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**Grey Nurse Shark Human Interactions and Portrayals:  
A Study of Newspaper Portrayals of the Grey Nurse Shark from  
1969-2003**

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The general lack of knowledge in dominant society pertaining to the different shark species has led to the depletion of the more placid species such as the grey nurse shark ( *Carcharias taurus* ). This study consisted of a content analysis of 41 Australian newspaper articles pertaining specifically to the grey nurse shark 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 2003. The majority of the opinion or editorial pieces concerning the grey nurse shark examined in this study were positive, whereas the majority of the news articles examined fell within a more neutral range. The findings of this study imply that the level of interest in the plight of *C. taurus* has increased as *C. taurus*'s circumstances have become more critical.

## Introduction

While it has been observed that the media can mold and reflect popular attitudes and views, "both changes and regularities in media content reliably report some feature of the social reality of the moment" (McQuail, 1987, p. 178). The emphasis that journalists choose to attribute to a certain story is not only based on commerciality but also on audience consideration and this, in essence, sculpts the scope of debate on the issues at hand (Wolch, Gullo & Lassiter, 1997).

McCombs and Shaw (1972) studied the news media's role in relation to the audience's perceived importance of issues, and further developed the agenda-setting hypothesis that had been originally observed by Lippman in the 1920s (Lippman, 1922). Mikami claims the agenda-setting hypothesis is about the prioritization of issues in society, arguing that "the underlying assumption is that the audience learns what issues are important from the priorities of the news media and incorporates a similar set of weights in their own personal agenda" (Mikami, 1998, p. 6). Therefore, the amount of media attention afforded to such issues as species conservation will affect how the general audience of that media will respond to such issues. Most large-scale

newspapers are part of a larger conglomerate driven by profit margins; as a result, certain issues that might be of public interest may possibly be marginalized by the infusion of more sensationalist stories that will attract a wider audience. This consolidation of ownership of the various media sources contributes to what can be described as a homogenization of news, whereupon most news features will echo one another, and may reflect the media and political elite's interpretation of events, rather than the reality of a situation (Annenberg Media, 2004). The group whose interests are being served in the different forms of media outlets is of importance when determining the implementation of wildlife management and conservation issues, and will inevitably shape the story that is being conveyed.

The term *agenda-setting* refers to the creation of public awareness and concern for issues that are reported by the news media (Gewijzigd, 2003). The fundamental basis for research on agenda-setting is to recognize that the media is not a reflection of reality but rather filters and shapes reality, and the focus that the media places on specific issues leads the public to perceive 'those' issues as more important than others (Gewijzigd, 2003). Therefore, the omission of certain topics within the media could be said to have the effect of leading the public to believe those issues are to be deemed inconsequential. Although "the press may not be successful much of the time in telling people what to think, it is stunningly successful in telling its readers what to think about" (Cohen, 1963, p.105). McCombs and Shaw (1972) argue that what the media deems newsworthy is highly influential in determining what the public thinks about in terms of both issues and the importance of those issues. The framework provided by agenda setting allows researchers to measure, in both quantitative and qualitative terms, the emphasis placed upon an issue by a specific medium. Subsequently, this emphasis and its influence can be determined through the analysis of attitudes and understandings of the population that uses that media.

In a 1997 study entitled *Changing Attitudes toward California Cougars*, Jennifer R. Wolch and Unna Lassiter of the University of Southern California along with Andrea Gullo of The Mountains Recreation and Conservation Authority in Los Angeles analyzed the impact that the newspaper media had on attitudes and understandings that the public had developed towards the California Cougar. The rising rates of cougar-human interactions in 1990, after the hunting of the animal had been outlawed, generated a broad range of media coverage that questioned whether there should be a reinstatement of sport hunting (Wolch, Lassiter & Gullo, 1997). The study consisted of a content analysis of the articles published in the *Los Angeles Times* over a prescribed period of time, and concentrated on the way the species was portrayed within these articles. Wolch et al. (1997) concluded that the method of analyzing media discourse regarding wildlife management issues

is useful in tracking both public attitudes towards wildlife and the positions of major institutions on wildlife issues, which in turn, influence public attitudes.

