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**Female Scuba Diving Leisure Constraints: A Comparative Study  
Between Women Divers Hall of Fame and Non Hall of Fame  
Divers**

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FEMALE SCUBA DIVING LEISURE CONSTRAINTS:

A COMPARATIVE STUDY BETWEEN WOMEN DIVERS HALL OF FAME AND  
NON HALL OF FAME DIVERS

BY

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## TABLE OF CONTENTS

|   |    |
|---|----|
| CHAPTER 1   |    |
| Introduction.....   | 1  |
| Statement of The Problem .....                                    | 3  |
| Significance of The Study.....                                    | 4  |
| Research Questions.....   | 5  |
| Assumptions.....  | 5  |
| Limitations .....   | 6  |
| Delimitations.....  | 6  |
| Operational Definitions.....                                      | 6  |
| CHAPTER 2   |    |
| Literature Review .....   | 8  |
| Section One: History of female recreational activity.....         | 8  |
| Early Female Sport Participation Patterns .....                   | 9  |
| Women’s Sport Participation in The 20 <sup>th</sup> Century ..... | 9  |
| History of Scuba Diving .....                                     | 11 |
| Section Two: Leisure Constraints .....                            | 15 |
| Structural Factors .....  | 16 |
| Intrapersonal Factors .....                                       | 17 |
| Interpersonal Factors .....                                       | 18 |
| Negotiation Strategies .....                                      | 19 |
| Section Three: Self-Efficacy.....                                 | 20 |
| Section Four: Pioneer Women Scuba Divers.....                     | 23 |
| Dr. Sylvia Earl .....   | 23 |
| Dottie Frazer .....   | 24 |
| Zale Parry .....  | 25 |
| Dr. Eugenie Clark .....   | 25 |
| Norine Rouse .....  | 26 |
| Kati Garner.....  | 26 |
| CHAPTER 3   |    |
| Methods .....   | 28 |
| Participants .....  | 28 |
| Instruments .....   | 29 |
| Data Collection Procedures .....                                  | 31 |
| Data Analysis .....   | 32 |
| CHAPTER 4   |    |
| References for Chapters 1-3.....                                  | 34 |
| CHAPTER 5   |    |
| Manuscript in Journal Article Format .....                        | 40 |
| Introduction .....  | 40 |
| Literature Review.....  | 42 |
| Constraint Theory.....  | 42 |

|  |    |
|--|----|
| Negotiation Strategies .....                                     | 45 |
| Self-Efficacy .....  | 46 |
| Method .....   | 49 |
| Data Collection .....  | 49 |
| Instruments.....   | 49 |
| Results .....  | 52 |
| Participants Descriptive Statistic .....                         | 52 |
| Research Questions-Data Analysis .....                           | 59 |
| Discussion .....   | 61 |
| Self-Efficacy and Participation .....                            | 62 |
| Self-Efficacy and Negotiation Strategies.....                    | 64 |
| Limitations .....  | 65 |
| Conclusion .....   | 65 |
| Future Directions .....  | 66 |
| References.....  | 68 |
| Appendices .....   | 74 |
| Appendix A: Cover Letter .....                                   | 74 |
| Appendix B: Demographics Questionnaire .....                     | 75 |
| Appendix C: Constraint Survey .....                              | 80 |
| Appendix D: Outdoor Recreation Self-Efficacy Survey (ORSE) ..... | 81 |

## Abstract

Despite considerable advances in recreational leisure constraint research, there have been virtually no studies conducted specifically to explore the impact of constraints on female scuba divers. Recreational adventure research in the area of Scuba Diving has primarily focused on men's experiences. Until the 1970's, Scuba diving was a male dominated activity existing within cultural norms and expectations associated with dominant gender ideology (Sleeper & Bangasser, 1979; Hauser, 1976). During the last 20 years, Scuba diving participation among females has increased and numerous female leaders, innovators and mentors have emerged (Jennings, 2007; Women Divers Hall of Fame, 2016). The Scuba diving industry would greatly benefit from research focused on women diver's constraints, which would help guide marketing toward niche markets. This paper uses two survey instruments to explore the relationship between Women Divers Hall of Fame (HOF) and non-hall of fame (NHOF) female divers with leisure constraints. The first is a revised survey from Lyu and Oh, (2014) on the constraint negotiation process, which measures interconnections between leisure constraints, self-efficacy and negotiation strategies. The second survey is The Outdoor Recreation Self-efficacy (ORSE) survey by Mittelstaedt and Jones (2009) which measures the self-efficacy level of women who participate in outdoor recreation activities. A total of 200 participants (HOF=18, NHOF=182) completed the online surveys to participate in the study.



## CHAPTER 1

### INTRODUCTION

Recreational activity has been a part of American society since sports became more formally organized in the mid to late 19<sup>th</sup> century (Hargreaves & Anderson, 2014). Leisure became a byproduct of the Industrial Revolution and resulting urbanization which saw a shift away from rural, agricultural forms of work to more “modern” industries with formal work hours and schedules. The need to fill non-work time resulted in the rise of both spectator and participatory sport and by the late 19<sup>th</sup> century formal recreation programs were on the rise (Couturier & Chepko, 2001).

Snorkeling and scuba diving, as a recreational activity, also became popular as people structured their leisure activities around bodies of water. Waterfront vacations became much more fashionable and industries revolving around water sports began to grow (Jennings, 2011). Within the same time frame, the women’s rights movement also began to grow. Throughout most of world history, sport fell within the almost exclusive domain of men (Hargreaves & Anderson, 2014). Dominant gender ideology discouraged active physical activity for women and resulted in male domination of most early forms of physical recreation (Couturier & Chepko, 2001). This certainly was the case with virtually all team sports and many individual sports such as hunting, fishing and horse racing. The first modern Olympic Games held in 1896 had 245 men participating and 0 women (Polley, 2014)

As the women’s movement began to take hold in the early 20<sup>th</sup> century and women began to infiltrate more bastions of male dominated social worlds, the barriers for women began to break down. Initially, certain individual sports such as tennis and

swimming were deemed “acceptable” for female participation (Brylske, 2012, p. 191). Today, while women have gained access and a degree of social acceptability to Scuba diving, this recreational sport remains male dominated and male centered (Brylske, 2012; Diving Equipment and Marketing Association- DEMA, 2014). There are approximately 6 million scuba divers certified worldwide who participate in scuba diving, and according to DEMA there is an estimated 2.7 million Americans who enjoy recreational scuba diving every year (Walter, 2000; DEMA, 2014).

An examination of factors contributing to the imbalance between male and female active divers would benefit an industry seeking to broaden the number of participants and generate new sources of revenue. Based on other male dominated sports and activities that have identified certain constraints as barriers to female participation, the scuba diving industry needs to examine the potential constraints that keep female active participation lower than males. In the sport of Ice Hockey, for example as women became more engaged in the sport more gender appropriate equipment was designed that improved the comfort and ease of movement for women and contributed to the continued growth of female participation (Gilenstam, K., Henriksson-Larsen, K., & Thorsen, K., 2009). Similarly, with Scuba the cumbersome male designed equipment has been a constraint that female divers have had to overcome (Brylske, 2012; Hauser, 1994).

The early development of Scuba diving as a recreational sport and 20<sup>th</sup> century women’s rights movements ran on parallel tracks. Women gained rights to vote, which empowered them to display their gender independence and freedom from cultural male jurisdiction. Predominant gender ideologies have influenced cultural, social and psychological constraints that remain to limit female participation in most sports

including scuba diving. Unaffected by the gender constraint that recreational scuba diving was unladylike, or it was harmful, or women should depend on men at all times, female divers have shown an ability to negotiate the effects of water pressure, the physical discomforts of the cumbersome male designed equipment, and the fundamentals of dive technique and skills to become accepted competent dive buddies (Walter, 2000). There is a need to examine current constraints in today's female diving cultural context by investigating constraint negotiation strategies adapted by women divers and to ascertain if the role of self-efficacy functions as motivation for continued participation in scuba today. While scuba diving takes place in an environment that is intrinsically aggressive to divers, women are not as restricted by male hegemony (Sleeper & Bangasser, 1979).

### **Statement of the problem**

Recreation researchers have identified several leisure constraints that are particularly salient to women because of traditional roles associated with gender ideology. These constraints include: accessible time, decision-making, family responsibilities or an ethic of care, body image, lack of a leisure activity partner, social inappropriateness of the activity, lack of money, lack of skills, and an availability of facilities (Dimmock & Wilson, 2011; Godbey, Crawford & Shen, 2011; Hauser, 1976; Hubbard & Mannell, 2001; Lloyd & Little, 2005; Loucks-Atkinson & Mannell 2007; Little, 2002; O'Neill & Morgan 1992; Shaw, 1994; Sleeper & Bangasser 1979).

Constraints that disproportionately impact women have led to the development of negotiating strategies among female divers. These strategies involve: prioritizing, compromising, creative awareness, and anticipation (Little, 2002). Some of these constraints are still embedded within the broader social barriers women face in a wide

range of social and professional settings, while other constraints are subtler and relate specifically to the sport of scuba itself. This clear delineation of gender roles influenced early female scuba participation patterns. Scuba was deemed appropriate only for men based on the dominant gender ideology, which held that women were inferior diving candidates because they lacked the strength and skills necessary to participate (Brylske, 2012).

### **Significance of the Study**

Today Scuba diving is one of the world's fastest growing adventure recreational sports; however, that growth has been disproportionately male dominated (Stolk, Markwell & Jenkins, 2007) Scuba has been a male dominated industry since its inception, and according to a recent 2014 survey by Diving Equipment Marketing Association (DEMA), there is an estimated 2.7 to 3.5 million certified scuba divers in the United States. Women represent 35% of basic open water certification classes which has risen from 2000 when statistics showed an estimated 28% of new divers were female (DEMA, 2014; Walter, 2000). While scuba diving takes place in the underwater environment, which requires explicit equipment to participate, such as a buoyancy compensator device (BCD), compressed-air tank, regulator for breathing, mask, fins, snorkel, computer, PSI gauge, and various safety equipment; recent research shows that sales for hard equipment i.e. computers, regulators, and buoyancy compensators is purchased more frequently by 78% male divers versus 22% female divers (DEMA, 2014; Walter, 2000). The proportion of women to men is growing, however; there is a clear gender disparity in the purchase of scuba equipment.

