

Predator or scapegoat? The Australian Grey Nurse Shark through the public lens*

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ABSTRACT

The general lack of knowledge in mainstream Anglo-Australian society and popular Western media pertaining to the different shark species has led to the depletion of placid species such as the Grey Nurse Shark *Carcharias taurus*. This paper examines the depiction of sharks in Western popular media and also provides an in depth analysis of 155 Australian newspaper articles pertaining specifically to the Grey Nurse shark. The study of newspaper reportage consisted of a content analysis of 15 Australian based newspapers and serves to deconstruct the explicit messages that they attempt to convey to their readers. The data generated by this study exemplify the perceptions of *C. taurus* as represented by major Australian newspapers between the years 1969 and 2009. The study revealed that the majority of the news articles examined fell within a neutral range and that the level of interest in the plight of *C. taurus* has increased as *C. taurus*' circumstances have become more critical.

Key words: Newspaper Content Analysis, Conservation, Shark, Public Perception, Media Influence, Trust and Media Bias, Public Discourse, Wildlife Management.

Introduction

It is important to analyse the opinions and values of the people within a geographic area when analysing the impact that a specific society has on nature. The level of respect and value attributed to the surrounding wildlife relies greatly on the role wildlife occupies within the belief structure of a particular populace (Bulbeck 1999; Lawrence 2003; Tester 1991). Western history has referred to sharks as menacing predators that threaten human beings. This all-encompassing generality has fallen short of recognizing the different species of sharks, and concentrates on the (often misunderstood) threats that they pose to humans rather than the vital ecological rank they hold in marine ecosystems.

Popular media has a substantial impact in moulding the beliefs of a society and the values that it embraces with regards to the management of the natural world (Wolch *et al.* 1997; Ingold 1994; Lunney and Matthews 2003). Thus, it is important to identify the role that media plays in generating the dominant beliefs held by a society and in determining the issues that are of current concern.

Misanthropic discourse became more prevalent in mainstream conservation and environmental writing in the 20th century, resulting in the sentimentalisation of certain animals (Franklin and White 2001). As a consequence, select newspaper articles began to identify the role that humans play in marine habitat destruction and their contribution to threatening the extinction of many shark species. Although there is no specific consensus on the actual date to signal this change in sentiment, there is evidence of reflective convergence from several authors that underline "the mid to late 1970s as a critical period of transition" (Franklin and

White 2001 p.224). The first news article warning of the human impact on sharks through the targeted killing of a particular species appeared in the early 1970s. The shift also applied to some of the less visually pleasing and common mainstream species (Franklin and White 2001) as evidenced by an early, albeit singular, report on the Grey Nurse Shark *Carcharias taurus*. These changes led to more empathetic, protectionist and educative Western media representations of nature and wildlife (Franklin 1996, 1999, 2001).

An examination of how sharks as a group have been portrayed in various mainstream media, with particular attention to newspaper publications, points to the general public's beliefs on the issue of conservation. An awareness of these beliefs will be valuable in aiding future conservation endeavours for the Grey Nurse Shark, the species that is the focus of this article. The Grey Nurse Shark is currently listed as 'vulnerable' in Australia (IUCN 2008). The east coast population is listed as 'critically endangered' while the west coast population is classified as 'vulnerable' under the *Environment Protection and Biodiversity Conservation Act 1999*. The species is listed as 'endangered' in NSW under the *NSW Fisheries Management Act 1994*. In Queensland, it is listed as 'endangered' under the *Nature Conservation Act 1992*, and 'protected' under the *Fisheries Act 1994*. The state of Victoria lists the species as 'protected' under the *Fisheries Act 1995* and 'threatened' under the *Flora and Fauna Guarantee Act 1988*. Tasmania lists the Grey Nurse shark as 'protected' under *Fisheries Regulations 1996*, and in Western Australia, the species is listed as 'protected' under the *Wildlife Conservation Act 1950*. There have

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been individual citizens who have advocated for the conservation of the species (Fuller 2008). However, there has been a lack of research on the public perception of the Grey Nurse Shark in relation to how it could impact on conservation efforts.

