

REVISIONS

Best Student Essays of The University of North Carolina at Pembroke

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PHOTO BY SARAH GRAYBAR

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The cover photo shows Kaitlyn Wallace and other members of UNCP's color guard and marching band performing during halftime at one of the Fall 2017 football games. It was taken by yearbook photographer Sarah Graybar, a student in JRN 1820: Yearbook Production.

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RACHEL CARSON AND “MATTAMUSKEET: A NATIONAL WILDLIFE REFUGE”

By Cassandra Barlogio



Cassandra Barlogio is a senior at UNCP studying molecular biology and conducts microbial diversity research with the Sandefur Lab. She loves spending time outdoors and plans on pursuing a PhD in microbiology after graduation.

Born on May 27, 1907 near the Allegheny River in Pennsylvania, Rachel Carson exhibited talent as a writer at an early age and an interest in natural sciences that was encouraged by her mother. At the age of eleven, Carson had her first work published in *St. Nicholas Magazine*: a narrative of a war pilot about which her brother had written home. The large portion of land her family lived upon offered Carson the opportunity to explore the nature around her and would eventually contribute to her future studies of biology (*U.S. Fish & Wildlife Service*).

During her time employed with the U.S. Fish and Wildlife Service, Rachel Carson was tasked to create several series aimed at educating the American public about different aspects of the environment. One series called *Conservation in Action* detailed the wildlife and conservation efforts of several wildlife refuges that were maintained by Fish and Wildlife. Another called *Food from the Sea* described different types of edible fish and mollusks and the benefits of eating seafood (*Britannica*). Her position with Fish and Wildlife allowed Carson to travel around the Eastern Seaboard for research. Her second book, *The Sea Around Us*, was published in 1951. Where her first book *Under the Sea-Wind* described what was happening beneath the waves, *The Sea Around Us* expanded the view to the shores. Carson enjoyed much more success with this second book. She was awarded a National Book Award and the publication was on the *New York Times*' best seller list for 81 weeks (Lytle).

Rachel Carson is world renowned for her work *Silent Spring*, which had a tremendous impact on the view of indiscriminate use of pesticides, primarily DDT, in the United States in the 1960s. Her apocalyptic description of a hypothetical “all-American” town in which no birds sang influenced the passing of much stricter standards for the production and use of DDT and eventually led to disbanding its use all together (Griswold). While in *Silent Spring* Carson used her unique style of prose to push pesticide use to the forefront of the environmental movement, she had before been known in the scientific community for her elegant depictions of ecological connections. In “Mattamuskeet: A National Wildlife Refuge” she uses this gift to beautifully paint the picture of Lake Mattamuskeet as a place for interspecies interaction and the beneficial role of the U.S. Fish and Wildlife Service in managing the refuge to allow for populations to flourish.

Lake Mattamuskeet is located on the North Carolina coastline, surrounded

by the Albemarle Sound to the north and the Pamlico Sound to the east and south (Carson). The lake is the dominating feature of the area and one of the most important. The Albemarle-Pamlico peninsula landscape has been heavily influenced by mining, clear cutting, and agricultural operations, making the Mattamuskeet Wildlife Refuge a vital area for native wildlife and migratory birds. Established as a refuge area in 1934 the lake itself covers more than 40,000 acres, though it rarely is more than 3 feet deep. The submerged vegetation—wild celery, redhead grass, and musk grass—is an important component of the habitat as it provides food for the incoming migratory birds. Because of the runoff from nearby agricultural operations, the water in Lake Mattamuskeet is slightly acidic (*U.S. Fish and Wildlife Service*).

Lake Mattamuskeet was one of many wildlife refuges that Carson detailed in the *Conservation in Action* series written for the U.S. Fish and Wildlife Service with the aim of not only educating the public about the land in a topographical way, but also to draw them in to the web of life that called the refuge home. By providing anecdotal stories about how the lake was created, Carson makes even the swamp-land feel friendly. When one gets into the realm of folklore, it is often impossible to separate fact from legend, so she instead presents the two different genesis stories for Lake Mattamuskeet that are the most popular. One story says that the lake was created during a meteor shower, the descended rocks causing the depressions for Lake Mattamuskeet and the surrounding lakes. The other says it came from the local Indians burning the peat of the swamps so intensely until an indentation was created and caught the rain (Carson 43). By presenting the reader with an air of mystery as to the lake's origin, Carson illustrates that the area is more than just a chunk of soil and water; it can be just as lively as the creatures that live on it.

“Mattamuskeet: A National Wildlife Refuge” can be summed up in one word: birds. It is impossible to remove water fowl and water-loving land birds from the landscape of Lake Mattamuskeet. It is the main reason that the area is a wildlife refuge in the first place. Especially in winter when the lake is home to literally thousands of Canadian geese, whistling swans, and pintail ducks, it is easy to forget that the area is still home to many mammal species as well. In this installment of her *Conservation in Action* series, Rachel Carson beautifully illustrates the sights and sounds of the Mattamuskeet refuge. The reader can imagine looking up at the sky to see a blanket of wings as a gaggle of geese fly overhead, their calls echoing across the water as the wind from their wings can be felt against one's face. The morning sun glowing off of the white wings of the seemingly endless multitude of swans in the crisp winter air (Carson). It is impossible to match Carson's ability to draw the reader into the location.

Science writings, especially those that deal with ecology, are rather difficult to make approachable and interesting to the layperson. One interested in the migration patterns of the “whistling” tundra swan might be fascinated by minute details about their overwintering locations and food sources, but Carson is able to elevate the view of the swan from one of a loud horde of birds to one that makes them relatable, lovable even, to those who may not necessarily be enraptured by scien-

This essay provides a comprehensive, insightful, and engaging guide to Rachel Carson's “Mattamuskeet: A National Wildlife Refuge” (1947), a natural wonder in northeastern North Carolina that is the state's largest natural lake and a vital stopover for tens of thousands of migrating waterfowl. Indeed, Barlogio confronts a critical problem of our society: We are prone to be heedless of the natural world in which we live, and the task of a writer—the scientist-writer in particular—is to compel our attention on the forces that are altering our planet. Like her subject Rachel Carson, Barlogio too helps us understand the world around us and gives us the capacity to care and work for a world that sustains and protects all lives.

—Scott Hicks

RACHEL CARSON AND “MATTAMUSKEET”

tific detail. “The mingled chorus of swan voices...a sound that suggests a woodwind instrument in its quality,” (Carson 44) brings the reader to a place of grace and music. The geese do not just fly by. “Their wings pattern the sky above you. Underlying all the other sounds of the refuge is their wild music, rising at times to a great, tumultuous crescendo, and dying away again to a throbbing undercurrent” (Carson 44). Carson makes it seem like these migratory waterfowl are not merely birds, but artists, singers, and dancers with the backdrop of Lake Mattamuskeet as their canvas and muse.

In a piece written in *American Scholar*, Kelly McMasters notes how Rachel Carson’s style of writing is derived from a deep appreciation for nature by trying to see the world through a child’s eyes. “Exploring nature with your child is largely a matter of becoming receptive to what lies all around you. It is learning again to use your eyes, ears, nostrils and finger tips, opening up the disused channels of sensory impression” (McMasters). Carson brings all of these senses to the foreground in “Mattamuskeet,” and makes readers care by making them feel like they are there with her.

A steady babble of goose voices tells you of a great concentration of the birds on the lake...At intervals the sound swells as though a sudden excitement had passed through the flock...As you stand quietly in the thickets along the canal, they pass so close overhead that you can hear their wings cutting the air, and see their plumage tinged with the golden brown by the early morning sun. (Carson 45)

After reading, it is easy to close your eyes and, through her vivid descriptions alone, feel like you have traveled to and are standing alongside Lake Mattamuskeet seeing the skies darken with thousands of swans, hearing the multitude of goose calls, smelling the malodorous shallows of the swampy marshes, and feeling the cold North Carolinian winds blow tall grasses against your skin.

Carson’s work in “Mattamuskeet” appeals to an even wider audience by addressing a different kind of bird lover—the hunter. Geese, ducks, and swans are quite popular with hunters and the incredibly large number of migratory birds drawn to the refuge each year is bound to attract attention. Not only birds migrate to Lake Mattamuskeet each winter. Those who aim to test their skills with a rifle flock to the area. Carson notes that over 868 geese were killed just within the managed areas of the refuge during the 1946-47 hunting season (Carson 45). Today’s hunting regulations are far more stringent, allowing for only 100 permits a season to be granted by lottery (*U.S. Fish and Wildlife Service*). While it may seem counter-intuitive to allow hunting on a National Wildlife Refuge, a culling of the number of migratory birds aides in the management of the resources at Mattamuskeet, in a similar way that prescribed burns help to maintain fertility of a pine forest. By appealing to hunters as well as conservationists, Carson reaches a broader audience.

Aside from describing the waterfowl of Lake Mattamuskeet, Rachel Carson mentions that the refuge itself is easily navigated. Oftentimes, bird watchers must venture long distances through uncertain terrain to see a desired species, but here “more than one person confined to a wheel chair, who had believed his days of field ornithology behind him, has been brought to Mattamuskeet for a satisfying and refreshing experience” (Carson 46). While one *can* hike further distances to see the large concentrations of geese as they feed in the former canals further south of the lodge, plenty of enjoyment can be had without the necessity of traveling far. The appeal of Lake Mattamuskeet reaches an even bigger audience by addressing those who have been denied accommodating spaces to enjoy the wilderness and observe its life.

The amateur bird watchers, or “audubonites” (Lytle), and bird clubs that frequent the refuge will see about 200 different species of birds, though Carson notes that large numbers of only certain species are usually seen and provide the opportunity to observe bird behavior closely. To illustrate the prominence of the seasonal variations of the magnificent fowl, Carson provides a list of species. Without losing the interest of those who would rather just appreciate the poetry of her descriptions, the list is kept concise and rather short (Carson 46-47). In just a few paragraphs, the large number of species present is realized. Lake Mattamuskeet isn’t just home for the

massive flocks of tundra swans, but it is alive with birdsong all year long and each species needs a suitable habitat to roost and forage.

Creating interest in the birds is just one goal of “Mattamuskeet: A National Wildlife Refuge.” Rachel Carson also strove to introduce the importance of conservation and management of this and other refuges. Once one cares about the species there, one will also care about how to keep them there and help them flourish. By carefully and meticulously managing the marshlands for the waterfowl, “the land within the refuge is made many times as productive of natural foods as outside areas not under management” (Carson 47). Rachel Carson was a great advocate for the interconnectivity of ecosystems—plant, animal, and nature flowing together. She realized that you cannot have one without the others. While humankind is often excluded from some of her other works, such as *Under the Sea-Wind* and *The Sea Around Us*, Carson understood that humans are essential for protecting land areas and using scientific practices to help the land naturally flourish to conserve and increase the resources there. Mattamuskeet, in particular, needed to be protected from the logging industry that was encroaching on nearby areas. As noted in *The Gentle Subversive*, Carson believed that “wildlife, water, forests, grasslands, all are parts of man’s essential environment; the conservation and effective use of one is impossible except as the others are also conserved” (Lytle 62). With carefully prescribed burning and controlling of water levels which mimic the natural cycles of nature, U.S. Fish and Wildlife Service members are able to increase the food and habitat availability for both native and migratory species at Lake Mattamuskeet. If left alone, fast-growing brush will invade the marshes that support the majestic geese, swans, and ducks. Without management, the refuge would be more like *Silent Spring* rather than the triumphant chorus that it supports today.