The practice of considering human attitudes towards wildlife and wildlife habitats has become a tenet of wildlife management and ensures the minimization of problems following the implementation of any prospective management plans (Adams, Dove & Leedy, 1984; Curtis & Richmond, 1992; McAninch & Parker, 1991; O'Donnell & Van Druff, 1987; Wolch et al., 1997). A similar study by Decker and Gavin (1987) focused on the attitudes of Long Island, New York residents towards a neighboring deer population. Their results concluded that even though there had been a considerable amount of human/deer conflict, the residents of the area upheld their opposition to the idea of hunting as a means of controlling the deer population (Decker & Gavin, 1987). Such cases as these have made wildlife managers more apt to consider public attitudes as a fundamental component of detailed wildlife management strategies as well as a crucial element in affecting legislative or financial support for various management activities (Bath, 1991; Bath & Buchanan, 1989; Donnelly & Vaske, 1995; Penland, 1987; Wolch et al., 1997).

However, in requesting the general public's input on certain management issues, there are a few determining factors that need to be recognized. It has been established that certain aspects of a species such as its usefulness, perceived intelligence, dangerous or loveable and attractive qualities can considerably impact public opinion (Driscoll, 1995). Hence, in the case of animals that may be deemed less attractive than others, comes the need to ensure that there is an increase in the level of education on the topic to enhance any conservation effort (Driscoll, 1995; Wolch et al., 1997). Another aspect to be aware of when invoking public opinion on wildlife conservation is the influence of the public's surrounding environment. Hills (1993) concluded that there is a level of neutrality within the urban public that could affect the implementation of policy in relation to animal rights issues. This level of neutrality suggests that the urban public's opinion has the capacity of being swayed by variables such as the emotional appeal of a species, instrumental self-interest, empathy or identification with the animal in question, and even the discursive articulation of an argument (Hills, 1993).

Whilst many shark species are in danger of becoming extinct, this study will concentrate on the portrayal of the grey nurse shark *Carcharias taurus* in various Australian newspapers. *C. taurus* has attained a state of such decline that many are now having difficulties finding mates (Environment Australia, 2002). In 1970, a report in *The Sydney Morning Herald* warned of the dangers of killing too many of this species of shark, and although reports

had linked the grey nurse shark to attacks on humans, this particular article discounted those claims and reaffirmed that the species had been wrongly accused (Danger, 1970). Recently, conservationists have estimated that the remaining populations of grey nurse sharks range between 410 and 461 sharks. This remaining population faces not only biological difficulties such as low fecundity and a small gene pool, but also the threat of line fishing in critical habitat areas (Otway, Bradshaw & Harcourt, 2004).

While there has been an implementation of new laws declaring critical habitat areas for the species, coupled with regulations to control both fishing and diving activities in Commonwealth and Queensland waters, both have yet to show evidence of a significant impact on *C. taurus*' dwindling numbers (University of Queensland, 2003). A key issue is the rise in human-shark interactions that generates media coverage. Media reports serve to outline the establishment of different management techniques and this in turn has an effect on the general consensus of preservation efforts (Wolch et al., 1997).

The aim of the remaining sections of this article is to provide an analysis of the print media's interpretation of the behavior of *C. taurus* and to analyze whether this has changed over time. Newspapers can both mirror public perceptions and shape opinions towards wildlife and their interconnected management issues. The tenor of the articles, specific opinions and the language used to describe the grey nurse shark will be analyzed to establish any shifts that may have occurred in public attitudes towards the grey nurse shark within that time frame. Analyzing the focus of management issues, popular perceptions about the grey nurse shark, and how these concepts are expressed in specific newspapers is useful in evaluating paradigm shifts that occur in public perception. Editorial submissions as well as 'Letters to the Editor' often express personal feelings and also serve to echo the mixture of interests within public discourse. Since editorial pieces are commonly read by both policy-makers and the lay public alike, it is important to evaluate the tone of their coverage as they are influential on the public's perception of important issues (Wolch et al., 1997).