While the literature for this article is not exclusive to the Grey Nurse shark, it does correlate to the issues faced by this particular shark species. There is socio-ecological relevance in an interdisciplinary analysis of i.e., species generalisation, public perception, and the conservation of other species as a means of ascertaining a comprehensive understanding of the Grey Nurse shark (Yorek 2009). Regardless of any shift in attitude towards sharks, they still have remained in the spotlight of sensationalised media headlines, and are described as feared creatures lurking beneath the surface of the waters. Accordingly, the public is often ill-informed about the differences between species of sharks. Many would not be capable of differentiating a Blue Shark from a Great White Shark, Bull Shark, or Grey Nurse shark; and this broad lack of knowledge pertaining to the diverse shark species has led to the depletion of the more placid species such as the Grey Nurse shark, Basking Shark and Whale Shark (IUCN 2003; Pogonoski *et al.* 2002).

By contrast, certain species of marine life, such as the dolphin, have benefited from wide-scale media involvement. Newspaper reportage on issues of bycatch affecting the dolphin played a critical role in securing public support for the animal's protection in the early 1990s. Although bycatch issues have always been a concern linked with commercial fishing practices, reports on the fate of their dolphin victims flooded the popular Western media in the 1990s. While there are many species of sea creatures that are afflicted by commercial fishing practices, the dolphin became the perfect mascot to ingratiate the public's support. As a result, there was a rise in the marketing of dolphin-safe tuna in the late 1990s. Dolphins have been classified as popular animals and, along with dogs and primates, are described as having companion or equal relationships with humans (Bulbeck 1999). The heavy influence of Western media reportage on the bycatch issue (Dyck and Zingales 2002) and the "cute and cuddly" appeal of the dolphin (Tester 1991) secured the dolphin's influence and led to a public call to arms to boycott all tuna products that did not proudly display the 'dolphin-safe' promise. Unfortunately, *C. taurus* has not maintained the fascination and charm of the ever popular image of the friendly dolphin (Hall 1998). Instead, negative portrayals of the Grey Nurse shark have strengthened the false impression that this shark is a threatening and dangerous creature rather than a passive marine inhabitant.

***Carcharias taurus* as the "Man Eater"**

The Grey Nurse shark's protruding jagged teeth are one of their main distinguishing attributes. Their teeth feature prominently in most depictions of this particular species, and these depictions, to a visible degree, have contributed to the shark's undeserved persecution (Roelfsema 2003). The fact that this species poses only a remote threat to humans is often eclipsed by the media

illustrations (including photographic works and brochures for local aquariums) that draw attention to and exploit the 'ferocious' appearance of the shark (HSA 2009; Peddie 2009; Wilkinson 2008; QG 2004).

As a result of the Grey Nurse shark's fierce appearance, many shark attacks on humans have been mistakenly blamed on this species (Whitley 1983). For instance, in 1964, Benjamin Cropp, Australian spearfishing champion and inductee to the International Scuba Divers Hall of Fame, described the Grey Nurse shark as a notable threat to skin-divers and swimmers, and grouped the species together with the Whaler shark *Carcharhinus macrurus*, Tiger shark *Galeocerdo cuvier*, White shark *Carcharodon carcharias* and the Mako *Isurus oxyrinchus* or Blue Pointer *Isurus glaucus*, which he generalised as "man-eaters." The undeserved predatory reputation of the Grey Nurse shark has led to its slaughter by spear and line fishers (Last and Stevens 1994).

Regrettably, although aggressive occurrences of Grey Nurse sharks towards humans are unusual, they do happen, and when reported, can reawaken previous preconceptions about the species. The *Daily Telegraph* reported on one such event that took place on January 13th 2004. The title of the article, *Shark Bites Flipper*, is clearly intended to generate alarm in the reader, and is indicative of the manner in which language is utilised to boost the interest of a newspaper article. Even though the piece does communicate that the Grey Nurse shark is not characteristically known to be an aggressive species, the way in which the article is written effectively diffuses this information. The opening line of the article describes how the diver "narrowly escaped losing a foot...after a shark lunged at him" (*Daily Telegraph* 2004). Such sensationalist commentaries create the illusion of danger when the actual incident may not have been quite as climactic. Journalists and their editors depend on the dramatic nature of an event, or their writing prowess, to produce a story that they believe will attract readers. However, in this case, the journalist's dramatic depiction of the particular event was at the Grey Nurse shark's expense.