This disparity in equipment purchase may point toward a relationship and determinant of diving limitations within sport participation. In order to maximize growth potential, the scuba industry needs to develop marketing strategies that target women. It would thus be beneficial to conduct market research that examines (a) existing constraints that function as barriers toward female divers; (b) negotiation strategies female divers are likely to use (i.e. behavioral and cognitive), to minimize the influence of constraints; (c) investigate a measure of commitment for more frequent participation and (d) the relationship of self-efficacy between HOF and NHOF women divers (Mittelstaedt & Jones, 2009). The results may be applied towards understanding female divers' constraints and how to market existing and potentially new divers, thereby increasing growth through participation, product purchases and sustainability for this recreational sport.

### **Research Questions**

In order to gain beneficial information on the constraints faced by female scuba divers, this study will address the following research questions:

1. What are the constraints that inhibit female participation in Scuba?
2. What is the relationship between self-efficacy and leisure constraints?
3. Is there a relationship between self-efficacy and negotiating strategies among female scuba divers?
4. Are there differences in the relationships among self-efficacy, leisure constraints, and negotiating strategies between HOF and NHOF divers?

### **Assumption**

It is assumed that all respondents will be female participants. All divers will cooperate 100%, and will take the survey freely. All participants will be 18 years or older. All participants will read the questions and answer completely and correctly according to directions.

### **Limitations of the study**

1. Participants may not complete the questionnaire.
2. Only female scuba divers over the age of 18 years old and are members of ScubaBoard Forum and/or WDHOFF were included in this study.
3. There is no way to control if males respond to the survey since the survey link will be attached to a social website for scuba divers with both female and male members.

### **Delimitations of the study**

1. A major delimitation is the study refers to a selection of women scuba divers associated with ScubaBoard Forum and members of WDHOFF over the age of 18 were asked to participate in this study.

### **Operational definitions**

**Diver** is any certified female over the age of eighteen, who has completed and passed required classroom course work, plus confined pool and open water checkout dives as required by the specific standards of the accredited certifying agency, and receiving a certification card upon completion. For example, some well-known certification agencies are: Professional Association of Diving Instructors (PADI), National Association of Underwater Instructors (NAUI), Scuba Schools International (SSI), Scuba Diving International (SDI), Professional Scuba Association International

(PSAI), International Association of Nitrox and Technical Divers (IANTD) and Scuba Educators International (SEI). **Leisure Constraints** are commonly defined as factors which affect individual's formation of leisure preferences for particular activities and may reduce or challenge their ability to participate in the activities (Jackson & Scott, 1999; Lyu & Oh, 2014;). **Recreationists** are current participants who pledge with the aid of motivations, active involvement in scuba diving and are likely to resist behavioral discontinuance (Lyu & Oh, 2014). **Women Divers Hall of Fame (WDHOF)** = Members are the female pioneers, leaders, innovators and world record holders throughout the international diving community. These areas of diving and undersea endeavors include: The Arts, Science, Medicine, Exploration & Technology, Marine Archeology, Business, Media, Training & Education, Safety, Commercial & Military Diving, Free Diving, and Underwater Sports. There are currently 186 inductee members (Women Diving Hall of Fame, 2015). **Diving Equipment and Marketing Association (DEMA)** the Diving Equipment & Marketing Association, is an international organization dedicated to the promotion and growth of the recreational scuba diving and snorkeling industry. This non-profit, global organization promotes scuba diving through consumer awareness programs and media campaigns (DEMA, 2015).

## CHAPTER 2

### LITERATURE REVIEW

This review will examine the literature related to the following areas: 1) History of female recreational activity, 2) Leisure Constraints, 3) Self-efficacy and, 4) Pioneer Women Divers

#### **Section One: History of female recreational activity**

Throughout history women have negotiated for advantages equal to men's in sports and other social and professional areas (Costa & Guthrie, 1994). Formal use of leisure time through recreational activities in the United States can be traced to the mid and late 19<sup>th</sup> century when a confluence of events stimulated the creation of both formal spectator and participatory sport activities (Couturier & Chepko, 2001). Organized leagues and competition became prevalent in a variety of activities as colleges and universities began to hold official competitions in individual and team sports (Couturier & Chepko, 2001). The first organization to study female physical activity was the National Association for Girls and Women in Sports (NAGWS) which began in 1899 and continues today as a nonprofit organization fostering equality in sport for women and girls under the support of the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) (Hult, 1994; Wade, 2004).

At the same time bicycle riding enjoyed a significant rise in popularity due to both its health and strength benefits and influence on physical mobility that allowed individuals greater freedom of movement. This was particularly impactful for women who had been constrained by the Victorian patriarchal values governing gender roles. Men controlled virtually all-important social institutions including transportation and this



forced woman to remain close to the home. The bicycle became a simple, practical means for mobility and freedom that allowed women to move independently (Vertinsky, P., 1994).

### **Early Female Sport Participation Patterns**

With the emergence of numerous leisure and recreational activities there was a shift in what was considered “acceptable” for female participation in leisure sport. While still under the dominant ideological perspective that strenuous movement would “damage” female reproduction certain modified activities were deemed appropriate. Medical professionals at the time “argued exercise is incompatible with women’s fragile nature and dangerous to their health” (Coakley & Dunning, 2000, p.323). Lawn tennis, swimming, archery, croquet and walking became popular for white middle and upper class women (Vertinsky, 1994). Teams sports, such as basketball and volleyball also became accepted female activities on college campuses but with rules that limited the amount of running and physical exertion.

One impact of this increased female participation was a shift away from restrictive clothing that limited freedom of movement. The constraint of corsets and long flowing dresses gave way to sports attire, which while still conservative by today’s standards, was far less confining (Vertinsky, 1994). During this time water sports began shaping leisure activities. As a result of improvements in nautical equipment, leisure sailing saw strong growth as a recreational activity. This growth opened up a new avenue for female participation in the previously male dominated world of sailing and started a process of gender equity associated with water sports.

### **Women’s Sport Participation in the 20th Century.**

During the early part of the 20th century women's participation in sports activities grew as organized women's right movements began to take hold in America. The right to vote and gain access to birth control foreshadowed greater freedom for women in all areas of American society. This trend of increased rights for women continued to gain momentum throughout the mid and late 20<sup>th</sup> century resulting in the modern feminist movement of the 1960's and 70's which led to increased cultural acceptance of physically active females (Couturier & Chepko, 2001) T This transformation of gender ideology gave rise to the health and fitness movement and allowed for cultural acceptance of physically active females and a shift away from total male domination of sports (Theberge, 2000). Also, with the 1972 passage of Title IX an educational amendment to the 1964 Civil Rights Act, the legal foundation was established to insure greater gender equity in all publically funded educational institutions. The equal opportunity opened the door for women to join organized extracurricular activities, including intramurals, club sports, and varsity athletics where participation was nonexistent and underfunded (Lopiano, 2000).

This law had a tremendous influence on female participation rate in sports that also impacted opportunities for women outside of education in the areas of public and private recreation. Commercial recreational sports could now broaden their markets to include women as potential consumers. Scuba diving, as a recreational activity, became popular as people structured their leisure activities around bodies of water. Waterfront vacations became much more fashionable and industries revolving around water sports began to grow.

The inception of sport diving began over sixty years ago from a small freediving group called the “San Diego Bottom Scratchers” (Hanauer, 1994). This recreational past time, was comprised of males using homemade masks and spear guns, which began off the coast of California. The wives from this group formed the first women’s freediving club and participated actively in this recreational sport while juggling their other duties of homemaker and raising children. This group of women were determined to experience the sensations of free diving and spear fishing and learned to incorporate and negotiate with their spouses allowing them participation (Hanauer, 1994).

### **A History of Scuba Diving**

Ancient history describes how cultures have been drawn to rivers, oceans and estuaries as a resource for food, and materials used for survival and trade amongst communities. Water based experiences are recorded from early Egyptian times (4000 BCE) when sailing vessels were used as a form of transportation, trade, or warfare (Jennings, 2007). Breath hold diving or the more common name today, free diving, was shared throughout the world as women and men plummeted to the ocean bottom, harvesting seafood and pearl oysters. The minimal equipment consisted of rudimentary goggles to see through and a heavy rock to help divers descend to depths of 30 meters (100 feet) (Brylske, 2012). Water pressure exerted on divers while descending caused physical pain and injury, which prompted cultures to invent and test various techniques to alleviate pain. Women divers withstood these physical discomforts and jumped into the water with same adventure and strong desire to experience the underwater (Brylske, 2012).

Some of the earliest accounts of breath hold diving can be traced back to ancient Greek sponge divers through historical literature and artifacts. A tethered diver would descend to the bottom and gather sponges before having to surface (Brylske, 2012). The scientific understanding how water pressure affects human anatomy was unknown therefore the diver endured ear pain and injury during descent. One technique to aid divers on descent was the use of oil inserted in the ears and retaining a mouthful of oil, which was expelled when reaching the bottom. The small compensation of expelling the oil would move the jaw and help equalization of the pressure in the ears (Brylske, 2012).

Snorkeling began as a tool for aiding men with harvesting sponges and other seafood in ancient Greece however, when a sailor used a hollow reed as a snorkel and while breathing underwater and undercover of night, traveled unobserved and cut the mooring lines of the Persian fleet, thus providing the Greek armada with a strategic advantage (Cross & Styer 1988; Brylske, 2012). This began a military purpose and snorkelers were used as demolition divers to remove obstacles from harbors, drill holes in enemy ships and salvage vessels. Since the length of a snorkel becomes inefficient below two feet because rebreathing exhaled carbon dioxide in the tube will cause unconsciousness; another invention allowed longer dive time and a source of air replenishment for the divers at depth (Cross & Styer, 1988; Brylske, 2012). The invention of the diving bell contributed to innovation and progress for men to stay underwater without having to resurface for air (Brylske, 2012).

