.

From Cape Cod to Cape Town and Sydney to Sharm el Sheikh, shark bite incidents represent the most geographically dispersed human–wildlife conflict. Any place that has
ocean beaches has sharks and Sydney, Australia is known for both. Three clusters of shark bite incidents in Sydney and corresponding policy responses by the New South Wales State Governments stand out: 1929, 1935, and 2009. The 1929 New South Wales Government commissioned a Shark Menace Committee after “thirteen unlucky surfers came to grief” between March 1918 and February 1929 (SMC 1929a, 2). Of these, seven were fatal incidents, the last of which took place in February 1929. The Shark Menace Committee began its work in March (Brisbane Courier 1929). Following four more shark bite incidents in 1934 and two fatalities, the Australian Surf Lifesaving Association issued a report that called for government action. In response, the Government commissioned the New South Wales Shark Menace Advisory Committee to restore public calm stating that, “[t]he three shark accidents in the early part of the year 1934 revived agitation that something should be done” (SMAC 1935, 1326). Lastly, during the Australian summer of 2009, three non-fatal shark bite incidents over a span of two weeks prompted the State Government to conduct its first shark-based review of beach safety policies since 1935 (NSW 2009a). The media dubbed 2009 Australia’s “Summer of the Shark” (Callinan 2009).

Spanning a period of 80 years, these incidents present a unique opportunity for greater understanding in policymaking following human–marine life conflicts. Each government response began to take shape following a third or fourth shark bite incident, suggesting a trigger-point based on the perception of an on-going hazard (Rochefort and Cobb 1994, 20; Birkland 1998, 53). They all included the iconic locations of Bondi beach, Sydney Harbour, or both, offering well-known proximate threats (Rochefort and Cobb 1994, 21). Media sensationalization heightened negative public sentiments toward sharks, presenting a moral panic (Burns and Crawford 1999, 148). And every incident featured highly valued members of society, such as surf lifesavers, young surfers or Navy personnel (Schneider and Ingram 1993, 345). But significant differences are also clear, including three different state governments in power (Nationalist in 1929, United Australian-United Country in 1935, and Labour in 2009), varying access to scientific data on sharks and cases that included fatal and non-fatal incidents (Rochefort and Cobb 1994, 17). The constant element in this analysis is the dominance of a confidence and morale-based psychological problem definition.

**Theoretical Approaches to Public Perceptions**

Understanding the cognitive and political elements of human–marine life conflicts requires concepts from a number of different theoretical traditions. Lichbach and Zuckerman (2009) describe this as the “messy center” approach, leaving the rigid confines of one theory to recognize the contributions of multiple academic perspectives on an issue (Lichbach and Zuckerman 2009). Following shark bite incidents, a combination of frameworks from risk theory, social constructivism, policy design and carnivore conservation provide greater understandings of social attitudes and policy outputs. The “mess” is made “messier” in these cases because applying human-centered analysis to events in the wild and to animals in their ecosystems is inescapable. Yet while these are each considered, policy outputs are based on the decisions humans make, not sharks. As a result, the role of policy actors, problem making, dreaded outcomes and shark appeal are used as anchor points for this analysis across disciplines.

**Policy Actors**

The central role of entrepreneurs and elites on policy development is a common thread across theoretical perspectives. Whether identified as, “political actors” (Stone 1989; Baumgartner and Jones 1991), “moral entrepreneurs” (Schneider and Ingram 2005), “worst-case
entrepreneurs” (Sunstein 2007), or “policy entrepreneurs” (Houston and Richardson 2000), the goal of these actors is to strategically shepherd their problem and solution into policy outputs when windows of opportunity are open. When sharks do bite humans, these tragic circumstances can trigger policy windows that leave these incidents open to interpretation by savvy entrepreneurs.

As skilled tacticians, policy entrepreneurs use a number of methods to give their problem salience, or stickiness, with the public. Baumgartner and Jones (1991) suggest that entrepreneurs are able to make their problem resonate by looking for the most receptive audience or “venue” to implement their solutions (Baumgartner and Jones 1991, 1045). Mintrom and Vergari (1996) argue that entrepreneurship involves coalition building and that problems should be framed to build a diverse network with a lasting “political presence” (Mintrom and Vergari 1996). Houston and Richardson (2000) note that the effectiveness of a policy entrepreneur is impacted by their status and position. The visibility of policy actors on an issue, their credibility and knowledge on a subject, as well as their political office make the problem being talked about more prominent (Houston and Richardson 2000, 493). As an entrepreneur, President George W. Bush used his “bully pulpit” and familiar images to paint a picture that linked his current problem in Iraq to the 9-11 terrorist attacks, connecting these two problems in the public mind (Sunstein 2007, 535–539).