Grey Nurse Shark Human-Interactions and Portrayals: A Study of Newspaper Portrayals of the Grey Nurse Shark from 1969-2009

A key issue affecting the Grey Nurse Shark is the rise in human-shark interactions which invariably generate media coverage. Media reports often outline the different techniques for managing shark populations, and this in turn has an effect on the general consensus about preservation efforts (Wolch *et al.* 1997). In 1970, for example, a report in *The Sydney Morning Herald* warned of the dangers of killing too many Grey Nurse sharks, and although other reports had linked the species to attacks on humans, this particular article discounted those claims and reaffirmed the wrongful accusations about the species. Conservationists estimate that there are approximately between 410 and 461 Grey Nurse sharks (Otway 2004). This small population not only confronts biological risks such as low fecundity and a restricted gene pool, but it is up against the human practice of line fishing in critical habitat areas.

Methods

As an essential part of the research for this paper, there was a content analysis of 155 *C. taurus*-related articles appearing in *The Sydney Morning Herald*, *The Sun-Herald*, *The Daily Telegraph*, *The Central Coast Express Advocate*, *Manly Daily*, *Hobart Mercury*, *The Courier-Mail*, *Illawarra Mercury*, *The Newcastle Herald*, *Cairns Post*, *Sunday Herald-Sun*, *Gold Coast Bulletin*, *Sunday Telegraph*, *The Australian and Australian Associated Press* between the years 1969 and 2009. The articles gathered for this study were contingent on availability, and assembled through the use of online databases and library microfiche (for the years prior to online sources). The works were chosen on the basis of content which made specific reference to the Australian Grey Nurse shark. Only one article was selected when several identical ones were found during the review of the different newspaper sources from the Australian Associated Press.

The articles were analysed and deconstructed to reveal the explicit messages they impart to the public. Equally, in order to ascertain the influence or significance of specific articles, there was an analysis of the following characteristics:

- the date of print;
- the type of article, and whether it was general news or an editorial submission;
- the main arguments emphasized within the article;
- the illustrative vocabulary used to describe the Australian Grey Nurse shark; and
- the identity of spokesperson(s) quoted in the article.

Kellert's (1985) typology was utilized to classify attitudes and to ascertain the general tone of the articles. According to Kellert's (1985) model, the scope in attitudes fluctuates from notions that animals are regarded as resources for humans (i.e. utilitarianism and dominionism) to ones that emphasize compassion toward other living beings and the justification for the ethical treatment of animals (i.e. humanism and moralism), as well as the lack of concern or even destructive attitudes toward animals (i.e. negativistic attitudes). The overall tone of the articles was classified as positive/supportive, negative/oppositional, or neutral by the examination of:

- the specific attitudes that illustrated either a humanistic, moralistic, utilitarian, negativistic, dominionistic, naturalistic or ecologicistic perspective (Kellert 1985);

- the use of terminology (e.g., such terms as 'hypnotically fearsome' or 'man-eaters of the deep,' and phrases such as 'soul-destroying glare' or 'nastiest looking beasts on the planet' in reference to the Grey Nurse shark, would be deemed negative); and
- any informational bias (which refers to the way in which the information is sourced, i.e. quotations from scientists, or lack thereof, can sway the decision-maker or reader).

Kellert's (1985) typology of attitudes toward animals was also used to assess individual statements within these articles (see Table 1).

Results

Of the 155 news articles about the Grey Nurse shark that were reviewed for this study, the tenor of the coverage was positive in 24% (37), negative in 28% (43), and neutral in 48% (75) of these articles. While there was a slight trend for *C. taurus* to be newsworthy in the middle to late 1990s, a protectionist focus in news coverage of the species has been most apparent in the last several years. Although 1996 marked the year that *C. taurus* was listed as an endangered species by the Queensland *Nature Conservation Act 1992*, that year's articles do not reflect a level of concern for the species that one would generally expect to accompany this type of classification. Only one of the three 1996 articles expresses concern about the issue of *C. taurus*' decline, and this lack of coverage tacitly suggests that the issue was not considered to be one of urgent concern.

With regard to the content of the coverage, 16 of the positive articles make reference to the species being mistakenly labelled as a 'man-eater'; five of the articles draw attention to their fierce physical characteristics but reinstate their gentle nature; two of the articles describe the Grey Nurse shark's physical characteristics in a negative manner without re-establishing its docility; and 14 of the articles simply focus on the issues that are of detriment to *C. taurus* and the protection plans that are being established or have been put into action. Many of the articles classified as 'positive' play on the appearance of *C. taurus* by focussing on the species' fierce physical characteristics, overshadowing the animal's confirmed behavioural characteristics.

