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Conservation Officer Safety: An Analysis of Factors Related to Assaults, Use of Force, Accidents, Injuries, and Illness

Robert V. Dunbar

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School of Public Service and Health

Criminal Justice Program

The thesis for the master's degree submitted by

Robert V. Dunbar

under the title

CONSERVATION OFFICER SAFETY: AN ANALYSIS OF FACTORS RELATED TO
ASSAULTS, USE OF FORCE, ACCIDENTS, INJURIES AND ILLNESSES

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CONSERVATION OFFICER SAFETY: AN ANALYSIS OF FACTORS RELATED
TO ASSAULTS, USE OF FORCE, ACCIDENTS, INJURIES AND ILLNESSES

A Master Thesis

Submitted to the Faculty

of

American Public University

by

Robert V. Dunbar

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Arts

October 2013

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Charlestown, WV

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DEDICATION

I dedicate this thesis to the conservation officers of Pennsylvania.

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I would like to thank Colonel Corey Britcher of the Pennsylvania Fish and Boat Commission for providing me with the opportunity to analyze the safety factors of his waterways conservation officers and deputies. I would especially like to thank those officers who volunteered to be interviewed. This project would not have been possible without their data and the Commission's willingness to share it for the greater good.

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ABSTRACT OF THE THESIS

CONSERVATION OFFICER SAFETY: AN ANALYSIS OF FACTORS RELATED TO ASSAULTS, USE OF FORCE, ACCIDENTS, INJURIES AND ILLNESSES

by

Robert V. Dunbar

American Public University System, October 17, 2013

Charlestown, West Virginia

Dr. Alex Ekwuaju, Thesis Professor

The goal of this paper is to assist conservation officers in risk mitigation. The purpose of this study is to identify risk factors affecting the safety of waterways conservation officers in Pennsylvania. Its primary focus is on verbal assault, physical assault, use of force, accidents, injuries and illnesses. This research includes a qualitative analysis of original survey data provided by the Pennsylvania Fish and Boat Commission and the findings have been compared to studies of conservation agencies in Virginia, Florida, and Louisiana. The results indicate that there are similar risk factors for conservation officers of those four agencies. Furthermore, it indicates that the nature of resource use is changing and that natural resource agencies are merging and evolving from a conservation-specific focus to that of a more general police-style posture in order to meet the challenges of changing demographics. This change in responsibilities and focus, coupled with the unconventional nature of conservation law enforcement patrol practices, results in higher risk patrols.

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CHAPTER 1: INTRODUCTION

Statement of the Problem

The purpose of this research paper is to identify factors affecting the safety of waterways conservation officers from the Pennsylvania Fish and Boat Commission. Specifically, those factors pertaining to verbal assault, physical assault, use of force, accidents, injuries and illnesses. The reach of its value could extend beyond that agency, as conservation law enforcement comprises a small niche of policing with similar goals and problems.

This research paper is significant because a study of risk factors related to the safety of waterways conservation officers of the Pennsylvania Fish and Boat Commission has never been conducted before. Furthermore, the agency's training department is actively pursuing data regarding such factors in order to enhance the safety of its officers through training opportunities and modifications to its standard operating procedures and administrative policies, however, there is a scarcity of published data from other conservation agencies to use as a reference (Meier, 2006). Data that is available is difficult for conservation agencies to evaluate because it is not easily accessible to the layman through traditional search engine queries. This project is designed to compare existing research data regarding safety factors specific to conservation officers against the results of an independent study of waterways conservation officers conducted in 2013 by the Pennsylvania Fish and Boat Commission and to make that data available to conservation officers and conservation agencies.

There are disparities between rates of assault and injury to conservation officers as compared to that of traditional law enforcement. Research indicates that conservation

law enforcement has particular dangers that expose conservation officers to assault and injury at a higher rate than that of their traditional law enforcement counterparts (Eliason, 2011). Some of the factors contributing to a higher rate of injury and assault include solo patrols in remote and dangerous terrain with little or no backup and in areas with limited communication options. Additionally, many patrols hours are spent on foot or in a boat interacting with anglers and hunters armed with knives and guns (McSkimming, 2010). This paper is designed to identify and examine the safety factors which are inherent to conservation law enforcement in order to mitigate those risks.

This paper is focused on the safety of waterways conservation officers of the Pennsylvania Fish and Boat Commission. The Commission employs full-time waterways conservation officers and manages volunteer deputy waterways conservation officers. This study is designed to determine whether disparities exist in the use of force, assaults, accidents, injuries and illnesses between these groups. And, if so, what risk factors contribute to those disparities.

A fundamental research problem is determining whether waterways conservation officers are conservation-specialists or law enforcement generalists. Waterways conservation officers in Pennsylvania are sworn state officers with full police powers and they may be experiencing a shift from traditional environmental law enforcement to a more "generalist police-like posture" (Falcone, 2004, p.48). If conservation officers are engaged more in general law enforcement today than they were in the past then there is ample research on officer safety factors relating to general law enforcement which can be useful to enhance their safety.

Much of the research related to law enforcement injuries is focused on assaults,

however, the literature indicates that there is a greater risk of injury due to accidents and job-related illnesses (Brandle & Stroshine, 2003). This is due to the large geographical patrol areas (miles driven), rough operating terrain, use of various patrol conveyances (trucks, ATV's, boats, etc.), unconventional foot patrol terrains (water, ice, forests, etc.), and contact with biohazards and bodily fluids (Forsyth, 2009). This paper is designed to identify causes of accidents and injuries and to help identify ways in which those risks might be mitigated.

Research Questions

This research paper is designed to answer the following four questions which can be used to improve officer safety for the Pennsylvania Fish and Boat Commission and, perhaps, other conservation agencies as well:

1. What risk factors are inherent to conservation law enforcement?
2. Which offenses pose the greatest risk for assault and use of force incidents?
3. What are the risk factors for verbal assaults, physical assaults, use of force, and accidents, injuries and illnesses for conservation officers within the Pennsylvania Fish and Boat Commission?
4. Is there a disparity between the rates for use of force and assaults between volunteer deputy waterways conservation officers and their full-time waterways conservation officer counterparts?

Theoretical Framework

The theoretical framework for this research is based on the premise that there has been a cultural and structural shift in natural resource use and protection which has increased the risks posed to conservation officers through traditional patrol strategies.

The recruitment and retention of hunters and anglers are declining and other non-traditional users of outdoor recreational areas are on the increase. These nontraditional users of state-controlled lands and waters are reshaping the enforcement duties of conservation officers and placing them at greater risk for assault and use of force (Shelley, et al., 2009). There are several reasons why the enforcement of non-conservation-specific laws increase the risks for assault and use of force. Fishing and boating are highly regulated activities and most of the offenses for violations are summary fines. As waterways conservation officers venture further into a generalized policing role, with its enhanced criminal sanctions, they increase their risk of confrontation by offenders they would not typically engage with in the course of enforcing fishing and boating laws. Such offenders often do not recognize the legitimacy of the waterways conservation officer's authority, resulting in assaults and use of force.

The structure of conservation agencies has evolved over the past two decades in response to the changing culture of outdoor recreational users. Conservation officers are now expected to enforce a broader range of state laws. This shift towards more generalized law enforcement duties often subjects those officers to the same hazards confronted by traditional law enforcement without the same structure and safety mechanisms incorporated in traditional police agencies (Patten & Caudill, 2013).

Methodology

Conservation officer risk factors were identified through a secondary analysis of previously published studies and from an original study of waterways conservation officers of the Pennsylvania Fish and Boat Commission.

A cursory examination of the literature suggests that very little research has been

dedicated to issues concerning conservation officer safety. Those studies that do exist, focus mostly on southern regions of the country, namely Florida, Virginia, and Louisiana. Conservation agencies from those states are similar to the Pennsylvania Fish and Boat Commission in that they have full policing powers and enforce fishing and boating laws. The primary conservation researchers which were included in study are Patten (2012), Caudill (2013), Shelley (2009), Falcone (2004), Forsyth (2009), Eliason (2011), Carter (2004), and Stanley (1990).

The original aspect of this research project is an analysis of officer safety risk factors within the Pennsylvania Fish and Boat Commission. In January of this year, the Commission appointed a new director for the Bureau of Law Enforcement. The director requested feedback from both full-time and deputy waterways conservation officers across the six regions of the state. Forty three officers volunteered to be interviewed. The interview consisted of both open and closed-ended questions pertaining to assaults, use of force, accidents, injuries and illnesses sustained during the previous three years. The interviews were transcribed and are currently being evaluated by the bureau's training officer. They were also released for use in this research project, a wealth of data totaling over 200 pages. The interviews served as the primary data for the original portion of this research paper.

The below listed definitions will be used in both the analysis of published data in the literature review and in the study of waterways conservation officers and deputies.

Definitions

Accident - Any non-intentional event resulting in damage to equipment or injury to personnel.

Conservation Officer - Consists of officers charged with and empowered to enforce laws related to fishing, boating, hunting, water pollution, parks and forestry, and other such laws directly related to the protection of natural resources. Conservation officers are also referred to in states outside of Pennsylvania as wardens and as conservation police officers.

Deputy Waterways Conservation Officers - Sworn and paid a stipend, they are also referred to as DWCOs. DWCOs work on a part-time basis but are classed as volunteers. They are charged with and empowered to enforce laws pertaining to fishing, boating, water pollution, and reptiles and amphibians. They are also empowered to enforce laws relating to hunting, parks and forestry.

Firearm - Duty approved firearms for DWCOs include the 357 revolver or 40 caliber pistol. Duty approved firearms for WCOs include the 40 caliber Glock 22 as a primary weapon, the 40 caliber Glock 27 as a backup weapon, and a Remington 870 shotgun.

Injury - Any physical or psychological harm sustained by a conservation officer in the line of duty.

Illness - Any physical ailment, other than an injury, sustained by a conservation officer as a result of performing duties while on-the-job.

Officer Incidents - As used in the Pennsylvania study include: Verbal Assaults, Physical Assaults, Use-of-Force, Accidents, Injuries and Illnesses.

Pennsylvania Fish and Boat Commission - The organization charged with protecting Pennsylvania's aquatic resources and all aspects of aquatic recreation. The organization is also referred to as the PFBC.

Physical Assault - Any felonious attack perpetrated on a conservation officer regardless

of type or actual injury.

Use of Force - Any use of hands-on control techniques, OC spray, ASP baton or firearm used by the officer to effect compliance of a suspect during the course of performing the officer's duties. Unholstering of the OC spray, ASP baton or firearm, whether employed or not, is classed as a use of force for the PFBC study.

Verbal Assault - Any verbal threat of harm directed towards the officer, his family, his property or Commission equipment.

Waterways Conservation Officers - Sworn and salaried full-time officers who are charged with and empowered to enforce laws pertaining to fishing, boating, water pollution, reptiles and amphibians. They are also empowered to enforce laws related to hunting, parks and forestry as well as crimes code laws and misdemeanors and felonies in the vehicle code. They are also referred to as WCOs.

CHAPTER II: LITERATURE REVIEW

Overview

Conservation law enforcement and its associated perils have become a mainstream topic over the past few years due to the National Geographic documentary series *Wild Justice*, which portrays the patrols of conservation officers from the state of California (NatGeo, 2013). No such documentaries or studies have been conducted - or at least not published - for conservation officers of Pennsylvania. The majority of all published studies regarding officer safety have been focused on officers from large traditional police agencies in urban areas. Published studies and academic research regarding risks specific to rural policing in general and conservation law enforcement in

specific are sparse (Meier, 2006). However, there are a handful of researchers who have conducted studies of conservation agencies from states other than Pennsylvania. This section begins by reviewing those studies and identifying particular hazards confronted by conservation officers from those states. Special attention is paid to variables likely to result in assaults and use of force.

Available research indicates that there has been a national paradigm shift in the scope and duties of conservation officers over the past two decades. Conservation law enforcement has a long history in the United States and until recently its enforcement officers focused exclusively on the specialized laws pertaining to natural resource protection. Conservation officers are still primarily focused on enforcing laws specific to resource protection but they have also been empowered with enforcing other state laws as well. This shift towards more generalized law enforcement duties often subjects those officers to the same hazards confronted by traditional law enforcement (Patten & Caudill, 2013). Therefore the literature review is broken into two parts, with the first section focused on studies specific to conservation officers, and the second section focused on studies relating to factors involved in lethal and non-lethal assaults and to accidents and injuries as they pertain to general law enforcement.

Conservation Officer Specific Studies

Enforcement Focus

Until fairly recently, the late eighties and early nineties, conservation officers were specialists and dealt exclusively with enforcing those laws designed to protect the natural resources - most notably those laws pertaining to fishing and hunting (Patten & Caudill, 2013). Shelley, et. al (2009) noted that conservation law enforcement has

become more complex due to conservation officers being tasked to perform law enforcement duties which were traditionally performed by general law enforcement agencies. They found that there were several factors which contributed to this shift in responsibilities. For instance, our national population is increasing but the number of licensed anglers and hunters is decreasing. And, at the same time, there has been an increase in the number of other outdoor recreational pursuits such as boating, hiking, bird watching, and all-terrain vehicle operation. The changing nature of recreational pursuits, coupled with budget cuts and a recession, have forced states to make personnel cuts and to merge various environmental enforcement agencies. These mergers of natural resource agencies have changed their dynamics and watered down their focus from that of specialized entities to that which more closely resembles generalized policing agencies.