Sunstein (2007) notes that effective policy entrepreneurs understand how the public thinks and use tools to their advantage. Knowing that the public uses mental shortcuts to manage complicated issues, or “availability heuristics,” problems are defined in ways that fit into these shortcuts (Sunstein 2007, 535–539). Rochefort and Cobb (1994) suggest that the public will pay more attention to problems that are framed on the basis of their proximity, frequency, severity, and crisis nature (Rochefort and Cobb 1994, 21). This method is given added advantage when scientific uncertainty persists. Entrepreneurs are aware of public support for the “precautionary principle,” also known as “better safe than sorry” (Wilson 2010). The principle calls for safety measures “even if some cause and effect relationships are not fully established scientifically” (Wilson 2010, 1301). Shark bite incident policy responses provide openings for entrepreneurs to use doubts regarding shark behavior to offer their solutions, which may require little evidence and place the burden to prove honest intentions on sharks (Wilson 2010).

Dreaded Outcomes

The public largely perceives the consequences following shark bite incidents to be death. These events, like plane crashes and terrorist attacks, are considered low probability–high consequences incidents whose vivid nature skews risk perceptions (Sunstein 2002). Public perceptions of outcomes from shark bite incidents have been socially constructed by causal stories in movies, myths, and media. Films like *Jaws* create misperceptions in which sharks are depicted as a “rational enemy” intent on attacking swimmers (Papson 1992). These improper connections between the effects of an action with its intended purpose are described by Stone (1989) as “teleological fallacies” (Stone 1989, 290). This perceived outcome drives a primal rejection and fear of sharks. The vivid picture of the consequences from a human–shark conflict is embedded and available in the mind of the public. Since the public overestimates risks based on negativity and availability, shark bite incident imagery is difficult to undo (Sunstein and Zeckhauser 2009). Slovic (2004) argues that risk perceptions and behavior are amplified by emotions, or “affect heuristics” in which humans create mental shortcuts to easily recallable images (Slovic 2004, 971). These emotions are important because people make decisions about things based on more than what they think...
about something, but “how they feel” about it (Slovic 2004, 977). The cumulative impact of these cognitive processes can leave the public convinced of an outcome that seems more real and likely than it actually is and connects negative feelings about these events to their attitudes regarding sharks.

Primed with readily accessible reactions to shark bites, actual incidents can ignite a lack of public confidence in beach-going as well as a lack of confidence in government. Governments are sensitive to these situations and fear the consequences from public backlash (Schneider and Ingram 1993, 338). Achen and Bartels’ (2004) research on voting behavior and electoral changes in the U.S. state of New Jersey, following fatal shark bite incidents in 1916, reinforces the concern for political fall-out from natural crises. They found that “voters regularly punish government for acts of God” and constituents in districts near the shark bite incidents voted against the party in power, beyond any reasonable measure following disasters (Achen and Bartels 2004). Overreactions by the public following these events are met by overreactions by governments referred to as “action bias” (Sunstein and Zeckhauser 2009). From fencing off beaches to taking off shoes at the airport, these policy outputs represent a specific kind of visible over-reaction, directed at the public’s fear of certain outcomes. Alternatively, or perhaps consistently, Stringer and Richardson (1979) suggest that “placebo policies” are effective when governments see themselves as “‘threatened’ by the emergence of a ‘hostile’ issue” (Stringer and Richardson 1979, 29).

Sunstein and Zeckhauser (2009) reviewed Florida’s response following shark bite incidents in 2001 and noted public demands for government action (Sunstein and Zeckhauser 2009). The symbolic reaction was the banning of all shark-feeding on eco-tourism trips in the state.

Negative outcomes on endangered shark populations, as a result of shark bite response policies, are given lower political priority than the social outcomes on humans and the political outcomes for governments. There is an “ends–means orientation” that favors improving public perceptions over the means of getting there because risk perception reduction is seen as more important than risk reduction itself (Rochefort and Cobb 1994, 165). The negative consequences for sharks have proven to be catastrophic. Between 1950 and 2008, 16,064 animals were caught in the beach nets in New South Wales, including 577 great white sharks (NSW 2009a). Already rated by the IUCN Red List as “vulnerable,” a study by Chapple et al. (2011) estimated that the number of white sharks was “far lower” than the number of polar bears and killer whales (Chapple et al. 2011, 582).

**Problem Making**

A problem definition approach has been used to explain policymaking in British Parliament (Stringer and Richardson 1979), large carnivore management in North America (Clark, Curlee, and Reading 1996; Nie 2001), as well as air-bag safety and climate change (Houston and Richardson 2000; Pralle 2009). It states that events are recognized to be a public problem by “provid[ing] a frame through which current conditions are perceived to be in conflict with treasured social values” (Houston and Richardson 2000, 485). This analysis is shared by Fletcher (2009) who notes that “policy problems emerge from discursive interactions within a specific time and place” (Fletcher 2009, 802). The rationales and solutions for problems are key components in policy design and definitions are skillfully articulated by entrepreneurs to compete against other frames (Stone 1989; Schneider and Ingram 1993; Dery 2000).