Of the negative articles pertaining to *C. taurus*, 22 of them focus on the notion of being devoured by the shark. In the remaining two articles, both have titles and descriptive terminology which impart a negative connotation of the

Table 1. Attitudes Towards Animals (After Kellert 1985)

<i>Humanistic</i>	Interest and strong affection for individual animals, principally pets.
<i>Moralistic</i>	Concern for the right and wrong treatment of animals, with strong opposition to the exploitation and cruelty toward animals.
<i>Utilitarian</i>	Concern for the practical and material value of animals or their habitats.
<i>Negativistic</i>	Avoidance of animals due to indifference, dislike or fear.
<i>Dominionistic</i>	Interest in the mastery and control of animals, typically in sporting situations.
<i>Naturalistic</i>	Interest and affection for wildlife and the outdoors.
<i>Ecologicistic</i>	Concern for the environment as a system, for interrelationships between wildlife and natural habitats.

animal such as 'My Swim with Monsters,' and 'Baby Don't Eat Your Brothers Anymore,' or descriptors such as 'pure fear' in relation to the animal. Only three of the articles within the negative classification suggest that the species is "relatively harmless" or correct their initial alarmist portrayal of the species (Clifton 2002). Other issues that feature in the negatively classed articles include the conflicts with anglers over fishing and sanctuary sites, and that there is no real threat of extinction for *C. taurus*.

With regard to the neutral articles, 13 focus on the issues of *C. taurus*' dwindling numbers and threat of extinction, seven of the articles make reference to the Grey Nurse shark's embryonic cannibalism (Darby 1994) within the context of other shark species' behaviour; eight focus on the topic of shark nets and beach meshing; and 19 concentrate on the issues surrounding the decline of sharks and the programs being established to aid in the recovery of the Grey Nurse shark. Nine of the articles refer to sightings and personal encounters with the species. The remaining six articles focus on the concerns of sanctuary zones for *C. taurus*, and conflicts with fishing restricted zones.

When analysing the issue of reportage versus editorial coverage, with respect to the editorial pieces, 10 were positive and eight were negative in tone. Editorial articles relied less on the use of experts in the field and concentrated on individual and personal accounts of interactions with the species. Of the 18 editorial pieces, only four drew on experts within the field to validate a point. In reference to the news articles, 27 were positive, 35 were negative, and 75 were neutral in tone. While the majority of the news articles tended towards neutrality, within these 75 articles the majority utilised high profile names and experts on the subject, such as research scientists, to underline the validity of their article. Overall, an overwhelming majority of the 137 news articles used high profile names and experts to reinforce the position being highlighted within the article.

Attitudes Expressed in the Coverage

Of the 155 articles analysed through Kellert's (1985) model of attitudes towards animals (see Table 1), the main views expressed were from ecologicistic, naturalistic, utilitarian and humanistic perspectives (see Table 2).

An ecologicistic perspective prevailed in 62 of the articles and was expressed mainly in articles classified as neutral in tone. Many of the neutral articles concentrated on topics related

to habitat and meshing practices which endanger the Grey Nurse shark, whereas the articles classified as positive news and editorials focussed on the topic of conservation and the extinction of the species in addition to the docile nature of *Carcharias taurus*. However, although some negative news articles fell into the ecologicistic perspective, those classified in this category generally highlighted more unfavourable depictions of *C. taurus*.

The next most common viewpoint was the naturalistic perspective, and this appeared in 32 of the 155 articles. Of the articles classified within the naturalistic perspective, all but one described the species' docile nature, and many of the articles made reference to the species' undeserved reputation as a 'man-eater'. However, the use of such terminology in association with the species produces a generalised image of this species' behaviour. The juxtaposition of *C. taurus* with the term 'man-eater' reinforces perceptions (Sheridan 2005; Scott *et al.* 2004; Van den Bulck 2004) and makes a strong impression on the reader that the species is dangerous, even when the alarmist descriptor is criticised within the article. An article's discourse creates an image that may be adopted by the reader (Brickman and Bragg 2007). Furthermore, pieces that emanate from personal experience with the animal influence the reader to a greater extent (Druckman and Parkin 2005; Wolch *et al.* 1997).