Organizational Structure

Diversification through mergers is the natural result of tightened purse strings which is a direct result of the diminished recruitment and retention of the anglers and hunters who buy the licenses which justify the existence of conservation officers. Like Shelley, Ryan Patten (2012) observed that researchers have documented an increased use of state lands and waters by nontraditional recreational users (i.e. non-anglers, and hunters), especially during the spring and summer months. These users bring with them an increase in crime, especially drug crimes, and an increased fear of crime by other recreational resource users. In addition, unlike licensed anglers and hunters who are generally aware of the regulations pertaining to their sport, many of these nontraditional users are unaware of the special regulations which pertain to state lands and waters and are uninformed as to who conservation officers are or what they do. This ignorance often

creates friction between conservation officers and nontraditional resource users. This shift in resource use has created a similar shift in the ways that conservation officers deal with the public. As noted by other researchers, Patten has observed a shift in conservation agencies away from specializing in natural resource protection and more towards crime control and general policing. There has been a similar shift in those who seek out employment as conservation officers. Old school conservation officers are still mostly focused on resource protection while newer officers are more cop-oriented and focused on crime fighting, which places them at a higher risk for use of force and assault.

The shift from conservation specialists to a more generalized police function is counterproductive to the resource protection mandates of such agencies as it takes the focus and resources away from the enforcement of hunting and fishing laws and places the conservation officers in a dangerous situation of enforcing the same laws of traditional police agencies while enmeshed in agencies which are non-law enforcement accredited and non-law enforcement specific and as such are not properly designed or equipped for such purposes (Falcone, 2004).

Patrol Risks

According to FBI statistics, the rates of injury and death to conservation officers is nine times higher than that of traditional police agencies (Eliason, 2006). And, they are over seven times more likely to be assaulted with a firearm or knife than traditional police are (Eliason, 2011). There are many reasons for the disparity in injury and death rates in conservation officers versus their traditional law enforcement counterparts. The core reasons are due to the inherent nature of where and how they patrol. For instance, the nature of their responsibilities requires them to patrol in remote and isolated areas,

often alone and at night without any close or reliable back-up, and many of the suspects they encounter are armed and intoxicated (Shelley, et al., 2009). Crime is as much a rural problem as an urban one and conservation officers encounter criminal activity while patrolling the woods and waters without the same safeguards which are in place in most traditional police agencies. As one retired conservation officer put it, "If a uniformed police officer or uniformed conservation officer must suddenly confront a violent offender regardless of the offense committed no one including the perpetrator really cares what shoulder patch that officer is wearing when the violence starts" (Schmader, 2011, p.7). And, in the words of another conservation officer, "Conservation officers are more likely to be assaulted and injured than their inner-city counterparts. Factors contributing to these higher rates include solo patrolling, dangerous terrain, poor communication areas, a high number of interactions with the public, and the fact that many anglers and hunters possess weapons in the form of knives and guns" (McSkimming, 2010, p.10).

Most traditional police agencies would class such patrols as high-risk and high-risk patrols are not without consequence. According to a study by the Wildlife Management Institute, eighty two percent of conservation officers will be assaulted at least once within a thirty year career and a majority of such assaults will be perpetrated by someone who is armed with a knife or gun (Stanley, 1990). Furthermore, according to U.S. Fish and Wildlife statistics, of those arrested for assaulting state or federal conservation officers, seventy percent have prior arrest records, fifty nine percent are intoxicated, twenty two percent are on drugs, and eighteen percent are on parole or probation (Stanley, 1990).

Other reasons for the disparity in injury and death rates are due to the diversity of patrol responsibilities. In a qualitative analysis of use of force and field reports submitted by conservation officers from Florida, Shelley (2009) found that the majority of patrol time was spent on boat law enforcement, followed by fishing and hunting law enforcement, and general law enforcement was a distant third. Shelley noted that officers were not primarily focused on enforcing laws outside the scope of hunting, fishing or boating but that the enforcement of such laws were generally incidental to compliance checks on state lands and waters. She further noted that fishing, hunting and boating are highly regulated activities and that conservation officers often uncover traditional offenses, such as drug and weapons violations, in the course of inspecting anglers, hunters and boaters - violations which would not normally come to the attention of traditional law enforcement.

Virginia Study

Timothy Carter (2004) closely examined the conservation officers of Virginia's Department of Game and Inland Fisheries, an agency with full police powers. Carter noted that full police powers make for a different kind of conservation officer than those without it because, "they are trained in the police academy with other law officers, their jurisdiction covers all state statutes, they face the same offenders who encounter other police as well as poachers, and they use traditional police strategies, techniques, and technologies in the investigation and arrest of law violators" (Carter, 2004, p.491). He observed that resource protection was still the primary focus of Virginia's conservation officers and that other laws were normally uncovered and enforced incident to routine

compliance checks of anglers, hunters, boaters and other users of state-controlled lands and waters.

Carter performed a mixed methods analysis of use of force and assaults on conservation officers based on incident reports provided by the Virginia Department of Game and Inland Fisheries and UCR data. Carter noted disparities in rates of assaults and use of force between conservation officers and traditional law enforcement officers and was able to identify the following seven key factors and patterns for assault and use of force:

1. Virginia's conservation officers used force while issuing citations at a rate that was eight times higher than the state police.
2. The two situations which placed conservation officers at the greatest risk for assault were rendering assistance to other agencies and attempting an arrest.
3. The highest percentage of assaults and use of force occurred while performing general law enforcement for non-fish & game infractions.
4. Use of force happened most often when multiple officers were present and when the suspect offered resistance.
5. Assaults occurred most often with a single officer and assailant and conservation officers were one and a half times more likely to be alone when assaulted than were traditional police officers.
6. Conservation officers were three times more likely to be assaulted with a weapon than were traditional police officers.
7. Assaults occurred most often on weekends after five p.m. in rural areas with destination locations such as recreational lakes (Carter, 2004, p.492-497).

Carter's study indicated that conservation officers are increasingly required to enforce criminal laws beyond the scope of fishing and hunting and although such functions are still the least amount of enforcement they perform, those duties result in a disproportionate number of injuries, use of force and assaults to officers.

Louisiana Study

Craig and York Forsyth (2009) performed a qualitative analysis of game warden interactions in Louisiana. Conservation officers from that state have full police powers and enforce hunting, fishing and boating laws. They found that the risk for use of force and assaults was highest when the officer was confronted with a suspect who had been drinking alcohol or using drugs. They highlighted numerous accounts of assaults and use of force situations involving drunk boaters. They also highlighted the inherent risks of injury to conservation officers posed by the environments in which they work, "There are dangers and hardships inherent to this career. These include dangers which naturally occur in the environment such as weather, insects and snakes. You are also working a physical job, around equipment, so...injuries are common...back injuries from rough seas or heavy lifting, cuts, scrapes, even drowning and hypothermia" (Forsyth, 2009, p.220).

Florida Study

Ryan Patten and Jonathon Caudill (2013) performed a quantitative analysis of conservation officer use of force in Florida. They found that the majority of use of force situations occurred after 6 p.m. on weekends during summer months with suspects who were not engaged in hunting or fishing. They discovered a national pattern of increased use of force and dangerous incidents involving conservation officers and boaters. For instance, the risk of assault for Kentucky wardens was highest when enforcing boating

laws. And, Virginia's wardens have similar difficulties with boaters, attributed to defiant attitudes and a party mentality not typically found with traditional resource users such as anglers and hunters. In Florida, Patten and Caudill discovered that eighty-four percent of use of force incidents by conservation officers began as a result of boating infractions or some other crime not directly related to fishing or hunting. In summarizing their findings, Patten and Caudill expanded on the finding that licensed anglers and hunters were the least problematic for conservation officers. They noted that, "Nationwide, it appears game wardens are experiencing 'mission creep;' an expanding list of duties that no longer is focused on policing hunters and fishers, but boaters, hikers, birdwatchers, and others. This research supports game wardens' widespread anecdotal claims that it is the part-time recreationist that creates a majority of the use of force encounters...This pattern of contacts indicates the people that are likely to cause problems for game wardens are those that are out to enjoy a 'good time' and may be unfamiliar with appropriate laws and regulations, such as boating under the influence" (Patten & Caudill, 2013, p.418).

Boat Law Enforcement

The enforcement of boating laws appears to result in a great deal of friction between conservation officers and the public. Boating draws from a broad segment of society and, unlike with hunting and fishing, most people who operate boats do not need to be licensed and are therefore unfamiliar with the special regulations pertaining to boat operation and of the powers vested in the officers tasked to enforce those rules. Many states have implemented mandatory boater safety training requirements over the past decade which has helped to educate those recreationalists and has helped to both lower

the number of boat accidents on the waterways and to dispel arguments during boating safety compliance checks. According to the National Association of State Boating Law Administrators (NASBLA) boating law enforcement in nine states and the District of Columbia are assumed by the state police or a separate - specialized - marine division. The remaining states place boat law enforcement responsibilities within the agency designated for natural resource protection. Some of those agencies have separate divisions dedicated to boat enforcement but the majority of them place the onus on the conservation officers assigned to fish and game enforcement (NASBLA, 2012).

Traditional Law Enforcement Studies

Homicides

Assaults upon conservation officers are not rare, however, death and use of deadly force is. It appears that assaults upon conservation officers and use of force have increased over the past two decades. For example, a Pennsylvania conservation officer was murdered within the past three years. On November 11th, 2010 at about 10:30 p.m. a wildlife conservation officer named David Grove was shot and killed while attempting to arrest two deer poachers in Adams County, PA. His killer was a convicted felon intent on not going back to prison for weapons violations. When his killer was apprehended the following day he was asked if he knew that he had killed a law enforcement officer. He responded by saying, "No. I thought I just killed a warden" (Neil, 2010, p.3).

As stated previously, the majority of academic research and published data regarding officer use of force, assaults, accidents, injuries and illnesses has been centered on traditional law enforcement organizations. As conservation officers delve more into enforcing criminal laws which were historically handled by general law enforcement

agencies, it becomes necessary to understand the patterns and factors which have been identified in such agencies in order to apply them to the work of conservation law enforcement.

Candice Batton and Steve Wilson (2006) identified several factors relevant to reducing police homicides. They noted that, contrary to popular belief, officer homicides are not restricted to careless and inexperienced officers from urban districts. According to a 2004 FBI report, the majority of officers killed were working in small towns with populations under ten thousand people, almost half of the officers had ten or more years of service, and sixty-six percent of those officers killed were wearing ballistic vests.

They noted that police homicides have decreased significantly since the early 1970's. They credit this decline to the implementation of police training standards and accreditation, improved capabilities of medical trauma resources, and the developing technology of protective gear such as ballistic vests, OC spray, and tasers. They did note that proper and continued training were key elements in reducing officer injury or death, "Training reduces the likelihood of tactical errors that may result in injury or death and that highly trained officers have more skills (e.g., mediation, defense tactics, armed and unarmed combat) that they can draw on in potentially violent confrontations" (Batton & Wilson, 2006, p.94).

There are many factors involved in officer homicides. Robert Kaminski (2008) addressed several variables related to rural policing (most relevant to conservation officer patrol districts). For example, he found that counties with large urban populations actually had lower levels of police homicides than those which were predominately rural. He also found that those counties which had a predominate population base experiencing

low income and high poverty rates were the most likely to produce officer homicides. He also found that those counties which have a high population of residents in the mid-twenty to mid-thirty year old bracket presented the highest risk for officer homicides. In addition, those rural counties without sheriffs agencies present a greater risk of officer homicide than those that do have them. Kaminski found that most offenders will go out of their way to avoid encounters with the police. Of those offenders who do commit assaults, "Most are motivated to kill or seriously injure police because the potential opportunity costs associated with their current and/or past criminal activities are high (e.g., safety, loss of freedom, reduced future income)" (Kaminski, 2008, p.352). This is illustrative of the case involving the murder of WCO David Grove.

Kaminski noted that, "Additional opportunity factors that arguably influence police vulnerability and exposure to offenders include police officer density, arrests, and organizational policies designed to harden officers as targets, such as mandatory vest-wear policies, two-officer patrols, and the replacement of revolvers with semiautomatic sidearms" (Kaminski, 2008, p.358).

Assaults

Although dated, an analysis of U.S. law enforcement agencies in 2005 indicated that close to sixty thousand police officers are assaulted each year (Belvedere, et al., 2005). Furthermore, police officers are, "73.1 times more likely to be assaulted at work than the overall industry average" (Brandl & Strohine, 2003, p.176). Assaults not only take physical and psychological tolls on the affected officer but also take financial tolls on their departments. Some of these incidents can be avoided by identifying factors relating to assaults and by raising officer awareness to those factors. The literature reviewed for

this paper examines a few of the factors relating to assaults experienced by traditional law enforcement officers.