Rachel Carson has been heralded as one of the best ecological writers of her time. Her ability to bring to life landscapes and the species that call them home is unmatched. She not only illuminates the complex interactions between species but paints them in such detail that it is impossible not to feel like you are there, watching the web of life unfold before you. In “Mattamuskeet: A National Wildlife Refuge” Carson brings the reader into the North Carolinian marshes to experience the beautiful migrations of tundra swans, geese, and ducks. By addressing not only biology and ecology lovers, but also hunters, amateur ornithologists, and those who long ago thought their days of bird watching were through, Carson reaches a wide audience. “Mattamuskeet” is not only intended to pique interest in the wildlife of the refuge. She also aims to inform the reader about the effective conservation techniques that allow the land to be more fertile and therefore provide more food for the species that call Lake Mattamuskeet home. Rachel Carson brilliantly “tricks” the reader into caring about protecting the wonderful landscape with her elegant prose. ◀

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TURNING DOCTORS INTO DEATH'S ASSISTANTS: ARGUING AGAINST LEGALIZED PHYSICIAN-ASSISTED SUICIDE

By Piper Lizak



Piper is a senior at UNCP majoring in philosophy and religion. She will be attending ECU's Brody School of Medicine in the fall. Piper is an Early Assurance Scholar, recipient of the Provost Fellowship Award and the Robert Gustafson Memorial Scholarship for Philosophy & Religion. She is a drummer, singer/songwriter, and digital artist in her free time.

Physician-assisted suicide is one of the most hotly debated topics in the modern medical community. Arguments for and against it are constantly evolving due to new technological and legal developments continuously being established. The waters of philosophical, moral, and ethical debate are decidedly gray on the topic of voluntary patient death, and whether the psychological comfort of patients outweighs the psychological damage afflicted onto their physicians is a volatile point. The history, common terminology, and broad scope of the topic of physician-assisted suicide or PAS—termed physician-assisted death,

or PAD, by many of its supporters—sheds light on the multifaceted natures of the arguments for and against it. Understanding these key elements is important to ultimately understanding why someone like myself, who is entering the medical field, would be at best cautious and at worst entirely dismissive towards the idea of the widespread legalization of PAS.

Physician-assisted suicide is an option for terminally ill—those with six months or less to live—and generally elderly patients to choose an immediate death instead of a long period of continuous pain, and a slow degradation of their mental and physical health. In Kant Patel's words, the commonly presented example "involves a situation in which a competent person has expressed a desire to end [their] life, but requires the assistance of another person to perform the act" (Patel 39). This is generally done through the prescription of a lethal dose of medication, either administered via injection by a physician, in which case the term euthanasia is often used, or self-administered via pill form by the patient. VSED, or voluntarily stopping eating and drinking, is similar in that the purpose is a quickening of the end of life process, but it does not entail any use of drugs or any direct physician involvement in the patient's death. Instead, the patient, generally elderly, voluntarily stops intaking food and water, speeding the process of death up to under a week. Palliative sedation, a commonly posited alternative to PAS or euthanasia, focuses on the relief of pain through continuously administering sedative medication, generally barbiturates or benzodiazepines, maximizing comfort instead of ending the patient's life. A more drastic version of this option is continuous deep sedation, or CS, also termed "terminal sedation" or "sedation to unconsciousness" (Rich 52).

While these options have historically been used most commonly in cases of terminally ill patients who prefer the option of controlling their own death, generally to "die with dignity" instead of wasting away, some of them have been used

or have asked to be used on non-terminally-ill or non-consenting patients. This is where the core debate stems from, positing that due to the vagueness of the current American examples of legalized PAS bills, if PAS were legalized on a wide scale, these methods of patient suicide could put patients at risk due to age, disability, mental health, access to healthcare or other funds, socio-economic status, or health status, such as HIV- or cancer-positive status. Through an overview of the English, Dutch, and American histories of the legalization of PAS, as well as through multiple case studies, I will argue against the widespread legalization of PAS and similar practices without considerable rewrites and clarifications to the existing American bills and laws in California, Montana, Oregon, Washington, and Vermont, as they could open a pipeline to a new kind of abuse that targets the elderly, the mentally ill, the disabled, and non-white Americans. Its premise, as it stands, goes against both the Hippocratic Oath and everything American doctors are trained to—and supposed to—stand for. Its implementation has been without regard for the physicians at risk of damage to their mental and emotional health through participating in PAS, at times against their will.

Comparative Timelines of the Legal History of Physician-Assisted Suicide (PAS)

The United Kingdom

The discussion of suicide in legal terms can be traced back to *Hales v. Petit*, a medieval case which made suicide illegal as “an offence against the King [of England],” and which shifted the cultural discussion of suicide from the spiritual to the physical and temporal (Shaw 334). Although this is the earliest modern example in terms of a similar law structure to our own American legal system, suicide was criminalized in the Roman era as well; in modern culture, one can find a continuous thread of not only distaste for suicide as immoral, but also being viewed as illegal in and of itself. Following the lines of *Hales v. Petit* and evolved for the cultural standing of the nineteenth century, the 1861 Offences Against the Person Act explicitly criminalized assisted suicide, with the Lords, equivalent to American lawyers, equating such an act with murder, regardless of consent. This philosophical equation of suicide to murder steered much of English and, by proxy, American law: “English law,” Patel explains, “makes no distinction between ending a person’s life at their request, and ending [their] life without [their request]” (Patel 335).

Although the 1961 Suicide Act decriminalized suicide itself, the UK’s legal system has continued to debate the issue of PAS specifically for terminally ill patients, with the most recent battle being waged through the *Assisted Dying for the Terminally Ill Bill* in 2005. This bill “proposed that doctors be able to prescribe on request, a lethal dose for competent terminally ill patients with less than six months to live and who were ‘suffering unbearably,’” and included numerous safeguards, including psychiatric evaluation, and introducing the patient to the alternative of palliative care (Shaw 339). Despite these measures, it was defeated in 2006. The UK continues to debate the legality of assisted suicide and euthanasia, interacting with similar changes in thought as the Netherlands and America.

Recent studies reveal that despite this cultural and legal equation of suicide

Piper Lizak is in the cooperative program with East Carolina University where she is accepted into their medical school upon her completion of her degree at UNCP. As she plans to be a physician, the issue of physician-assisted suicide has deeply touched her sense of her vocational calling. This well-researched paper effectively covers the history of physician assisted suicide while thoughtfully grappling with the ethical concerns the practice raises.

—David Nikkel

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with murder, approximately 200,000 patients in the UK die annually due to “double effect.” This practice involves knowingly increasing a patient’s dosage to deadly levels, to lessen pain. Worryingly, 1,929 of these cases were non-voluntary, usually involving patients “who had previously indicated a preference for euthanasia” but were unable to specifically consent at the time of the dosage (Shaw 336). These kind of findings, while derived from a setting in which PAS is illegal, are worrying to those involved in the PAS debate, as they are an example of the true consequences of the slippery slope theory. In this case, a doctor may begin with legal palliative care and, due to influence from the patient or the patient’s family, morph that care into euthanasia, without taking the proper steps to ensure that the patient wishes to die, or is mentally competent enough to make such a decision.

While this may seem reactionary, the data indicates that it is not an unfounded worry. In the meantime, with the UK still banning PAS, they have experienced a phenomenon known as “death tourism,” in which UK citizens seeking PAS travel abroad to seek such “treatment.” The criminal courts have been lenient in punishing those who assist these “tourists,” with cases from 2003 and 2004 citing “insufficient evidence” and the competency of the patient involved as reasonings to refuse seeking criminal charges. Other cases in 2008 and 2009 ended in similar results, and modern English courts have drawn a distinct line between “murder” and “mercy killing;” as Law Lord Baroness Murphy states, “in more than 15 years, not one mercy-killing case has resulted in a sentence for murder,” raising questions like those being dealt with in America today on the moral issues which stem from this separation (Shaw 338). This odd set of ethical rules versus legalities has created an environment in which it is technically illegal to assist anyone in their attempts to seek out PAS, but also in which, as Lord Falconer explains, “the law gets itself into a mess [when] criminalizing circumstances in which no-one is willing to prosecute,” describing this situation as “the law overarching itself” (Shaw 338). Overall, the UK publicly and legally denounces PAS and the assistance of others to those seeking PAS, but does not often harshly punish those who engage in “death tourism” and similar practices.

The Netherlands

The Dutch government began entering the legal battle for euthanasia in 1999, and in 2001 passed the Review Procedures of Termination of Life on Request and Assistance with Suicide Act. The details of the act are as complex as the name implies: while it states that assisted suicide (defined as “intentionally helping another person to commit suicide or providing that person with the means to do so”), euthanasia, and PAS are still illegal, it “legitimizes [all three] when proper procedures are followed as outlined,” creating a similar dichotomy as found in English law (Patel 40). However, unlike in both the UK and America, PAS is most commonly “prescribed” in the form of a lethal injection, performed by a physician at the patient’s request or by the patient themselves, with the latter being encouraged more so than the former. This would most likely never be legalized in the United States, due to America’s rigid stance on allowing physicians to perform lethal injections on death row inmates, but it is certainly a strong difference between the two in terms of forms of “legitimate” PAS.

Despite this, Dutch law does include a more thorough, strict set of guidelines which physicians must follow than the states in America which currently have legalized PAS: Dutch physicians must submit a form after the patient’s death to a review committee, “consisting of a legal expert, a physician, and an ethicist,” who then assess the case to ensure that the guidelines have been followed; if they have not, the physician can be prosecuted for, presumably, murder (van de Vathorst and Schermer 43). This is not to say that the Netherlands has a greater level of success in keeping unwanted PAS deaths from occurring; on the contrary, there is evidence that “some physicians are euthanizing patients without their consent because of ‘poor quality of life,’ such as severely handicapped newborns,” a practice which is startlingly reminiscent of the goals of the first euthanasia movement in America, the Euthanasia Society of America. This is also worrying, as it both resembles eugenics practices from the era of Nazi Germany, and calls into question the possible impact on disabled people, both infant and adult alike.

While some infants may indeed be so dramatically handicapped that they would otherwise succumb to natural death in a manner of hours or days, creating a situation in which it might truly be a “mercy killing” to end their suffering, the legal, moral, and ethical line between what is merciful and what is extermination of those different from nondisabled people is blurred at best.