Snorkeling opened the opportunity to explore underwater but for a limited amount of time prompting inventions to extend the amount of time underwater without having to return to the surface to breathe. The concept of breathing underwater can be traced back

to drawings of diving bells and self-contained underwater breathing apparatus (SCUBA) designed by Leonardo da Vinci that combines air supply and buoyancy control in a single system (Bauer & Bauer, 1988). There is no evidence that Leonardo's SCUBA apparatus was built however history describes the use of diving bells as early as 1531 used in salvage operations in Lake Neimi near Rome (Brylske, 2012). The use of this device was limited to the amount of air trapped inside once submerged and the lack of understanding when carbon dioxide is exhaled in the same confined space. The most influential inventors to improve the diving bell and to understand how water pressure affects breathing were Sir Edmund Halley and John Lethbridge (Cross & Styer, 1988).

John Lethbridge's design was a cylindrical closed container, tethered at either end to a boat and lowered to the sea floor. As the boat traveled through water the diver lying face down in the tube could look through a window and insert his arms through sleeves. This device was used successfully for salvages in 60 feet of water, with the air supply lasting approximately 30 minutes. The device would be brought to the surface and a bellows would replenish the air inside before returning the diver to the sea floor (Bauer & Bauer, 1988; Brylske, 2012). Edmund Halley designed his bell in a more traditional shape along with major improvements in buoyancy and air control. The divers could leave the bell for short periods of time through the use of a helmet which had an air supply through a flexible hose supplied from a bellows on the boat at the surface. The technical advantages provided more freedom of movement for the diver along with extended time, which stimulated increased underwater working and prompted further innovations.

The early 1800's brought about one of the most innovative underwater breathing apparatus systems; the first diving helmet which sealed to a diving outfit and was designed by Augustus Siebe in 1839 (Bauer & Bauer, 1988,). The system supplied tethered divers with air from surface compressors through hoses and allowed the divers to dive deeper and stay underwater for a longer time. The hard helmet system transformed the commercial dive industry and is still used today. Unlike tethered diving free diving has its limitation by participants able to hold their breath for a limited time underwater and having to resurface to breathe. The ability to stay underwater longer inspired the invention of the regulator in 1946, which allowed participants to breathe from a cylinder of compressed air underwater unencumbered by surface hoses.

Scuba diving began as a culturally male dominated recreation and when diving equipment began to develop in the 1950's the accepted style and sizes would be made to accommodate male divers ((Hanauer, 1994; Walter, 2000). Introduction of the sport began after World War II when the U.S. Navy was training "frogmen" as an underwater tactical force (Walter, 2000, p. 8). Popularity of the sport unfolded with the invention and development of the Aqua-Lung, by a French naval officer named Jacques-Yves Cousteau in collaboration with Emil Gagnon, which impacted recreational diving. Cousteau spread the wonders of the underwater world to the public through his many beautiful photographs displaying a secret underwater world, which stimulated and encouraged participation for the adventurers and explorers (Hauser, 1976). Fast forward to 1957 when the postwar television program *Sea Hunt* starring Lloyd Bridges as Mike Nelson and Zale Parry as the damsel in distress. The weekly underwater adventures with Mike Nelson as an underwater action hero saving Parry reinforced the idea that women were

helpless and weak needing to be rescued. This was a subtle gender stereotype Parry was able to challenge through her diving capabilities with recently developed equipment and an exploratory attitude towards diving (Brylske, 2012; Hanauer, 1994; Hauser, 1976).

The early scuba diving equipment was rudimentary and influenced by WWII frogmen with sizing focusing on men's physical demeanor. The early underwater diving suits were constructed of water tight thin rubber (dry suit) with the diver wearing an additional layer of woolen clothing to prevent the loss of body heat, called hypothermia which lead to loss of cognitive abilities, incapacitation to function and possible death underwater (Cross & Styer, 1988). The layer of air between the clothing and water suit allowed the body to form a barrier of warmth against the temperature of the ambient water. One drawback to this suit was a possible leak, which soaked the woolens, compromising the insulation and putting the diver into negative buoyancy with the diver having to adjust weights underwater, which was extremely risky and dangerous, the equipment did not limit Zale Parry from participation as she fearlessly adapted showing that females are as capable as males when diving (Hauser, 1976).

Today, technological advances in diving equipment have ensured that diving is safer and with an increase in popularity among women, women-specific products have begun to appear on the market, however adding the color pink to the standard sizes and shapes of existing male pattern equipment indicates females still have some constraints to overcome (Sleeper & Bangasser, 1979; Walter, 2000).

## **Section Two: Leisure Constraints**

Inequality of leisure opportunity for women has been influenced by a patriarchal culture, which has restricted women by means of financial limitations, male dependency,

wage disparity, and the trivialization through objectification (Little, 2002; Bryson, 1987; Green & Woodward, 1990; Hall, 1985; Scraton, 1995). According to Little (2002), motivation and opportunity for women's participation within recreational sports are based on how women perceive factors in their lives that function as constraints. Constraints on women's access to leisure have been well documented over the last fifteen years (Little, 2002; Crawford & Godbey, 1987; Kennelly & Moyle, 2013; White, 2008; Lloyd & Little, 2010; Hubbard & Mannell, 2001; Loucks-Atkinson & Mannell, (2007). Strategies of interpersonal, intrapersonal and structural constraints, which restrict women and limit their access to leisure recreation are identified and negotiated to continue and maintain their participation within recreational sports (Little, 2002; Godbey & Mannell; Shaw, 1994). Crawford & Godbey (1987) identified the following three categories of constraints associated with women.

### *Structural factors*

- External constraints that interfere with females' interest in leisure and subsequent participation
- Lack of time to engage in leisure as a result of working double shifts of paid work and home responsibilities.
- Lack of financial control and limited resources that restricted options due to dependence on a higher wage-earning spouse. (Little, 2002; Wood, 2012).
- Equipment constraint that limited mobility due to both a decline in physical strength and the lack of anatomically correct equipment for female divers.



- Environmental constraint resulting from effects of oceans visibility, temperature, currents, depths and animal encounters (Dimmock, 2011).

### *Intrapersonal constraints*

- Perceptions of one's ability to perform a task, and the potential self-doubt that can occur to form a major constraint to participatory motivation. This may include stress, anxiety, social perceived self-skill, and the appropriateness of an activity such as scuba diving (Little, 2002)
- A perceived lack of skill is a major disincentive, particularly with women who often compare their skills to those of men (Little, 2002).
- Psychological constraint when there is a weakening of resistance as a result of continued pressure or harassment towards failure of ability and skills which adds to stress and anxiety, with a perceived lack of skills (Wood & Danylchuk, 2012).
- Self-efficacy constraint is a lack of confidence to perform specific tasks or group of tasks in a given domain such as skills for scuba diving (Bandura, 1986).
- Gender role socialization constraint, women often lack the precursory experiences in mechanical and technical training and manipulation afforded to males, i.e. Boy Scouts have a heavy emphasis on outdoor skills and leadership roles.

- Decision making constraint - process with which perceptions of instructors for higher risk recreational activities characterize men as rational, objective and autonomous and women labeled irrational, subjective and emotional.
- Perception of risk constraint that scuba diving in terms of emotional concerns limits female's participation.

### *Interpersonal constraints*

- Gender role constraint with the influence of family obligations when women, as nurturing and caregivers, put others needs ahead of their own, which cover responsibilities for child care, and an “ethic of care” for other people in their lives (Little, 2002; Henderson & Bialeschki, 1993; Gilligan, 1982; Sharpe, 1984),
- Stereotypical social constraints from friends and family members with perceptions of inappropriateness towards an individual's recreation preference,
- An outward influence that husbands and partners have over women's engagement in leisure (Wood, 2012; Little, 2002; Crawford & Godbey, 1987).
- Lack of companions with whom to participate and share in similar leisure recreation activity.

Women's perception of leisure constraint plays an essential role in adventure recreational sports by influencing the decision to continue, reduce or quit participation thereby impacting leisure participation (Lyu & Oh, 2014). Constraints are not fixed

barriers to recreation participation as was first theorized in early leisure constraint research, but instead barriers that can be overcome by using negotiation techniques employed by pioneering-women divers of an earlier generation who encountered and overcame similar situations and constraints (White, 2008).

### **Negotiation Strategies**

Through negotiation strategies, female recreationists manage to either restructure their recreation experience, or reinforce their commitment as a life priority are able to take more control of constraint situations by creating positive personal experiences in adventure recreation (Little, 2002). Thereby successfully negotiating constraints by individual's interpretation and motivation for participation as identified, through proven resources, strategies for maintaining, continuing or creating participation opportunities for their adventure recreation.

1. *Prioritize*- Women considering participation in adventures activities using prioritization of responsibilities in order to participate in adventure recreation. The occurrence is through personal recognition of responsibilities and practical solutions to manage their time more effectively (Little, 2002).

2) *Compromise*- Women have the ability to adjust their existing activities and seek alternative methods of adventure that allow them to adapt to changing circumstances (Little, 2002). Through adjustments on involvement or adopting alternative activities, women customized their ability to participate while fulfilling interpersonal obligations.

3) *Creative adventure* – A form of compromise in activity by substituting a higher adventure pursuit for an alternative less physically demanding activity to adapt to current life circumstances (Little, 2002).

4) *Anticipate* – Women who leave outdoor recreation for a temporary period of time use anticipation to maintain an emotional encouragement and commitment while waiting to return to the activity (Little, 2002).

Although women are constrained in their leisure participation by constructions such as patriarchal domination, gender stereotyping, domestic work and childcare, they have shown resilience and control over their lives by using negotiation techniques to overcome limitations to participation in an activity of their choice thereby, creating personal satisfaction (Little, 2002).