## Methods

The research design of Wolch et al. (1997) into the changing attitudes towards the Californian cougar will be adapted for this study. A content analysis was conducted of 41 *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 1969 and 2003. The selection of specific newspapers for this study was dependant on availability. The articles were gathered through the use of library microfiche for the years prior to their inclusion in online newspaper databases, and were chosen on the basis of content referring specifically to the grey nurse shark. Articles distributed through the *Australian Associated Press* that may have appeared in several newspapers were only considered as one when the content of the articles was identical.

The articles used for this study will be deconstructed in a manner that reflects the explicit message that they attempt to convey to their readers and which, as a result, conveys the popular conceptions of the grey nurse shark. To ascertain the impact and relevance of the articles, there will be an assessment of:

- \* the date of print
- \* the type of article, whether it be general news or an editorial submission
- \* the main arguments emphasized within the article
- \* the descriptive terminology used for the grey nurse sharks
- \* the identity of spokesperson(s) quoted in the article;
- \* the attitudes expressed within the article, as classified through the use of Kellert's (1985) typology of attitudes towards animals which will be used to determine the overall tone of an article i.e., positive/supportive, negative/oppositional, or neutral

The overall tone of the articles as distinguished by the attitudes expressed in each of the articles will be analyzed from a qualitative perspective. This tone will be determined from an examination of:

- \* the specific attitudes that illustrate either a humanistic, moralistic, utilitarian, negativistic, dominionistic, naturalistic or ecologicistic perspective
- \* the terminology that is used (e.g., an article using such terms as 'monster' or 'killer,' and phrases such as 'soul-destroying glare' or 'nursing a killer' in reference to the grey nurse shark, would be deemed negative)
- \* any informational bias (which refers to the way in which the available information source, i.e. scientists or lack thereof, can sway the decision-maker or reader)

Kellert's (1985) typology of attitudes towards animals will be used to assess individual statements within these articles (Table 1). Within Kellert's model, the range in attitudes varies from a belief that the purpose of animals is to serve as resources for humans (i.e., utilitarianism and dominionism) to attitudes that accentuate kindness towards animals whereby the ethical

treatment of animals is defended (i.e., humanism and moralism), as well as the absence of concern or even negative attitudes towards animals (i.e. negativistic attitudes).

**Table 1: Attitudes Towards Animals** (After Kellert 1985)

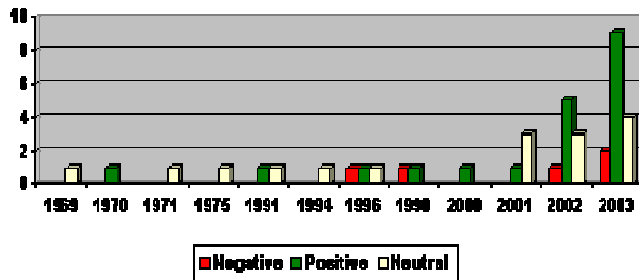
Humanistic	Interest and strong affection for individual animals, principally pets.
Moralistic	Concern for the right and wrong treatment of animals, with strong opposition to the exploitation and cruelty toward animals.
Utilitarian	Concern for the practical and material value of animals or their habitats.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

This analysis will be conducted following the standard tenets of qualitative methodology. Such procedures are systematic but also inductive and aimed at contributing to the conceptualization of phenomena whose specific nature is not already well defined (Patton, 2001). The criteria of validity and reliability established for quantitative research makes the assumption of deductive reasoning, data collection in numerical form, context free data, statistical analysis, representative sampling and generalizability of findings. In contrast, qualitative research makes the assumption that there are multiple layers of reality, data are gathered across time, studies are conducted using inductive reasoning, data are context specific and is presented in narrative form and data analysis involves multiple layers of interpretation. The value of qualitative research is associated to its relevance in the development of theory (Burns, 1989).

## Results

Figure 1 is an example of how the articles have been assessed with reference to their tone over the years covered in this study. The missing years within the table are representative of years in which articles pertaining specifically to *C. taurus* were either not found or not published.

**Figure 1: Tone of Articles in the Past Thirty Years**



Of the 41 articles about the grey nurse shark that this study has identified, the tenor of the coverage was positive in 49% (20) of the articles, 12% (5) were negative and 39% (16) were neutral. While there is slight trend for *C. taurus* to be newsworthy in the middle to late 1990s, the protectionist focus of the species' news coverage has been most apparent in the last few years. Although 1996 marked the year that *C. taurus* was listed as an endangered species by the *Nature Conservation Act of 1992*, the year's articles do not reflect a level of concern for the species that one would generally expect would be associated with 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 could tacitly suggest that the issue is not considered to be one of urgent concern.