The literature makes clear that simple stories sell. De Neufville and Barton (1987) state that myths provide the rationales for problem definitions to “make sense of events and
provide simplifications of a more complex reality” (182). Rochefort and Cobb (1994) note that choices in rhetoric help a problem stick with the public (152) while Stone (2006) asserts that discourse and “framing serves to simplify the complicated reality of a social issue to something more manageable by the human mind” (130). Within a simple causal story, blame is allocated and the motivations of those involved are construed (Stone 1989). The articulation of motives is a critical strategic element for entrepreneurs because it makes a problem unique and legitimizes the selection of a solution based on the nature of a problem (Rochefort and Cobb 1994, 11; Schneider and Ingram 1993, 339). Skilled entrepreneurs allocate intention by “pushing a problem out of the realm of accident and into the realm of purpose” (Stone 1989, 290). This completes a moral component to the causal story where “good and bad” are identified with symbols and solutions to illustrate the values of each (Schneider and Ingram 1993, 334; De Neufville and Barton 1987; Stone 1989).

An entrepreneur’s problem definition can succeed in influencing policy change only if the solution is perceived to work (Zhu 2008). Dery (2000) highlights the importance of “improving” a situation for a problem to take hold and gain consensus. Feasibility is a central measure in Houston and Richardson’s (2000) model as well as Kingdon’s (1995) Multiple Streams Model (Dery 2000, 40; Houston and Richardson 2000; Kingdon 1995). A feasible solution is seen as one that follows a logical causal story, “gets to the heart of the problem,” and reflects shared social values (Houston and Richardson 2000, 486). Solutions that are perceived to work represent socially valid ends to a problem. Policy responses that protect or kill sharks following shark bite incidents are therefore viewed as reflecting the public’s social and political feelings about sharks.

**Shark Appeal**

The struggle to engender public support and pride in sharks is a challenge that animal advocates face across many species. Research into human–wildlife conflicts and carnivore conservation show that the level of appeal the public feels toward sharks, or other large predatory species, impacts the degree of conservation protections provided (Andersone and Ozolins 2004; Kleiven, Bjerke, and Kaltenborn 2004; Thompson and Mintzes 2002, 647). Yet, the factors that make animals appealing to humans remain a mystery. An animal’s size, color, location, and behavior are all contributing factors (Stokes 2007). Meuser et al. (2009) looked at species’ attributes and found that endemism, the more local a species was, produced greater support for conservation. Czech, Krausman, and Borkhataria (1998) reviewed the relationship between public attitudes of animal groups and “political power” by looking at the number of nongovernmental organizations (NGOs) working on their behalf (Czech, Krausman, and Borkhataria 1998). Using Schneider and Ingrams’ (1993) model of social construction, species groups were placed into four value-laden target populations: “advantaged, contenders, dependents and deviants” and compared against the kinds of beneficial or punitive policies and rationales they received (Czech, Krausman, and Borkhataria 1998, 1104). Czech, Krausman, and Borkhataria (1998) found that there is a connection between positive attitudes toward animal groups and beneficial policies or organizations, though aesthetics is not always the leading factor of support.

The perception of animal behavior as a threat to humans impacts public attitudes. Czech, Krausman, and Borkhataria (1998) found that animals considered “dangerous” receive more negative attitudes (1110). However, Knight (2008) argues that “negativistic attitudes of fear may be waning” (95). Scenario specific data of human–wildlife conflicts are likely most useful in reconciling this analysis. Zinn et al. (1998) found that the context of the conflict, identity of the species and control measures proposed were the variables that
impacted support for response actions. Similarly, Kleivan, Bjerke, and Kaltenborn’s (2004) survey of the public found that respondents proximity to the animal and the “severity of animal behavior” were key in the degree of perceived fear (Kleivan, Bjerke, and Kaltenborn 2004, 1655–1656). For sharks, the scenario-specific behavior of a few dangerous species has been projected into public feelings about sharks in general. As a result, the way incidents are defined for the public is an important factor that can impact all shark populations.

This article moves forward with a review of methodology; the presentation of 1929, 1935, and 2009 cases; and the results of each content analysis. I conclude with a discussion of lessons for future management response plans.

**Materials and Methods**

The use of rhetoric and symbolism by policy entrepreneurs to frame events, problems, outcomes, and target populations has made the problem definition approach an appropriate method to analyze responses to human–shark conflicts (Rochefort and Cobb 1994). Houston and Richardson’s (2000) model connects these points through a qualitative analysis to identify the problem definitions, measure their strengths, and test these measurements against policy outputs (Houston and Richardson 2000, 495). The 1929 New South Wales Shark Menace Committee Report (SMC 1929a), 1929 Shark Menace Sub-Committee General Report (SMC 1929b), 1935 New South Wales Shark Menace Advisory Committee Report (SMAC 1935), and the 2009 Department of Primary Industries Report into the New South Wales Shark Meshing (Bather Protection) Program (NSW 2009a) serve as foundational documents. Newspaper articles are cross-referenced, including the National Library of Australia digital archives, to confirm policy outputs. Data were also gathered from the Coppleson Archives and Curlewis Family Archives, the Australian Surf Lifesaving Association, the 2006 Scientific Shark Protection Summit in New South Wales and Acts of the New South Wales State Parliament related to fisheries management and the beach meshing program.