Belvedere, et al. (2005) discovered that, in contrast to previous studies, an officer's experience, education, age, race, and size were not significant variables in a suspect's decision to resist arrest. They did find that those suspects who had been drinking or using drugs, those that had had a bad attitude, and those that had been fighting prior to or during the encounter with law enforcement were most likely to resist arrest and to assault an officer. They also found that suspects who were being arrested for felony crimes were more likely to resist arrest or assault an officer than those being arrested for misdemeanor and summary violations. Also, resistance and assault were highest when the suspect did not recognize the officers authority. On average, most assaults occurred between early evening and midnight by twenty-eight year old males against white officers in areas with high rates of crime and delinquency.

Kaminski (2003) identified factors similar to those found by Belvedere. He stressed that assaults are most likely to occur in economically disadvantaged areas with high crime rates but that they were most likely to occur in certain places within those areas. He analyzed arrest reports and assault data to identify such areas. He suggested that police agencies conduct their own analysis through geographical information system (GIS) technology to identify trouble areas and to adjust patrol activity accordingly in order to enhance officer safety.

Use of Force

Use of force is not common in most law enforcement encounters but it is a key element of police work. Egon Bittner stated, "the role of the police is best understood as

a mechanism for the distribution of non-negotiably coercive force employed in accordance with the dictates of an intuitive grasp of situational exigencies" (Cordner & Scarborough, 2010, p.34). National studies indicate that the majority of all police-citizen encounters are resolved through effective communication and that police use force in less than five percent of all encounters (Cordner & Scarborough, 2010). Bittner's perspective does not contradict these findings but does stress that an important element behind the ability to successfully resolve a situation without resorting to force is the implied understanding that the officer has the legitimate authority, training and equipment to resolve the situation through the use of force if needed.

There have been numerous studies regarding the variables behind police use of force. Relevant to this paper, verbal abuse and physical resistance are the two greatest predictors for use of force. In addition, younger offenders under the influence of drugs or alcohol are more likely to have force used against them than their older - and more sober - counterparts (Patten, 2012).

Accidents, Injuries and Illnesses

Officer homicides and assaults are a popular line of inquiry for researchers because they are often high-profile and intensely investigated, resulting in a wealth of readily available data for researchers to study. However, homicides and assaults are not the leading cause of death and injury for law enforcement officers and more attention needs to be directed towards officer safety factors related to fatalities and injuries caused by accidents and illnesses.

Brandl & Strohshine (2003) studied accident report forms and determined that nearly half of all officer fatalities in the United States result from accidents involving

automobiles, boats and airplanes.

They found that nearly forty-nine percent of officer injuries were sustained as a result of affecting an arrest, fourteen percent occurred during the course of an investigation, twelve percent happened during a foot pursuit and nine percent were a result of vehicle accidents and other causes. They stressed that many accidents, injuries and illnesses are preventable through training and policy implementation. They implied that each agency needs to closely examine its own accident, injury and illness factors in order to develop training and policies specific to their risk reduction needs.

Proper training and policies focused on reducing accidents, injuries and illnesses were also stressed by William Harris (1999). Harris studied police training programs and policies and found that although the majority of all training focuses on preventing assaults, most officers stand a greater risk of dying from an accident or injury than from being murdered. He found that although half of all officer deaths result from vehicle accidents, the only vehicle safety training most officers receive is at the police academy. Harris stressed that agencies need to incorporate vehicle training in their repertoire of essential officer safety training tasks. Harris also identified other common causes of injuries to officers and suggested means to train and equip officers to avoid them. Those causes include: being struck by a vehicle, falls, drowning, job-related illnesses (such as heart attacks), exposure to hazardous materials and natural disasters.

Summary

Academic research and published studies regarding conservation law enforcement are scarce, most likely due to the small sample sets of data available. Of those studies which have been performed, researchers have observed a trend over the past two decades

of the role of conservation officers evolving from that of specialists focused on fishing and hunting regulations to that of law enforcement generalists who enforce a broad spectrum of state laws. Researchers have also observed a shift in the structure of conservation agencies due to assimilations and mergers of multiple state natural resource protection agencies. As a result of these mergers, conservation officers often find themselves entrenched in non-law enforcement agencies that are not designed or equipped to provide them with the same level of support available to those police officers assigned to traditional police departments.

Research indicates that, although the scope of their authority has broadened, conservation officers still focus the majority of their patrol time on natural resource protection and that the discovery and enforcement of other state laws is normally incident to routine patrol and compliance checks of anglers, hunters and boaters on state-controlled lands and waters. They enforce these criminal laws in situations which are quite alien to most police officers, such as patrolling alone and at night in isolated and remote areas while on foot and away from reliable back-up, often in areas with poor radio and cell phone reception. Conservation officers accept such risks as a condition of their employment and they are often better skilled and trained for such patrols than their traditional police counterparts but that does not negate the risks of such high-risk patrol activity. Research indicates that conservation officers are at a greater risk for assaults and use of force than traditional police are and that they stand a greater risk of sustaining an injury through the use of an edged weapon or firearm than are police in general.

This literature review focused on officer safety factors related to assaults, use of force, accidents, injuries and illnesses from both conservation-specific and general

policing studies. There were many similarities between the two which strengthens the argument that conservation agencies have adopted both the crime fighting tactics and strategies of traditional policing and have developed a more generalist police-posture.

Of particular note to conservation officer safety, this review found that most use of force and assaults occurred in the evening, on the weekends and on state-controlled lands and waters at destination locations such as lakes. Most individuals who engaged in assault or had use of force applied to them were young males in the mid-twenties who were under the influence of drugs or alcohol. Officers were most likely to use force when another officer was present and when the suspect had verbally antagonized the officer and engaged in some form of resistance. Officers were most likely to be assaulted when they were patrolling alone and when the assailant was being arrested for a law other than fishing or hunting. In four of the states that were studied - Florida, Virginia, Louisiana and Kentucky - many of the assaults and use of force incidents were related to the enforcement of boating laws.

Finally, a great deal of the friction between conservation officers and nontraditional resource users has to do with the recognition of their authority to enforce state laws. Unlike those licensed anglers and hunters who recognize what a conservation officer does, many of the emerging nontraditional resource users come to the outdoors to have fun and to escape the rules that constrain them in developed areas and are unfamiliar with the special regulations which pertain to state-controlled lands and waters. Research indicates that this nontraditional demographic poses one of the greatest risks to conservation officer safety. Some agencies have attempted to address this perception issue by changing the title of conservation officers or wardens to a more recognizable one

such as conservation police officer, natural resources police or environmental police. However, it is unclear whether such name changes have impacted public perception or helped to mitigate any of the discussed risk factors.

CHAPTER III: PENNSYLVANIA STUDY AND METHODOLOGY

Overview

This study focuses on factors affecting the safety of waterways conservation officers and deputies of the Pennsylvania Fish and Boat Commission. In order to put their enforcement role into context, this section begins with a brief overview of the various environmental regulatory agencies within Pennsylvania, as well as an overview of the history of the Commission, the structure of the Bureau of Law Enforcement, and the powers and duties of full-time and deputy waterways conservation officers.

Natural Resource Protection in Pennsylvania

Pennsylvania is comprised of 45,888 square miles of diverse natural resources: with 45,000 miles of streams and rivers; 2,550 lakes; 282,500 acres of state park lands; 2,200,000 acres of state forests, and; 1,379,002 acres of state game lands (Powell, 2013). Pennsylvania is unique in that it is the only state where hunting and fishing laws are enforced by separate agencies. The Pennsylvania Game Commission (PGC) has wildlife conservation officers and deputies who are responsible for game law enforcement while the Pennsylvania Fish and Boat Commission has waterways conservation officers and deputies who primarily enforce fishing and boating laws. Both agencies are funded primarily through license sales and other forms of revenue. Neither agency is funded through state tax dollars so, theoretically, they are less influenced by political agendas than are the other resource protection agencies which rely solely on monies from the

General Fund. The other two natural resource protection agencies in Pennsylvania are the Department of Environmental Protection (DEP), which is responsible for Clean Streams laws. And, the Department of Conservation and Natural Resources (DCNR), which is responsible for the protection of state parks and state forests. DEP has numerous regulatory agents and a handful of sworn investigators. DCNR employs both sworn and unsworn park rangers and sworn forest rangers.

The Pennsylvania Fish and Boat Commission

The Pennsylvania Fish and Boat Commission and its enforcement officers have deep roots in the conservation movement. The state appointed a Commissioner of Fisheries in 1866, making it one of the nation's founding conservation agencies. The Commission's mission was to restore American shad to the Commonwealth's waters after this anadromous species was decimated by water pollution and commercial fishing. The Commission has evolved over the past 147 years and its mission now includes the management of all fish and aquatic organisms, reptiles, amphibians, Clean Streams laws, and boating regulations, the latter of which have been enforced by this agency since 1931 (PFBC, 2013).

The Pennsylvania Fish and Boat Commission is not geared specifically towards law enforcement. The Bureau of Law Enforcement is a substantial part of the agency but the majority of the agency's employees are engaged in other tasks such as licensing, boat registrations and titling, cold and warm water fish production, fisheries biology, nongame and endangered species protection, environmental services and property maintenance. The Bureau of Law Enforcement (BLE) maintains a top-tier of management at the headquarters facility in Harrisburg and has six regional offices which are broken down

north to south and east to west as the Northeast Region, the Southeast Region, the Northcentral Region, the Southcentral Region, the Northwest Region and the Southwest Region. Each region is managed by a captain and, with the exception of one region, is supervised by two field sergeants. As of October 2013 the agency employed eighty five full-time waterways conservation officers and managed one hundred volunteer deputy waterways conservation officers. There are twenty waterways conservation officers in management or field supervisory positions and sixty five district field officers. The full allocation for waterways conservation officers is ninety eight but retirements have whittled that number down by thirteen and revenue shortfalls have cut funding for backfilling those positions (personal correspondence with Col. Britcher, BLE Director).

Although waterways conservation officers have statewide jurisdiction, they are assigned to manage a defined patrol district which can vary from part of one county to several counties based on resident population densities, the popularity of seasonal recreation areas within an area and vacant neighboring districts. Deputy waterways conservation officers also have statewide jurisdiction but are assigned to patrol the district in which they reside. Deputies are supervised by their district waterways conservation officers and by their respective regional office.

Waterways Conservation Officers and Deputies

Salaried waterways conservation officers undergo a year of training before being assigned to a district. Their training begins at the state police academy where they undergo approximately five months of ACT 120 training, often alongside cadets from other state and municipal law enforcement agencies. The remainder of the year consists of conservation-specific training at the H.R. Stackhouse School of Conservation

(Stackhouse), including field training assignments in trout and boating seasons. Upon assignment to a district, the waterways conservation officer becomes the face of the agency and assumes responsibility for all fishing and boating enforcement for that area (PFBC, 2012).

Although classed as volunteers, deputy waterways conservation officers undergo extensive training as well. Prior to going to the deputy academy, each candidate must pass extensive criminal and psychological background checks and become lethal weapons (ACT 235) certified. Then they undergo four long - Thursday to Monday - weekends of conservation-specific instruction at Stackhouse. They also learn defensive tactics, qualify with their weapons systems, and become CPR, First Aid, and Hazardous Materials (HAZ MAT) certified. Upon graduation they are put on a probationary status and have one year to complete one hundred and fifty hours of patrol time with their district officer in order to gain full deputy status. After that first year they have to meet annual requirements of eighty hours of patrol time, twenty of which is with the district officer, firearms qualification, renewal of certifications, and attendance at quarterly district training meetings and the annual region deputy meeting (Carey, 2005).

Salaried waterways conservation officers and deputy waterways conservation officers differ in their enforcement powers. Both are empowered to enforce the Pennsylvania Fish and Boat Code (Title 30 PACS). Title 30 empowers waterways conservation officers and deputies to enforce not only fishing, boating and Clean Streams laws but also those laws pertaining to wildlife, parks and forestry. The primary departure in the scope of powers is that waterways conservation officers are also empowered to enforce all Crimes Code (Title 18) laws and misdemeanors and felonies in the Vehicle

Code (Title 75). Deputies do not have the authority to enforce Title 18 or Title 75.

(Anon, 2013).

Officer Safety Survey

A review of the literature indicates that conservation officers have begun to shift their focus from that of specializing in conservation-specific infractions to that of a more generalist police posture, with an increased focus on enforcing drug offenses and other laws which were traditionally outside the scope of their duties (Shelley, et al., 2009). Furthermore, research data indicates that there is a correlation between increased assaults and use of force with those conservation officers who engage in general policing outside the scope of conservation law enforcement (Patten, 2012). There has never been research to determine whether waterways conservation officers in Pennsylvania are experiencing a similar shift in enforcement focus or whether such a shift places them at a greater risk for use of force and assaults. This research paper is designed to fill that gap in our knowledge of conservation enforcement in Pennsylvania.