The next most common attitudes expressed within the 155 articles were utilitarian (20) and humanistic (12) constructions which, when combined, equalled the number of naturalistic beliefs expressed in the articles. The moralistic (9) and dominionistic (9) attitudes towards animals were the least frequently conveyed positions.

Analysis based on Kellert's (1985) typology of attitudes towards animals revealed that the majority of articles embraced ecologicistic perspectives (see Table 2). While the 1960s and 1970s reflected a utilitarian and dominionistic angle, the 1990s gave way to the naturalistic and ecologicistic viewpoint. Significantly however, in 1996, the first negativistic article appeared in the media. This article served to generate fear by suggesting that *C. taurus* was to blame for an unprovoked attack and that "people should always assume that anywhere they go in the [Sydney] Harbour there is the risk of a shark attack" (Pitt 1996). In subsequent years several more articles from the negativistic perspective were written, but the ecologicistic perspective dominated the articles that would follow.

Table 2. Kellert's Classification of Opinions as Expressed in the Articles under Study.

Article Classification	Positive Editorial	Negative Editorial	Positive News	Negative News	Neutral News	Total Number of Articles
Humanistic	3	1	5	--	3	12
Moralistic	1	--	3	4	1	9
Utilitarian	--	3	3	9	5	20
Negativistic	--	2	--	8	1	11
Dominionistic	--	--	--	4	5	9
Naturalistic	4	1	6	2	19	32
Ecologicistic	2	1	10	8	41	62
Total	10	8	27	35	75	155

The manner in which the 155 articles used particular terms to describe the Grey Nurse shark can lead to inherent conclusions about the species' behavioural characteristics. Some of the terms used to describe the Grey Nurse shark are identified in Table 3. The descriptors used within the articles invoke a blatantly different image of the animal's actual character. Terminology such as 'cold blooded brutes' contrasts with portrayals of *C. taurus* as 'puppy dogs of the sea' which leaves the reader with a specific and enduring impression. Descriptors are used to highlight a clear belief about the species, and they are fundamental in conveying a particular interpretation.

Certain elements of an animal's characteristic traits, including the degree to which an individual has knowledge and experience with a variety of animals, can shape that individual's view of a specific animal (Kellert and Berry 1980; Kellert 1996; Tarrant *et al.* 1997). This is key, since the articles that fell within the negativistic classification focussed on conjecture and the accentuation of *C. taurus*' alarming physical characteristics as well as sweeping statements about the species' behaviour. Several

of the negative terms that work to conjure up fear within the reader concentrate on the notion that *C. taurus* is an indiscriminate predator and gratuitous killer. Terms such as 'soul-destroying glare' imply an almost other-worldly quality and element to the species. The characterisation of the animal by the use of graphic terminology such as 'deadly people killers' and 'savage killer' implies that *C. taurus* is partaking somewhat cognitively in what would be implicitly criminal behaviour in humans. The message that this portrayal then broadcasts is one of fear and reprisal rather than one of concern and the need for support.

Unfortunately, the positive terms used to describe *C. taurus* are not unlike the neutral terminology. On many occasions positive terms are used to diffuse negative terms. They are simply a way of diluting the initial alarmist representation put forth. Some examples of articles in which this appears were in *The Cairns Post*, which included an article entitled "Bid to Save 'Man-Eater'" (Cairns Post 2003), and in *The Courier Mail*, which ran articles entitled "Calling all Daredevils to Take the Plunge" (Williams 2003) and "The Fear Factor" (Wright

Table 3. Terms Describing the Australian Grey Nurse Shark.