The reports from 1929, 1935, and 2009 were examined for five common criteria: statements of purpose and jurisdiction; history of shark bite incidents; identification of solutions to be considered; scientific claims regarding shark behavior; and findings or recommendations on beach safety policies. To operationalize the texts, the six components of problem definitions outlined by Houston and Richardson (2000) are used to identify problems (486). These include noting the “societal condition that needs to be remedied; the empirical evidence of the condition; the causal story; proposed solutions; values reflective of selected solutions”; and symbols “that are endowed with meaning” to simplify the problem (Houston and Richardson 2000, 486). Problem definitions from the three periods were labeled and ranked on the basis of their “success characteristics,” or likelihood of achieving policy outputs (Houston and Richardson 2000, 495).

**The People Problem of 1929 (Table 1)**

**Behavioral Definition**

In 1929, the leading problem according to the Shark Menace Committee Report was bather behavior. New South Wales had experienced thirteen incidents and seven fatalities, including two each at Sydney’s Coogee and Bondi beaches. According to the 1929 Report, careless swimming at dawn and dusk, when sharks were known to hunt, and swimming alone far from the shoreline were the problems. Data on the times of day that incidents
Table 1

Behavioral definition characteristics (1929) based on Houston and Richardson (2000)

<table>
<thead>
<tr>
<th>Societal condition to remedy</th>
<th>Behavioral definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empirical evidence</td>
<td>Shark bite injuries and fatalities.</td>
</tr>
<tr>
<td>Causal theory</td>
<td>Shark bite incidents involve swimmers out at dawn, dusk, and in isolated areas.</td>
</tr>
<tr>
<td>Solutions</td>
<td>Shark bites are accidents. Human behavior can reduce human–shark risk and interactions.</td>
</tr>
<tr>
<td>Values</td>
<td>Change public behavior through education, signage, regulation, and fines.</td>
</tr>
<tr>
<td>Symbols</td>
<td>Public safety, personal responsibility.</td>
</tr>
<tr>
<td></td>
<td>Beach inspector, fines on bathers.</td>
</tr>
</tbody>
</table>

occurred was used to make this point and the Report stated that “[m]ost of the accidents occurred in the late afternoon. In all instances except one the victim was isolated from other bathers or entirely alone” (SMC 1929b, 3). As a result, the Report’s recommended solution was to give beach inspectors (precursors to life guards) additional authority to control human behavior to “prevent people bathing at dangerous hours or out such distances as to earn for them the title ‘shark bait‘” (SMC 1929b, 14).

Except getting out of the water, no options were adopted to address immediate public concerns. Local councils were given a design for erecting observation look-out towers, but funding was left to individual areas and surf life-saving clubs. Fishery contractors were contacted to consider trawling for sharks, but facilities did not exist to support an industry. Lastly, public beach enclosures were ruled out as impractical due to the heavy surf and costs involved. The Committee felt that since no enclosure had yet proved workable in Australia it was important not to create “a false sense of security”1 (SMC 1929a, 3).

Causal Story and Policy Entrepreneur

The infamous history of sharks as “devourers” and “sea monsters” goes back in Western culture to the 1550s (Coppleson 1959, 3). In Australia, Sturma (1986) suggests that it was the island nation’s reputation as a land surrounded by sharks that made it an appealing location when British jailers were “selecting a place to transport convicts” (Sturma 1986, 78). The 1929 Committee found, however, that shark bite behavior was not about trying to eat humans. Testimony from fisheries expert David Stead led the Committee to conclude, “sharks do not patrol beaches on the off-chance of occasionally devouring human prey” (SMC 1929a, 2). Shark bites in Australia did not mean shark attacks. This causal story provided a foundation for the behavioral problem definition by placing responsibility for the shark bites on swimmers. New South Wales Minister for Local Government, Michael “The Colonel” Bruxner noted in the 1929 Report that he hoped changes to the law would “have a salutary effect upon foolhardy bathers” (SMC 1929a, 6). In twelve references to shark bites in the 1929 Sub-Committee Report, shark bites were labeled as “accidents” six times; “attacks” five times; and once as “ill results” (SMC 1929b, 2–14).
The behavioral definition’s failure to resonate in 1929 came from incomplete solutions and the lack of strong, steady policy entrepreneurship. Bruxner lost his position as Minister in 1930 when the Government was voted out of power. Though he continued in State Parliament, his political portfolio centered on transportation related issues (Aitken 1969). David Stead’s advocacy was limited by his support for beach enclosures and numerous political battles. He was left isolated and his credibility was undermined by a reputation as too “self opinionated” (ADB 2011). Other stakeholders included Charles Paterson, President of the Australian Surf Lifesaving Association. Paterson supported the unworkable enclosure solution and wrote that bad publicity was a leading problem; however, he died in 1933. Without continued, credible and strategic leadership, the behavioral definition was left vulnerable to competing frames.