The United States

America has a long and complicated history concerning the fight for (and against) the legalization of euthanasia, and thus it requires its own section for consideration, especially as much of my own argument centers around American physicians. The first group formed to champion the legalization of PAS was the unfortunately named Euthanasia Society of America in 1939, whose president argued for “the painless killing of ‘born defectives who are doomed to remain defective, rather than for normal persons who have become miserable through incurable illness,’” a statement which resembles Nazi eugenics a little too closely for the comfort of the American public (Behuniak 18-19). Although it is in the language of the twentieth century, this is still an alarming goal to push for in terms of its dehumanization of and disregard for disabled Americans, who have a long history of arguing both for and vehemently against the legalization of PAS for just these reasons. In 1976, the Society for the Right to Die evolved from the ESA’s original message, now speaking in terms of individual rights, personal entitlement to one’s death, and “mercy killing,” becoming the first to champion for, as their name suggests, the “right to die.” The Hemlock Society carried on this trend in 1980, attempting to steer the movement away from the negativity surrounding the term euthanasia and towards arguing against “medical technologies that prolonged suffering and the dying process” in favor of personal control and empowerment over one’s demise (Behuniak 19).

In 1986, following this shift in the nature of the argument for the legalization of PAS, the American Medical Association’s Council on Ethical and Judicial Affairs concluded that “in certain limited circumstances life prolonging medical treatment... may be stopped or withheld,” essentially legalizing practices like VSED, or voluntary stopping of eating and drinking, as well as, by proxy, the removal of ventilation apparatuses and IVs in comatose patients—“pulling the plug” or “pulling the tube” in popular terminology (Rosner 82). While this decision was controversial, it was certainly a win for those campaigning for the legalization of PAS, as a sort of stepping stone towards their wider goal. In 1993, Compassion in Dying was formed, an organization dedicated to fighting for the legalization of PAS in Washington and Oregon and to legally protect physicians who had taken part in PAS cases. Due to their efforts, among others, Oregon approved the Measure 16 ballot in 1994, a “Death with Dignity Act,” displaying just how much influence the decades of lobbying had had on the legal world.

In 1996, it seemed this trend towards legalization would continue with the cases of *Washington v. Glucksberg* and *Quill v. Vacco*. The Washington Court of Appeals ruling that in *Washington v. Glucksberg*, the 14th Amendment gave one the right to kill oneself, and thus “that state law banning assisted suicide was unconstitutional” (Patel 45). The New York Court of Appeals, in *Quill v. Vacco*, similarly ruled that “criminalizing [PAS] violate[s] the equal protection clause of the 14th Amendment”—but it added on that “there is no difference between the refusal or withdrawal of medical treatment and intentional killing” (Patel 45). Although both of these decisions were reversed in 1997 by the Supreme Court, the last addition is exemplary of one of the problems with those who champion for the legalization of PAS: the lines between consensual and nonconsensual death are so blurred that they often mix entirely, resulting in phrases such as the above, which directly equate voluntary, consenting methods of patient suicide, such as VSED, with “intentional killing”—not just a patient swallowing a pill, but a physician ending their life. This inherently goes against everything the Hippocratic Oath and those physicians who follow it stand for.

One of the groups which have lobbied against the pro-legalization movement was also started in 1996: Not Dead Yet, comprised of disabled Americans and their supporters. In Adrienne Asch’s words, Not Dead Yet and

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organizations like it “espouse the goals of creating and maintaining opportunities for ill, disabled, or dying people to enjoy fulfilling, meaningful relationships, activities, and experiences for however much time they will live,” instead of pushing them towards death as the best or only option (Asch 32). Those with disabilities have long rallied against the tendency of lawmakers to group disabled and terminally ill patients together with wording such as “those in ‘a childlike state of helplessness, diapered, sedated, incontinent;’” in essence, “within this cultural context... living with a disability becomes the definition of an unwanted, undignified life” (Behuniak 25, 27). The courts have also described those who seek aid in dying as being “subject to the ignominy, embarrassment, humiliation, and dehumanizing aspects” of their illnesses, again using language which is so vague as to lump two very different groups together, raising the issue of disabled citizens who do *not* wish to seek death being discussed in a very similar manner to those citizens who are terminally ill. Cases where this gray language has real impact will be discussed in the “Patients” section of this examination into PAS.

In 1997, after the Supreme Court reversed the Washington and New York decisions, the Oregon Death with Dignity Act went into effect, making Oregon the first of the United States to legalize PAS. Described as allowing “terminally ill patients to obtain a physician’s prescription to end life in a human and dignified way under proper safeguards,” this Act opened the metaphorical waygates to widespread legalization (Patel 46). It also “explicitly [prohibited] *active* euthanasia,” essentially limiting legalized PAS to one patient body: mentally competent, consenting, terminally ill citizens over the age of eighteen, who have six months or less to live (Patel 46). The terminology of “active” versus “passive” or “indirect” euthanasia is debated on its usefulness, as some, such as Mohammed Yousuf, claim that the latter “are not really types of euthanasia, as there is no intention to take [the] life of the patient,” and thus should be dropped from the legal vocabulary (Yousuf 63).

In 2003, the Hemlock Society expanded from focusing on self-help to political activism, changing its name to End of Life Choices. Soon after, in 2005, the newly reworked End of Life Choices united with the previously mentioned Compassion in Dying to form Compassion & Choices, with emphasis on the *choice* of the consenting individual. From 2001 into 2008, another controversial dichotomy of terminology formed, between “clinical” and “nonclinical” or “existential” suffering. This stemmed from the issuing of statements on palliative suicide, or PS, made by the American College of Physicians, the American Medical Association, and the Veterans Health Administration. This “dichotomization of terminal suffering” essentially enforces the idea that if a patient is suffering from existential or spiritual pain alone, or more than physical pain or mental stress, PS is *not* acceptable (Rich 52). This split between forms of suffering is strange to the say the least, especially with the ethical and moral arguments at play within any discussion of life-ending practices. However, these kinds of terminological spats are exemplary of the layers and branches of the pro- and anti-PAS movements, as well as their alternatives. One can observe this with the overall movement of core terminology from “euthanasia” to the “right to die” to “death with dignity” in move into the twenty-first century.

Arguments For and Against PAS

The Patients

While the history of the PAS movement and the legal developments associated with it can be enlightening as to the background and context of the debate, what is most important in any medical equation is the patient. One cannot lose sight of the fact that those arguing on both sides of the legalization of physician-assisted suicide are attempting to balance the fates of living, breathing people, many of whom are in incredible amounts of physical, emotional, and mental agony. In addition, many of those who lobby for and against legalized PAS are disabled, chronically ill, or the family members of terminally ill patients. This topic is not one that can be taken lightly, or intentionally written to shame or otherwise degrade one side, as both are genuinely attempting to do the very same thing physicians are: they are trying to help people. By examining specific and famous cases in relation to

requests for PAS, both directly and tangentially, one can shed light on exactly how the fight for PAS affects patients, why some patients wish to have it open as a legal option, and why some do not.

The 1976 case of Karen Ann Quinlan is, perhaps, the first landmark case involving the removal of life support. A young New Jersey woman in a persistent vegetative state, Quinlan had not responded to treatment, and her parents petitioned the court system to remove her respirator so that she could, in their words, “die in peace and dignity” (Rosner 82). The Supreme Court of New Jersey was convinced, but after the respirator was removed, Quinlan continued to breathe on her own, unaided. Her parents’ reactions were somewhat contradictory—when asked whether they would remove her feeding tube, they staunchly refused, keeping her alive despite their earlier ventures. This is exemplary of the earlier stages of the movement as previously discussed; a respirator’s removal was groundbreaking, but the removal of a patient’s food and water was still seen as cruel or inhumane, rather than equal to access to oxygen intake. Quinlan’s case began an evolution towards something larger than one woman, sparking the movement for the legalization of various forms of what some called cruelty, and others simply following the wishes of their loved ones and patients.

The 1983 case of Elizabeth Bouvia, a disabled woman with cerebral palsy and suffering from arthritis, is important in illustrating the intersectionality between the issue of legalized PAS and the infantilization and dehumanization of disabled people in America. As previously quoted, the California Court of Appeals latched onto depictions of her “humiliation,” “embarrassment,” and the “dehumanizing aspects” of her illness, a trend which would be continued in the previously discussed 1996 *Washington v. Glucksberg* case, which “referred to people who are in a ‘child-like state’ of helplessness, as exemplified by physical immobility or by their use of diapers to deal with incontinence” (Asch 32). The issue with using such language within these cases is that the court system is essentially infantilizing the entire disabled population of America, comparing them to literal children because of their disabilities, be they cerebral palsy or any number of other ailments which cause paralysis or incontinence. While the California Court of Appeals did allow Bouvia to go through with her request for “aid in dying,” the anti-PAS-legalization movement’s disabled members had a very different view of her case, focusing on the function she had retained and on “the social and economic problems that contributed to her isolation and depression... which stemmed from serious family problems, [and] would have immediately been treated in a nondisabled person who had attempted suicide” (Asch 32).

One can argue—and many have—that this sends a message both to the American people and from the American culture, a culture obsessed with health, youth, and beauty, that a disabled person’s voice is to be silenced, rather than assisted. What could be taken as a cry for help in a nondisabled person is instead seen as a call to put a disabled person “out of their misery,” and the legalization movement’s focus on the term “dignity,” the description of which is malleable at best, only highlights this issue. Put simply, for those who support PAS, “death liberates from the indignities of illness”—but for those who oppose PAS, especially those who live with disabilities or are family members of disabled people or those with chronic or terminal illnesses, “this reference to dignity assumes that living with a disability [is] an indignity... the call for a right to die with ‘dignity’ sounds like a discriminatory threat,” or at least a grand misunderstanding and silencing of disabled voices (Behuniak 18). “Dignity” itself, as Susan Behuniak argues, is such a multifaceted term as to have become useless; generally, it is either used as a stand-in for respecting a patient’s autonomy, a phrase which would not carry the same negative connotations towards disabled individuals as “dignity” has garnered, or it is too vague to truly be definable. While it may be of use to patients with a more streamlined definition, at the moment its most prominent flaw is its implication that living with a disability, being dependent on a caretaker, or dealing with health issues because of one’s illness is inherently undignified.

Similar to the Bouvia case, in 1989, Michigan’s David Rivlin became quadriplegic, and instead of being offered counseling, mental health treatment, or other support systems, he sought PAS instead of the unknown

horror of being confined to a nursing home. A year later, in 1990, the Missouri case of Nancy Cruzan became the next in the line of landmark cases; much like Quinlan, Cruzan was in a persistent vegetative state—but unlike Quinlan, her parents legislated for the removal of her feeding tube. The Missouri Court eventually allowed this, and Cruzan succumbed to a combination of dehydration and starvation thirteen days later. While this might seem to be a non-issue in our modern viewpoints of euthanasia, the sticking point in Cruzan's case is this: no one knows what her wishes were if she happened to slip into a comatose state. The Missouri court system based their decision on the testimony of Cruzan's friends—in legal terms, hearsay—but there was no evidence of a will or other legal document which stated that in the case of falling into a vegetative state, Cruzan wished to be euthanized.