It fills that gap by performing a thematic content analysis of an officer safety survey conducted by the Pennsylvania Fish and Boat Commission. The goal of the research was to determine the degree to which waterways conservation officers of that agency have engaged in the enforcement of laws outside the scope of fishing and boating and whether such enforcement has placed them at a greater risk for being assaulted or using force than their contemporaries who have limited their enforcement activities to conservation-related offenses within the Fish and Boat Code (Title 30).

Conservation law enforcement has traditionally been a specialized field of law enforcement. Hunting, fishing and boating are all highly regulated activities which

require licenses, permits, and, in many cases, specialized training in order to legally recreate. The vast majority of all violations for offenses related to hunting, fishing and boating are summary offenses which are restricted to fines and potential loss of recreational privileges.

Conservation officers from the Pennsylvania Fish and Boat Commission provide a unique data set for such a study because, since the late eighties, waterways conservation officer cadets have attended ACT 120 police academy training through the Pennsylvania State Police. Prior to that time, waterways conservation officers did not attend police academy training and did not typically enforce any laws outside of those specific to fishing, boating and, occasionally, hunting. Most waterways conservation officers from the old era have retired and the current workforce is populated by waterways conservation officers who are trained and willing to engage in general police work. Deputy waterways conservation officers, on the other hand, are neither trained nor empowered to enforce laws outside of Title 30 and, therefore, continue to serve as conservation law enforcement specialists. The difference in the powers and duties of salaried waterways conservation officers and deputy waterways conservation officers provides an interesting comparison/contrast for research.

The original aspect of this research project is an analysis of officer safety risk factors within the Pennsylvania Fish and Boat Commission, an agency which has never been the focus of such a study. In January of this year, the Commission appointed a new director for the Bureau of Law Enforcement. The director requested feedback from both full-time and deputy waterways conservation officers across the six regions of the state. Forty three officers volunteered to be interviewed - twenty six full-time waterways

conservation officers (two were supervisory field officers and the remainder were district field officers) and seventeen deputies. The interviews were conducted by a third party and the respondents were assured anonymity through the use of pseudonyms. Where numbers were required, the officer was asked to provide averages over the previous three years. The interviews were structured with both open and closed-ended questions pertaining to patrol data, verbal assaults, physical assaults, use of force, accidents, injuries and illnesses sustained during the previous three years. The interviews were transcribed and are currently being evaluated by the Bureau's training officer. The research for this project is based on those transcripts, a wealth of data totaling over two hundred pages. The interviews served as the primary data for the original portion of this research paper.

Data Analysis

This research project was based on techniques for thematic content analysis as described by John Salanda (2011). Manifest and latent themes were discovered through in vivo coding. Codes and search terms were adjusted as new themes emerged from the raw data.

The latent meaning for why assaults, use of force, accidents, injuries and illnesses occurred were closely examined. According to Maxfield & Babbie (2011), such latent inquiries are sometimes best represented to the reader through the use of direct quotes and creative nonfiction through the vehicle of narrative inquiry. This format works if the interviews are in depth and if they provide a rich base from which to build a story. Some of the transcribed interviews provided the necessary depth for a narrative description of certain incidents. The researcher's goal in providing such narratives is to place the

officer's situations into context and to add depth to the paper. Additionally, the findings were translated into graphic formats when possible and appropriate.

The interview transcripts were uploaded to an NVivo 10 software package, purchased from QSR International. The primary benefit to using this system was that it helped to organize the data. All of the interviews were transcribed in word format and by individual case. Once the documents were uploaded, nodes were created which represented manifest data and sub-nodes which were used to further refine the research and to assist in identifying latent meanings. The NVivo 10 program was used mostly as an organizational tool and then the findings were transcribed into a Microsoft Word document for the final scrubs and comparisons. This system proved to be highly effective for qualitative analysis, especially as it pertained to the narrative inquiries.

CHAPTER IV: STUDY RESULTS

Overview

The results of this study are presented in five parts: Experience and Patrol Data, Verbal Assaults, Physical Assaults, Use of Force and Accidents, Injuries and Illnesses. Relevant excerpts from studies of other states are juxtaposed where appropriate. Additionally, narrative descriptions of incidents are provided to place the officer's experience into context.

Patrol Data and Experience

The results of this study indicate that waterways conservation officers and deputies are an aging workforce with a great deal of experience. Most salaried officers are in their mid-forties while most deputies are in their fifties, both average from fourteen

to seventeen years of experience. Salaried officers are more likely to possess a college degree and to have both military and other law enforcement experience than are their deputy counterparts. Most deputies and salaried officers concentrate their patrol activities in rural areas during the summer months but salaried officers patrol alone and at night more often than deputies do. Salaried officers also assist other agencies at a higher rate than deputies do. And, salaried officers issue on average five times the number of summary citations and three times the number of criminal charges than their deputy counterparts.

Age and Years of Service

The study results indicated that the average age for a waterways conservation officer was forty-seven years old, with the youngest being thirty and the oldest being sixty-four. The average age for deputies was fifty-four years old, with the youngest being thirty-nine and the oldest being sixty-nine. The average years of sworn conservation officer experience for full-time officers was fourteen years, with the least experienced having three years and the most experienced having twenty-eight years. Deputies had an average of seventeen years experience, with the least experienced having one year and the most experienced having thirty-seven years. See Appendix A for a graphic representation of the results.

Other variables pertaining to experience and patrol data can help the reader to place waterways conservation officers into perspective with studies from other states. The following variables were examined in the study: Other Experience; Education; Patrol Hours; Summary Citations Issued; Criminal Charges Filed; Assists to Other Agencies; Patrol Time with Other Officers; Patrol Concentration, and; Shift Times.

Other Experience and Education

Regarding law enforcement, the two most coveted forms types of experience are military training and higher education. A high school diploma is the minimum requirement for service as a waterways conservation officer or deputy. Also, there is no mandate for veteran status but it does earn an applicant ten points on the civil service exam for a full-time position. Not surprisingly then, twenty of the twenty-six waterways conservation officers were veterans. Only one of the seventeen deputies had any military experience. In addition, none of the deputies had any law enforcement experience prior to becoming a deputy, whereas twelve of the full-time officers had previously worked as either a deputy or as an officer for another agency.

The results were surprising in relation to higher education. Even though college is not required, of the full-time officers, all but three surpassed the minimum requirement of a high school diploma - with eight having completed a trade school or some college, fourteen possessing an Associate or Bachelor degree, and one possessing a Master's degree. As far as deputies go, seven possessed a high school diploma, one had some college, seven had an Associate or Bachelor degree, one had a Master's degree, and one had a Ph.D.

Patrol Hours

Regarding the number of hours patrolled, salaried waterways conservation officers are represented by the Fraternal Order of Police along with the wildlife conservation officers from their sister agency, the Pennsylvania Game Commission. They are contracted for forty-hour work weeks and are mandated to work a certain number of weekends and specific seasonal holidays throughout the year. Deputies are

classed as volunteers and have no specific work mandates, however, they are commissioned on a yearly basis and must meet minimum requirements. They are required to attend all mandatory training and must log eighty hours of patrol time each calendar year in order to meet the minimum requirements to be recommissioned. The majority of those hours are expected to be logged during the two busiest seasons for the Fish and Boat Commission - spring, which encompasses trout season, and summer, which encompasses boating and other fishing activity. Those minimum numbers can be used to gauge the deputy's work effort. According to the survey, the least amount worked was one hundred hours and the most amount worked was over one thousand hours. That is too wide of a range to gauge an average so it was broken down as follows: seven deputies worked from 100 to 200 hours; six worked from 200 to 300 hours, and; four worked more than 300 hours.

Summary Title 30 Citations and Criminal Charges

Patrol effectiveness cannot be quantified by the number of tickets issued but it can be used to gauge the amount of contacts which result in official sanctions. The literature review indicated that licensed anglers and hunters present the least problem to conservation officers. The majority of use of force and assault situations stem from casual recreational resource users and from boaters, particularly those who are intoxicated. It is this class of people who are most often unaware of the special regulations for state lands and waters and the authority vested to conservation officers (Patten & Caudill, 2013). That risk increases substantially when conservation officers enforce criminal laws outside the scope of natural resource protection, such as drugs, or when assisting other agencies with the enforcement of criminal offenses (Falcone, 2004).

To put it into perspective, the majority of the regulations in the Fish and Boat Code (Title 30) are summary violations. The Code also has criminal violations such as felonies and misdemeanors, mostly for boating under the influence violations, serious poaching, and water pollution violations. Regarding summary violations, waterways conservation officers issued an average of seventy-eight citations, with a high of one hundred and sixty and a low of twenty-five. It was more difficult to gauge an accurate average of summary tickets issued by deputies because they had a high of one hundred and a low of one. Their breakdown is as follows - twelve wrote from one to thirty tickets and five wrote thirty or more. The averages for criminal charges represent a fraction of those for summary tickets. As far as criminal charges go, deputies are limited to Title 30 and as such only two of the deputy respondents had filed criminal charges within the past three years, with a total number of three charges, all for boating under the influence. The average number of criminal charges filed by full-time officers each year was three, with a low of zero and a high of twelve. See [Appendix B](#) for a graphic representation of the results.

Assisting Other Agencies

Assisting other agencies has its pros and cons. Timothy Carter's (2004) study of conservation officers in Virginia found that the two situations which placed conservation officers at the greatest risk for assault were rendering assistance to other agencies and attempting an arrest. An advantage to providing an assist to another agency is that it can increase an officer's network of backup in the event that he or she needs assistance. According to the survey, full-time waterways conservation officers assisted other agencies an average of twelve times per year, with a low of two and a high of thirty. As with some

of the other study variables regarding deputies, it was not possible to derive an accurate representative average because they had a low of zero and a high of thirty-six. Their breakdown is as follows: two provided zero assists; ten provided from one to five assists, and; three provided ten or more. See [Appendix C](#) for a graphic representation of the results.

Patrol Partnering

There are pros and cons to patrolling with another officer. The advantage is that conservation officers are less likely to be assaulted when patrolling with a partner. The disadvantage is that officers are more inclined to use force when patrolling with someone else (Carter, 2004). According to the survey, salaried officers engaged in partnered patrol an average of thirty-five percent of the time, with a low of ten percent and a high of ninety- nine percent. Deputies patrolled with another officer an average of sixty-three percent of the time, with a high of one hundred percent and a low of ten percent. See [Appendix C](#) for a graphic representation of the results.

Patrol Area Concentrations and Shifts

Timothy Carter (2004) found, in his study of conservation officers from Virginia, that assaults occurred most often on weekends after five p.m. in rural areas with destination locations such as recreational lakes. Ryan Patten (2012) observed that researchers have documented an increased use of state lands and waterways by nontraditional recreational users (i.e. non-anglers and hunters), especially during the spring and summer months and that these users bring with them an increase in crime, especially drug crimes, and an increased fear of crime by other recreational resource users. In line with these studies, the Pennsylvania survey measured the types of areas and times

of the day for patrol activity between the months of June through September.

Waterways conservation officers set their own work schedules which are then approved by management. They are given this flexibility in order to best meet the demands of their patrol districts. The survey indicated that fourteen of the full-time officers concentrated their patrol activities in rural areas, six in urban areas, and six in mixed areas. Of the deputies, eleven concentrated their activities in rural areas, two in urban areas and four in mixed areas. The majority of salaried officers indicated that they worked mostly day and early evening shifts during the week and evenings during the weekend. Their weekend breakdown is as follows: two worked mostly from 1000 to 1800 hours; three worked 1200 to 2000 hours; six worked anywhere from 1200 to 2400 hours, and; fifteen preferred 1400 to 2200 hour shifts. Of the deputies, most worked primarily on weekends as follows - ten worked both mornings and up until 2000 hours and seven worked afternoons and evening shifts past 2000 hours. See Appendix D for a graphic representation of the results.

Verbal Assaults

The results of this study indicate that the greatest risk for verbal assault is while enforcing boating laws in a rural location during the month of July and in the evening hours between four p.m. and midnight. Also, there is a slightly greater chance of experiencing a verbal assault when another officer is present.

A review of published literature did not generate any previous studies regarding verbal assaults to conservation officers. Ryan Patten's (2012) study of conservation officers from Florida indicated that verbal abuse and physical resistance are the two greatest predictors for use of force. However, the Pennsylvania study includes only verbal

abuse which did not escalate to the use of force or assault. Sometimes these are the worst types of cases because they embed themselves in the officer's psyche and fester, eroding his confidence or making him bitter and cynical, such as an incident with WCO Bill who was told that, "they're gonna find your body dead someday down by the river," or the case of WCO Jake who was told that, "I'd like to take you into the woods and handle this like my grandpa used to do."

Nearly all of the respondents reported that they were cursed and yelled at but this study went beyond that. In this study, officers were asked how many times over the previous three years they were confronted with a suspect who threatened them, their equipment, or their family with physical harm and under what conditions. The deputy respondents reported no incidents. Fourteen full-time officers reported a total of twenty-four incidents. Variables that were considered were: law(s) being enforced; incident area; number of officers; month, and; time. See [Appendix E](#) for a graphic representation of the results.