Scuba diving was considered a man's world until late 1950's when a few women challenged this gender ideology by "proving themselves competent every time they went underwater" and thereby redefining this male-only recreational sport to include them (Costa, & Guthrie, 1994; Hanauer, 1994). Noteworthy women divers shaping a future for females in scuba diving include Dottie Frazier, Zale Parry, Dr. Eugenia Clark, and Dr. Sylvie Earle, who resisted barriers by challenging gender stereotypes, male designed equipment, and social constraints (Hanauer, 1994.).

### **Section Three: Self-Efficacy**

Self-efficacy is an internal psychological process involving the belief that one is capable of accomplishing a specific goal or task. It is an important organizing and executing action in developing individuals' cognitive resources, self-confidence and motivation. According to Albert Bandura (1997) "self-efficacy is an individuals' belief in their capability to perform a task or components of a complex task, or perform specific behavior or set of behaviors. Thereby self-efficacy focuses on the individual's confidence in executing action to meet restrictive situational demands and effectively

orchestrating in the face of salient barriers” (Hui-Lun Tsai & Coleman, 2009, p. 366).

Bandura’s four sources of self-efficacy: mastery experience, vicarious experience, social persuasion and physiological and affective states are effective pedagogical tools to promote skill development, task completion, positive performance and successfully overcoming personal challenges to reinforce achievement and development for a higher self-efficacy (White, 2008).

Recent research examining the role motivation plays on participatory patterns in recreational sports, has introduced constraint negotiation as an important factor impacting the social, psychological and behavioral processes fundamental to participation (White, 2008). The concept of negotiation was introduced to explain how leisure constraints were overcome or navigated (Jackson, Crawford, & Godbey, 1993; Kay & Jackson, 1991; Scott, 1991; White, 2008). Overcoming constraints can thus increase one’s self-efficacy and motivation to engage in sometimes physically challenging recreational activities such as scuba diving.

Additional studies have examined the relationship between self-efficacy and constraint negotiation within specific social sub-groups. When focusing on women and girls for example, constraints have been linked to limitations leading to low self-esteem and low self-efficacy, which in turn impacts participation in recreational activities (Bolla, Dawson, & Harrington, 1993; Crawford, Godbey & Raymore 1994; Little, 2002). Recent research has made advances in the theory of recreational self-efficacy by placing negotiation in the broader context of leisure behavior and by exploring relationships between constraints and other concepts such as negotiation self-efficacy (Loucks-Atkinson & Mannell, 2007; White, 2008).

Hubbard and Mannell (2001) found support for a constraint-effects mitigation model in which encountering constraints activates the use of negotiation strategies that limit the negative impact of constraints on activity participation. They also found higher motivation presages greater negotiation efforts (White, 2008). Loucks-Atkinson and Mannell (2007) extended this research by drawing on social cognitive theory and incorporating a negotiation-efficacy construct. This study involves the relations between constraints, motivation, negotiation and negotiation efficacy among fibromyalgia individuals' in physically active leisure activities (p.22). The role of negotiation efficacy was a key variable examined as an interrelation among leisure constraints, thus triggering negotiation strategies among individuals, which influences their participation in leisure activities.

Similar studies extend prior research by conducting empirical tests of a conceptual model for constraint negotiations and the role of motivation in the context of outdoor recreation (Hiu-Lun Tsai & Coleman, 2009; Hubbard & Mannell, 2001; White, 2008). According to White (2008) "negotiation-efficacy encourages motivation, diminishes the perception of constraints and encourages the use of negotiation efforts, thus having an indirect positive influence on participation" (p.345). The model proposes that motivation is directly and positively related to outdoor recreation participation. Participants identified strategies and resources using acquired information about opportunities, managed time and developed new skills to present propositions that outlined constraint negotiation processes. The central application stated "participation is dependent not on the absence of constraints, but on negotiation through them" (White, 2008, p. 345).

According to Bandura, (1997), motivation, developed through increased self-efficacy, influences and focuses on activation and persistence of behavior as shown through cognitive activities, by successfully executing the behavior required to facilitate the desired outcome (p. 193). Higher motivation to participate in outdoor recreation is likely to encourage the use of cognitive negotiation strategies and resources to overcome constraints. Bandura (1997) claimed that people with higher levels of perceived self-efficacy have greater motivation to persevere in the face of adversity and is a powerful and necessary precursor to changing behavior. The constructive influence of negotiation efficacy activated by positive motivation practices counteracts the restrictive influence of constraints

The belief in self-efficacy in one task or domain may be generalized to enhance effective feelings in other tasks and domains (Bandura, 1986; White, 2008). This process of understanding the relationship between motivation, constraint and efficacy negotiation, as exhibited by female pioneer divers, can be applied to the process all female divers go through to overcome constraints and continue to participate.

#### **Section Four: Pioneer Women Scuba Divers**

When examining the biographies and lives of the early pioneers in women's scuba diving (cited above), the major common denominator among them is they all encountered constraints they had to negotiate in order to participate in the male dominated world of scuba.

*Dr. Sylvia Earle*, the distinguished marine biologist and author, had to first overcome gender bias within the scientific community in the 1950's when she chose to study marine biology. Her education and dedication to her research on algae was difficult

at times when balancing her life as a mother, wife, scientist and student. When given the opportunity to join the research vessel *Anton Brunn* in 1962, she jumped at the once in a lifetime chance. Her parents would help her husband with the house and children for the six-week trip permitting her the peace of mind to leave. Being the only female scientist Dr. Earle knew from the time she arrived on board, she would have to prove herself. “She discovered if she worked twice as hard and kept her sense of humor, everything would work out” (Reichard, 2010, p. 29; WDHO, 2015). Dr. Earle has received many achievements and honors for her contributions towards the preservation of our oceans protecting all living species. She is passionate, a well-known scientist, creating awareness of the ocean’s importance, advocating conservation and diving (Reichard, 2010).

*Dottie Frazier*, the first certified female diving instructor in the United States, was first introduced to the ocean through freediving when she was 10 using homemade goggles and snorkel. She became a skin diving instructor at the YMCA where she would include her two children in the course sharing her passion for water. Widowed and raising four boys she was given an opportunity to become a commercial fisherman and even though she was a mother, the job and income opportunity was something she could not pass up, so she hired a housekeeper and would be gone three to four months at a time (Hanauer, 1994; WDHO, 2015).

Scuba diving was introduced when a friend invited her to join an instructor course in 1955 (Hanauer, 1994). When the course director insinuated women should take a remedial course at the YMCA instead of the militaristic instructor class, Frazier proved a woman could be as competent in physics, skills, and tasks as a man, thus becoming the first certified woman scuba diving instructor from LA County Underwater Instructor



Certification Course (UICC) program. Being the first female scuba instructor, Frazier did not hesitate to use the bulky, oversized, and unfitting underwater suits while diving. She explains that “becoming an instructor was easy compared to selling the diving public on being taught by a woman” (Hanauer, 1994).

*Zale Parry* is the most recognized female diver who is best known for her role on TV series *Sea Hunt* where she did all her underwater stunt work. She helped change the perception of diving as a “man’s sport” and contributed to the cultural acceptance woman as divers, thus helping future women overcome the gender bias associated with the sport. She began diving in 1951 after moving to California, using one of the first imported Aqualung regulators and became one of the first underwater equipment testers for the industry. She helped run the first hyperbaric chamber for civilian divers in California (Hanauer, 1994; WDHO, 2015). She set a woman’s depth record to 209 feet in 1954 (Hanauer, 1994); and became the third female instructor to graduate from the LA County UICC program.

*Dr. Eugenie Clark* spent her childhood in a local aquarium and became the world’s foremost ichthyologist, zoologist, and expert on sharks. She built her career without much encouragement from peers at that time, because the physical activity that was socially accepted for women did not include diving. When she applied for her doctoral program in 1942 at New York University she was told “to go home, get married and have babies” (Hauser, 1976).

Her career included professional associations with the Scripps Institution of Oceanography, the New York Zoological Society, the American Museum of Natural History, and the Mote Marine Laboratory (Hauser, 1976; WDHO, 2015). As an

author Clark wrote three books including her most notable “Lady with a Spear” published in 1953 and translated into eight languages and braille (Hauser, 1976). She taught sharks to push a target and ring a bell in order to get a food reward which led to more sophisticated testing with different designs and colors showing sharks ability to make visual choices based on learned information.

*Norine Rouse* began her diving career when she was inspired by Jacques Cousteau’s movie “World Without Sun”. As a result of her divorce at age 40 she took up diving with her first dive was in a local bay with water temperatures at 42<sup>o</sup> and little visibility. She stated she wanted to become a diver “because I was a mother and housewife, but wanted an identity (Hanauer, 1994). Now I have one, I’m a diver” (Hanauer, 1994, p. 160). She was the first woman hired by Underwater Explorer Club (UNEXCO) in Freeport, Bahamas in 1967 (Hanauer, 1994) not only to show that women could dive, but that they could instruct as well. Rouse has taught marine patrol, worked for conservation and preservation of habitats, introduced tourist diving to the Palm Beach, Florida, area, and helped establish its artificial reef committee.

*Kati Garner* was the first female U.S. Navy diver to complete the difficult training alongside men. The classroom work included becoming familiar to diving equipment, diving physics and decompression tables which she easily negotiated. The pool sessions were extremely grueling with relay races carrying a 70-pound chain while running from one side to the other along the bottom holding your breath; the outdoor multiple mile runs sometimes through mud then pushups then calisthenics and finishing with no less than 100 flutter kicks gave Garner second thoughts about why she wanted to be a Navy diver (WDHOF, 2014). Nevertheless, she successfully graduated and on

graduation day she discovered how her fellow male classmates felt towards her when one of them said, “you know, we never really accepted you as an equal until you went through the mud run” (Hauser, 1976, p. 46). Garner never expected special treatment, complained, or gave up even when the physical constraints seemed impossible to overcome.