Policy Outputs

In November 1929, a 10-pound fine was added to bathing ordinances on unruly swimmers in New South Wales (Barrier Miner 1929). The onset of the Great Depression in 1930, however, left the other recommended measures undone, including the local funding for observation towers and trawling.

The Panic Problem of 1935 (Table 2)

Psychological Definition I

Public confidence in beach going was the dominant problem to be solved following shark bite incidents in 1934. There were four shark bite incidents and two fatalities, including one in Sydney Harbour, after 1929 and the Australian Surf Lifesaving Association called on the government to act. The Government commissioned a Shark Menace Advisory Committee, which conducted hearings and issued a report that stated, “the psychological factor, for instance, the committee recognizes, is an all-important one; and there is evidence of the necessity of restoring the somewhat shaken public confidence” (SMAC 1935, 1327).

The psychological definition centered on ways to calm the public. The Committee noted that the public demanded “some form of enclosure” as a solution (SMAC 1935, 1329). As a result, an experimental two-year proposal for 1,000-foot-long gill nets, set along the shoreline of Sydney’s metropolitan beaches, were recommended. These nets would not serve as a full enclosure, but they would be set to the bottom of the sea and buoyed at the surface to catch and kill sharks (SMAC 1935, 1345). The beach netting solution was seen as an immediate way to address the “fear complex” that had developed, by reducing the amount of sharks near the beaches and the number of shark alarms that were amplifying public anxiety. The report added: “[i]f it could be shown that, under persistent meshing, the number of sharks were steadily diminishing over the length of coast dealt with, there would be a restoration of public confidence in surf bathing as a safe form of recreation” (SMAC 1935, 1346).

The Report further recognized the importance of observation towers, as a visible confidence-building measure, noting that “the knowledge that a careful watch is being kept for sharks is known to be an important factor in the improvement of the morale of bathers” (SMAC 1935, 1342).

The behavioral definition in 1935 complemented, more than competed, with the psychological definition. Its narrative had changed and bathers were not blamed for shark bite
incidents. The Report considered people’s actions, such as fishing from the beach and the construction of sewage outfalls near beaches, to have an inadvertent role in bringing sharks closer to shore. The Report recommended changes to beach fishing and re-directing sewage outfalls (SMAC 1935, 1348).

Table 3
Bondi Beach attendance records (1929–1937) (Coppleson Archives 1964, Box 11, p. 19)

<table>
<thead>
<tr>
<th>Bondi Beach/Year</th>
<th>Attendance</th>
<th>Difference from previous year</th>
<th>Shark bite incident in New South Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>3,582,031</td>
<td></td>
<td>3 fatal incidents</td>
</tr>
<tr>
<td>1930</td>
<td>4,363,908</td>
<td>+781,877</td>
<td></td>
</tr>
<tr>
<td>1931</td>
<td>3,584,310</td>
<td>−779,598</td>
<td></td>
</tr>
<tr>
<td>1932</td>
<td>3,502,770</td>
<td>−81,540</td>
<td>1 incident</td>
</tr>
<tr>
<td>1933</td>
<td>2,630,043</td>
<td>−872,727 (24.9%)</td>
<td>1 incident</td>
</tr>
<tr>
<td>1934</td>
<td>2,674,686</td>
<td>+44,643</td>
<td>3 incidents/2 fatal</td>
</tr>
<tr>
<td>1935</td>
<td>2,768,530</td>
<td>+93,844</td>
<td>2 fatal incidents</td>
</tr>
<tr>
<td>1936</td>
<td>2,772,870</td>
<td>+4,340</td>
<td>1 fatal incident</td>
</tr>
<tr>
<td>1937</td>
<td>3,856,150</td>
<td>+1,083,280</td>
<td></td>
</tr>
</tbody>
</table>
Causal Story and Policy Entrepreneur

The changing rhetoric and causal story about shark “attacks” drove public panic in 1935 and served as the basis for the psychological definition. Dr. Victor Coppleson, a doctor, veteran, and advisor to the Surf Lifesaving Association of Australia led the advocacy for this new narrative. Coppleson believed that swimmers were being misled by research that said sharks do not bite humans. In response, he published “Shark Attacks in Australian Waters” in the 1933 Australian Medical Journal. Under the heading “The evidence of the responsibility of the shark,” he argued that, “the evidence that sharks will attack man is complete” (Coppleson 1933, 466). By 1935, the Shark Menace Advisory Committee Report referred to shark “attacks” in 77 percent of shark bite references and “accident” in nine percent.