Of the laws being enforced, nineteen were Fish and Boat Code (Title 30) and five were a combination of Title 30 and another law. Title 30 breaks down as follows: one pollution investigation; one littering; one interference; seven fishing, and; nine boating (three were boating under the influence). The combinations break down as follows: one boating under the influence and disorderly conduct; one boating under the influence and drugs; one Commission-owned property violation and drugs, and; two fishing and outstanding arrest warrants.

Another officer was present in thirteen of the incidents and the officer was alone in eleven. Regarding location: eighteen of the incidents occurred in rural areas; seven in

suburban areas, and; five in urban areas. Months of occurrence were: four in April; two in May; four in June; ten in July; three in August, and; one in September. Times of occurrence were: three between 0700 and 1200 hours; seven between 1200 and 1600 hours, and; fourteen between 1600 and 2400 hours.

A full-time waterways conservation officer named Kip gave a detailed account of a verbal assault that he experienced. He was engaged in boat patrol with another officer in the early evening hours during the summer when the incident occurred. His narrative is representative of many of the cases which were reported.

I tend to run into at least one real dirt bag a year. I have about twenty stocked trout streams and a huge lake in a state park which allows unlimited horsepower boating and has special regulations for panfish. It's a flip of the coin whether I'll run into my loud mouth on a trout stream, in a boat, or while keeping short panfish from the shore. Last July, I was out in the patrol boat in the afternoon with my neighboring officer when we saw two guys fishing in a spot where I've had problems at before. It had been a good day, it was sunny and hot, there was no wind and no clouds in the sky. The lake was packed with boats and fishermen. I think we wrote ten cases between the two of us and hadn't run into much trouble until we ran into these two fishermen. I wrote the one guy for fishing without a license. He tried to lie to me about how old he was and his friend tried to help him out but they cracked after we interviewed them separately. The kid finally confessed that he was seventeen. In Pennsylvania you need to have a fishing license once you turn sixteen. I might have given the kid a break if he hadn't lied to me but, you know, you can't let them get away with that. After

issuing him a ticket we continued down the lake and checked a number of boats and shore fishermen without incident.

About an hour later we saw a large group of anglers fishing at another popular spot on the shoreline and, after glassing them through the binoculars for awhile, we made our approach. We ran into three cases there, one fishing without a license and two with short crappie. We had the patrol boat tethered to a tree and were sitting in the boat writing our tickets when a van pulled up alongside us on the road that parallels the lake. A short skinny guy in this mid-forties got out of the vehicle and came down to the boat, demanding to speak to me. I asked what for and he said it was about that kid I wrote up earlier. I told him to go back to his vehicle and that I'd speak to him when I was done with what I was doing. He malingered by the boat and paced around. He had the two kids and his girlfriend with him. The kid I wrote was his girlfriend's son. We could hear them running their mouths but we tuned them out. I did speak with him - about ten minutes later - and explained what happened. He wanted the ticket ripped up. When I told him that wasn't going to happen, he got really pissed and threw a temper tantrum. He went back to van and revved the engine loudly. He yelled at us that we were some, "*stupid c**k-sucking motherfu**ers,*" and screamed, "*I hope your tires aint flat!*" He spun his tires while pulling out, spraying gravel and dirt down the embankment and onto the patrol boat

Well, we couldn't let that one go either. Especially with all those anglers on the shoreline watching us. I immediately got on the radio and called the state park ranger for an assist. He was already on the road where the van was driving

and he had it pulled over in under three minutes. We patrolled up the shoreline to the access where the guy was stopped at. Turns out the ranger had seen this fellow at the marina walking around our patrol trucks and looking in the windows about a half hour earlier. The guy got back in his van and took off when the ranger began to approach him. Long story short, we had him get out of his van and produce his driver's license. We had a hell of a time trying to interview him because he was so squirrely. I stood in front of him, my neighboring officer stood behind him, and the ranger stood off to the side with the kids and the girlfriend. The dude kept running his mouth the whole time and he didn't want anyone standing behind him. He kept turning around in circles like a snapping turtle does when someone gets behind it. It was kind of funny, so that took the edge off it. I wound up charging him for disorderly conduct and he plead guilty. When I filed the citation at the court, the secretaries knew this guy by name and face. Turns out he had a long history of similar behavior with other local cops.

Physical Assaults

The results of this study indicate that the greatest risk for physical assault is while patrolling alone during the month of July and between the hours of four p.m. and midnight, and while enforcing laws other than fishing and boating, or a combination of laws. Most officers used hands-on control techniques to gain compliance of their assailants.

Assaults not only take physical and psychological tolls on the affected officer but also take financial tolls on their departments. Some of these incidents can be avoided by identifying factors relating to assaults and by raising officer awareness to those factors.

There are a plethora of published studies regarding physical assaults on officers. And, most law enforcement training is focused on teaching officers how to subdue an assailant. Of those officers in this study who reported an assault, most used force to control the situation and some sustained injuries, although none the injuries required medical attention beyond first aid.

Timothy Carter's (2004) study of conservation officers from Virginia revealed that officers from that state were most likely to be assaulted while patrolling alone in a rural area after five p.m. and while enforcing laws outside the scope of fishing and hunting. Belvedere's (2005) study of rural police found that most assaults occurred between early evening and midnight by twenty-eight year old males and that an officer's experience, education, age, race, and size were not significant variables in a suspect's decision to resist arrest. He also found that those who had been fighting prior to or during the encounter with law enforcement were most likely to resist arrest and to assault an officer. And, that there was a direct correlation between the severity of the offense and the suspects willingness to resist arrest or assault an officer. Also, resistance and assault were highest when the suspect did not recognize the officers authority, which is often the case with conservation officers performing general law enforcement duties.

In this study, six waterways conservation officers reported eight assaults over the previous three years. Only one deputy was assaulted but he was assaulted on three occasions. Variables that were considered were: law(s) being enforced; incident area; number of officers; month; time, and; force used. See [Appendix F](#) for a graphic representation of the results.

Of the laws being enforced, all of the deputy's cases involved violations of property regulations in the Fish and Boat Code (Title 30). In the case of the full-time officers: two were Fish and Boat Code; two were a combination of Title 30 and some other law, and; four were outside the scope of Title 30 altogether. The Title 30 violations break down as follows: one fishing without a license & false identification and one Commission-owned property violation where the suspect was shooting at random . The combined offenses involved two cases of Commission-owned property violations and drugs. The other offenses involved: two cases of third party assault; one harassment of access area users, and; one case of statutory rape and drugs.

All three of the deputy's assaults happened while patrolling alone and in a rural area during the month of July between the hours of four p.m. and midnight. He was able to gain control of all three suspects through hands-on control techniques. In the patrol data section of the study this officer indicated that he most often worked alone and from 1600 to 2400 hours during the summer months. He also logged over 1000 hours of patrol time each year, far more than any of the other deputies.

This section deals specifically with full-time officers. Six of the eight assaults occurred while the officer was patrolling alone. Regarding location: two occurred in rural areas; two in suburban areas, and; four in urban areas. Months of occurrence were: one in May; two in June; four in July, and; one in December. Times of occurrence were: three between 0700 and 1200 hours; two between 1200 and 1600 hours, and; three between 1600 and 2400 hours. These officers used the following force to gain compliance: four used hands-on control techniques; two used OC spray, and; two used their firearm.

The results of this study indicate that officers are most likely to be assaulted while working alone. Such was the case with a full-time waterways conservation officer named Jim. Jim's case varies from the norm in other respects. Jim was patrolling in an urban environment but the area where he was assaulted at was isolated and wooded. His initial contact was a potential fishing violation and no evidence of any other criminal activity was uncovered. Also, his assault occurred in the early afternoon in the month of June.

There aren't a whole lot of urban wardens in the state but I'm one of them. I work in a densely populated area in the outskirts of one of the largest cities in the state. I've been doing this work for eighteen years now and I still love it. One of the officers who used to work down here before me, he's retired now, used to always say, "never leave the boat," you know, like in *Apocalypse Now*. I don't work that way. I run the patrol boat up and down this river and I'm not afraid to tie it off and check shore fishermen, although it does get me into trouble sometimes. You just never know what you're going to find down by the river.

For instance, last June, at around one p.m., I was patrolling alone when I saw a young guy in his mid-twenties fishing along the river in a sort of out of the way place behind an industrial complex. I watched him for awhile with my binoculars before approaching him. The guy didn't have a fishing license and he didn't have any identification. I told him to tell me who he was and that I would call it into county control for verification. He started running away as I was making the call. I think I'm in pretty good shape and I like a challenge, so I ran after him. I was yelling commands at him to stop during the pursuit but he didn't listen. We were running on a macadam road and I caught up to him pretty quick

but I remember thinking that if I tackled him there it was going to be a pretty rough landing. I tried grabbing his arms but he kept flailing back at me and hitting me, trying to push me away, so I ran in front of him and sprayed him in the face with my OC. MOST of it went on him but I still caught about ten percent of the blowback. So my eyes were watering and I was trying to grab him but he kept punching out at me and slapping me with his hands. And, I just couldn't get a good grip on him.

The guy gave me the slip and jumped down the embankment. He busted through that thick river bottom vegetation, leaving a pretty easy trail to follow. While he was busting through that stuff I tried to get some backup from the local P.D. but county control had no idea where I was at. They're not prepared to handle anything that doesn't have a street name and house address. I told them I was behind the industrial complex and down by the river but they kept asking for the nearest street intersection. I was losing time so I told them to do their best and hung up on them. I tracked the guy to a point where I knew he was boxed in and blinded from the OC. I could hear him making noises but I didn't know if he was armed so I just maintained my position until the local police finally arrived with a K9. We put the dog on his trail for the final flush and took him down in short order.

I'm still not sure what all the fuss was about. He wasn't wanted and the only weapon he had was a box cutter in his back pocket. I think he probably had drugs on him when I made the initial approach and he didn't want to get caught

with them. He probably threw them in the woods somewhere during the pursuit. That was just too crazy for a no-license pinch.

Use of Force

The results of this study indicate that the greatest risk for use of force is while patrolling with another officer in a rural area during the month of July and between the hours of four p.m. and midnight, while enforcing a combination of fishing or boating laws and general criminal laws, or when enforcing laws unrelated to fishing and boating. As with assaults, most officers used hands-on control techniques to gain compliance of their suspects.

In his study of conservation officers from Virginia, Timothy Carter (2004) found that conservation officers were more likely to use force when multiple officers were present and that they used force at a rate that was significantly higher than that of the state police. In their study of conservation officers from Florida, Patten and Caudill (2013) found that the majority of use of force situations occurred after 6 p.m. on weekends during summer months with suspects who were not engaged in hunting or fishing. They also discovered a national pattern of increased use of force and dangerous incidents involving conservation officers and boaters. They found that eighty-four percent of use of force incidents by conservation officers began as a result of boating infractions or some other crime not directly related to fishing or hunting.

Use of force in this study was defined as any use of hands-on control techniques, OC spray, ASP baton, or firearm used by the officer to effect compliance of a suspect during the course of performing the officer's duties. Unholstering of the OC spray, ASP baton, or firearm, whether employed or not, was classed as a use of force.

Half of the full-time officer respondents to this study reported using force within the past three years - thirteen officers reported twenty-nine use of force incidents. Two deputies reported using force, each reported one incident. Note that use of force applied in the control of assailants during a physical assault was not coded for this section and therefore represents additional incidents. Variables that were considered were: law(s) being enforced; incident area; number of officers; month; time, and; force used. See Appendix G for a graphic representation of the results.

Of the laws being enforced by the two deputies - one was a Fish and Boat Code (Title 30) violation and the other involved game and stolen property violations. In the case of the full-time officers: seven were Fish and Boat Code (Title 30); twelve were a combination of Title 30 and some other law, and; ten were outside the scope of Title 30 altogether. Regarding the full-time officers, the Title 30 violations break down as follows: four involved boating under the influence; one involved a summary boating violation; one involved a fishing violation, and; one involved a Commission-owned property violation. The combined offenses involved: five cases of Commission-owned property violations and drugs; one involved Commission-owned property violations, drugs, and stolen firearms; one involved littering, underage drinking, and fleeing; two involved a search warrant and firearms violations; one involved a summary arrest warrant and a felony arrest warrant from another state; one involved fishing without a license and assault of a third party with a knife, and; one involved drugs and a firearms violation on Commission property. The other offenses involved: two undefined criminal charges under Title 18; one barricaded gunman; three fleeing felons; one firearms violation; one drug case; one hit and run, and; one third party assault.

The deputies were both patrolling with another officer in rural areas between the hours of four p.m. and two a.m. when their incidents occurred. One incident happened in July and the other happened in October. One officer used hands-on control to subdue his suspect and the other drew his firearm.

This section deals specifically with full-time officers. Multiple officers were present in seventeen of the use of force incidents and the officer was alone in twelve cases. Regarding location: sixteen occurred in rural areas; three in suburban areas, and; ten in urban areas. Months of occurrence were: one in February; three in April; three in May; twelve in July; five in August; two in September; one in October, and; one in November. Times of occurrence were - eight were between 1200 and 1600 hours and twenty-one were between 1600 and 2400 hours. Officers used the following force to gain compliance: fifteen used hands-on control techniques; seven used OC spray; one used his ASP baton; twelve used their firearm, and; two used their shotgun.