With regard to content of coverage, 65% (13) of the positive articles make reference to the species being mistakenly labeled as a 'man-eater'; 20% (4) of the articles draw attention to their fierce physical characteristics but reinstate their gentle nature; 5% (1) of the articles describe the grey nurse's physical characteristics in a negative manner without re-establishing its docility; and 10% (2) 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 play on the appearance of *C. taurus*, by focusing on the species' fierce physical characteristics overshadowing the animal's confirmed behavioral characteristics.

Of the negative articles pertaining to *C. taurus*, 60% (3) of them focus on the notion of being devoured by the shark. One of these three articles also tacitly suggests that the grey nurse shark was responsible for an attack that had occurred (Pitt, 1996). Of the remaining 40% (2) articles, both have titles and descriptive terminology which impart a negative connotation towards the animal such as 'My Swim with Monsters' or descriptors for the animal such as 'pure fear', while only one of the articles within the negative classification suggests that the species is "relatively harmless" (Clifton,



2002).

With regards to the neutral articles, 31.25% (5) focus on the issues of *C. taurus* dwindling numbers and threat of extinction, 6.25% (1) of the articles makes reference to the grey nurse's embryonic cannibalism (Darby, 1994) within the context of other shark species' behavior, 25% (4) focus on the topic of shark nets and beach meshing, while 18.75% (3) concentrate on the issues surrounding the decline of sharks and the programs being established to aid in the recovery of the grey nurse shark, whereas 18.75% (3) of the articles simply refer to sightings and catches of *C. taurus*.

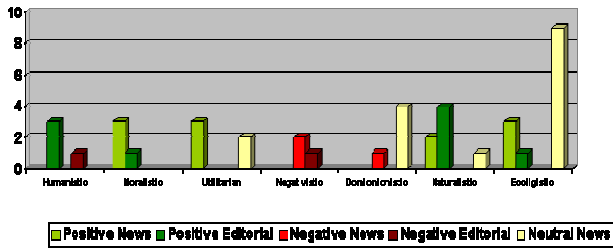
When analyzing the issue of reportage versus editorial coverage with respect to the editorial pieces, 82% (9) were positive and 18% (2) were negative. Editorial articles relied less on the use of experts in the field and concentrated on individual interactions with the species and personal experiences. Of the 11 editorial pieces, only 36% (4) drew on experts within the field to validate the point being expressed. In referring to the news articles, 37% (11) were positive, 10% (3) were negative, and 53% (16) were neutral. While the majority of the news articles tended towards neutrality, within these 16 articles 75% (12) utilized high profile names of people that are deemed experts on the subject, such as research scientists, to underline the validity of their article. Overall, 83% (25) of the 30 news articles used high profile names and experts to reinforce the position being underlined within the article.

### Attitudes Expressed in Coverage

Of the 41 articles analyzed through Kellert's (1985) model of attitudes towards animals (see Table 1), the main views expressed were from an ecologicistic, naturalistic, dominionistic and utilitarian perspective (see Figure 2).

An ecologicistic perspective prevailed appearing in 32% (13) of the articles observed. This ecologicistic view was expressed mainly in articles classified as neutral, 22% (9), and only appeared in three of the articles classified as positive news and one of the positive editorial pieces. Many of the neutral articles focused on the issues of habitat and meshing practices which endanger the grey nurse, whereas the articles classified as positive news and positive editorials focused on the issues of conservation and extinction of the species as well as the docile nature of *C. taurus*.

### **Figure 2: Kellert's Classification of Opinions as Expressed in the Articles Observed**



The next most common viewpoint was the naturalistic perspective and this appeared in 17% (7) of the 41 articles. Of the articles classified within the naturalistic perspective, all but one described the species' docile nature while half the articles make reference to the species' undeserved reputation as a 'man-eater'. Once again, the terminology associated with the species serves to generalize an image of this species' behavior. Continually juxtaposing *C. taurus* with the term 'man-eater' reinforces the perception that the species is dangerous even when the initial alarmist descriptor is undervalued within the later context of the article. An article's discourse can create an image that may be adopted by the reader. Furthermore, pieces that emanate a personal aspect or experience with the subject can influence the reader to a greater level (Wolch et al., 1997).