The stories of all these divers serve to illustrate how women can overcome intrapersonal, interpersonal and structural constraints and make significant contributions to the male dominated world of scuba diving. They did so by developing negotiation strategies that enabled them to develop high levels of confidence and self-efficacy within a culture whose dominant gender ideology re-enforced male dominance. Although they were raised in a different era the gender related constraints that these scuba pioneers faced remain embedded in today’s social fabric. Their stories serve as an important guide to contemporary female divers as they strive to overcome many of the same physical, social and cultural constraints.

## CHAPTER 3

### METHODS

Understanding active female divers' leisure constraints may point toward a relationship of diving limitations within female participation and negotiation strategies connected by means of increased self-efficacy.

The first survey as developed by Seong Ok Lyu and Chi-Ok Oh (2014) will be used to measure the effects of leisure constraints, negotiation strategies, and intention for further participation in outdoor recreation, in order to proceed to a higher level of leisure involvement (p.485). The second survey Outdoor Recreation Self-Efficacy (ORSE) scale was developed by Robin Mittelstaedt and Jesse J. Jones (2009) to evaluate and “effectively capture concepts that are central to self-efficacy associated with outdoor recreation activities” (p.98).

#### **Participants**

Participants will be females drawn from two different groups of certified women scuba divers over the age of 18 years old. The first group is certified women divers from the Women Divers Hall of Fame (WDHOF). The survey link will be posted onto the Women Divers Hall of Fame (WDHOF) Facebook page inviting all members to participate. The second group will be certified women divers notified through ScubaBoard.com Forum, which is an online social forum for the scuba diving community. The survey link will be posted on ScubaBoard.com inviting all female divers to participate. With a ScubaBoard.com membership of 205,000 men and women, and 186 inductees in WDHOF from around the world, the goal is to reach a minimum of 100 female divers, 50 from each group. There is a possibility of a low response rate and

unequal number of responses between the two groups are known to cause a selection bias which indicates factors of the sample may not be representative of the population from which it is drawn (Vincent & Weir, 2012).

### **Instruments**

This first survey was developed by Lyu and Oh (2014) to measure constraint negotiation processes for licensed fishing participants. The word “fishing” is replaced with the word “scuba diving” in the survey (See Appendix C). The online survey is active during the course of two weeks in November, 2015. An initial personalizing invitation will be posted with a link to the questionnaire assuring the respondent’s information will remain anonymous. The web link will include an introduction and consent page explaining the study (see Appendix A). Each participant will be asked to complete a demographics questionnaire. Questions cover how many years they have been certified to dive, the highest certification level, the total number of dives completed to date, family status, household income, Hall of Fame inductee, and age (See Appendix B).

Godbey & Crawford (1987) identified three leisure constraint categories as intrapersonal, interpersonal and structural, commonly associated with prior research models, however Lyu & Oh (2014) worded the leisure constraint categories used in their survey as Personal (Intrapersonal), Interactional (Interpersonal) and Structural which is the same. The construct of the survey measures respondents’ answers that identify seven measurement items: Personal, Interactional, and Structural Constraints; Commitment; Cognitive and Behavioral Negotiation Strategies; and Intentions for more frequent participation. A 5-point Likert scale response format was used with values ranging from 1

(Strongly Disagree) to 5 (Strongly Agree). Items 1-10 measure three forms of constraints; items 11-14 measure commitment; items 15-23 measures negotiation resources with which respondents indicate the type of strategy they use or attempt to use, to overcome constraints to their participation with scuba diving; and items 24-26 measures intention (proxy term for measuring motivation) to continue participation (Lyu and Oh, 2014). To assess the degree of fit of the measurement and structural model, five different fit indices were used with Lyu and Oh (2014) survey construct; Chi-squared ( $X^2$ ) / degree of freedom ratio, Normal Fit Index (NFI), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), and Root Mean Square Error of Approximation (RMSEA). The indices of NFI, CFI, and NNFI recommend greater than 0.9 for acceptable model fit. The result showed  $> 0.9$  with the indices framework and demonstrates the measurement model indicated a satisfactory fit.

The composite reliabilities for the seven variables indicated acceptable levels within the co-efficient in excess of 0.67 (Hatcher, 1994). The statistically significant  $t$ -values of all indicator co-efficients range from 8.906 to 28.565 supporting convergent validity (Lyu & Oh, 2015). This study examined a comparison of the error variances of each latent factor and the squared correlation between all constructs for discriminate validity, which according to Fornell and Larcker (1981) is considered acceptable, when the statistics of error variance are greater than the squared correlation estimates thereby supporting evidence for discriminant validity.

The self-efficacy questions are based on Mittelstaedt & Jones (2009) Outdoor Recreation Self-Efficacy (ORSE) scale. Results from the study indicate a sense of accomplishment, achievement and enjoyment, which contribute to ones' self-efficacy and

relate to one's participation in outdoor recreation. A factor analysis revealed two subscales: Enjoyment/Accomplishment which explains 61.84% and Skills/ Competence which explains 12.71%, accounting for 74.54% of the explained variance in outdoor recreation self-efficacy (Mittelstaedt & Jones, 2009). The Reliabilities for the Enjoyment/Accomplishment and Skills/Competence statement subscales show a Cronbach's alpha of ( $> 0.9$ ,  $p < .001$ ), showing a high degree of internal consistency. The authors conducted a split-half reliability scale analysis on the 17 item scale instrument. Results indicate a high degree of reliability for both groups ( $\alpha = .943$ ,  $p < .001$  and  $\alpha = 0.937$ ,  $p < .001$  respectively). A significant relationship exists between ORSE scores and participation in outdoor recreation ( $r = -0.52$ ;  $p < .001$ ) indicating women having fun and enjoying oneself during outdoor recreation activities contributed more to a woman's self-efficacy than feeling skilled or competent, endorsing Bandura's views about the nature of self-efficacy thereby proving a reliable and valid measure for assessing the self-efficacy of women who participate in outdoor recreation activities (Mittelstaedt & Jones, 2009).

### **Data Collection Procedures**

Participants were asked to open the link to the questionnaire electronically, and will be given the choice to participate or not. The survey will be available online for two weeks through Survey Monkey. The entire questionnaire will be completed anonymously. The start of the survey will include a consent form which participants will be required to agree to prior to taking the survey. Participants will be asked to complete the entire questionnaire, however, the participants can discontinue at any time. The questionnaire will take approximately twenty minutes to complete 43 statements.

Completion of the electronic questionnaire will not be supervised and submission will be received electronically via SurveyMonkey. The responses will be tabulated using SurveyMonkey and downloaded into the Statistical Package for the Social Sciences (21.0) SPSS for data analysis. SurveyMonkey protects the identities of all participants by substituting names with number reference.

### **Data Analysis**

The following analysis was conducted on the quantitative data:

Research Question 1. What are the constraints that inhibit female participation in Scuba? A descriptive analysis will be conducted on the results from the survey described by Lyu and Oh's model (2014).

Research Question 2. What role does self-efficacy play in female scuba participation? Results of a descriptive analysis will be conducted on the survey results for ORSE scale on self-efficacy participation for all respondents.

Research Question 3. Is there a relationship between self-efficacy and negotiating constraints among this group of female scuba divers? A Pearson's ( $r$ ) correlation of coefficient statistic between these two variables investigating a possible relation or association for (a) overall self-efficacy and overall leisure constraint negotiation score, (b) overall self-efficacy score and continued level of participation in scuba diving, (c) overall leisure constraint negotiation and continued level of participation for scuba diving.

Research Question 4. Are there differences in self-efficacy and constraint negotiation between NHOF female scuba divers and HOF? A Pearson's ( $r$ ) correlation of coefficient between the two groups will be conducted to analyze if there is a relationship



between different groups within the female diving population relating level of self-efficacy with negotiation of constraints. Independent *t*- test analyses to compare (a) NHOF divers and HOF on overall self-efficacy score, (b) NHOF divers and HOF on overall leisure constraint scores, (c) NHOF divers and HOF on level of continued intention of participation in scuba diving activities.

Descriptive statistics were conducted on variables of age, marital status, household income, education, number of years diving, number of dives, level of certification, agency affiliation, how many times dove in the last 12 months.

Frequencies and or percentages were generated to provide a summary from the response to questions/ do you own your own equipment? / Which of the following (equipment/gear) have you purchased for yourself? / Do you consider scuba diving a lifestyle? In order to compare divers' level of involvement in scuba diving, a crosstab analyses of the year of certification and number of dives, including a chi-square statistic as appropriate.

## CHAPTER 4

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## CHAPTER 5

### MANUSCRIPT IN JOURNAL ARTICLE FORMAT

#### **Female Scuba Diving Leisure Constraints: A Comparative Study Between Women Divers Hall of Fame and Non-Hall of Fame Divers**

#### **ABSTRACT**

Despite considerable advances in recreational leisure constraint research, there have been virtually no studies conducted specifically to explore the impact of constraints on female scuba divers. SCUBA diving has been a male dominated activity existing within cultural norms and expectations associated with dominant gender ideology, consequently recreational adventure research in the area of Scuba diving has primarily focused on men's experiences. During the last 20 years, SCUBA diving participation among females has increased and numerous female leaders, innovators and mentors have emerged (Jennings, 2007, Women Divers Hall of Fame,2016). The SCUBA industry would greatly benefit from research focused on women diver's constraints. This paper uses a revised Lyu and Oh, (2014) constraint negotiation process survey, measuring interconnections between leisure constraints, self-efficacy and negotiation strategies existing between Women Divers Hall of Fame and non-hall of fame divers. A total of 200 participants (HOF=18, NHOF = 182) completed an online survey.