Officers control the majority of tense situations through effective verbal communication, however, the authority and ability to use force is always implied. The study indicated that many of use of force incidents stemmed from enforcing a combination of Fish and Boat Code regulations and general crimes code laws. A waterways conservation officer named Jack described a case where he had to use a degree of force which was representative of the majority of the incidents reported in this study.

My district's pure Appalachian coal country. It's one of the top five largest districts in the state as far as square mileage goes but there aren't a lot of people in it. I've got a decent mix of townies, rednecks, hillbillies, and Amish. The hillbillies and Amish can be a problem when it comes to poaching fish and game

but, for the most part, we get along alright. The townies can be a problem in boating season because they give me the most attitude. The rednecks are a year-round problem for everything.

I've got a few boating and fishing access areas along the river that the rednecks like to trash. They'll shoot up my metal signs, rip down my plastic ones, build bonfires on the ramps, and bust beer bottles on the rocks. They usually do it at night and they're usually driving ATV's, which makes them tougher to catch.

I've had this county for nearly thirteen years now but the officer before me had it for over thirty. He was strictly a nine-to-five or twelve-to-eight kind of guy. He never let the deputies work after dark unless they were on a boating detail for fireworks or something. I've always preferred working nights because that's when the freaks come out.

I was on a night patrol with one of my deputies in August of 2011 when we ran into some outlaws downriver of town at one of my hot spots. I've got a place down the road where I can hide my truck and sneak up to a blind I built in the woods upslope of the boat landing where they like to party. We got in the blind and started counting heads and figuring out what we were dealing with. Unlike most of the rednecks who party here, these folks came in a pickup truck, which was parked on the top of the road near our blind, and they didn't have a fire going. The only lights they had were from their cell phones. We could still pick out their shapes pretty good with our binoculars because the moon was out. And, we could hear bits of what they were saying. There were six people down there and within an hour we saw all of them either bust beer bottles on the river rocks

or throw beer cans into the woods or into the river. By that time it was almost midnight and they had run out of beer. I saw one of the guys light up a pipe and by the way he did it I knew it was dope. I knew I could pick him out again because he was the tallest and skinniest dude down there and he had a weird - high pitched and girlish - voice. The pipe got passed around and I watched it go back into the tall dude's right pants pocket.

The group headed up the path once the pipe was spent. This is always the most dangerous time for me because I'm usually outnumbered and need to take control of the situation quickly, plus I don't know what kind of people I'm going to be dealing with. We got into position with me on one side of the trail and my deputy by the suspect's truck. We hunkered down until the last person broke out into the road and then we lit them up with our flashlights and identified ourselves as state officers. They all freaked out a little bit, like they'll sometimes do, but once we got them settled down we herded them to their truck and had all of them put their hands on the side of it, with their legs spread. We're pretty effective at shock and awe and we use strong verbal commands so we had pretty good control over this group. We had them reach into their pockets with one hand and pull out drivers licenses. We got ID from four of them and wrote down the info from the other two.

I then stood behind my tall dooper and told him to reach into his right pants pocket and pull out the pipe and weed. He turned his head back at me and said he didn't have any. When I patted the pocket with the pipe in it he tried to swing around on me but I grabbed his arm and wrenched it behind his back and drove

him to his knees. I cuffed him up and retrieved the dope and pipe in the subsequent pat down.

I know it's not a glamorous use of force story but it's pretty typical of what I run into. We wound up writing six littering charges, six control of property charges, two underage drinking charges, and the criminal charges for the marijuana and the paraphernalia. I never saw that group at any of my accesses again.

Only two of the deputy respondents reported that they used force within the previous three years. Deputy waterways conservation officer Kay reported an incident which involved enforcing hunting laws at night with another officer. His incident was the only reported use of force, including those reported by full-time officers, which stemmed from the enforcement of hunting laws. Interestingly, this case also involved other general crimes code violations.

I was working a case with my game deputy in October of 2011 when - at about one in the morning - all hell broke loose. We were sitting in his truck on the edge of a cornfield which was on private property enrolled in the cooperative hunting access program. The farmer had reported problems with people driving on his fields late at night and spotlighting deer. We had been in position for about three hours when we saw headlights leave the hardball and start coming down the farmers lane, which was posted closed to all vehicle traffic. We saw that it was a truck and we saw the truck cut through the field and stop. A spotlight came out the driver's side window and scanned the cut corn field, illuminating deer eyes

about 100 yards away. Then a rifle shot came from out of the passenger side window and the deer dropped - Game On!

We turned on our lights and hauled ass across the field towards them. We had them boxed in because of a ditch and the tree line. Instead of either giving up or getting stuck in the ditch, they spun their truck around and came straight at us, almost hitting us. The farmer had also heard the shot and ran out of the house and onto the lane - they almost hit him too.

We pursued the vehicle for nearly twenty miles before we were able to get it stopped with the help of a local police department. We had a heck of a time getting backup because the radio and cell coverage was so bad in that area. It took us ten miles until we were in a spot where dispatch could hear us and where we could give them street signs to tell them where we were at. Not only that, we also crossed over county lines and through areas that only the state police cover. The state police barracks is nowhere near where we were and we couldn't count on them. Fortunately, our suspects led us straight into the biggest city in the county and the local cops were on the ball.

We assisted the locals with a felony vehicle stop. We all had our weapons out and had our sights on target but, fortunately, we didn't have to do any shooting. Turned out that both the occupants were wanted on felony charges and there was a good number of stolen weapons and other property in the vehicle that were traced back to a recent spree of home invasions.

Accidents, Injuries and Illnesses

Waterways conservation officers are exposed to greater risks for accidents,

injuries and illnesses than are traditional police. This is due to the unconventional nature of their work requirements, such as: driving long distances both on road and off; operating motorboats; foot patrols in varying weather conditions and across diverse terrain (to include frozen water bodies), and; exposure to venomous snakes and disease-bearing insects.

The study results seem to indicate that waterways conservation officers and their deputies are more likely to be involved in an accident with a vehicle but are most likely to be injured while patrolling on foot or by boat.

Ten of the full-time officer respondents to this study reported a total of thirteen accidents within the past three years - eleven involved vehicles and two involved boats. Most of the accidents were minor collisions which resulted in property damage but no injuries, however, one boat accident was significant and will be highlighted with a narrative inquiry. Two deputies reported a total of three accidents - two involving boats and one involving a vehicle. The boat accidents involved property damage only but the vehicle accident caused a minor head injury and treatment beyond first aid.

Over half of the full-time officer respondents reported being injured or suffering a job-related illness within the past three years. Four were a result of assaults and one was a result of use of force. Fourteen officers reported a total of twenty-seven injuries and illnesses, broken down as follows: two suffered back injuries (both from boats); six sustained bruises (three from boats); two were cut; one neck injury (boat); one knee injury (boat); one elbow injury; one foot injury; one suffered multiple injuries from exposure to chemicals; two had shoulder injuries; two suffered puncture wounds; five

reported miscellaneous injuries from trips and falls, and; three were infected from tick bites - one case of Rocky Mountain Spotted Fever & two cases of Lyme's Disease.

Nearly half of the deputy respondents reported being injured or suffering a job-related illness within the past three years. None resulted from assaults or use of force. Eight officers reported a total of eleven injuries and illnesses, broken down as follows: three suffered injuries to their head or face (one from a boat); one was bitten by a dog; two had back injuries (boat); one was cut; one injured his shoulder; one went into diabetic shock on patrol, and; two suffered miscellaneous injuries as a result of trips and falls.

Waterways conservation officer Stone reported an unusual incident which resulted in an illness/injury. He was exposed to chemicals involved in the production of methamphetamines. His exposure occurred as a result of a fish kill investigation.

I'd been on the job for about five years when I got called out to investigate a fish kill in a stream that ran through a town in my neighboring district. That was two summers ago. The district was vacant at the time and I was covering half of it. Anyway, this was a pretty good stream and it had all types of fish in it - all of them were dead! I'd never seen anything like it before and figured someone must have dumped chemicals in the water. I started at the mouth of the stream and walked my way up it, checking out every pipe or other source it might have come from. I figured that I'd get to a point where I'd see something obvious or start to see live fish again, so that I could narrow down the source.

I found what I was looking for about half a mile upstream from the mouth. There was a bridge crossing the creek and in the middle of the stream was a large metal cylinder like what's used for soda. I don't have much exposure to meth cooks, so I didn't recognize it for what it was - anhydrous ammonia. I walked up to it and saw the top of it had a weird weld seam on it. I smelled something strange then too. Whatever gasses were coming out of it were killing everything in the stream and they were concentrated under the bridge where I was standing. I started to feel light headed and backed out of there quick. I contacted the local state police barracks and they knew what they were looking at. A special hazardous materials team was called in to remove the mess in the creek.

I began feeling better after I got away from the bridge but, later on, after the I got home, I felt like I had the flu. When I woke up the next morning I felt terrible and was blowing globs of blood from my nose. I went to the hospital to get checked but they said it was just a sinus infection.

The majority of the accidents reported in this survey involved minor collisions with motor vehicles and boats. Most of those accidents resulted in no injuries, however, the potential exists for severe injury or death. A waterways conservation officer named Hayes described a boat accident which resulted in injuries severe enough to end the service of one of his best deputies.

I've been on the job for about twelve years now, nearly half of it here in the city. I've got a busy boating pool and I spend most of the summer on the river. Boating on the big water is a whole different kind of patrol. I've got motorboats of all types and sizes mixed in with canoes and kayaks. I've got

gravel bars and other obstacles to watch out for. And, I've got locks I have to pass through. Out of all my headaches I'd have to say that the barges are the worst, especially after what happened three summers ago.

I had a great deputy. He was one of those hard-charging guys who knew his stuff and wasn't afraid of anything. He was the type of guy you just knew was going to become a full-time officer. He even took vacation from his regular job for the whole month of July so that he could patrol the river with me. I was out in my twenty-one foot SeaArk one day with this deputy and another WCO, who I let run the boat, when we came around a bend in the river and hit a wall of water which flipped the boat on its side. I know it sounds weird but these barges that run on the river send out a massive wake behind them. Their wakes sort off take on a life of their own like that saying about a butterfly flapping its wings in California and causing a tsunami in Japan or whatever. The wall of water we ran into came from a barge that was about half a mile upriver from us - out of sight and earshot. It just plain sucker punched us.

When our boat flipped on its side I was thrown from the passenger seat and into the operator console. I suffered some sprains and bruises and was sore for a while but didn't need any medical help. The operator was a little banged up too but he was alright. My deputy wasn't so lucky. He was thrown around the inside of the boat and busted his face on something. He broke his jaw and eight of his teeth. He was out of work for six months. I never got him back - the Commission found him unfit for duty after that and forced him to resign.

Limitations of the Study

Limitations of this study include its applicability to other conservation agencies, the sample size of the study group, and the manner in which criminal violations are handled by waterways conservation officers and deputies.

This is a specific study of a small niche of conservation law enforcement. The results may prove useful for other conservation agencies in regard to risk factors pertaining to the enforcement of fishing, boating, property and non natural resource laws. However this study does not include risk factors specific to the enforcement of hunting laws because Pennsylvania is the only state where hunting and fishing are enforced by separate agencies.

Although this study represents nearly half of the full-time field officers and close to a fifth of the deputy force, it would be helpful to survey an equally representative sample of both in order to make comparisons. Also, all of the volunteers for this survey were males, although the Bureau does employ full-time and deputy female officers. In addition, one region did not participate in this survey at all. It would be useful to get more diversity and an equal representation of waterways conservation officers and deputies from each region across the state.

There are three reasons why the number of criminal charges filed by waterways conservation officers and deputies is not an accurate measure of the total number of criminal violations they encounter. The first reason is that the Bureau's standard operating procedures requires officers to turn criminal violations over to other state and local agencies for prosecution whenever possible. Officers will not normally turn over a case if there are multiple violations and one of them falls under the Fish and Boat Code,

because doing so takes prosecution authority out of their control. Otherwise, they are usually more than willing to pass on the responsibility. The second reason is that there are a number of misdemeanor criminal offenses under Title 18 which can be written up as summary violations under the Fish and Boat Code or as a summary disorderly conduct charge under Title 18. Deputies may also write criminal violations, such as underage drinking and possession of small amounts of marijuana, as summary violations under the Control of Property section of the Fish and Boat Code. Most defendants will not argue with an officer who is willing to write them a summary ticket instead of filing a criminal charge against them. The third reason is that many of the assists given to other law enforcement agencies involve criminal cases and the lead agency is responsible for filing the charges.

CHAPTER V: DISCUSSION

Conclusion

This research identified risk factors inherent to conservation law enforcement through the analyses of published studies of conservation agencies in Virginia, Florida and Louisiana. It also analyzed an original study of waterways conservation officers and deputies from the Pennsylvania Fish and Boat Commission. The results indicate that there is consistency between the patrol strategies and officer risk factors between these four states.