The next most common attitudes expressed within the 41 articles examined were dominionistic 12% (5) and utilitarian 12% (5), which combined, make up almost a quarter of most of the beliefs expressed in the articles. Within the realm of dominionistic attitudes towards animals, the majority of the articles were deemed as neutral news whereby the utilitarian perspective was largely embedded in articles classified as positive news. Although the articles expressing a utilitarian perspective are generally positive in their beliefs regarding the importance of conserving the grey nurse shark, the underlying message refers less to the inherent value of the species itself and more to the impact it would have on humans if *C. taurus* were to become extinct. In this respect, the attitudes of dominionism and utilitarianism are closely linked in so far as the utilitarian belief of saving the species for human benefit implies a certain dominionistic approach in attaining this goal.

The final three perspectives that were least represented within the 41 articles were humanistic 10% (4), moralistic 10% (4) and negativistic 7% (3). Of the articles that expressed a humanistic attitude towards animals, all were editorial pieces and only one of them expressed a negative viewpoint. While three of the articles within the humanistic classification focused on *C. taurus*' peaceful nature, only one gives the impression that the species is something to be feared. All of the articles focused on the topic of human interactions with the grey nurse shark. However, one of the articles was an editorial response to a piece entitled 'Once Bitten' which was one of the 41

articles used in this study and which fell into the negativistic classification of Kellert's (1985) attitudes towards animals. Within the classification of moralistic attitudes towards animals, all the articles covered the issues of species extinction and *C. taurus*' waning numbers.

The negativistic attitude towards animals was the least frequently conveyed position. Of the 41 articles, only 7% (3) represented this belief. Within the negativistic classification, two of the articles focused on the topic of a possible attack, while the remaining article focused on the species' fear-provoking physical characteristics.

**Table 2: Overall Distribution of Kellert's Attitudinal Classifications 1969-2003**

Article classification	Overall Distribution Between Years 1969-2003												Total
	196	197	197	197	199	199	199	199	200	200	200	200	
	9	0	1	5	1	4	6	8	0	1	2	3	
<i>Humanistic</i>	--	--	--	--	--	--	--	1	1	--	1	1	4
<i>Moralistic</i>	--	--	--	--	--	--	--	--	--	--	1	3	4
<i>Utilitarian</i>	--	1	--	--	1	--	--	--	--	--	1	2	5
<i>Negativistic</i>	--	--	--	--	--	--	1	1	--	--	--	1	3
<i>Dominionistic</i>	1	--	1	1	--	--	--	--	--	--	1	1	5
<i>Naturalistic</i>	--	--	--	--	1	--	1	--	--	1	2	2	7
<i>Ecologistic</i>	--	--	--	--	--	1	1	--	--	3	3	5	13
<b>Total</b>	1	1	1	1	2	1	3	2	1	4	9	15	41

Analysis of Kellert's (1985) typology of attitudes towards animals revealed that the majority of articles embraced ecologistic perspectives (Table 2). While the 1960s and 1970s reflected a utilitarian and dominionistic angle, the 1990s gave way to the naturalistic and ecologistic viewpoint. However, in 1996, the first negativistic article appeared, and this article served to generate fear by suggesting that *C. taurus* was to blame for an 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). Subsequent years did reflect the negativistic perspectives in a few articles. However, the ecologistic perspective dominated many of the articles that would follow. Research (Kellert & Berry, 1980; Kellert, 1996; Tarrant, Bright & Cordell, 1997) suggests that certain elements of an animal's characteristic attributes

as well as the extent to which the individual has knowledge and interaction with various animals can shape that individual's view of the animal. This is significant as the article that fell within the negativistic classification focused on speculation and accentuation of *C. taurus*' fearsome physical characteristics as well as generalizations about the species' overall behavior. A study conducted by Kellert (1985) and Hook & Robinson (1982) discovered that the level of positive attitudes towards a predatory species, in this case the timber wolf, was precisely interrelated with the individual's level of education on the topic (Bath & Buchanan, 1989; Decker & Gavin, 1987). In establishing the link between human and species interaction, patterns of behavior will be a result of patterns exhibited by an individual's attitudes and beliefs (Fishbein & Ajzen, 1975). Therefore, understanding an individual's attitudinal patterns will enable wildlife managers to better foresee the reaction of the public to varying wildlife concerns (Donnelly & Vaske, 1995).