In 1991, a legal battle broke out between a hospital in Minnesota and the family of Helga Wanglie, an elderly woman who had been injured in a fall and slipped into a vegetative state. Ultimately, the family won out over the hospital's wishes to end life support, but this case is a frightening glimpse into the at times very real risk of the American healthcare system, which is a business first and a caregiver second, “cutting their losses” with patients they deem to be, essentially, wastes of resources. Terri Schiavo, a thirty-three-year-old woman with severe brain damage who had slipped into a vegetative state, would become the next patient to be the center of a groundbreaking euthanasia court case, after her husband petitioned for her feeding tube to be removed in 1998 after two years of no improvement in Schiavo's condition. The ensuing ten-year-long legal battle between her husband, her parents, and the court system would end with the tube being removed upon court order. The complications in this case are varied, but the most relevant to this topic are that “it is not clear whether [Schiavo] had a living will expressing her wishes not to live in a chronic vegetative state or had so stated orally to her husband Michael,” again creating the same predicament as the Cruzan case of legal consent versus hearsay consent, and the supposed allegations of abuse against Schiavo at the hands of her husband, although these were never verified (Rosner 81).

Patients being pressured into PAS or otherwise having their choice taken away by family members was a much more major consideration in the 2005 case of Barbara Howe. Howe, a seventy-nine-year-old woman using a ventilator due to amyotrophic lateral sclerosis, was clear as of March of 2005 that “she wished to stay alive as long as she could appreciate family visits,” and, although unable to respond to her family verbally or physically, was still considered to be “conscious and alert,” with her daughter acting as her healthcare proxy (Asch 35). The hospital itself, as in the case of Wanglie, “sought to remove Howe's daughter as her... proxy and to discontinue ventilator support” (Asch 35). Unlike Wanglie's case, Howe's daughter eventually settled with the hospital, although her mother passed away before the ventilator could be removed. In addition, literature reviews have suggested that “uncontrolled pain was not a major determinant of interest in euthanasia; rather it was depression, loneliness, hopelessness, and general psychological distress,” pointing to a need to reroute the efforts of both pro- and anti-PAS activists towards bettering access to mental health for these patients, rather than jumping to the option of ending their lives (Yousuf 63-4). These cases and studies paint a worrying picture of the hospital system in America, one which needs to be examined before country-wide legalized euthanasia is even proposed.

This hospital-centric issue has also crept into the wider patient world, such as in the 2008 Oregon case of Barbara Wagner. After being prescribed Tarceva, an expensive cancer drug, Wagner sought financial assistance for the medication, but instead “the Oregon Health Plan refused to pay for the drug, [stating] in their letter to Ms. Wagner that the State would pay for comfort care and ‘physician aid in dying’” (Mitchell 5). Despite Wagner's clear wish to remain alive for as long as possible, her case is a clear example of the State “clearly steering [a patient] toward assisted suicide, despite the fact that she does not want to die and her physician says the drug could have significant therapeutic benefits,” which seems to go directly against the pro-PAS movement's message of individual choice, consent, and “dignity” (Mitchell 5). However, in 2009, Robert Baxter, suffering from terminal lymphocytic leukemia, approached the Montana Supreme Court with an argument for the legalization of PAS

instead of enforcing palliative sedation as the only available patient recourse. In his own words, “the notion that terminal sedation should be the only option available to me if my suffering becomes intolerable is an affront to my personal values, beliefs, and integrity,” and that “this intensely personal and private decision should be left to me and my conscience... the government should not have the right to prohibit this choice by criminalizing the aid in dying procedure” (Rich 53, Behuniak 19).

Baxter offers a compelling argument, and one that is at the core of the pro-euthanasia movement: the fight for the right of patients to control their own destiny. In Judith Schwarz’s words, speaking specifically of VSED, “only the person living that life can decide when the burdens of living consistently outweigh any benefits [of living, and] only they can decide when their suffering has become unbearable” (Schwarz 359). This is certainly an innately appealing idea, when divorced from the realities of the American healthcare system and how it currently functions. However, what this fight rarely takes into consideration is the perspective of and effect on the doctors who are coerced or forced into ending the life of one of the people they took an oath to do no harm to.

The Doctors

Medical doctors often spend over a decade in college and medical school in training to fulfill the Hippocratic Oath and do their best to heal the sick, treat the wounded, and help lay to rest the dying. Some have had family members with terminal illnesses or disabilities, and some are disabled themselves. On a general level, doctors are united by a primary goal: to assist those who are injured in healing, and to above all do no harm. It is of little wonder, then, why a patient’s request to either die or be killed can be so emotionally and psychiatrically damaging to healthcare professionals, from primary care physicians to nurses and technicians. To argue for or against PAS, one must consider the impact legalizing euthanasia has had on the medical staff of those locales, and what a country-wide legalization would mean for the mental health of America’s doctors.

Clinicians such as hospice caretakers, as well as medical doctors employed in general hospitals, report experiencing “storms of feelings” including “guilt, shock, self-doubt, failure, sadness, and self-blame” when asked to assist with a suicide, with some feeling as if they have failed in their role as caretakers, emotions which can impact how they treat the patient in question and their own ability to fulfill their duties as a physician (Schwarz 357-8). Beyond simply being asked to assist a patient in suicide, those who have actively participated in euthanasia report emotional and psychological discomfort. This is directly acknowledged by some pro-euthanasia advocates such as Pieter Admiraal, who admitted that “we [doctors] are not trained to kill. With euthanasia, your nightmare comes true” (Stevens 189). In Oregon, physicians admitted that these cases “go against what [they] wanted to do as a physician,” with these ideological issues being accompanied by feelings of isolation, frustration, and fear of being ostracized by both patients and colleagues (Stevens 192). This is, of course, especially prevalent in states which have not yet legalized PAS, as doctors can be charged with what can amount to murder for following through with their patient’s requests. A 1999 study found that some physicians who went through with taking part in euthanasia cases reported “difficulty understanding the requirements of the law,” as well as being “very traumatized by having been involved” and being unable to “reconcile that they have done it,” language that is psychiatrically very similar to those who have gone through a traumatic ordeal (Stevens 192-3). Not only is the law itself vague and confusing, but those physicians who attempt to follow it still react to doing this new description of their job with feelings akin to those of committing a crime.

Other physicians have reported “feeling intimidated and coerced by the family and patient to participate in assisted suicide,” caught between loyalty to their job and their personal problems with being asked to assist in the death of one of their patients (Stevens 194). Put plainly, participating in PAS or euthanasia “may have a profound harmful emotional toll” on the doctors involved, and it is this toll that is all too often ignored in discussions of legalization of PAS (Stevens 195, 200). Some from both the pro- and anti-euthanasia sides of the argument offer

continuous sedation, or CS, as a less emotionally taxing alternative for both patients and physicians. Some physicians, however, find it equal in levels of emotional impact on the healthcare professionals involved, while others prefer euthanasia for its instant effects, rather than the slow, sometimes emotionally painful process of sedation, which can sustain the grieving process for days to weeks. Due to these combined factors, studies have shown that in places like Oregon, where PAS is legalized, *physician-assisted* suicide is transitioning towards *assisted* suicide, with physicians distancing themselves and becoming “decreasingly present at the time of assisted suicide,” for reasons of their own health and the dangers of their ideals affecting their treatment methods (Stevens 200). Overall, being involved with PAS, legally or otherwise, has been shown to have a negative effect on the health of physicians, and one must decide whether this suffering is outweighed by the possible suffering of patients when left with options such as palliative care, sedation, or VSED.

Religious Perspectives

As one might imagine, religious groups within America and around the world have varied views on PAS, as there is an abundance of differentiation between even the different branches of Christianity. However, many Christians and Muslims are against suicide and murder and, by proxy, physician-assisted suicide and euthanasia, as they conflate the terms. The Care Not Killing alliance formed in the UK in 2006 to fight against the legalization of assisted dying is focused more on defeating pro-PAS legislation than on discussing possible gray areas or proposing alternatives, but it is a good indicator of religious opinions, as it is an amalgamation of “a range of largely religious organizations opposing assisted dying and citing evangelical moral rhetoric” (Shaw 341). In fact, multiple studies have found that “religious beliefs are the main predictors of opposition to EAS [euthanasia and PAS] among [the] general population,” and that this link between opposition to EAS and religious belief is found in healthcare professionals as well as the public (Yousef 64). For a more comprehensive view of some reasons why religious believers are against the legalization of PAS we can look to Islam and Christianity, the two most populous religions in the world, which offer a multitude of reasons.

One aspect of reasoning for being against euthanasia that both religions share is the belief that suicide is a sinful, forbidden action that will be punished, in either this life or the next. Although this is certainly not held throughout every branch of Christianity or every follower of Islam, it is one of both belief systems’ main traditional beliefs. Within Islam, “active euthanasia is prohibited and killing an innocent human being is one of the major sins,” essentially equating euthanasia with murder (Yousef 64). What is interesting about some of the ideology involved with the Islamic anti-PAS standpoint is that it directly intersects with the kind of discussions within and emerging from the disabled community: “suffering as a result of disease does not rob [a Muslim] of his dignity,” although, in this case, that dignity is maintained while his spirit benefits from being tested (Yousuf 65). In addition, the Islamic Medical Association is publicly against the legalization of PAS, focusing on research which shows that the desire for euthanasia often stems from untreated psychological or emotional turmoil. The traditional Christian position, based on writings and beliefs from thousands of years ago, is similar to this Islamic perspective, with suicide equated with murder and seen as an affront to God.

Where Medicine Goes from Here

Possible answers to these existent issues within the argument for and against euthanasia and, more specifically, physician-assisted suicide, are widespread and varied. More clarification within the legal statutes currently in existence is needed, as is a clear distinction between what is and what is not acceptable practice. For example, the issue of which patients can—or should—take advantage of PAS is one which has helped divide pro- and anti-PAS groups for the entirety of the movement’s history in America. Terminally ill patients being given more control over their fate is not a bad idea in theory, but the language used, such as “dignity,” works to both insinuate that those with disabilities are inherently living undignified lives, and put disabled patients at risk. Those states

which have legalized PAS have not done so in an orderly fashion, as in some of the cases previously discussed, the hospitals involved in patient care take advantage of the gray areas of the law, attempting to cut their “losses” by ending end of life care through a form of euthanasia. The financial aid branch of the American healthcare system has also not been properly integrated into the equation, as in the case of Barbara Wagner, wherein she was offered the option of euthanasia over her wish to live and for her medication to be covered. This kind of prioritizing of euthanizing patients over treating them is exactly the kind of scenario which worries those who are anti-PAS, and it illustrates the open door to abuse and “culling” behavior currently within the PAS movement’s legislation and outlook.