#### **Introduction**

Outdoor recreational activities are enjoyed by 153 million people (48% of the population) between the ages of 16-55+ in the United States today (Study Area



Specification, 2016). According to the Study Area Specification (SAS) update for Recreation & Tourism Statistics Report (2006), there are approximately 5.7 million certified scuba divers and females comprise 1.9 million or 32% (SAS, 2016; The Outdoor Foundation, 2015; Outdoor Industry Association, 2016) While scuba diving takes place in the underwater environment, which requires explicit training and equipment to participate, recent research shows that sales for hard equipment i.e. computers, regulators, cylinders, and buoyancy compensators are purchased more by male divers (78%) than females (DEMA, 2014). There has been an increase of women participation since 2000 when only an estimated 28% of divers were females new to basic open water certification classes (DEMA, 2014; Walter, 2000). The proportion of women participants to men is growing, however, there is a clear gender disparity. This disparity in equipment purchase may point towards a larger inequality toward female divers. For example, dive magazine manufacture ads focus on the seductiveness of a female diver and less on her dive equipment (“Sexism”, 2015). Advanced technology has made improvements in electronics for diving (i.e. wireless computer consoles with color screens and easy breathing light weight regulators), however buoyancy compensators, wetsuits, and tanks remain bulky, ill-fitting, and heavy, requiring some strength to maneuver out of the water (Heinerth & Power, 2014).

Since its inception Scuba has been a predominantly male dominated sport. According to the prevailing sentiment of the early 20<sup>th</sup> century female divers had “no business underwater” (Hanauer, 1994, p. 11). There was only a handful of pioneer women using diving as a career in the early 1940-1960’s (Sleeper & Bangasser, 1979). Due to the influence of dominant gender ideology pertaining to female physiology, the

strenuous effects of training techniques related to scuba diving have reinforced the notion that diving is an “unladylike”, and potentially harmful sport for females (Brylske, 2014, p.; Hanauer, 1994, p.11; Sleeper & Bangasser, 1979, p.1). With the passage of Title IX in 1972, an Educational Amendments to 1964 Civil Rights Act, women began to infiltrate more bastions of male dominate sports and barriers for women began to break down impacting the number of female divers which began to grow significantly (Coakley, 2015; DEMA, 2014, Heinreth & Power, 2014; Lopiano, 2000). Based on reviews of previous constraint theory literature, this study will explore several research questions focusing on leisure constraints, negotiation strategies, and self-efficacy in diving among two groups of women divers, one professional and one recreational.

The following four questions will be explored:

Research Question 1. What are the constraints that inhibit female participation in Scuba?

Research Question 2. What is the relationship between self-efficacy and leisure participation (intent)?

Research Question 3. Is there a relationship between self-efficacy and negotiating constraints among female scuba divers?

Research Question 4. Are there differences among self-efficacy, leisure constraints, negotiation strategies between HOF and NHOF divers?

## **Literature Review**

### ***Constraint theory***

Constraint theories have been well documented since their emergence in the 1980's when constraints were labeled as *barriers* (Crawford, Jackson & Godbey, 1991; Little, 2002; Samdahl, 2013). Leisure constraint research investigated perceived barriers which were identified by researchers and participants, that limited active participation in leisure activity (Jackson, 2000; Shaw, 1994). Some apparent characteristics associated with personal and social constraints, such as socioeconomic status, age, and gender, indicated the types of activities people engaged in. (Samdahl, 2013). The perpetuation of gender stereotypes reinforced acceptable leisure activities within society, and those stereotypes were seen as barriers which restricted access to preferred leisure activities (Coakley, 2015; Samdahl, 2013; Shaw, 1994). Within leisure research, the role of barriers (constraints) as limitations, have been studied in research models as negative influences and decreases in recreational participation patterns (Kennelly & Moyle, 2013; Hubbard & Mannell, 2001; Lloyd & Little, 2010; Loucks-Atkinson & Mannell, 2007; White, 2008).

Within leisure research, constraints have been categorized into the following three areas: *Interpersonal*, which involves social factors such as judgments about the perceived inappropriateness of an activity and potential lack of companionship. *Intrapersonal*, which involves psychological factors such as the perceived lack of confidence in one's ability to perform certain tasks (self-efficacy), and inhibitions associated with traditional family roles, and *Structural*, which involves physically concrete factors such as lack of time, financial resources, and facilities for leisure activities (Crawford, Jackson & Godbey, 1991 as cited in White, 2008). This conceptual framework has allowed researchers to examine the social, psychological, and developmental factors influencing recreational participation patterns including motivation and negotiation of constraints

(Bandura, 1986; Dimmock & Wilson, 2011; Godbey, Crawford & Shen, 2011; Hubbard & Mannell, 2001; Lloyd & Little, 2005; Loucks-Atkinson & Mannell 2007; Little, 2002;).

Leisure constraints were originally thought to be a hierarchical model with a sequential negotiation strategy through the constructs (Crawford, Jackson, & Godbey, 1993). One had to deal with Interpersonal issues first, followed by Intrapersonal and Structural constraints (Hubbard & Mannell, 2001). More recently, constraint research has found that interactions between these three constructs are more fluid and horizontal in nature with studies indicating simultaneous negotiation within all three constraint categories. In other words, the order of constraints was not significant as long as the constraints had a resolution. Participants exhibited both creativity and resourcefulness in overcoming potential barriers to leisure (Dimmock & Wilson, 2011; Godbey, Crawford & Shen, 2010; Loucks-Atkinson & Mannell 2007; Wood & Danylchuk, 2012).

Leisure constraint research has focused primarily on females due to issues particularly salient to women's participation and traditional roles associated with gender ideology and the evolution of equal rights and gender equality (Coakley, 2015; Dimmock & Wilson, 2011). In summarizing constraint research, Shaw (1994) concluded that the preponderance of studies indicated that woman perceived that they experienced more constraints to leisure activities than men. As cultural norms changed, and more opportunities for women emerged in many formally male dominated areas (including organized sport), pockets of traditional gender roles regarding leisure still remain. Some private golf clubs, such as Augusta National Golf course for example, have been slow to accept women as full members (McGinnis, McQuillan, & Chapple, 2005). Societal

norms and expectations still influence decisions of role acceptance in certain activities engaged in by men and women (Coakley, 2015). While new definitions of femininity and masculinity are evolving, many girls and women are still socialized to accept traditional constraints regarding leisure activities (Freysinger, Shaw, Henderson & Bialeschki, 2013). Scuba diving, in particular has a long history of male dominance and was not perceived to be an activity appropriate for women (Brylske, 2012; Hanauer, 1994; Hauser, 1976; Heinerth & Power, 2014). Women were disadvantaged in all sports with greater constraints on time and money, plus more familial commitments, since they were socialized into a willingness to sacrifice personal desires for the sake of others (Coakley, 2015, Dimmock, & Wilson, 2011, Gilligan, C. 1998; Little, 2000; Samdahl, 2013). How women negotiate both the gender and traditional constraints associated with Scuba diving has become a central area of constraint theory research into leisure activities.

### **Negotiation Strategies**

Constraints are not fixed barriers to recreation participation as was first theorized in early leisure constraint research, but instead barriers that can be overcome by triggering negotiation strategies (White, 2008). Motivation and opportunity for women's participation within recreational sports are based on how women perceive factors in their lives that function as constraints (Little, 2002). Women's perception of leisure constraints plays an essential role in recreational sports participation by influencing the decision to continue, reduce or quit the activity (Lyu & Oh, 2014).

Research conducted by Donna Little (2002) with forty-two women who were involved with various outdoor recreation adventures have resulted in the following negotiation strategies:

(a) prioritize, (b) compromise, (c) creative adventure, and (d) anticipate, showing that women could successfully negotiate constraints by “restructuring their experiences or reinforcing their commitment to adventure as a life priority” (Little, 2002, p. 137). In order to successfully overcome constraints associated with scuba diving the following three areas of negotiation need to be addressed. First, by recognizing and balancing the constraints of family, time, money and social restrictions. Secondly, by mitigating the effects of water pressure and the physical discomforts of wearing cumbersome male designed equipment. Finally, by learning the fundamentals of dive techniques to become capable, competent divers (Little, 2002; Walter, 2000.).

While experiencing participation in outdoor recreation, women identified constraints, and implemented strategies for “maintaining, continuing or creating participation” (Little, 2002, p. 166) through established resources, perspective and interpretation of the constraints, principally influenced by motivation for further participation opportunities. The key techniques used by these women for negotiating constraints revealed their confidence and flexibility to adapt to whatever changing circumstances and demands that were presented in their lives (Little, 2002). Examples of these techniques include using diving as a reward after completion of familial responsibilities and employing traditional compensatory compromises associated with the traditional female apologetic such as wearing pink and more anatomically correct equipment (Coakley, 2015, Heinreth & Power, 2014; Little, 2002).

### **Self-Efficacy**

Within the three domains of constraint theory identified earlier, self-efficacy is a key factor in intra-personal constraints. Self-efficacy is an internal psychological process

involving the belief that one is capable of accomplishing a specific goal or task and serves as an important organizing and executing action in developing individuals' cognitive resources, self-confidence and motivation as introduced and studied by Albert Bandura (1998, p. 15). Bandura states: "skill development, task completion, positive performance and successfully overcoming personal challenges all reinforce achievement and development for a higher self-efficacy" which can be achieved through his four sources: self-efficacy, mastery experience, vicarious experience, and social persuasion (pp. 80-115). Self-efficacy in turn contributes to motivation for continued participation (Loucks-Atkinson & Mannell, 2007).

According to White (2008) "negotiation-efficacy encourages motivation, diminishes the perception of constraints and encourages the use of negotiation efforts, thus having an indirect positive influence on participation" (p.345). The model proposes that motivation is directly and positively related to outdoor recreation participation. Participants identified strategies and resources using acquired information about opportunities, managed time and developed new skills to present propositions that outlined constraint negotiation processes. The central application stated "participation is dependent not on the absence of constraints, but on negotiation through them" (White, 2008, p. 345).