Negative Terms	Positive Terms	Neutral Terms
Monsters	Puppy dogs of the sea	Animal
Savage killer	Placid	Creatures
Pure fear	Docile	Critically endangered
Perfect killer	Extremely peaceful	Curious
Man eater	Humble	Rare
Ferocious	Gentle nature	Languidly
Soul-destroying glare	Serene	Denizens of the deep
Fearsomely-equipped jaws	Harmless	Easy prey
Attacking species	Sweetest	Sluggish
Cool beady-eyed stare	Elephant-like behaviour	Fish-eater
Fearsome	Social	Sedentary
Evil	Classic harmless shark	
Sinister	Graceful	
Scary	Shy	
Killing machine	Magnificent	
Territorial	Labradora of the sea	
Frightening dental work	Magical creatures	
Whacked...with the ugly stick	Wonderful temperament	
Long needle-like teeth		
Fierce demeanour		
Hook-like teeth		
Menacing		
Hypnotically fearsome		
Ferocious predator		
Gnarly-mouthed		
Cold blooded brutes		
Deadly people killers		
Cannibalists		
Savage sibling rivalry		
Sleek predator		

2002). Although these articles have titles that provoke an alarmist reaction, the contents of each piece support the Grey Nurse shark's docile nature and ill-deserved reputation as a "man-eater." Similarly, articles such as *The Sydney Morning Herald's* "Sibling Sharks turn Predator in the Grey Nursery" (Macey 2006) employ alarmist taglines whereas the content of the article concentrates on conservation efforts.

Changes in the Grey Nurse Shark Coverage over Time

The terminology used in newspapers when reporting on *C. taurus* has not changed tremendously over the past forty years. However, the amount of coverage the species has attracted has increased since the 1970s. Many of the articles in the early 1970s (see Table 4) were simple accounts of sightings, and only one of the articles from that period cautions of the looming dilemma of targeting a specific species. In the early 1990s, the newspapers in this study began to report more frequently about the threat of the Grey Nurse shark's extinction and also made reference to their unmerited status for being 'man-eaters'. On the other hand, the next couple of years saw the publication of articles that were damaging to *C. taurus'* character with content claiming that the species was guilty of attacks that had occurred on humans.

Nevertheless, in 1996, a extensive article published in the *Sydney Morning Herald* re-established this shark's passive nature (Allison 1996); and in December of 1998 a reply from a reader to an editorial piece entitled "Once Bitten" - which as the title implies verbalizes a less positive view of the Grey Nurse shark - was the first of its kind in illustrating a reader's point of view on the interpretations of this shark (*Herald-Sun* 1998). The editorial piece "Once Bitten" centres on the issue of placing the Grey Nurse shark on the endangered species list to ensure its survival, describing the species as a "monster" that does not deserve the same level of protection that may be afforded to the "playful dolphin," or the "far-from-ferocious ogyris butterfly". "Once Bitten" typifies the stereotyping that the Grey Nurse shark has endured because of its physical characteristics. The ominous image of the animal that complements the article echoes the threatening image exuded in the written piece. The editorial response to "Once Bitten" engages the belief that *C. taurus* has not gained the support it needs due to its appearance, and maintains that personal encounters with the species have been very positive.

From the year 2001 until 2003, there was a swell in the number of articles published about *C. taurus*. In 2001, newspapers published articles on topics aimed at supporting *C. taurus'* recovery plan. By October of 2001, *C. taurus'* status was raised from "vulnerable to extinction," to "critically endangered," which led the way to investigating concerns such as netting and beach meshing as a threat to the dwindling Grey Nurse shark's population. The species' passive and gentle nature was emphasised rather than its less appealing characteristics. With each year following 2001, the incidence of articles within the newspapers used for this study progressively increased on the Grey Nurse shark. In June of 2002, Environment Australia published the "Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) in Australia" and ensuing newspaper articles during that year concentrated on issues of netting (*The Cairns Post* 2002) and saving the species (Hunter 2002), as well as individual stories of encounters with the species (Adams 2002).

The number of newspaper articles on the Grey Nurse Shark doubled once again in 2003, as they had in 2002. Accounts ranged from personal observations and encounters of swimming with the species to meshing and a greater concern for the plight of *C. taurus*. During 2003, there were two peaks in the Grey Nurse shark received media attention. On June 6, an article relating the shark's need for protection and impending demise was published in three separate newspapers (*The Cairns Post* 2003; *The Courier-Mail* 2003; *The Gold Coast Bulletin* 2003). In July of 2003, three articles were published related to the topic of species protection and concentrated on topics such as beach meshing which increased awareness about the shark's conservation needs and current fishing practices (Hammond 2003; Keene 2003; Skelsey 2003). Only two of the articles in 2003 were negative, and of these negative articles, one recounts a personal experience focusing on *C. taurus'* appearance while the other is a commentary on the suggestion that the Grey Nurse shark be included on the country's Register of the National Estate. The author argued that the Register of the National Estate is a list reserved for more "eye-pleasing historic features" (Skelsey 2003). Because the Register of the National Estate is set aside for places of natural, Indigenous or historic value to Australians, the author stipulates that the Grey Nurse has no place in the Register due to its lack of aesthetic allure.