These systems, then, must be integrated, both legally and through increased widespread physician training in both palliative care and how to handle situations in which patients request euthanasia, either assisted or patient controlled. Emotional and mental support systems such as mandatory mental health checks and therapy sessions after being involved with PAS cases could help alleviate the negative emotions felt by physicians; and, importantly, systems should be implemented with which physicians can have their own choices respected as to whether they are personally comfortable with being involved in euthanasia cases. By ensuring that the only physicians involved in PAS cases are those who consent to be, patient-doctor relationships and the level of care should theoretically increase in quality, as neither party is being forced or coerced into an uncomfortable, emotionally damaging position. Through taking these steps, the state of PAS in America can improve, and medical professionals can begin to find a middle ground with those who are stringently for and against the legalization of euthanasia.

Conclusion

Throughout nearly half a century of legislation, organization, and debate, the waters of the euthanasia movement have been decidedly gray. Balance between a patient’s right to control their life until the very end of it, maintaining a healthy patient-doctor relationship, and ensuring that marginalized groups are not pushed into harms way in the process, is inherently incredibly difficult to achieve. By examining the histories of legislation within the United Kingdom, the Netherlands, and the United States, one can see an unfolding evolution from WW2-era eugenics-tinged politics to debates focused on the inherent dignity all humans maintain, and what exactly that dignity entails. Case studies, especially those from the United States, are especially exemplary of what exactly the possible dangers of legalized PAS entail, as well as why patients wish to fight for their right to “die with dignity.” While I personally am against the widespread legalization of PAS as it stands, by streamlining the laws which are already in place, integrating them with the hospital and medical insurance systems of the United States, and clarifying the many vague aspects of these laws, progress can be made towards building a system in which both patients and physicians are respected. ◀

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HOW GUNS N' ROSES CRITIQUED REAGAN'S AMERICA WITH "PARADISE CITY"

By Avery Locklear

The 1970s were trying times for American citizens. Unemployment rates rose, wages fell, opposition to the Vietnam War grew, and bitter race relations intensified. Part of Ronald Reagan's successful 1980 campaign included promising Americans that these problems would evaporate after he initiated a return to "traditional" American values, as defined by an organization called the Moral Majority. These conservative moralists crusaded against activities they associated with self-indulgence and promiscuity. The new president agreed with the Moral Majority that bad morals endangered family, faith, upward mobility, patriotism, and hard work. This was a rejection of liberal values associated with the sixties, which the new president saw as permissive and dangerous. A return to American prosperity and social consensus depended upon adopting a socially conservative attitude defined by Christian morals.¹ Even though mainstream popular culture of the 1980s often took its tone from this conservative turn, becoming more corporate and focused on depicting upwardly-mobile white-collar lives as normative, a new heavy metal rock band named Guns N' Roses offered up an alternative vision of individualism and success rooted in a hedonistic identity in their debut album *Appetite for Destruction* (1987).

Guns N' Roses came into existence in 1985 on the streets of Los Angeles. The band began when high-school dropout, Axl Rose, and his childhood friend, Izzy Stradlin, left their working-class families in Indiana and moved to California in the early 1980s. After short stints in bands such as Holly Rose and L.A. Guns they created Guns N' Roses. The band included two locals, old friends Slash and Steven Adler, and Seattle native Duff McKagan.² Guns N' Roses formed during a time when heavy metal, popularized in the 1970s by blues-based AC/DC and Led Zeppelin, moved away from its roots and adopted a pop rock sound known as hair metal. Guns N' Roses reintroduced a raw sound and in 1986 Geffen Records acknowledged the band's potential, signing Guns N' Roses and giving them a larger audience outside the Hollywood rock scene.

Meanwhile, in a joint radio address on October 2, 1982, the president and his wife Nancy Reagan clearly linked drug abstinence and success. The couple stated, "Drugs are bad, and we're going after them," and announced the adoption of a zero-tolerance drug policy.³ This "war on drugs" threatened rock artists because of the central role drugs played in the music's culture since its inception. Also, the newly-established MTV portrayed musicians' blatant drug use as a recreational activity.



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HOW GUNS N' ROSES CRITIQUED REAGAN'S AMERICA

The “War on Drugs” campaign targeted MTV’s audience with its Rock Against Drugs (RAD) campaign, which had musicians appear in public service announcements warning their fans about drug use. But, these attempts proved misguided as the artists, such as Gene Simmons, tended towards the unhip and out of date. The commercials came across as scripted and insincere, proving that Reagan was out of touch with America’s youth. Reagan’s America insisted on conforming to accepted conservative ideals and lifestyles that included a college education, a white collared job, and expensive taste. In reality many young people idolized bands like Guns N’ Roses because they represented individuality, rebellion, and a new generation.⁴

Another key element in the conservative attack on rock n’ roll was the Parents Music Resource Center (PMRC). A self-styled consumer advocacy group, its members condemned songs and videos with lewd lyrics and images as unethical and malevolent. In 1984 spouses of influential men in Washington, D.C., including future Second Lady Tipper Gore, formed PMRC. Known as the “Washington Wives,” they made the Recording Industry Association of America put “Parental Advisory” stickers on albums so that young listeners would not accidentally or could not secretly buy music considered unfit.⁵ PMRC worried about teenagers who listened to and idolized people extolling sex and drug use. Dee Snider, a targeted heavy metal musician, argued that the Washington Wives misinterpreted his lyrics so as to forward an agenda of cultural cleansing.⁶ Moralists responded that their work helped children make the right choices in life, including conforming to their parents’ values. So, the point of contention between the PMRC and artists was really about who had more influence over young America’s values: families and trusted adults or the music industry? Guns N’ Roses’ music, especially “Paradise City,” sat right at this point of conflict—it spoke for children who challenged their parents’ values and goals. This was, in part, because it was who the majority of the band members were: young Midwestern expats who found the allure of sex, drugs, and partying in L.A. They rejected the middle-class lifestyle their parents envisioned for them with its routine job, white-picket fence house, and family.⁷

Even though the conservative moralists attacked the lifestyle and creativity of rockers, the Los Angeles scene was an oasis for rock culture because it shielded musicians from outside criticism. This was a place where people easily found drugs, performed low-profile gigs, got noticed, and made connections with the entertainment industry. Slash remembered Los Angeles as a place where if a person “had an ounce of talent and a taste for drugs and alcohol, their unhealthy appetites could easily be sated.”⁸ Easy success appealed to many aspiring artists who rejected Reagan’s association of clean morals and hard work with material success. While many rockers saw the Los Angeles scene of sex, drugs, and partying as a gimmick, Guns N’ Roses made it their lifestyle. A 2017 *Rolling Stone* article looked back at the group’s struggle prior to *Appetite for Destruction* and described how the band lived out of their suitcases, relied on strippers for booze and food, and lived in ways that would not have been tolerated in their hometowns. The band developed a reputation because their troublemaking lifestyle made it difficult finding managers, producers, and even facilities that were willing to tolerate their antics. The band’s Geffen A&R

In this piece of social and cultural history Avery Locklear demonstrates a keen historical ear by connecting two seemingly disparate voices: President Ronald Reagan and Axl Rose. She demonstrates the ways in which “Paradise City,” a Guns n’ Roses’ hit from their debut album *Appetite for Destruction* (1986), critiqued the culture of the conformity espoused by Reagan and the Moral Majority. This is a particularly solid piece of undergraduate historical research. Locklear has asked an important question—“do we understand how this piece of music was misunderstood in its time”—and offers up a reinterpretation of the band and its song as a piece of music with a social conscience. This is not what people think of when they hear “Paradise City,” but considering her work they should.

—Ryan Anderson

representative, Tom Zutaut, recalled that the band lived a life of sex, property damage, booze, and hard drugs, and that their actions could only be explained as “getting in drug rages and going berserk.”⁹ This was not a group of men who fit into the mainstream.¹⁰

Appetite for Destruction was not an immediate success. PMRC prohibited the band’s use of Robert Williams’s cartoon-style album cover because it depicted a sexy damsel whose panties were below her knees and breast exposed. Williams drew it in a way that insinuated that a mechanical monster hovering above had raped her.¹¹ The cover was offensive, even as it delivered a scathing commentary about human nature and what Axl Rose described as America’s “appetite for destruction.”¹² Geffen Records recognized the problem and created new album art for retail stores. The record had problems getting exposure because MTV initially shunned the video for the single “Welcome to the Jungle” after right-wing conservative John Malone, a telecommunications mogul warned MTV’s founder Bob Pittman that if he played “dangerous junkie bands he’d knock MTV off his cable networks.”¹³ Finally at 4 a.m. in the fall of 1987 “Welcome to the Jungle” aired and became frequently requested, bringing attention to the album.

Appetite for Destruction dominated the rock scene and restored grittiness and realness to metal that glam rock and hair bands had lost. The album was split into two sides. Side “G” stood for “Guns” and the first six songs dealt with violence and debauchery, and side “R” stood for “Roses” and included the last six songs that focused on love and sex.¹⁴ William Giraldi’s 2007 article, “In the Jungle: My Axl Rose Years,” expands on how the album used the jungle as a metaphor for competition, confusion, inspiration, disappointment, and—sometimes—success. This resonated with America’s youth who questioned whether or not living on the straight and narrow would bring them personal fulfillment.¹⁵ In one *Loudwire* documentary, an array of respected rock artists tab Guns N’ Roses’ authenticity as the key to the album’s success. That the band did what they wanted despite the consequences represented what many young people found cool at the time.¹⁶

“Paradise City,” with its famous rallying cry of “Take me down to the paradise city where the grass is green and the girls are pretty” is the album’s sixth song.¹⁷ Rose admitted that the cry was about “being in the Midwest or somewhere.”¹⁸ In this song, the idea of “paradise” is analogous with Reagan’s association of the region’s work ethic and the American Dream. Guns N’ Roses, with their roots in the region, defied these romanticized ideas by leaving their hometowns for Los Angeles and its rejection of conservative values. Instead, band members daydreamed of Los Angeles, the place where they truly felt at home. The city was a refuge because it gave them their freedom. Slash described Los Angeles as “a fucking paradise” because a person could do whatever they pleased.¹⁹ His depiction of the City of Angels as a paradise is a key to the song’s true meaning—the idyllic Midwest was a myth and the party scene of L.A. was real. The band thus ridiculed Reagan’s vision of the American Dream by suggesting that aspirations and happiness are not confined to a conservative definition, but whatever an individual desires, whether moral or immoral.

The song was the band’s group effort and they created “Paradise City” towards the end of the “Hell Tour to Seattle,” when the band was on the road and longed for Los Angeles’ comforts. While it certainly was a party celebrating cutting loose and having fun, it also had a deeper political message in that it also criticized how contemporary society limited personal freedoms and encouraged rebellious behavior. The tune argued that success was ill-defined and that it was not the loose morals of rock culture that was responsible for the country’s grievances. “Paradise City” criticized middle-class aspirations and appealed to listeners who thought doing what they wanted despite social expectations was the key to satisfaction. If it was not for the song’s unequivocal metal sound, “Paradise City” could be mistaken for a sixties protest song with its lyrical focus on individualism and rejection of institutional authority. Certainly it had a deeper political message than the album’s other songs, but the theme of rebellion weaves throughout the whole album. That said, the band’s use of rebellion as a theme rarely came close

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to encouraging some sort of activism; it mostly serves as a tool that the band used when aiming grievances against some sort of amorphous authority figure.