Today's conservation officers have evolved a general police posture which puts them more in line with full-service police agencies, however, the nature of their patrol practices places them at a greater risk for assault and use of force than traditional police. Conservation officers engage in higher risk patrols when they work alone and at night in

isolated and remote areas while on foot or by boat without readily available backup.

Waterways conservation officers focus primarily on those laws related to natural resource protection. However the nature of their patrol responsibilities leads them into isolated wooded areas and waterways where crimes occur beneath the radar of local and state police agencies. Many of these lands and waters are state-owned or controlled, which leads to non-resource related crimes being detected during the course of routine compliance checks. Non-resource related crimes represented a fraction of their enforcement actions yet were responsible for the majority of the use of force and assault incidents which were reported.

This study indicates that waterways conservation officers were most likely to be assaulted or to use force while enforcing boating, crimes code, or a combination of Title 30 and crimes code violations in a rural area during the month of July and between the hours of four p.m. and midnight. Officers were most likely to be physically assaulted while patrolling alone and most likely to use force when another officer was present. The study also indicated that conservation officers experience accidents most often in motor vehicles but are most likely to be injured while patrolling on foot or by boat.

Finally, the study indicated that full-time waterways conservation officers used force and were exposed to assaults at a higher rate than deputies were. There are many variables which could explain this disparity but the four most glaring are that full-time officers worked more often alone and at night, enforced criminal laws outside the scope of the Fish and Boat Code, and assisted other law enforcement agencies at a higher rate than deputies did.

Policy Implications

This study indicates that the Pennsylvania Fish and Boat Commission should consider changes to its policies on partnered patrol and should actively recruit and train waterways conservation officers and deputies.

The greatest risks of assault to waterways conservation officers are when working alone and at night during the month of July. Waterways conservation officers need to work evening shifts during the summer months in order to effectively enforce boating, fishing and property laws and regulations. In order to mitigate the risks of assault it would appear that the Commission needs to reevaluate the patrol strategies of its field officers and determine ways in which they could engage in partnered patrol while working night shifts during the summer months. This will require an increase in manpower.

Assuming that those officers who volunteered for this study are representative of the Bureau as a whole, both the full-time and deputy work force have a depth of experience and maturity. The downside to this is that the Bureau is dangerously close to a significant degradation of effectiveness if it does not receive a quick infusion of young cadets to fill its ranks. The full-time waterways conservation officers are eligible to retire without penalty at age fifty with twenty years of state law enforcement service. Additionally, the Bureau currently has thirteen full-time officer position that were vacated due to retirements and which they have been unable to fill due to budget cuts. Deputies do not receive any stipend upon retirement and may continue to serve as long as they meet the minimum annual requirements for recommission. However their ranks have dropped by nearly a third over the past decade and few eligible candidates have

expressed interest in filling their positions. Recruitment and retention of both salaried and deputy waterways conservation officers should be considered a top priority in order to keep the Commission's enforcement program effective and to increase the safety of its officers.

Recommendations for Future Research

This study represents incidents involving waterways conservation officers and their deputies over a three-year time span. A longitudinal study covering the past two decades would be useful to confirm a correlation between assaults and use of force as they pertain to the enforcement of crimes outside the scope of Title 30. This could be done by comparing administrative report data and UCR data for the agency between the period of 1987 and 2013. 1987 was the first year that waterways conservation officers attended the state police academy as part of their initial training program.

The literature review for this paper included conservation officer safety factors from published studies which included the enforcement of hunting laws. Since Pennsylvania has separate agencies which are responsible for the enforcement of hunting and fishing laws, this study should be conducted with wildlife conservation officers from the Pennsylvania Game Commission in order to compare their risk factors against the results of the study conducted for waterways conservation officers.

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APPENDICES

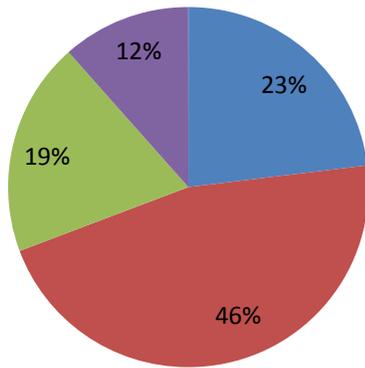
Appendix A

Age and Years of Service

Waterways Conservation Officers and Deputies

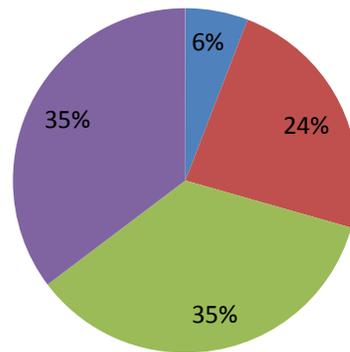
WCO Age

30-40 yrs: 6 40-50 yrs: 12
 50-60 yrs: 5 60-65 yrs: 3



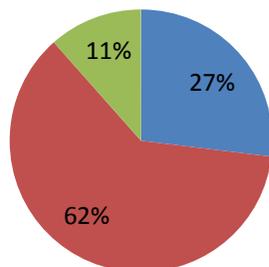
DWCO Age

30-40 yrs: 1 40-50 yrs: 4
 50-60 yrs: 6 60-70 yrs: 6



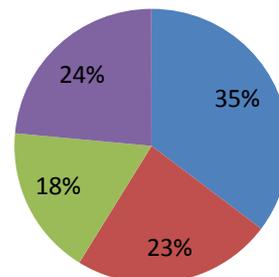
WCO Years of Service

3-10 yrs: 7 10-20 yrs: 16
 20-30 yrs: 3



DWCO Years of Service

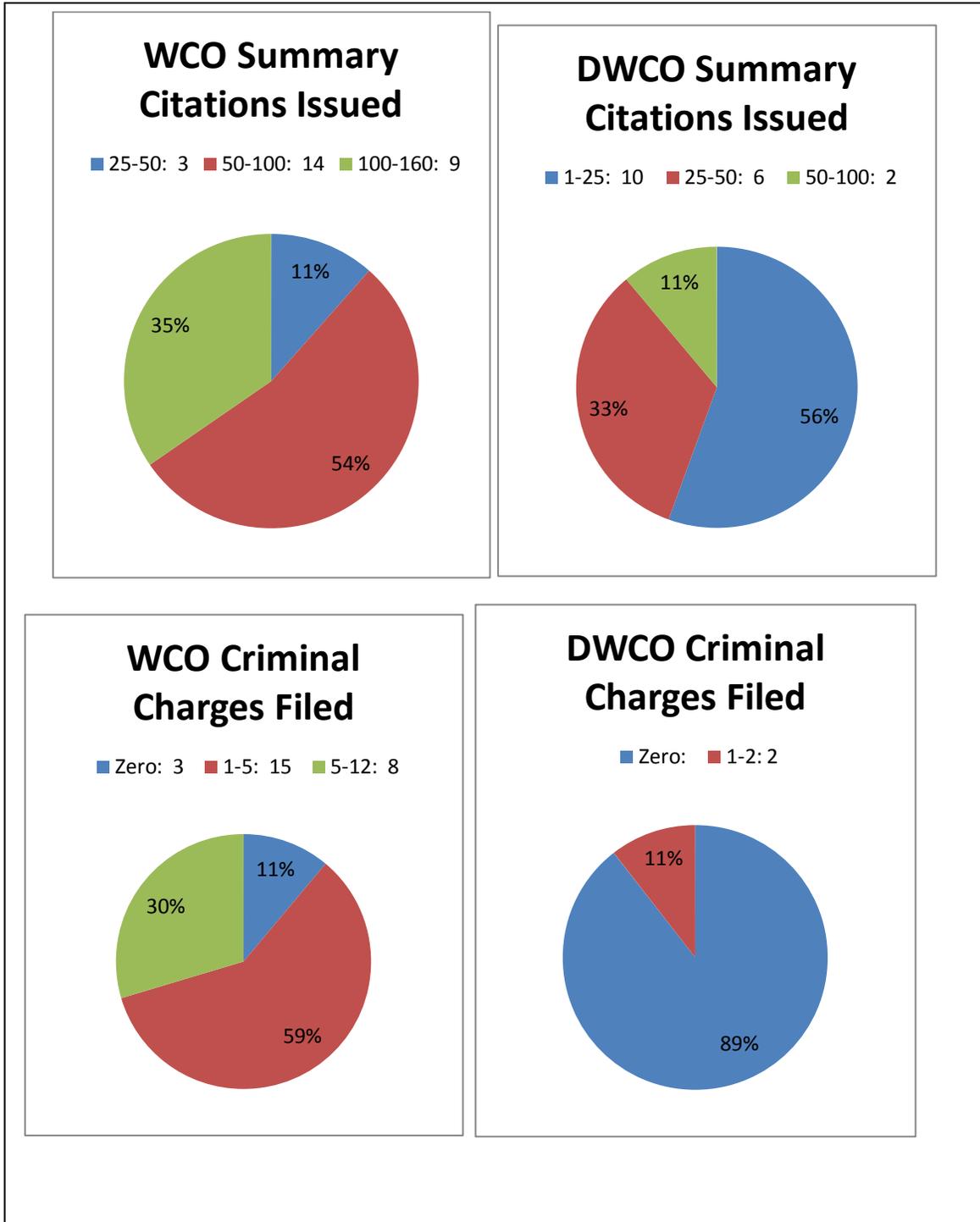
1-10 yrs: 6 10-20 yrs: 4
 20-30 yrs: 3 30-40 yrs: 4



Appendix B

Summary Title 30 Citations and Criminal Charges

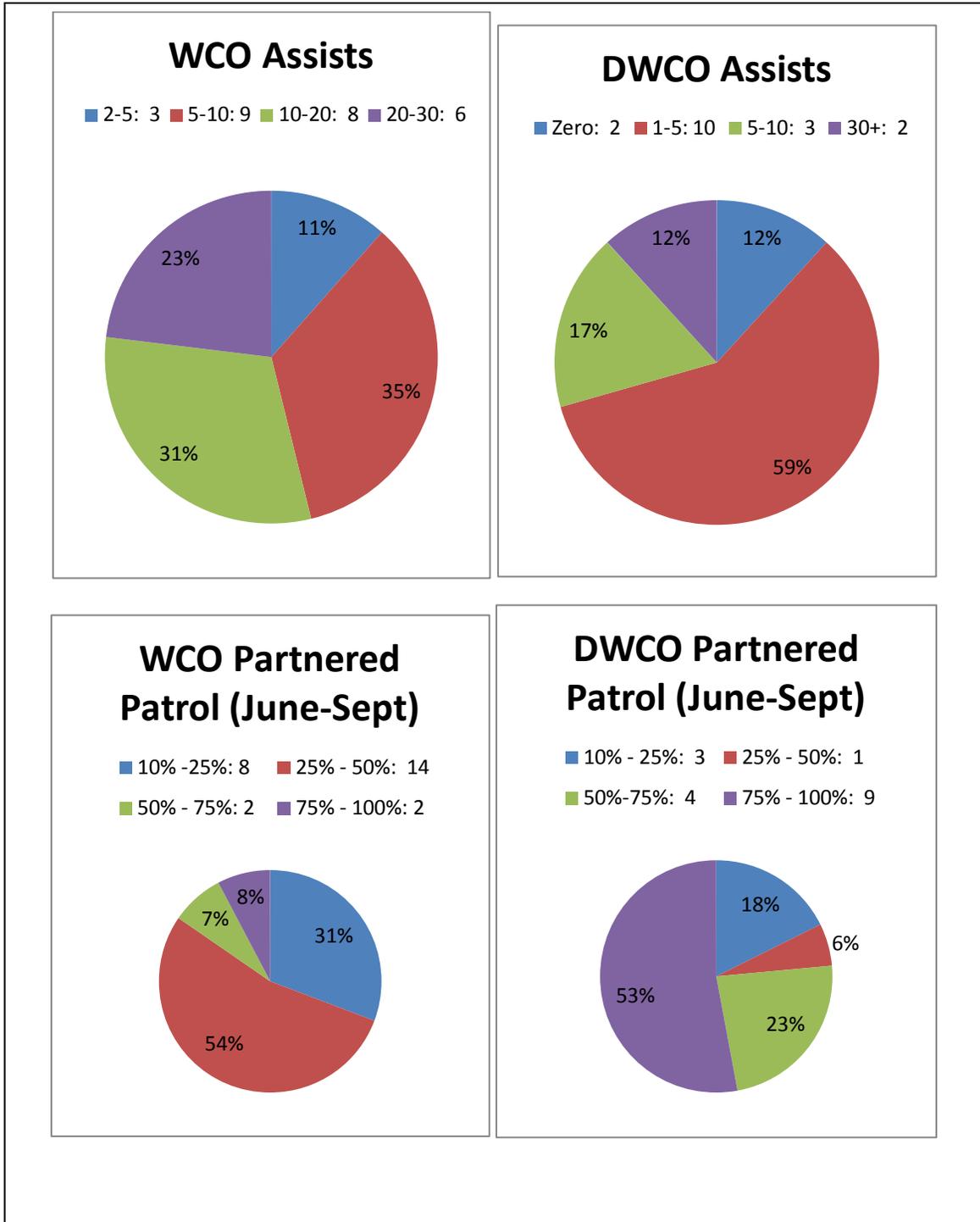
Waterways Conservation Officers and Deputies