Taking control of the open policy window created by the shark bite incidents, Adrian Curlewis built the case for solving the problem of public panic. A surfer, barrister, founder of the Palm Beach Surf Club and new President of the Australian Surf Lifesaving Association, Curlewis argued that the decline in bathing and surfing participation, as a result of shark bite incidents, was detrimental to the health and wellbeing of the State and the Nation, a danger to all Australians (Canberra Times 1934). Records show a 25 percent drop in attendance at Bondi beach between 1933 and 1934 (Table 3) (Coppleson Archives 1964). To get people back in the water, Curlewis took an active role. In 1935, he opened the small beach-netted enclosure at Nielsen Park in Sydney, otherwise known as “Shark Beach” (SMH 1935). He publicly defended the Report in numerous newspaper articles and Letters to the Editor and led the effort for State funding of beach netting in 1937. After contractual disputes and foot-dragging for two years, he stated, “it will be tragic if we have to wait for another shark attack to rouse the public” (SMH 1937). Curlewis advocated for publication of beach net shark-catch data and newspaper accounts initially recorded weekly shark numbers. He would remain an advocate of beach nets, later serve as a NSW Supreme Court Judge and continue as President of the Surf Lifesaving Association for a total of 44 years. The entrepreneurship of Curlewis and the scientific narrative from Coppleson painted a picture of a crisis with nation-wide implications and a solution that was affordable, workable, defendable, and visible.

Policy Outputs

The principle recommendation of beach nets in the 1935 Report received full funding in 1937. A payment of twenty-thousand pounds by the Government began the work of fisheries contractors for nets from Cronulla to Palm beach (The Mercury 1937). The Committee’s Report also led the State Water Board to commission a different route and treatment for the Bondi sewage outfall in 1936. Observation towers remained the responsibility of surf clubs; however, more began being built after 1935 including the iconic eighty-foot tower at Manly beach in 1938.

The Pandering Problem of 2009 (Table 4)

Psychological Definition II

The leading problem following shark bite incidents in 2009 was the perception of a decline in public confidence in the Government’s beach safety program. Incidents at two netted beaches within three weeks at Bondi beach and Avalon beach on New South Wales’ Central
Table 4
Psychological and conservation definitions based on Houston and Richardson (2000)

<table>
<thead>
<tr>
<th>Societal condition to remedy</th>
<th>Psychological definition</th>
<th>Conservation definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media reporting on shark bite incidents is leading to criticism of Government beach safety programs.</td>
<td>Beaches safety measures that kill endangered sharks.</td>
<td></td>
</tr>
<tr>
<td>Empirical evidence</td>
<td>Shark bite incidents at netted beaches and media reports.</td>
<td>International criticism and shark catch data.</td>
</tr>
<tr>
<td>Causal theory</td>
<td>Shark bites are attacks. Sharks are to blame for swimming near beach and being caught in nets.</td>
<td>Beach nets are working and by-catch mitigation measures are in place.</td>
</tr>
<tr>
<td></td>
<td>The visibility of nets, aerial surveillance and towers will show Govt. action and support existing program.</td>
<td>Knowing more about shark behavior will reduce human–shark interactions.</td>
</tr>
<tr>
<td>Solutions</td>
<td>Fund aerial patrol, issue Report on success of programs and keep shark nets to placate critics, the public and scientists.</td>
<td>Check nets more regularly, increase research and move management to Env. Dept.</td>
</tr>
<tr>
<td>Values</td>
<td>Public safety, public confidence, protect tourism, Australian excellence, government accountability.</td>
<td>Protection of endangered sharks; international norms.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public safety, shark conservation.</td>
</tr>
<tr>
<td>Symbols</td>
<td>Helicopters, beach nets, towers, flags, Shark Smart brochure.</td>
<td>Shark catch data, beach nets</td>
</tr>
</tbody>
</table>

Coast, as well as Sydney Harbour led to an announcement by the Government that it would conduct its first review of the beach meshing program since 1971. New South Wales Primary Industries Minister Ian Macdonald stated, “[t]he recent shark attacks in the Sydney area have caused community concern and it should be known the government is taking action” (Manly Daily 2009).

The psychological problem was highlighted by criticism of the beach netting program and lack of sufficient aerial patrols. The Opposition, Liberal party, stated that Minister Macdonald “hasn’t done everything possible to mitigate the possibility of shark attacks” (ABC 2009a). Calls for additional aerial patrols also came in from the local Mayor near Bondi and a business that runs helicopter services placed blame on the Government for the incidents (Robinson 2009; ABC 2009b).