The first verse discusses the government's inability to stop Guns N' Roses from abusing drugs and alcohol. Guns N' Roses saw themselves as outcasts from society because of their addictions to drugs and alcohol. The band described themselves as "urchins" and adopted the idea of being mischievous and different because of their hardcore lifestyle. Guns N' Roses also addressed Reagan's "War on Drugs" by saying they will be a "hard case that's tough to beat," meaning that they will not change their lifestyle to conform to society's accepted notions of success.²⁰ The rest of the verse deals with the band's early beginnings in Los Angeles and how they were poor trying to find success. Singing "I'll pay you at another time" emphasizes that the band knew success would come despite not conforming to the Moral Majority's vision.²¹

The second verse focused on the idea that success was not confined to Reagan's idea of having to follow strict traditional roles of education, white-collared jobs, and a family. The first two lines, "Rags to riches or so they say/ Ya gotta keep pushin' for the fortune and fame," reiterates the idea that it is possible to obtain success through an unconventional manner even if society disapproves.²² Reagan's American Dream was based on the values of fairness, hard work, and righteous morals, but Guns N' Roses communicated that not everyone could achieve success by following those standards. The band still embodied the American Dream of working hard for upward mobility, but conservatives did not accept them because they did not follow the accepted guidelines for success. They described life as a gamble and that not everyone will succeed, and this contradicted Reagan's preaching of success being gained if a person follows the values of the American Dream.

The final two verses criticized Reagan's demonization of drug use. "Strapped in the chair of the city's gas chamber" symbolized the band's drug use, specifically marijuana, and how the government condemned drug use, claiming it to lower the citizen's morals. The band's reference to the Surgeon General stating the air is "hazardous to breathe" mocked the various government attempts at denouncing drug use. "Captain America's been torn apart" references hardships the country faced during the 1970s, and criticizes Reagan's belief that the grievances of race relations and the Vietnam War are attributed to the demoralization of Americans.²³ Throughout the song Guns N' Roses contradicted this statement by arguing the successes they experienced came from living as individuals instead of conformity. Reagan's belief in the "good 'ole days" was thus critiqued as a pipe dream because restoring America to an earlier period was impossible—too much had changed in American society and culture since the fifties. The new generation grew up in different circumstances and developed a different outlook on life, so they cannot be expected to act like earlier generations.

"Paradise City" was popular and its video played a major role in that success. Nigel Dick directed the clip and featured live concert footage that allowed fans to see themselves. Followers associated with the band because Guns N' Roses represented being hip, cool, and rebellious. Refraining from any sexual, drug, or alcohol related references the band asserted that their intention was to be individuals and have a good time, and that they were not trying to corrupt the morality of their listeners. The video was a major success and became the most requested video in MTV history.²⁴

Appetite for Destruction remains an influential album because it resonates with different types of people. It brought attitude, swagger, and honesty to the 1980s that had been lost because of the increasing pressures to conform to what corporate influences thought would sell on the radio and television. *Appetite for Destruction* captivated America's youth with Axl Rose's powerful voice and Slash's superior guitar playing, giving them role models who encouraged their individuality and rebelliousness. After *Appetite for Destruction* the band never again reached the level of importance that they had achieved with their debut album. Created in a "fog of drugs, alcohol, and domestic drama," the album proved an early peak of the band's career. Though some people focus on 1991's *Use Your Illusion* double concept album as the band's high point, it is *Appetite for Destruction's* resentment

of established authority, rooted in the context of Reagan's late 1980s America that created lasting music that remains popular today.²⁵

The historical moment that made “Paradise City” meaningful faded within a few short years. George H.W. Bush assumed the Office of the President in 1988 and his moderate conservative approach focused on foreign rather than domestic issues. Bush was not as concerned with making Americans conform to conservative morality, depriving Guns N’ Roses of a useful foil against which to position themselves as rebels. Without the rebellious attitude of the 1980s the band became plagued with problems ranging from personal issues to substance abuse. By the early 1990s Guns N’ Roses had separated and a sparser stripped down image and sound of punk—reimagined by record executives as “grunge”—was all over the airwaves with bands like Nirvana leading the charge and metal bands like Guns N’ Roses left behind as relics of a bloated and indulgent decade. Still, the band created a lasting impact. Their resistance to conform, unique vocals, and aggressive sound became influential to the grunge bands that took their place. “Paradise City” remains an influential song that addressed serious social issues by breaking the barriers of conformity President Reagan had established on an album that was unapologetically heavy metal. ◀

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LEATHERBACK SEA TURTLES: AN ENDANGERED SPECIES

By Carolina McMillan

Introduction

Leatherback sea turtle populations have declined by nearly 97% over the past half century (National Geographic 2017). Their populations are at risk of going extinct in the wild and they are listed as an endangered species throughout their range, because populations continue to decline at an alarming rate (NOAA 2016). Human activity has taken a huge toll on the leatherback sea turtle population. Conservational efforts are crucial in preserving the leatherback sea turtle as a native and wild species in North Carolina (NCWRC 2005).



Life History Characteristics

Dermochelys coriacea, more commonly known as leatherback sea turtles, are characterized by their shell, because they are the only species of sea turtle with a thick, leathery shell rather than a bony shell (Kasnoff 2017). They are the largest of any living species of turtles and one of the largest reptiles on earth. They can weigh up to 2000lbs and stretch 6.5 feet long. They can swim deeper than any other turtle, in depths of 4200 feet, and survive in freezing regions of the world. The shell and flippers are majority black, while the underside of the turtles is a pinkish-white (NOAA 2017). Their diets consist of majority soft bodied organisms such as jellyfish, and pyrosomes, because they do not have chewing plates made for crushing as observed in other species of sea turtles (NOAA 2017).

Leatherback sea turtles are a circumglobal species, meaning they can be found in vast regions of the world (Kasnoff 2017). This is because these sea turtles are a migratory species. They have been sighted throughout all the world's oceans. Not only is this species unique among sea turtles for not having a characteristic bony shell, but its leathery shell along with other adaptations allows for the turtles to swim in freezing water conditions (National Geographic 2017). Leatherbacks can survive in subzero waters in cold ranges as far as Alaska, Norway, and Iceland where you would typically not find any other species of turtle. This is because they have undergone thermoregulatory adaptations (NOAA 2016). However, leatherbacks make their nest on the tropical beaches of the Indian, Pacific and Atlantic oceans (Kasnoff 2017).

Leatherback sea turtles mate at sea and females come ashore at nightfall to create a nest and lay their eggs (National Geographic 2017). They can lay between 80 to 150 eggs at one time; however, very few of these will survive into adulthood. Females go through a 3-4 month nesting period in which they may lay between 7-11 different nests, going back to sea, but remain close to shore between each one.

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After their nesting period is complete the female will remain in a migratory period anywhere from 2 to 5 years before returning to the same beach to nest again. After the eggs are laid they must survive against predators for up to 60 days before being hatched and then the hatchlings must survive their walk from the shore into the ocean. The female hatchlings will take 15 to 25 years to sexually mature before beginning to lay their own eggs (The Leatherback Trust 2017). There are estimated to only be 34,000 nesting females left in the world, which can be compared to roughly 120,000 nesting females just 40 years ago (Jones et al. 2012). The United States Fish and Wildlife Services estimated that one in every one-thousand sea turtles survives to be an adult (U. S. Fish and Wildlife Services 2009).

Breeding populations are distinct from one another, and all are in a consistent decline (NOAA 2016). The turtles are divided biologically and geographically, by their migration pattern, into two subspecies known as the Atlantic leatherback and the Pacific leatherback. Both subspecies of leatherback sea turtle populations face threats that are detrimental to the survival of the species (Kasnoff 2017). The Atlantic leatherback has been observed along the coasts of the eastern United States. There are known nesting grounds in Florida and leatherbacks have been spotted off the beaches of North Carolina. It is often hard to keep track of the population size in different areas because they do not come to shore outside of their nesting periods, and sightings often go undocumented. The North Carolina coast is within the migratory pattern of Atlantic sea turtles and a decrease in sightings is alarming because it suggests a decrease in migrating individuals. Adult leatherbacks have a much broader range than juveniles, who tend to stay in waters 79 degrees or warmer (NAOO 2016). A decrease in sighting along the North Carolina coast suggests substantial portions of the sea turtle populations are not surviving into adulthood (NAOO 2016).

Threats to Existence

Overexploitation, habitat loss, pollution, and irresponsible fishing all take major tolls on the leatherback sea turtle population (Kasnoff 2017). Threats towards leatherbacks' survival begin before they are hatchlings. Eggs are buried in the sand on beaches and incubate for up to 2 months before hatching. These eggs can be crushed by human activity or sought out because they are considered a delicacy for consumption in some cultures. The eggs are threatened by natural predators, like gulls and crabs, and are used in some traditional Asian medicines. To increase relative fitness leatherback sea turtles will lay hundreds of eggs during one nesting season (The Leatherback Trust 2017). However, expansions of hotels and human activities has been shown to scare away females and discourage them from laying their eggs. Roughly 25% of laid eggs will result in hatchlings that will make it to sea (The Leatherback Trust 2017).

Once at sea, the turtles are faced with many other challenges. Irresponsible fishing leads to drowned turtles after they become caught in nets and are unable to return to the surface for air (Kasnoff 2017). Shrimp trawling includes dragging nets and collecting everything that gets in the way of capturing shrimp. It is a wasteful

In clear language, Carolina's paper captures the challenges facing the largest, and one of the world's most endangered, sea turtles: the leatherback. Dangers exist from the time eggs are laid on sandy beaches to the time that adults navigate the open sea. Just a small fraction of all leatherback eggs result in mature turtles. And although this species is well adapted to the harsh conditions of the open sea, it is here that the adults are inadvertently caught on longlines intended for fishes, or they become victims of floating plastics, which they mistake for food. Drawing from the scientific literature and the internet, Carolina presents sound solutions to stem the tide of population declines.

—Lisa Kelly

fishing method that often results in the death of sea turtles and many other organisms. Leatherbacks often find themselves the victim of bycatch, because quotas for fishing are so demanding (Dunn et al. 2008). Fishermen often use methods to catch as much as possible as quickly as possible to meet demands for their market. Unfortunately, these methods are not always ecofriendly and kill many unwanted, sometimes endangered, species. To help monitor the number of bycatches of sea turtles the National Oceanic and Atmospheric Administration collects mandatory data (Howell et al. 2015). In 2000 a fishery in Hawaii was shut down when the number of captured sea turtles rose to an alarming rate. The fishery reopened four years later; however, its closing led to a change in the hooks used for longline fishing. The gear was modified which successfully eliminated much of the bycatch of sea turtles (Dunn et al. 2008).