Appendix C

Assists and Partnered Patrol

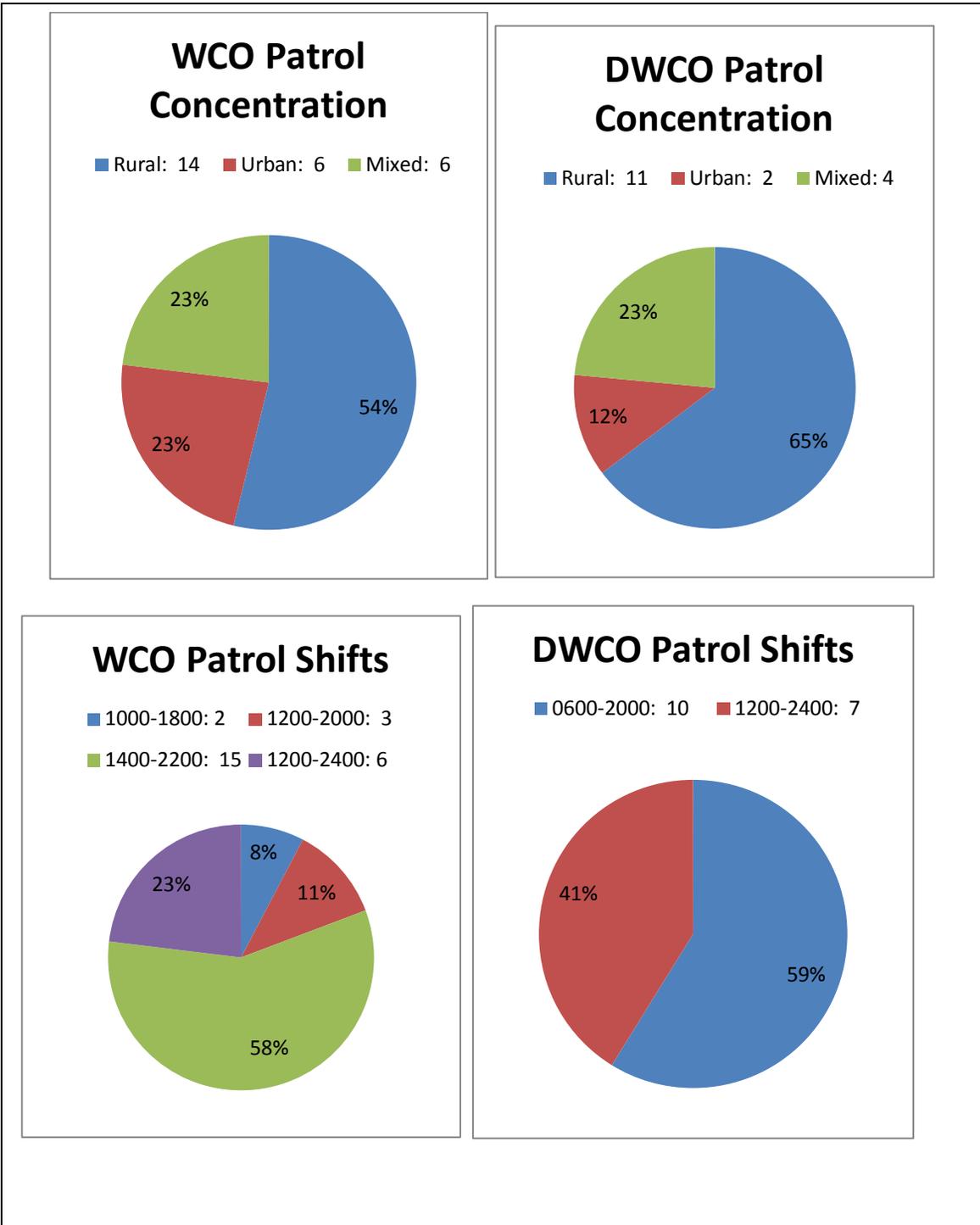
Waterways Conservation Officers and Deputies



Appendix D

Patrol Concentration and Shifts

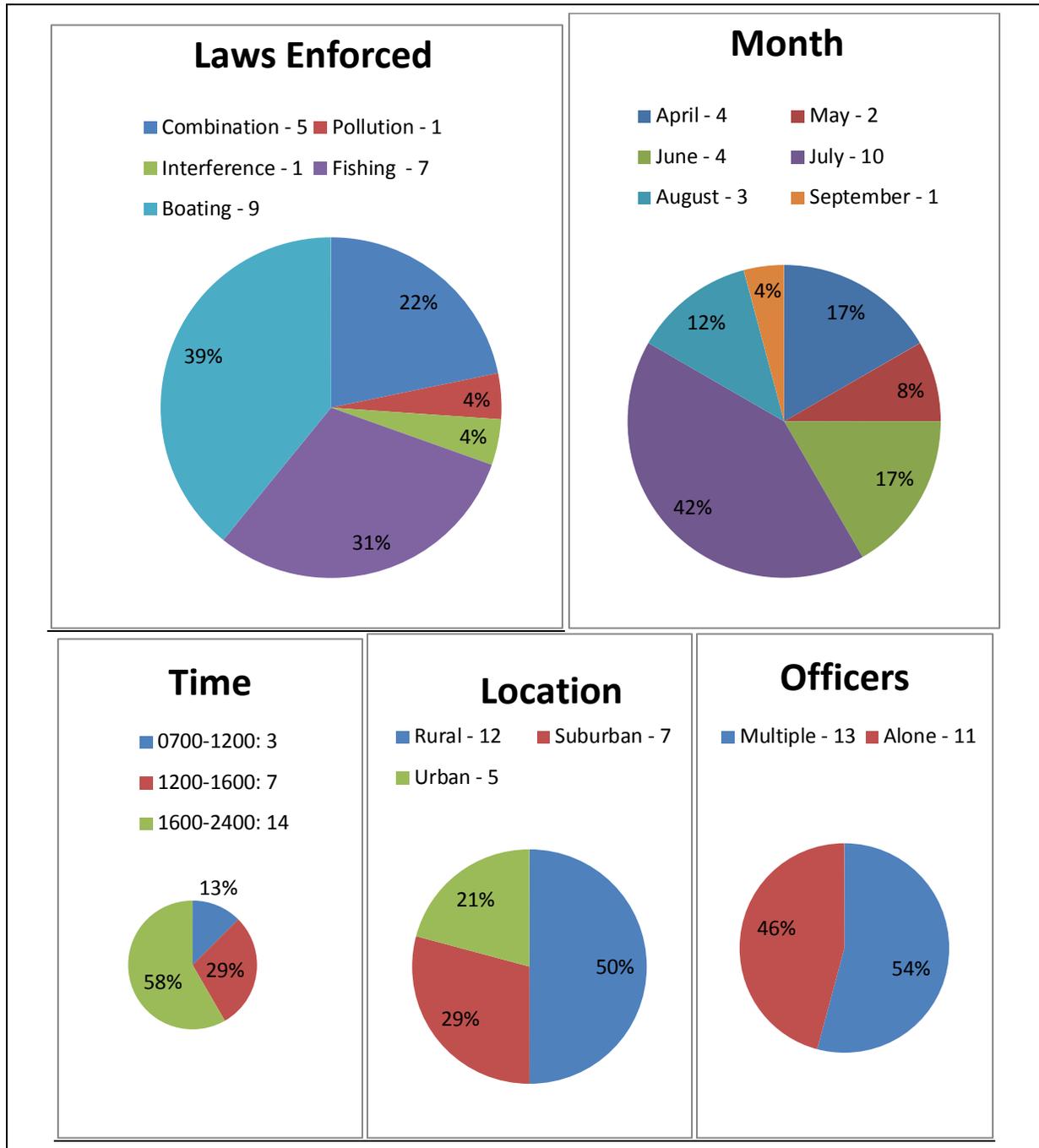
Waterways Conservation Officers and Deputies: Weekends - June through September



Appendix E

Verbal Assaults

Waterways Conservation Officers and Deputies



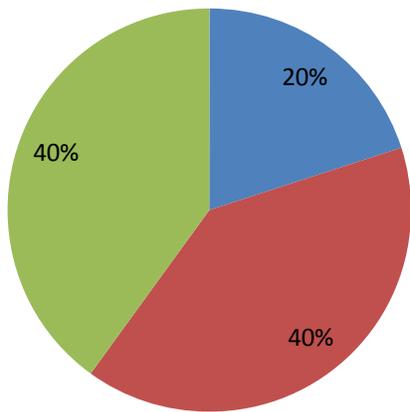
Appendix F

Physical Assaults

Waterways Conservation Officers and Deputies

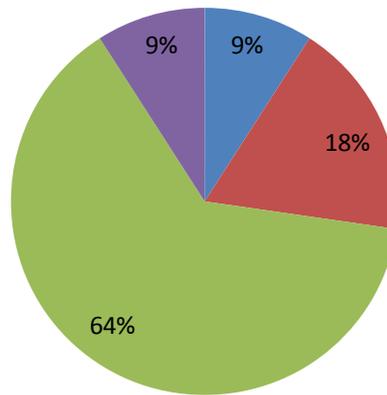
Laws Enforced

- Combination - 2
- Property - 5
- Crimes Code - 4



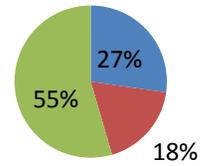
Month

- May - 1
- June - 2
- July - 7
- December - 1



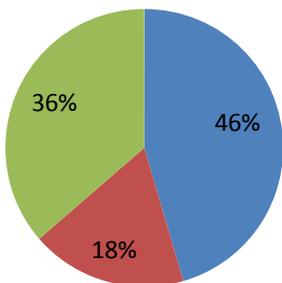
Time

- 0700-1200: 3
- 1200-1600: 2
- 1600-2400: 6



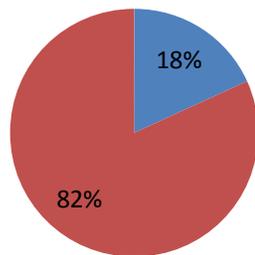
Location

- Rural - 5
- Suburban - 2
- Urban - 4



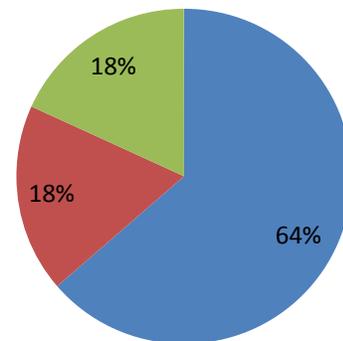
Officers

- Multiple - 2
- Alone - 9



Force Response

- Hands On - 7
- Sidearm - 2
- OC Spray - 2



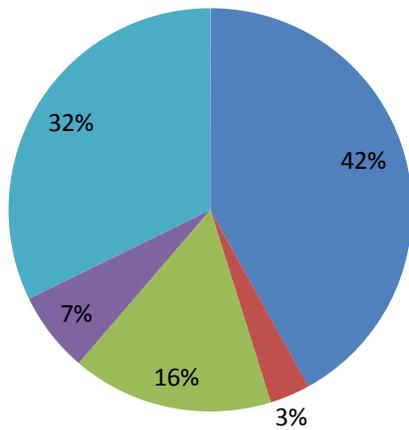
Appendix G

Use of Force

Waterways Conservation Officers and Deputies

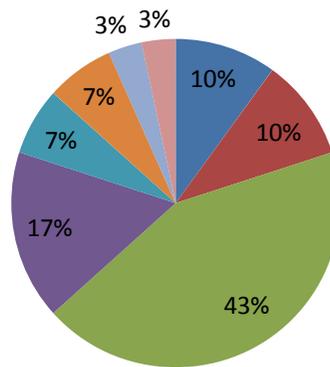
Laws Enforced

- Combination - 13
- Fishing - 1
- Boating - 5
- Property - 2
- Crimes Code - 10



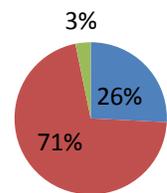
Month

- April - 3
- May - 3
- July - 13
- August - 5
- September - 2
- October - 2
- November - 1
- December - 1



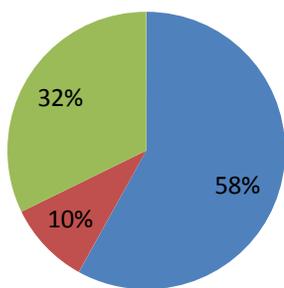
Time

- 1200-1600: 8
- 1600-2400: 22
- 2400-0700: 1



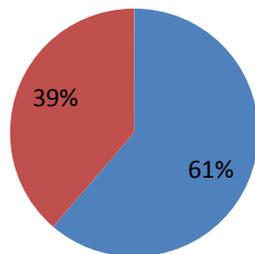
Location

- Rural - 18
- Suburban - 3
- Urban - 10



Officers

- Multiple - 19
- Alone - 12



Force Response

- Hands On - 16
- Sidearm - 13
- OC Spray - 7
- Shotgun - 2
- ASP Baton - 1