### Characterization of the Grey Nurse Shark's Behavior

The way in which the articles in this study used certain terminology to describe the grey nurse shark represents implicit conclusions about its behavioral characteristics; some of the terminology used to describe the grey nurse shark in the articles that were examined is represented in Table 3.

The descriptors used within the articles conjure up starkly different images of an animal's demeanor. Terms such as 'ferocious' versus 'placid' portray a contrasting impression of *C. taurus* and may leave the reader with a specific lasting impression that is dependant on the way the species has been described. These specific descriptors are used to emphasize a certain belief about the species within the article and are crucial in communicating that particular interpretation. While it should be noted that there are different styles of reading that are influenced by an individual's own subjectivity, and the way in which an article is interpreted may be dependant on the reader's position, terminology such as 'ferocious' versus 'placid' could be interpreted in a similar fashion regardless of reading position.

**Table 3: Terms Describing the Australian Grey Nurse Shark**

<i>Negative Terms</i>	<i>Positive Terms</i>	<i>Neutral Terms</i>
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	Hook-like teeth
Soul-destroying glare	Inoffensive	Denizens of the deep
Fearsomely-equipped jaws	Harmless	Easy prey
Attacking species	Sweetest	Sluggish
Cool beady-eyed stare	Elephant-like behavior	Long needle-like teeth
Fearsome		Sedentary
Evil		Social
Sinister		Languidly
Scary		Fish-eater
Killing machine		
Territorial		
Frightening dental work		
Whacked...with the ugly stick		
Fierce demeanor		

Many of the negative terms that serve to invoke fear within the reader focus on the notion that *C. taurus* is an indiscriminate predator and mindless killer. The use of terms such as 'soul-destroying glare' in describing a species implies an almost other worldly characteristic and mythic quality. The type of characterization portrayed through the use of descriptive terminology such as 'perfect killer' and 'man-eater' implies that *C. taurus* is somewhat cognitively participating in what would humanly be construed as criminal behavior. The message that this may then transmit is one of fear and reprisal rather than one of concern and need of aid. Unfortunately, when examining the positive terms used to describe *C. taurus*, these positive descriptors are not unlike the neutral terminology used to describe the grey nurse shark. Many of the positive terms are often used in connection with the negative terms and are simply a way of diluting the initial alarmist portrayal put forth. Some examples of articles in which this occurs appeared in *The Cairns Post* with an article entitled "Bid to Save 'Man-Eater'" (Cairns Post, 2003) and *The Courier Mail* with the articles "Calling all Daredevils to Take the Plunge" (Williams, 2003) and "The Fear Factor" (Wright, 2002). Although these three articles have titles that convey an initial alarmist reaction, the contents of each piece reinforce the grey nurse shark's docile nature and ill-deserved reputation of being labeled a man-eater.

### **Changes in the Grey Nurse Shark Coverage over Time**

There has not been a great deal of change over the past thirty years in the way in which newspapers have reported about *C. taurus*. However, there has

been an increase in the amount of coverage the species has attracted over the years. Many of the articles in the early 1970s were simple accounts of sightings, and only one of the articles from that period warns of the impending dilemma of targeting a specific species.

In the early 1990s, the newspapers in this study began to report more regularly about the risk of the grey nurse's extinction and also made reference to their undeserved reputation of being 'man-eaters'. On the other hand, the next couple of years saw the publication of articles that were detrimental to *C. taurus*' reputation with content maintaining that the species' was responsible for attacks that had occurred on humans.