Pollution also has a profound effect on leatherback sea turtles, because they are often killed when they consume plastic (Kasnoff 2017). Plastic is easily mistaken by the turtles as their favorite meal: jellyfish. A recent study found plastic in the stomachs of roughly 50 percent of leatherbacks. Their stomach contents contained plastic bags, balloons, and other forms of plastic that can easily be mistaken as a jellyfish when at sea (Kasnoff 2017). The Center for Marine Sciences and Technology (CMAST) of NC State University responded to a stranded 700-pound leatherback in Atlantic Beach (CMAST 2015). Unfortunately, the turtle did not survive. Plastic was found along the leatherback's GI track and evidence of force submergence was present. Both seem to have played a role in the animal's death. While the turtle could not be saved, its remains provided an educational opportunity for scientists to better understand leatherback biology and human impacts on them (CMAST 2015).

Climate change is an increasingly growing threat to sea turtle populations (Dudley et al. 2016). Migratory patterns of sea turtles are deeply imprinted. They will swim the relatively same course and nest on the same beaches throughout their lives. Climate change would change the landscape of the land. Due to melting ice caps and a rising global temperature, beaches are beginning to disappear as sea levels rise. Sea turtles rely on the sands of beaches to incubate their eggs. The incubation temperature also influences the gender of the hatchlings. Scientists predict that increased nesting temperatures would result in a widely disproportional population with many more females than males. This can potentially cause a huge loss in genetic diversity. Warming oceans will impact the food resources available to turtles as well (Dudley et al. 2016).

Species Management

Many federal and state programs have been implemented to aid in halting the decline of sea turtle populations. Leatherback sea turtles are protected under the Indian Ocean-South-East Asian (IOSEA) Marine Turtle Memorandum of Understanding (NOAA 2016). IOSEA works to track sea turtles using satellites and to educate the public on how they can help stranded individuals. The North Carolina Sea Turtle Protection Program was created by the NC Wildlife Resources Commission to protect nesting beaching in North Carolina and to document reproductive successes and mortality rates (NCWRC 2005). The Convention on International Trade in Endangered Species of Fauna and Flora (CITES) protects the leatherback sea turtle from being imported and exported in the United States (Kasnoff 2017). This means the United States does not support or help drive the sea turtle market in which leatherbacks are being captured, bred, bought, and sold for consumption or other purposes.

Leatherback sea turtle protection has made changes in the fishing industry by changing the nets and hooks used in commercial fishing (Kasnoff 2017). The United States has required the use of Turtle Excluder Devices when shrimp trawling (Kasnoff 2017). This creates a backdoor for sea turtles to escape when caught in nets. Hook modifications in the longline fishing industry have reduced the mortality of sea turtles (Kerstetter 2006). Previously, the pelagic fishing industry used J-shaped hooks when fishing for tuna and swordfish. These hooks resulted in a larger number of bycatches, which included leatherbacks. The industry altered its hooks from J-

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shaped to circle hooks. The circle hooks can greatly reduce the amount of bycatch without significantly affecting the rate of commercial fish caught (Kerstetter 2006).

There is a turtle rescue and rehabilitation center in North Carolina that will take in injured turtles in the hopes of nursing them to health and releasing them to the ocean once again (Karen Beasley Sea Turtle Rescue & Rehabilitation Center 2017). However, it is hard to captively breed leatherback sea turtles or to keep them in captivity for extended periods of time because they cannot swim in reverse and often run into the walls of their tank (Kasnoff 2017). Also, the leathery skin of the turtle's shell is extremely fragile and will often abrade when kept in captivity for an extended amount of time (CMAST 2015). This can cause fatal infection for leatherbacks. While keeping leatherbacks in captive settings is difficult, the Karen Beasley Sea Turtle Rescue & Rehabilitation Center has successfully rereleased hard-shelled turtles over 85% of the time (CMAST 2015). The best approach to the conservation of sea turtles is to eliminate the obstacles that disrupt their natural environment and life cycles (Kasnoff 2017).

Mature female leatherbacks have been tracked to better understand their migratory habits and the threats they may face on these journeys (Jones et al. 2012). This research also aids in understanding the types of resources leatherbacks need to survive so that we can better supply ideal environmental factors so badly needed by the declining population. Common nesting areas are also examined to understand the preferred settings of the turtles, which will aid in the reproductive success of the species (Roe et al. 2013). It was found that increased tourism can change the physical environment of the shore as well as the abiotic factors of the ocean. Nesting areas with low to no tourism had the common characteristics of lower slopes, and a lower pH. These changes may appear insignificant to humans, but have a profound effect on whether a leatherback sea turtle will decide to nest. Nesting of leatherbacks occurs 3.4 times higher in underdeveloped locations than in more heavily populated areas. Leatherbacks return to the same beaches each time they nest, therefore protecting their common nesting sites is crucial in saving the population (Roe et al. 2013). A TurtleWatch program has also been introduced that maps the ocean's thermal habitat and predicts the best locations for sea turtles (Howell et al. 2015). This can help us better find areas where we should be seeing turtles, but are not. This product will also give scientists a better idea of where the best environments for these turtles are located so that we can take the steps necessary to preserve them (Howell et al. 2015).

Public Opinion

Leatherback sea turtles are not the most aesthetically pleasing of the sea turtle species, nor do they serve a recreational or consumption use in the United States; therefore, they are often undervalued. However, with increased education public perception of the species can be shifted. The public is not as familiar with leatherback sea turtles as they are with other species of sea turtles. Americans often show more compassion towards the green sea turtle, because it is marketed as a beautiful animal in the United States. They can be bought as stuffed animals, found printed on clothing, and replicated in jewelry and interior décor. All species of sea turtle populations are deteriorating and are affected by the fishing industry of the United States (US Fish and Wildlife Service 2009). Scientists often promote the declining sea turtle populations while using images of green sea turtles to receive public attention. Pushes to be more turtle-friendly for one species in the fishing industry would benefit all species of sea turtles (Sea Turtle Conservancy 2017).

Outlook

In 1970, the leatherback sea turtle was declared an endangered species; however, in 2012 it was listed as critical along the coastal regions of the United States (NOAA 2016). Recently scientists announced that sea turtle numbers were on the rise for the first time in almost half a century (Daley 2017). The conservational efforts over

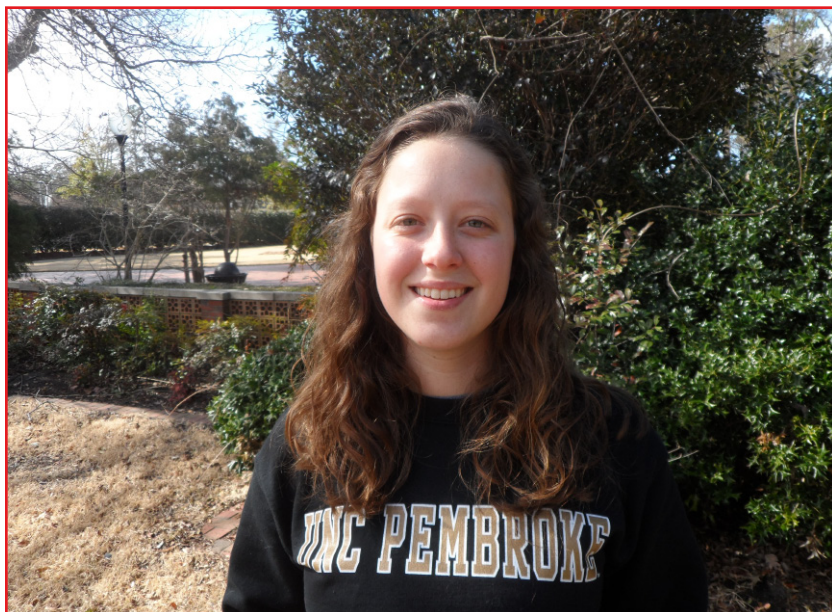
the past 47 years have proved to be effective. However, this does not mean conservation efforts are done. Removal of any federal status could be detrimental to sea turtle populations (Daley 2017). Studies of their nesting sites, migratory patterns, and biggest threats can help scientists to better understand our next steps in sea turtle conservation. Making modifications to fishing gear, rehabilitation of injured and sick turtles, and increased education of the species to the public all play important roles in halting the extermination of the species (National Geographic 2017). Regulating global climate change is essential in aiding in future trials that the species will face (Dudley et al. 2016). Current conservation efforts can keep the species' population from declining; however, if their beaches are washed away due to climate change the species will be beyond saving. It is important to prepare for future devastation while simultaneously assisting the current challenges of leatherback sea turtles (Dudley et al. 2016). ◀

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REESTABLISHING THE ELUSIVE KEMP'S RIDLEY SEATURTLE

By Hannah Swartz



Born and raised in Florida, Hannah now lives in North Carolina with her husband where they enjoy spending their time in the great outdoors. While attending UNCP she has enjoyed studying conservation, ecology, and environmental science. She is currently involved in research ranging from invasive species to important pollinators and hopes to continue doing so in graduate school.

Introduction

L*epidochelys kempii*, otherwise known as the Kemp's ridley sea turtle, is the smallest and most endangered of the sea turtles (Southeast Sea Turtle Coordinator 2016; Wetzell et al. 2007). Its nests are found in small but increasing numbers on beaches along the Eastern Seaboard (Southeast Sea Turtle Coordinator 2016). This can be attributed to the push for turtle excluder devices aboard fishing vessels. Many local North Carolina conservation groups, like the Sea Turtle Advisory Committee, are pushing for further regulations in select fishing gear such as pound nets and gill nets

(Donnelly 2007). Protection of their nests has also allowed this species to regain their numbers along the Gulf of Mexico (Crowder and Heppell 2011). With the help of the Karen Beasley Sea Turtle Rescue and Rehabilitation Center and their passionate volunteers, artificial reefs have been put in place to create environmentally friendly habitats for sea turtles like the Kemp's ridley (Frankel 2012). Even though this species is still few in numbers, it can someday be removed from the endangered species list with the help of research, public investment, and greater conservation efforts.

Characteristics

The Kemp's ridley sea turtle, scientifically known as *Lepidochelys kempii*, is one of the smallest species of sea turtles, with the adult weighing only up to 100 pounds and reaching a little over two feet in length (USFWS 2016). They are distinguished by a slightly hooked beak and a head shaped to a point resembling a triangle. Currently, this species of sea turtle has been listed on the Federal Register as endan-



Kemp's ridley hatchlings (Adrienne McCracken in Crowder and Heppell 2011).

gered all through its range since the late 1970s (Southeast Sea Turtle Coordinator 2015). Human impact is a major contributor to the status of this species. Many conservation groups, such as Network for Endangered Sea Turtles (NEST 2016), refer to the Kemp's ridley as a critically endangered species.