Recent research has examined the impact motivation has on participatory patterns in recreational sports with a focus on the role constraint negotiation plays in social, psychological and behavioral processes fundamental to participation (White, 2008). The concept of negotiation was introduced to explain how leisure constraints were overcome or navigated to increase motivation (Jackson, Crawford, & Godbey, 1993; Kay &

Jackson, 1991; Scott, 1991; White, 2008). Additional studies have examined the relationship between self-efficacy and constraint negotiation within specific social sub-groups. When focusing on women and girls for example, constraints have been linked to limitations associated with low self-esteem and low self-efficacy, which in turn impacts participation in recreational activities (Bolla, Dawson, & Harrington, 1993; Crawford, Godbey & Raymore 1994; Little, 2002).

Researchers have made advances in recreational self-efficacy theory by examining negotiation within the broader context of leisure behavior. This involves exploring the relationships between constraints and other concepts such as negotiation efficacy which is the belief that one can develop negotiation strategies to overcome constraints (Loucks-Atkinson & Mannell, 2007; White, 2008). Hubbard and Mannell (2001) designed a constraint-effects mitigation model in which encountering constraints activates the use of negotiation strategies that limits the negative impact of constraints on activity participation. They also found that higher motivation indicates greater negotiation efforts (Hubbard & Mannell as cited in White, 2008).

Similar studies extend prior research by conducting empirical tests of a conceptual model for constraint negotiations and the role of motivation in the context of outdoor recreation (Hui-Lun Tsai & Coleman, 2009; Hubbard & Mannell, 2001; White, 2008). Higher motivation to participate in outdoor recreation is likely to encourage the use of cognitive negotiation strategies and resources to overcome constraints (White, 2008). Bandura (1997) claimed that people with higher levels of perceived self-efficacy have greater motivation to persevere in the face of adversity and is a powerful and necessary precursor to changing behavior. The constructive influence of negotiation



efficacy activated by positive motivation practices counteracts the restrictive influence of constraints. (Bandura, 1986; White, 2008).

## **Method**

### ***Data Collection***

A sample of certified women divers were selected from two different groups. The first group surveyed were inductees into the Women Divers Hall of Fame, (HOF,  $N = 173$ ). The second group, non-hall of fame women divers (NHOF), were selected subscribers contacted through ScubaBoard.com, a message board forum for divers with over 10,000 subscribers and a daily online average of (NHOF,  $N = 2500$ ). The ScubaBoard.com survey was posted to a “women only” online thread. The online survey was activated on SurveyMonkey and made available for two weeks in November 2015. Two hundred forty-two female divers responded to the survey. Forty-two participants were removed for incomplete survey data leaving 200 completed surveys, HOF,  $N=18$  and NHOF  $N=182$ , which is a response rate of 10% for HOF and 8% for NHOF.

### **Instruments**

Data was collected using the following two surveys. The first survey was developed by Lyu and Oh (2014) to measure the effects of leisure constraints, negotiation strategies, and intention for further participation by Wisconsin anglers which was adapted for Scuba diving. The word “fishing” is replaced with the word “scuba diving” in each statement. Lyu and Oh (2014) explored past literature and identified items of leisure constraints that vary across different recreation activities.

Lyu & Oh (2014) worded their leisure constraint survey categories as Personal, Interactional, and Structural which were renamed into intrapersonal, interpersonal and structural as identified by previous leisure researchers (Godbey & Crawford 1987). The survey measured total leisure constraints as respondents' answered using a 5-point Likert scale with 1 (Strongly Disagree) to 5 (Strongly Agree) to answer seven measurement items. Items 1-10 measured three forms of constraints. The first three questions related to Intrapersonal constraints: "I don't have enough time"; "I have too many family responsibilities"; and "I don't have the necessary diving skills". The next three questions covered Interpersonal constraints: "I can't find other buddies who have an interest in diving"; "I can't find other buddies who have enough time to dive"; and "I can't find other dive buddies who have the necessary diving skills". The next four questions related to Structural constraints: "diving facilities are poorly developed and maintained"; "diving regulations are too restrictive"; "I am not aware of diving opportunities close to home"; and "the cost of diving equipment and supplies is too expensive". The last four items 11-14 measured Commitment: "If I stopped diving, I would lose touch with my friends"; "If I couldn't go diving, I am not sure what I would do"; "because of diving, I don't have time to spend participating in other leisure activities"; and "I find that a lot of my life is organized around diving".

The second portion of the survey was divided into three categories. The first section covered Cognitive and Behavioral Strategies with items 15-23. This section measured negotiation resources by respondents indicating the type of strategy they used or attempted to use, to overcome constraints to their participation with scuba diving.

Lastly, the section on Intentions, items 24-26 measured intention (proxy term for measuring motivation) to continued participation (Lyu and Oh, 2014).

To assess the degree of fit of the measurement and structural model, five different fit indices were used with Lyu and Oh (2014) survey construct; Chi-squared ( $X^2$ ) / degree of freedom ratio, Normal Fit Index (NFI), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), and Root Mean Square Error of Approximation (RMSEA). The indices of NFI, CFI, and NNFI recommend greater than 0.9 for acceptable model fit. The result showed greater than 0.9 with the indices framework and demonstrates the measurement model indicated a satisfactory fit. The composite reliabilities for the seven variables indicated acceptable levels within the coefficient in excess of 0.67 (Hatcher, 1994). The statistically significant *t*-values of all indicator coefficients range from 8.906 to 28.565 supporting convergent validity (Lyu & Oh, 2015). Also, the results were examined for comparison of the error variances for each latent factor and the squared correlation between all constructs for discriminate validity. According to Fornell and Larcker (1981) the results are considered acceptable when the statistics of error variance are greater than the squared correlation estimates thereby supporting evidence for discriminant validity.

The second measuring instrument was Outdoor Recreation Self-Efficacy (ORSE) survey developed by Robin Mittelstaedt and Jesse J. Jones (2009) to evaluate and “effectively capture concepts that relate to a person’s self-efficacy, which are centrally associated with outdoor recreation activities” (p. 98). The responses utilized a Likert scale ranging from 0-10 where 0 = “not at all true” and 10 = “very true”. The statements used to analyze data for this study was a 14-item scale, measuring Enjoyment/

Accomplishment (i.e. “I have a good time”) and Skills/Competence (i.e. “I feel confident”).

Results from the survey indicate one’s sense of accomplishment, achievement, and enjoyment, contributes to ones’ self-efficacy and relate to one’s participation in outdoor recreation. A factor analysis revealed two subscales: Enjoyment/Accomplishment which explains 61.84% and Skills/ Competence which explains 12.71%, accounting for 74.54% of the explained variance in outdoor recreation self-efficacy (Mittelstaedt & Jones, 2009). The Reliabilities for the Enjoyment/Accomplishment and Skills/Competence statement subscales show a Cronbach’s alpha of ( $> 0.9$ ,  $p < .001$ ), showing a high degree of internal consistency. The authors conducted a split-half reliability scale analysis on the 17 item scale instrument. Results indicate a high degree of reliability for both groups ( $\alpha = 0.843$ ,  $p < .001$  and  $\alpha = 0.937$ ,  $p < .001$  respectively). A significant relationship exists between ORSE scores and participation in outdoor recreation ( $r = .52$ ;  $p < .001$ ) indicating women having fun and enjoying oneself during outdoor recreation activities contributed more to a woman’s self-efficacy than feeling skilled or competent, endorsing Bandura’s views about the nature of self-efficacy, thereby proving a reliable and valid measure for assessing the self-efficacy of women who participate in outdoor recreation activities (Mittelstaedt & Jones, 2009).

## **Results**

### ***Participants Descriptive Statistics***

The survey was posted on ScubaBoard. com and Women Hall of Fame Facebook websites yielding a total response from 242 female scuba divers with only 200

respondents or 82.64% completing the entire survey; 18 Hall of Fame divers (HOF) and 182 non-hall of fame divers (NHOF). A majority of respondents, were from the United States (148, or 77.2%). The age range for the majority of HOF divers were between 55-64 years, ( $M = 53$ ,  $SD = 10.5$ ). The age range for the majority NHOF were between 35-44 years, ( $M=45$ ,  $SD=12.1$ ).

*Dives with-in the last 12 months.* This question required the respondents to fill in the number of dives they engaged in the last 12 months. HOF respondents averaged 98 dives for the year ( $M = 98.11$ ,  $SD=129.73$ ) and NHOF divers averaged less than half that amount with 42 dives for the year. ( $M=41.72$ ,  $SD=40.24$ ).

*Marital status.* Respondents identified their marital status from a list of 7 choices. Most respondents HOF (9, or 50%), NHOF (105 or 58%) were married or had a significant other.

*Children under the age of 18 living in the household.* Respondents identified whether or not they had children under 18 years old living at home. A majority of respondents HOF (15 or 83.3%), and NHOF (157 or 86.3%) did not have children at home.

*Adults over 18 years living in household (include yourself).* The majority of respondents for HOF (12 or 66.7%), and NHOF (112 or 61.7%) have one child over the age of 18 living at home.

*Employment.* Respondents identified their employment status from a list of 5 categories which consisted of: (1) employed for wages; (2) self-employed; (3) stay at

home/caregiver; (4) retired and (5) other. The majority HOF are self-employed (8 or 44.4%) while the majority NHOF are employed for wages (111 or 61.0%).

*Household income.* Respondents identified their personal household income from a list of 9 levels. The majority HOF income was in the \$75,000-\$99,999 range and NHOF income was \$100,000-\$149,999 range. It is worth noting that only 5 divers earned \$14,999 or below and 15 divers indicated they made \$200,000 or more.

*Highest level of Education.* Respondents identified their level of education from a list of 9 categories. It is worth noting that the majority HOF (16 or 88.9%) and NHOF (133 or 73%) hold a college or an advanced degree while only 9 or 4.5% held high school diploma.

*Agency Certifications.* The majority of certifications are through the PADI (Professional Association of Diving Instructors) agency for both HOF (9 or 52.9%) and NHOF (85 or 47.2%).