Table 4. Overall Distribution of Kellert's Attitudinal Classifications 1969-2009.

	1960s	1970s	1980s	1990s	2000s
Humanistic				1	11
Moralistic					9
Utilitarian		1		1	18
Negativistic				2	9
Dominionistic	1	2			6
Naturalistic				2	30
Ecologistic				2	49

From 2004 until 2009, the *C. taurus* related newspaper articles steadily increased and maintained an average of 22 articles published per year. In 2004, the articles were equally distributed between the neutral news (10) and negative news (10) categories, and only three articles fell into the positive news category and one negative editorial category. Many of the negative news articles recounted events where individuals narrowly escaped Grey Nurse shark attacks (Bartsch 2004; *Illawarra Mercury* 2004; *The Daily Telegraph* 2004). The negative news articles were evenly distributed among Kellert's typologies whereas the neutral news articles were written from the ecologicistic perspective. This pattern of distribution followed for the articles published in 2005. In 2006, there was a shift toward a more even distribution between the positive news articles (4), negative news articles (6), and neutral news articles (7). In 2007 and 2008, the neutral news category dominated the published articles (29). However, for the articles published between the years 2004 and 2007, there is a clear and distinct focus on the ecologicistic perspective whereas the majority of the articles published in 2008 (19) fell within Kellert's (1985) naturalistic perspective (11).

Discussion

The data generated by this study illustrates the perceptions of *C. taurus* as represented by major Australian newspapers between 1969 and 2009. The trends demonstrate that the occurrence of Grey Nurse Shark articles in the print media has increased significantly from the year 2001 to 2009 which suggests that there has been an increasing interest in the plight of *C. taurus* as the conditions have become more vital for the species.

While there is an identifiable change in the topics of concentration in articles that were published over the years, the shifting views may also be credited to a swing in political movements and the level of interest in results-based conservation measures. Observations have revealed that the media can shape and mirror popular attitudes and views. It is also true that "both changes and regularities in media content reliably report some feature of the social reality of the moment" (McQuail 1987 p. 178). The weight that journalists choose to attribute to a particular story is based on both commercial reward and on audience sensitivity and this, in essence, moulds the scope of debate on the issues at hand (Iyengar 2000; Wolch *et al.* 1997; Jacobs and Shapiro 1996; Dearing and Rogers 1996).

Nevertheless, authors have the ability to manipulate the image they put forth to their readers by the way in which an article describes a subject (Brickman and Bragg 2007). This specific image accentuates the belief that is being communicated within the written piece and has the capacity to influence public attitudes towards an issue (Brickman and Bragg 2007). Media, such as newspapers, reflect broad attitudes and can be authoritative agents in determining individual attitudes and, furthermore, wildlife policy outcomes (Wolch *et al.* 1997). This study has analysed how newspaper articles generate public discourse related to *C. taurus* and the issues connected to its possible extinction, as well as the behavioural aspects of the species and its conservation.

The media should ideally generate unbiased, evidence-based reports. However, the media primarily focuses on capturing consumer interest and generating profit for advertisers. Conflict and controversy in news items stimulate and manufacture real or imagined risks, and aim to emotionally draw people to support or oppose a particular angle on a story (Beck 1992). With regards to *C. taurus*, the level and type of media coverage about the species has a direct impact on its conservation. Whilst public education can help to eradicate unfounded fears, it is critical that the media, in order to establish any credibility, identify the true behaviours and threats facing certain species of sharks as opposed to focusing on the sensationalist element of the rare attacks that do occur (Boissonneault 2010). Rather than generalising sharks as menacing beasts, the media could offer more rigorous evidence-based news items about sharks by focusing on the distinctive ecological concerns affecting each species (Boissonneault 2010).