The habitat for this species is well defined, as they are primarily found in salt marshes and the shal-

low waters of the Gulf of Mexico; Kemp's ridley sea turtles are rarely found in deep waters (NEST 2016; NOAA 2015). These areas tend to be located near large bodies of water or swamps that seasonally connect to the ocean, which are referred to as neritic zones (NEST 2016; NOAA 2015). A neritic zone consists of sandy, muddy bottoms filled with prey, such as small fish, crabs, and mollusks, which make up the diet of this sea turtle. While most Kemp's ridleys remain in the Gulf of Mexico, many get swept up through the Atlantic Ocean from the Gulf Stream. As a result, they've been observed locally in Pamlico County, North Carolina (USFWS 2016). The male Kemp's ridleys tend to stay stationary, occasionally migrating from breeding and feeding areas annually (NOAA 2015). The females, however, migrate back and forth between nesting grounds. Individual females tend to have a preferred hunting route which alludes to migrating with a goal. This differs from their relatives, the olive ridleys, which have a more wandering approach.

Reaching sexual maturity around age 12, the female sea turtle breeds yearly (Southeast Sea Turtle Coordinator 2015). During the season, they nest less than three times and lay an average clutch of 100 eggs. The egg incubation can take upwards of two months (USFWS 2016). The Kemp's ridley typically nests during the daytime and on a limited number of beaches (Witzell et al. 2007). A primary stretch of these beaches is found at Rancho Nuevo in Tamaulipas, Mexico. They nest in arribadas, or large groups, which put them at a greater risk for egg collection from predators such as skunks, coyotes, raccoons, and even humans.

Population Trends and Factors

In 2009, there were more than 20,000 nests recorded (Crowder and Heppell 2011). This can be attributed to the Kemp's ridley rapid population growth annually since the mid 1990s. But recently, their numbers have been decreasing (NOAA 2015). Historically, this species has faced many threats from human harvesting of eggs and turtles for collection and meat, yet egg collection was put to a stop in the late 1960s (NEST 2016; NOAA 2015). Their declining numbers are also greatly due to fishing gear incidents (NOAA 2015). Many sea turtles are caught in shrimp trawls and other fishing nets such as gill nets. With bycatch being the primary problem for sea turtles, the National Marine Fisheries Services (NMFS) has created the turtle excluder device (TED) (Witzell et al. 2007). The TED is a trap door that is inserted into fishing trawls to eject sea turtles. This device has significantly reduced sea turtle mortality in fishing incidents.

Populations of Kemp's ridley sea turtles at Rancho Nuevo, Mexico, were an estimated 6,000 nests in the late 1960s when conservation efforts first began (Crowder and Heppell 2011). Ten years later, they were able to double the rates of hatchlings and egg survival. With numbers expanding, they began relocating eggs to increase the species' range and thus increase their chances of survival. Even with this undertaking, the species didn't begin to regain numbers until the implementation of TEDs in the 1990s. From then, growth rate increased fifteen percent annually with an outcome of 20,000 nests present at Rancho Nuevo. Unfortunately, since 2010, species numbers and population trends have begun to decrease (NOAA 2015).

North Carolina's sandy beaches and coastal waters attract several species of sea turtles. Hannah's paper focuses on one of the most imperiled and less frequently observed species, Kemp's ridley sea turtle. The protection of sea turtles requires multiple fronts—legislation, research, management, better fishing practices, and education. Hannah summarizes the challenges the species faces and the many efforts aimed at boosting its populations. One of the more encouraging efforts is that of volunteers who monitor nesting beaches. Readers may be surprised to learn that our state has a hospital just for sea turtles.

—Lisa Kelly

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Conservation Efforts

Since the Kemp's ridley sea turtles migrate through international waters, they require cooperative efforts of different nations (NOAA 2015). This species is protected under the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), which bans international trading, and the Convention of Migratory Species (CMS), which extends protection through the Indian Ocean. They are also protected under the Inter-American Convention for Protection and Conservation of Sea Turtles (IAC), which is currently the only treaty protecting sea turtles exclusively. The sole proprietors of sea turtle conservation are The National Oceanic and Atmospheric Administration (NOAA) and U.S. Fish and Wildlife Service (USFWS). The USFWS mainly protects nesting beaches while NOAA protects the turtle's marine environments. The U.S. Department of State is the agency of law; however, NOAA acts as their advisor on technical issues. With NOAA's development of the TED being a great success for sea turtle populations, the agency is dedicated to creating further devices to reduce bycatch from longline fishery, pound nets, other types of trawls, and scallop dredging.

Rancho Nuevo in Tamaulipas, Mexico, is an area that receives large collections of nesting Kemp's ridley sea turtles annually, and because of this, it has established great conservation efforts (Southeast Sea Turtle Coordinator 2015). In the late 1970s, the U.S. and Mexican governments created a bi-national program to expand their protected territory and since then they have established seven camps on the coast of Mexico. Rancho Nuevo was the first to become a National Reserve for the Management of Conservation of Sea Turtles (Witzell et al. 2007). The reserve's nest protection and monitoring in Tamaulipas has been a key attribute in the recovery of the Kemp's ridley's populations (Crowder and Heppell 2011).

Management in North Carolina

The state of North Carolina has implemented many restrictions and permit requirements for fisheries, which in turn limits the amount of turtle bycatch (McClellan et al. 2009). In the incident of being caught in fishing trawls, sea turtles have a better survival rate in shallow waters. To further reduce incidents, Pamlico Sound has implemented seasonal closure for deepwater fishing (Santora 2003 in McClellan et al. 2009), and as a result has reduced the bycatch rate. With minimal regulations on gill net fishing in North Carolina, it's important to locate and avoid sea turtle habitats to reduce the number of fishing encounters.

Local conservation groups such as the Marine Fisheries Commission Sea Turtle Advisory Committee (STAC), have formed to protect sea turtles from incidents involving fisheries (Donnelly 2007). An average of 480 stranded turtles are washed up on North Carolina shores annually, but research suggests the actual number of casualties are between 2,500 and 5,000. This large difference in numbers is accredited to unsurveyed areas, animals not reported, and currents carrying away carcasses. Regulations exist to reduce incidents with shrimp trawls and gill nets but the STAC has made recommendations to change pound net fishery, which tend to catch and drown smaller sea turtles.

The Karen Beasley Sea Turtle Rescue and Rehabilitation Center and Eternal Reefs have partnered together to build a Sea Turtle Memorial Reef, the first in the United States (Frankel 2012). This artificial reef was inspired by a Kemp's ridley named Dare, a young sea turtle who was rescued in North Carolina in the late 1990s. The reef is located on the North Carolina coast and made of concrete that is environmentally safe. The Karen Beasley Center facilitates injured sea turtles, such as the Kemp's ridley, and treats injuries ranging from fishing gear incidents, boat propellers, and dietary poisoning. Their center is only one of a few of treatment centers specializing in sea turtles within the United States.

Research

McClellan et al. (2009), used Williamson's (1993) predator-prey model to predict the rates of bycatch in

areas of North Carolina, therefore determining at risk fishing areas. The use of known habitats and fishing locations were two major predictors of the high risk areas; this information was considered to be more reliable than data involving sea turtle strandings. This could be credited to the many factors affecting strandings such as sea currents, wind, and tide level. Seasonal closure of sea turtle migratory paths has greatly reduced the levels of bycatch, especially for Kemp's ridley sea turtles.

Braun (1995) produced a study of sea turtle locations based on public sightings and located Kemp's ridleys in the Atlantic Ocean around North Carolina. They recorded the most inshore sightings of sea turtles at Core Sound and Pamlico Sound, respectively. The sightings in the two sounds were provided by commercial fishermen, but since they were too few in numbers, the evaluation was not substantial enough to determine sea turtle abundance in the waters. Pamlico Sound pound-net fishermen recorded greater numbers of Kemp's ridley sea turtles in July through August in contrast to summer loggerhead activity. One other thing noted by Braun's (1995) study is that the size of Kemp's ridley sea turtles increase the further south they migrate while the proportional number increases the further north they are found. This could be due to the amount of immature Kemp's ridley sea turtles found on the coast of the Atlantic (Ogren 1989 in Braun 1995).

A study by Gregory and Schmid (2001) showed Kemp's ridley sea turtles may be more impressionable to stress than other sea turtle species when captured. Since sea turtles are monomorphic, sex cannot be determined simply based on appearance. For management and conservation purposes, it's important to determine their sex accurately yet in a nonintrusive manner. The use of plasma testosterone levels to differentiate female and male sea turtles has been validated by minimal invasive surgery examining the gonads (Coyne and Landry 2000 in Gregory and Schmid 2001). This experiment by Gregory and Schmid (2001) demonstrated that Kemp's ridley sea turtles experience heightened stress when handled, resulting in a hyperglycemic response and elevated plasma levels, which in turn could alter the results in sex determination.

Public Investment

An average of three sea turtle mortalities occur daily in North Carolina waters (Donnelly 2007). Here, local fisherman play an important role in the protection of marine life. When using gill net fishing, fishermen realize the danger of sea turtle incidents and have come together to support the STAC. Recreational and commercial fishermen make up a portion of their representatives and contribute to making recommendations to the NMFS. These recommendations in turn help minimize incidents among sea turtles while protecting the economy of local fishing industries.

Volunteer work is another major contributor to the conservation of endangered sea turtles such as the Kemp's ridley. The Karen Beasley Sea Turtle Rescue and Rehabilitation Center (2016) has been operating in Topsail Beach, North Carolina since 1997. Their mission is to protect marine turtles and rescue those in need. They also work to educate the public and give students worldwide the opportunity to gain experience in the marine biology field. Their staff is entirely composed of volunteers who work towards the rehabilitation of many locally rescued sea turtles.

Future Conservation

NOAA (2015) has worked hand-in-hand with the USFWS to establish fishing regulations in order to minimize sea turtle bycatch. The decreasing number of bycatch incidents can be attributed to seasonal closure to fishing spots and modifications to pound nets, gill nets, and shrimp trawls. They have also played a major role in the implementation of TEDs in shrimp trawls. Although TEDs are not required by law, the U.S. has stated that shrimp harvesting is prohibited if it negatively impacts sea turtles.

Currently, the Kemp's ridley sea turtle have little critically appointed habitat (NOAA 2015). In 2010, na-

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tional agencies petitioned for critical habitat to be designated to the Kemp's ridley sea turtle along the coast of Texas. With their nesting grounds focused in the Gulf of Mexico, many protected Mexican beaches have already been declared, yet the Kemp's ridley sea turtle range reaches upwards of North Carolina. It's important to establish critical habitat along the Atlantic Coast in order to expand the species range.

Crowder and Heppell's (2011) attempts to rehabilitate Kemp's ridley numbers in Tamaulipas, Mexico have played a serious role in conservation. They estimated to have the turtles promoted to a threatened species by the year 2013, but unfortunately the 2010 Deepwater Horizon oil spill had other plans. Their projected annual nesting survival rate of 70 percent was recalculated to a low 35 percent. Although the oil spill didn't affect nesting beaches, vast numbers of Kemp's ridley were known to have entered the oil spill zone. However, with tremendous conservation undertaking, the species still has a chance. ◀

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