The Government’s solution to the criticism of aerial patrols was to reverse its position (NSW 2009a, 14; Hansard 2009b, 19237). In November 2009, Minister Macdonald announced funding for an experimental trial of helicopter patrols at the 51 meshed beaches. The rationale for this change included that “the shark, and fear of shark attack, has a special place in the Australian psyche” (Hansard 2009b, 19237). He added that the trial program would aid in scientific data collection adding benefit to the existing shark meshing program (SMP). However, the Minister also commented to a local newspaper that, “[h]elicopter
Table 5

<table>
<thead>
<tr>
<th>Bondi beach/Year</th>
<th>Attendance</th>
<th>Difference from previous year</th>
<th>Shark bite incident in New South Wales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>650,496$^i$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>847,668</td>
<td>+197,172 (23%)</td>
<td>3 non-fatal incidents</td>
</tr>
<tr>
<td>2010</td>
<td>683,410</td>
<td>−164,258 (19%)</td>
<td></td>
</tr>
</tbody>
</table>

$^i$Data of weekend beach attendance provided by the Australian Surf Lifesaving Association, personal correspondence, July 21, 2011.

Strategic choices were made to reinforce the existing beach netting program, and support the psychological definition. Having concluded in 2006 that beach netting “helped ease public concern about the risk of shark attack at popular beaches” (NSW 2006, 4) Minister Macdonald stated in 2009, “the meshing program is here to stay” (Holland 2009b). Without the nets, the 2009 Report found that there were greater chances of “interactions between bathers and great white sharks” (NSW 2009a, 16). In fact, the option to expand the coverage of beach nets was kept on the table if “a performance indicator relating to human fatalities or serious injuries were triggered, such as these recent attacks” (NSW 2009a, 105). Lastly, the Report recommended an increase in community education regarding the role it can play in risk reduction and a brochure was developed to “supplement the Government’s highly successful annual shark meshing program” (NSW 2009a, 41; NSW 2009b).

The solution to a potential drop in public confidence was to placate its critics and the public. The Government reversed its positions, reinforced dreaded outcomes from sharks, expanded confidence-building measures and attempted to reassure the public about the strengths of the current program. Yet there appears to be little evidence of a lack in public confidence. Beach records of weekend attendance at Bondi in 2009 show an increase of 23 percent overall, as noted in Table 5. A review of weekend averages during this period shows a drop in attendance immediately following the Thursday, February 12 shark bite at Bondi; however, this appears to rebound to 7,810 attendees by February 22, and more than 23,000 on March 7.

The competing conservation definition proposed in 2009 suggested a conflict between beach netting measures that kill endangered sharks and requirements to conserve sharks. This tension was illustrated in the Report’s executive summary which noted that, “although the SMP has been effective in reducing the risk of shark attack, it is also listed as a Key Threatening Process under both the Fisheries Management Act of 1994 and Threatened Species Conservation Act 1995” (NSW 2009a, v). The SMP is an exception to the 1996 State law protecting white sharks and was updated from 1937 in 1971 to limit netting to April through September, reduce the size of the nets and expand the number of beaches covered. In 2009, nets provided coverage at beaches from Wollongong to Newcastle (NSW 2009a, 1).

The solution to the conservation problem definition attempted to challenge the psychological definition. The Report stated that while the SMP program would continue, attempts would be made to minimize shark deaths and the deaths of other species. Recommendations included establishing “trigger points” to alert managers inside government departments of...
increased catches of endangered species. It also recommended reducing the amount of time between checking the nets for entangled animals, and increasing research to inform the risk of attack (NSW 2009a, 39, 41).

**Causal Story and Policy Entrepreneur**

Minister Macdonald’s causal story provided a foundation for the Government’s positions by blaming sharks. He argued that the beach nets were working and did not conflict with conservation values because sharks were to blame for swimming near the beach and for running into the nets. The Minister explained that “the sharks sensory system detects the net and this encourages the shark, rather rapidly, to leave the area”; he added, “essentially, the nets are there as a psychological barrier to the sharks” (Hansard 2009a, 17822). This argument continued even after Dr. John Paxton of the Australian Museum argued in 2006 that this theory was “unfounded” since the nets are moved every few days (Paxton 2006). The institutional power, however, of the Minister’s political position allowed the psychological definition to prevail and overrule science because the rationales provided were salient with the public and provided immediate relief of perceived concerns.

The evidence of internal bureaucratic success rests in the triggers established in the event of both public panic from a shark bite incident as well as from high number of sharks caught in the nets. By matching the tactics for human protection with shark protection they have created the first way that nets could be reduced. While political dominance rests with Minister Macdonald, the 2009 policy outputs illustrate an on-going battle between the psychological and conservation problem definitions.

**Policy Outputs**

Funding for the psychological definition was swift, with funding allocated for the helicopter program and for “100,000 shark education brochures” as part of a new “Shark Smart” program (Hansard 2009b). The conservation definition’s policy outputs included moving the SMP from the Department of Fisheries to a new Joint Management Agreement under New South Wales’ threatened species legislation. The beach meshing program transferred operations to the Industry & Investment NSW and the Department of Environment, Climate Change and Water. The transfer in departmental management of beach netting represents the first significant connection between conservation efforts and the application of the beach safety programs in Australia. In addition, more frequent checking of beach nets for animals caught up in the nets and DNA collection was enacted to determine shark populations and movements. Funding for the tagging of bull sharks, to track their behavior in Sydney Harbour, was also approved providing additional scientific research on the record (NSW 2009a).