The personal, socio-economic and political characteristics of an individual combined with the information that they obtain will influence the extent to which they value a species. An individual's attitudes are determined by their culture, religion, gender, education, class, geography, and the characteristics and behaviours of the animal in question (Hills 1993; Aslin and Norton 1995; Wolch *et al.* 1997; Bulbeck 1999). Social phenomena shape an individual's attitudes towards an animal (Kellert and Berry 1980; Kellert 1996). According to Corbett (1992), the old axiom, 'bad news sells,' prevails in higher-circulation newspapers which highly value the culture of conflict and violence that pits man against beast e.g., an attack. Moreover, due to the simple socially-reinforced aesthetic appeal of certain animals, species like the cougar draw more appeal than species such as the Grey Nurse shark (Boissonneault 2010). The drive towards mass appeal, irrespective of scientific accuracy, clearly affects the media's documentation of animals as well as the public's worldview, and their ability to filter negative imagery generated by the press (Lunney and Matthews 2003; Wolch *et al.* 1997). A study of the attitudes about a nonhuman species in media such as newspapers offers a window into understanding broader societal attitudes. Widespread forms of media can either function as contributors to the decline of a species, or conversely, as powerful agents in shaping positive attitudes about a keystone species (Druckman and Parkin 2005; Wolch *et al.* 1997).

Understanding the behavioural disposition of a given population is the first step to implementing effective conservation initiatives. To ensure that a conservation management plan is a success, it is important to determine its impact on a given populace. The potential for success is contingent on the discourse embedded in society since discursive formations can and will have bearing on the public's reception of a plan or initiative. In this respect, the study of newspapers facilitates the process of understanding public perception because the views expressed by the media are often both a reflection of (and contain terms which can dramatically impact on) the opinions of a newspaper's audience.

It is also crucial to be conscious of what guides certain attitudes towards species conservation, and the reason that some species may be more effective or inadequate in gathering public support. The Grey Nurse shark is linked by a historically unsubstantiated fear associated with its physical appearance, and this has pigeonholed the species with a set of violent behavioural characteristics that is inconsistent with scientific evidence about its placid nature. The broader concepts that impact the unfounded interpretations of the Grey Nurse shark's behavioural characteristics are linked to the public's understanding of sharks in general. All through history, sharks have endowed writers with overwhelming anticipation as 'terrors of the deep'. Oceanic journeys have been teeming with stories of humans' struggle with sharks which were often portrayed as menacing beasts waiting in the tranquil waters for their next victim. This broad image of sharks has also promoted the success of numerous films that have relied on the exhilaration of marine pursuits between sharks and human beings.

Stephen Spielberg's *JAWS* is a notable example of the theme of humanity's struggle with nature, and in this case explicitly sharks. However, although Spielberg's *JAWS* may be the most famous example of the rogue shark set on devouring humans, quite a few popular films have used this theme. *JAWS* was one of the first films that publicised the concept of the 'rogue shark' in 1975, yet this is an interpretation that has lived on throughout the years. The film *JAWS* played an integral role in solidifying the fear of all sharks, and the sequels that would follow helped to reinforce the fears established in the first box office success. In 2003, a more nuanced version of

the 'rogue shark' emerged in the Hollywood animated success, *Finding Nemo*. In this highest grossing animated production (THQ 2004), the character, Bruce the shark, reinforces the concept that sharks have little self-control. The portrayal of the shark in *Finding Nemo* is clearly in line with many of the benchmark illustrations of sharks that the public has seen in previous films and literary works. Although *Finding Nemo* makes an attempt to rectify the negative status that sharks have attained over time, it predictably falls into the typical portrayal of the 'rogue shark.' In the film, Bruce, is cast as a hard-nosed predator whose urge to kill is easily awakened at the slightest tinge of fish blood. These representations ultimately revive the belief that sharks are to be feared by humans since it is their natal function to unremittingly and opportunistically attack rather than to hunt and eat for survival.

There are many branches to the belief system of a society, and adequately establishing the root of these influences will ensure a solid grasp of the steps needed to guarantee the implementation of conservation plans that will benefit all. When we understand the complexity of human needs and the origin of our beliefs, we are better able to implement conservation strategies that will be respected by the public at large, and hence, better aid a species in need of protection. Thus, this paper has offered an opportunity to understand the Australian Grey Nurse Shark as portrayed in selected mediums and in connection with the Australian public. The ability to understand, study, and disseminate information on the intricacy of popular portrayals of a species can, in the end, help researchers establish public support for evidence-based conservation initiatives.

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