Nonetheless, in 1996, a lengthy piece published in the *Sydney Morning Herald* re-established this shark's passive nature (Allison, 1996); and in December of 1998 a response from a reader to an editorial piece entitled *Once Bitten*; which as the title implies speaks to a less positive view of the grey nurse shark, was the first of its type illustrating a reader's point of view on the depiction of this shark (Herald-Sun, 1998). The editorial piece *Once Bitten* centers around the issue of placing the grey nurse shark on the endangered list to ensure its survival, and describes 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". The editorial piece entitled *Once Bitten* typifies the stereotyping that the grey nurse shark has undergone because of its physical characteristics, and illustrating it with an ominous image of the animal only echoes the threatening image that the written piece exudes. The editorial response to the piece entitled "Once Bitten" fully engages the notion that *C. taurus* has not received the support it needs due to its appearance, and maintains that personal experiences with the species have been very positive.

From the early 2000s until the present, there was a surge in the number of newspaper articles published about *C. taurus*. In 2001, newspapers began to publish articles on topics that would aid in *C. taurus*' recovery plan. By October of 2001, *C. taurus*' status was elevated from "vulnerable to extinction," to "critically endangered," (O'Brien, 2001) which led the way to examining issues such as netting and beach meshing as a threat to the diminishing grey nurse shark's population. Once again the species' passive and gentle nature was portrayed rather than its less appealing characteristics which one article describes as "frightening dental work [and] soul destroying glare" (Skelsey, 2003). With each year following 2001, the incidence of articles on the grey nurse shark within the newspapers used for this study steadily increased. In June of 2002, Environment Australia published the "Recovery Plan for the Grey Nurse Shark (*Carcharias taurus*) in Australia" and subsequently newspaper articles during that year focussed

on issues of netting (The Cairns Post, 2002) and saving the species (Hunter, 2002), as well as personal accounts of experiences with the species (Adams, 2002).

In 2003, the coverage of newspaper articles on the grey nurse shark doubled once again, as they had in 2002, and accounts ranged from similar topics of personal experiences of swimming with the species and observation, to meshing and an enhanced concern for the plight of *C. taurus*. There were two peaks during this year in which the grey nurse shark received an increased amount of attention in the media. On June 6, 2003, a similar article describing the shark's need for protection and impending demise ran in three different newspapers (The Cairns Post, 2003; The Courier-Mail, 2003; The Gold Coast Bulletin, 2003). In July of 2003, three articles were published on the topic of species protection and focused on issues such as beach meshing which raised awareness about the shark's need for protection and fishing restrictions (Hammond, 2003; Keene, 2003; Skelsey, 2003). Only 13% (2) of the articles that year were negative, and of these negative articles, one describes a personal experience focusing on *C. taurus*' appearance while the other is more of an opinion piece on the issue of the grey nurse's proposal to be included on the country's Register of the National Estate. However, as the author describes, the Register of the National Estate is a list that is reserved for more "eye-pleasing historic features" (Skelsey, 2003). While the Register of the National Estate is reserved for places of natural, Indigenous or historic significance to Australians the author implies that the grey nurse would have no place in the Register simply due to its appearance.

## Discussion

The data generated by this study serve to exemplify the perceptions of *C. taurus* as represented by major Australian newspapers between 1969 and 2003. The trends show that the incidence of grey nurse shark article publications has increased dramatically from the year 2001 to the present. This implies that the level of interest in the plight of *C. taurus* has increased as *C. taurus*' circumstances have become more critical. While there is an identifiable shift in the focus of articles that were published over the years, such varying views may also be attributed to shifts in political movements and the level of involvement of environmental lobbies.

The way in which an article describes a subject may generate an image within the reader that the author is trying to portray. This particular image that is constructed serves to accentuate the opinion that is being conveyed within the written piece and has the ability to shape public attitudes towards the issue at hand. Media, such as newspapers, are central in reflecting broad

attitudes and can act as powerful forces in influencing individual attitudes and, furthermore, wildlife policy outcomes (Wolch et al., 1997). This study has established the way in which articles have the potential to generate public discourse on the topic of *C. taurus* and the issues surrounding its possible extinction, as well as the behavioral aspects of the species and its conservation.