**Results (Table 6), Discussion, and Conclusion**

In the politics of shark attacks, it is the survival of the fittest problem definition. Houston and Richardson’s (2000) model illustrates how complete problem definitions offered by strategic policy entrepreneurs can result in policy outputs based on their solutions. The advocacy and defense by Adrian Curlewis and Minister Macdonald were central to the success of the psychological definitions in 1935 and 2009. Curlewis led the efforts to fund beach nets and defended them for decades. Minister Macdonald used existing doubts about shark science and his political position to mitigate conservation concerns and overcome the
## Table 6
Characteristics of successful beach safety problem definitions

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Behavioral definition</th>
<th>Confidence definition</th>
<th>Conservation definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective entrepreneur</td>
<td>(Low) M.F. Bruxner and David Stead</td>
<td>(High) Adrian Curlewis, Ian Macdonald</td>
<td>(Medium) Dept of Fisheries</td>
</tr>
<tr>
<td>Consensus among proponents</td>
<td>(High) Agreement that education and awareness are key.</td>
<td>(High) Agreement that public confidence needed to be restored.</td>
<td>(High) Agreement that conservation requirements apply.</td>
</tr>
<tr>
<td>Feasibility of solutions</td>
<td>(High) Economically and politically workable.</td>
<td>(High) Economically and politically workable.</td>
<td>(Low) Lack political support.</td>
</tr>
<tr>
<td>Comprehensiveness</td>
<td>(Low) Lacks short term solution.</td>
<td>(High) Answers public concerns.</td>
<td>(Medium) Does not fully answer problem condition.</td>
</tr>
<tr>
<td>Compatibility with other definitions</td>
<td>(Med) Conflicts with confidence definition.</td>
<td>(Medium) Conflicts with conservation definition.</td>
<td>(Medium) Conflicts with confidence.</td>
</tr>
</tbody>
</table>
conservation definition. The absence of this leadership for the behavioral definition and its incomplete solution left it vulnerable to competing concerns.

Problem definition analysis provides a picture of the underlying issues in these shark bite cases. I conclude that New South Wales’ beach safety policies in 1929, 1935, and 2009 were not directly about hurting sharks but instead about regulating, calming, and placating the public. These findings highlight the need to manage public perceptions and limit government overreactions, a focus on solutions aimed at human behavior rather than shark control. These case studies also reveal a “predator policy paradox” where politicians see few political incentives in supporting policies that protect endangered species that may harm the public. As a result, beach netting policies validate killing endangered sharks to ease public fears, even as science affirms the dire state of the shark population crisis. Further study is needed in this area.

For coastal managers, there are a number of lessons for responding to human–marine life conflicts. The first lesson is that there are real choices about how to discuss these events. Discourse is a strategic choice and Australia has a historic record of common sense rhetoric to shark bites. Second, the selection of savvy and long-term policy entrepreneurs is essential. Third, the inclusion of measures to relieve short-term public anxiety add to a solution’s comprehensiveness. Fourth, education is needed to connect long-term public safety to personal behavior. If the public can play a new role determining its personal level of risk, then a balance between conservation and beach safety becomes more likely.

Finally, the tactics that are good for making entrepreneurs’ problem definitions stick with the public are bad for sharks. Highly emotional stories that present vivid images of familiar, local, severe, and on-going threats provide openings for entrepreneurial solutions. These strategies, however, reinforce negative public perceptions of shark bite risks and consequences that are usually false. Meeting this challenge requires re-defining the perceived outcomes held by the public regarding shark behavior at beaches and the negative results of public panic that concern governments. Fresh research into beach ecosystem activity, more vocal respect for shared marine spaces and new attention to personal responsibility in the ocean by valued sources all offer opportunities to re-shape the way people and politicians manage themselves and balance policy decisions. In short, the unconsidered elements of the beach provide an opportunity to reconsider the known, but misperceived, aspects of sharks.

Notes

1. A previous beach enclosure at Coogee beach in Sydney in 1922 failed, with the net washing away just before the ceremony to open it to the public.
2. A steel mesh enclosure placed at Coogee beach by the local Council in 1929 was seen as evidence of a “very effective” approach (SMAC 1935, 1331).
3. Coppleson labeled as “baloney” the assertion by the U.S Navy brochure that sharks do not bite swimmers. He also took issue with a 1905 claim that sharks will not bite above the Caribbean.
4. The first protections for any shark species in the world took place in 1984 when the New South Wales State Government declared the grey nurse shark (Carcharias taurus) a protected species (Environment 2011). White sharks (Carcharodon carcharias) also received protection in the state (1996).
References


Fletcher, A. 2009. Clearing the air: The contribution of frame analysis to understanding climate change policy in the U.S. Environmental Politics 18 (5): 800–816.