While it would be ideal if the media took greater responsibility for and placed more focus on generating unbiased, evidence-based reports, more often than not the focus of the media is to guarantee consumer attention and to generate profit. Conflict and adversarial presentation of issues within the media both stimulate and manufacture real or imagined threats in which the reader is presented with a viewpoint that seeks to garnish opposition or support for a particular angle on a story. In the case of *C. taurus*, the amount of interest that is generated on the topic can have a direct impact on the conservation of the species itself. Whilst education can help to eradicate unfounded fears, it is critical that the media identify the true behaviors and threats facing certain species of sharks as opposed to focusing on the sensationalist element of the rare attacks that do occur. Rather than generalizing sharks as menacing beasts, the media could offer a widespread and sophisticated knowledge of a shark species by focusing on the distinctive ecological concerns affecting it.

As research suggests, both personal and contextual characteristics of a particular individual will influence the disposition of their environmental values and their ideas concerning acceptable human-animal relations, as well as the extent of information and familiarity with a variety of animals, and that all of these conditions will shape an individual's attitudes towards animals (Kellert & Berry, 1980; Kellert, 1996). It has been concluded that the above factors which determine an individual's attitudes will rely on characteristics such as culture, religion, gender, education, and whether they have an urban or rural background as well as the characteristics and behaviors of the animal in question (Wolch et al., 1997). In the study on California Cougars conducted by Wolch et al. (1997), the most prevalent theme of the negative articles was the danger that cougar's posed to human safety. Much like the negative articles pertaining to the grey nurse shark, three quarters of the negative articles analyzed in the study conducted by Wolch et al. (1997) included descriptions of cougar attacks on humans. Many of these articles opened with vivid descriptions illustrating the attack or encounters, such as, "A mountain lion sprang from a bush and badly mauled a five-year-old El Toro girl..." (Lindgren, 1986), or "Pure fear. That's the only way to describe the feeling when you look straight into the eyes of a grey nurse shark" (Lawson, 2003).



There were also many similarities in the terminology used to describe the California Cougar in the study by Wolch et al. (1997) and the terms used to describe the grey nurse shark. Terms such as "serial killers," used to describe the California Cougar and "savage killer," to describe the grey nurse shark are vividly alarmist terms that evoke imagery of both the California Cougars and the grey nurse shark as vicious and indiscriminate killers. Linking the California Cougar and grey nurse shark with what can be construed as calculated criminal behavior plays on the public's worries on the subject of rising crime and/or lawlessness (Perry, 1994). These issues can be presented as 'threats' to individual safety, even though the actual danger may be minimal in comparison to other statistical occurrences that cause injury or claim lives. As a consequence, Perry (1994) suggests that such use of language sends the unspoken message of how "criminals" are to be dealt with, which is that "in any civilization, killers aren't allowed to run loose". Thus, the underlying implication is that, animals that the media refers to as "killers," are "undeserving of public support or protection" (Wolch et al., 1997). Although Wolch et al. (1997) found an increase in the negative trends of reportage in *The Los Angeles Times* over the period of their study, they also observed that editorial and opinion pieces were more regularly sympathetic towards the issues of cougar protection than the general interest articles, and that opinion/editorial pieces maintained ecologicistic and moralistic attitudes in the years prior to 1990. With respect to articles pertaining to the grey nurse shark, 82% (9) of the editorial submissions were positive, whereas only 37% (11) of the news articles were positive. While the majority of the opinion/editorial pieces concerning the grey nurse shark were positive, recounting personal experiences with the species, the majority of the news articles 53% (16) on the topic fell within a more neutral range.

Corbett (1992) states that in higher-circulation newspapers the old axiom of 'bad news sells' will prevail concentrating the reportage of wildlife around problematic human-animal interactions e.g., an attack. Animals such as the cougar are inherently more appealing than the grey nurse shark, and the level to which a topic is well documented can affect the public's perception in filtering negative imagery generated by the press through either a 'pro-cougar' or 'pro-grey nurse shark' lens (Wolch et al., 1997). Analysis of public discourse of the attitudes towards wildlife and wildlife management issues, as expressed in widespread forms of media such as newspapers, is a crucial element in understanding the expressions of broad attitudes, and consequently widespread forms of media can also act as powerful accomplices in having the prospective ability to shape attitudes and wildlife policy outcomes (Wolch et al., 1997).

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