*Check all types of experience certifications to date.* This question allowed the respondents to check all the certifications they have acquired and shows there is an interest for both groups to continue advancing their diving education by pursuing other diving certifications above the required basic open water certification. It is worthy to note that the first three categories: Breathing Observation Bubble (B.O.B.), Brownie, and Resort diver, are a tourist attraction activity which is not equivalent to receiving a basic open water certification from a credible agency. The last four categories: Dive Master, Assistant Instructor, Instructor, and Instructor Trainer- ITC, are professional certifications (See Table 1).

**Table 1. Check all types of experience certifications which indicates continuing education.**

| Categories           | HOF |      | NHOF |      | Totals |      |
|----------------------|-----|------|------|------|--------|------|
|                      | n   | %    | n.   | %    | n      | %    |
| B.O.B.               | 1   | 5.6  | 1    | 0.5  | 2      | 1.0  |
| Brownie Diver        | 1   | 5.6  | 2    | 1.1  | 3      | 1.5  |
| Resort               | 2   | 11.1 | 4    | 2.2  | 6      | 3.0  |
| Basic Open Water     | 16  | 88.9 | 179  | 98.4 | 195    | 97.5 |
| Advanced             | 14  | 77.8 | 158  | 86.8 | 172    | 86.0 |
| Master Diver         | 6   | 33.3 | 43   | 23.6 | 49     | 24.5 |
| Cave                 | 4   | 22.2 | 47   | 25.8 | 51     | 25.5 |
| Nitrox               | 12  | 66.7 | 149  | 81.9 | 161    | 80.5 |
| Wreck                | 8   | 44.4 | 57   | 31.3 | 65     | 32.5 |
| Rescue               | 11  | 61.1 | 104  | 57.1 | 115    | 57.5 |
| Technical Diver      | 8   | 44.4 | 62   | 34.1 | 70     | 35.0 |
| Dive Master          | 8   | 44.4 | 66   | 36.3 | 74     | 37.0 |
| Assistant Instructor | 6   | 33.3 | 34   | 18.7 | 40     | 25.0 |
| Instructor           | 9   | 50.0 | 43   | 23.6 | 52     | 26.0 |
| ITC                  | 3   | 16.7 | 3    | 1.6  | 6      | 3.0  |

Note: the respondents checked all that apply. There is a separation between resort diving (B.O.B = Buoyancy Observation Bubble., Brownie and Resort) which do not include standard practices of teaching for certification. The last three are professional certifications (Assistant Instructor, Instructor, ITC = Instructor Training Course).

*Do you want to pursue further education through additional certifications?* This question was asked to explore the recurrence rate amongst divers to continue acquiring further skills through education. Results indicate a majority from both groups would

pursue further education, HOF (9 or 50%), NHOF (125 or 69%) by taking classes to further their diving education through other specialty or professional certification courses.

*Total years Certified.* Respondents were required to type in their number of years certified with results indicating an average of 26 years for HOF ( $M = 26.8$ ,  $SD = 10.2$ ) with a range from 6 to 43 years, with a majority of HOF 61% ( $n=11$ ) diving over 26 years. The average years certified for NHOF is 14 years diving ( $M = 13.5$ ,  $SD = 9.5$ ) with a range from 1 to 38 years.

*Total number of dives to date since becoming certified.* The respondents indicated the number of dives from a list of 10 categories with the majority HOF indicating totals to be 5000 and over, while the majority NHOF totaled between 1000-4999 dives (See Table 2).

**Table 2. Total number of dives to date since becoming certified**

| Categories   | <u>HOF</u> |      | <u>NHOF</u> |      | <u>Total</u> |      |
|--------------|------------|------|-------------|------|--------------|------|
|              | n.         | %    | n.          | %    | n.           | %    |
| 1) < 50      | 0          | 0.0  | 21          | 11.5 | 21           | 10.5 |
| 2) 51 – 100  | 0          | 0.0  | 10          | 5.5  | 10           | 5.0  |
| 3) 101 – 250 | 3          | 16.7 | 32          | 17.6 | 35           | 17.5 |
| 4) 251 – 450 | 0          | 0.0  | 30          | 16.5 | 30           | 15.0 |
| 5) 451 – 650 | 1          | 5.6  | 22          | 12.1 | 23           | 11.5 |
| 6) 651 – 850 | 0          | 0.0  | 16          | 8.8  | 16           | 8.0  |



|                       |          |             |           |             |    |      |
|-----------------------|----------|-------------|-----------|-------------|----|------|
| 7) 851 -999           | 0        | 0.0         | 11        | 6.0         | 11 | 5.5  |
| <b>8) 1000 – 4999</b> | 6        | 33.3        | <b>36</b> | <b>19.8</b> | 42 | 21.0 |
| <b>9) 5000 +</b>      | <b>8</b> | <b>44.4</b> | 4         | 2.2         | 12 | 6.0  |

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*Travel to dive vacation destinations.* The majority of respondents answered yes for traveling to dive destinations specifically to partake in a dive vacation, HOF (n = 15 or 83.3%), NHOF (n = 151 or 82.9%).

*Type of preferred diving.* The respondents had seven categories to choose from where the greatest percentage of HOF divers indicated their preference for destination Liveaboard diving, while NHOF indicated a higher preference for local boat diving. The response for the “other” category showed a preference for cave diving (See Table 3).

**Table 3. Types of Preferred Diving**

| Categories         | <u>HOF</u> |             | <u>NHOF</u> |             | <u>Total</u> |      |
|--------------------|------------|-------------|-------------|-------------|--------------|------|
|                    | n.         | %           | n           | %           | n            | %    |
| Local Shore        | 2          | 11.1        | 15          | 8.3         | 17           | 8.5  |
| <b>Local Boat</b>  | 4          | 22.2        | <b>46</b>   | <b>25.4</b> | 50           | 25.1 |
| Destination Shore  |            |             |             |             |              |      |
| diving             | 0          | 0.0         | 7           | 3.9         | 7            | 3.5  |
| Destination Boat   |            |             |             |             |              |      |
| diving             | 2          | 11.1        | 38          | 21.0        | 40           | 20.1 |
| Destination        |            |             |             |             |              |      |
| <b>Liveaboards</b> | <b>5</b>   | <b>27.8</b> | 18          | 9.9         | 23           | 11.6 |

|                           |   |      |    |      |    |      |
|---------------------------|---|------|----|------|----|------|
| Traveling to dive         |   |      |    |      |    |      |
| resorts                   | 1 | 5.6  | 21 | 11.6 | 22 | 11.1 |
| Other (write in response) | 2 | 11.1 | 11 | 6.1  | 13 | 6.5  |
| Cave                      | 2 | 11.1 | 25 | 13.8 | 27 | 13.6 |

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*Own complete set of dive equipment/gear.* Respondents indicated that a majority of women divers own a complete set of their own dive gear HOF (15 or 82.3%), NHOF (161 or 88.6%).

*Main purchaser of gear.* The majority of respondents indicated they are the main purchasers of their own equipment HOF (n= 17 or 94.4%), NHOF (n=175 or 96.1%).

*Lifestyle.* The majority of respondents indicated yes to the question “Do you consider scuba diving as part of your lifestyle?”, HOF (n=15 or 83.3%) and NHOF (n = 165 or 90%) while also affirming that a majority from both groups actively participate in other outdoor recreational activities HOF (15 or 83.3%) and NHOF (161 or 88%).

*Travel distance to dive.* The respondents identified from where they currently live, the amount of travel distance to dive from a list of 7 choices. The majority HOF traveling 5 miles or less to dive and the majority NHOF traveling 250 miles or more to dive (see Table 4).

**Table 4. Travel distance to dive**

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| Categories             | <u>HOF</u> |             | <u>NHOF</u> |      | <u>Total</u> |      |
|------------------------|------------|-------------|-------------|------|--------------|------|
|                        | n          | %           | n           | %    | n            | %    |
| <b>1) &lt; 5 miles</b> | <b>7</b>   | <b>38.9</b> | 35          | 19.2 | 42           | 21.0 |

|                          |          |             |           |             |           |             |
|--------------------------|----------|-------------|-----------|-------------|-----------|-------------|
| 2) 6 – 20 miles          | 3        | 16.7        | 33        | 18.1        | 36        | 18.0        |
| 3) 21 – 50 miles         | 1        | 5.6         | 28        | 15.4        | 28        | 14.0        |
| 4) 51 = 100 miles        | 2        | 11.0        | 27        | 14.8        | 29        | 14.5        |
| 5) 101 – 150 miles       | 1        | 5.6         | 12        | 6.6         | 13        | 6.5         |
| 6) 151 – 250 miles       | 0        | 0.0         | 10        | 5.5         | 10        | 5.0         |
| <b>7) &gt; 250 miles</b> | <b>4</b> | <b>22.2</b> | <b>36</b> | <b>19.8</b> | <b>40</b> | <b>20.0</b> |
| Missing                  | 0        | 0.0         | 1         | .5          | 1         | .5          |

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### **Research Questions – Data Analysis**

The interpersonal, intrapersonal, structural, commitment and negotiation strategy variable distributions were analyzed using SPSS (Statistical Package for Social Science) program 21.0. Data screening was utilized to examine missing data, outliers, and normality in collected data using descriptive statistics. All construct variables were screened for normality by examining skewness, kurtosis. Any outliers were recoded to either low or high extremes. All descriptive data are within acceptable ranges of normality.

### **Results**

*Question 1* -What are the constraints that inhibit female participation in scuba?

The Intrapersonal Table comprised of three questions. The highest percentage of participants indicated that they strongly disagree or disagree with the prompts (see Table 9). The Interpersonal Table comprised of three questions. The highest percentage of participants indicated that they strongly disagree or disagree with the prompts (see table 10). The Structural Table comprised of four questions. The highest percentage strongly

disagree “with no opportunities close to home”, and disagree “with poor facilities” and “too many regulations”. The majority HOF are neutral responding to “the cost of diving equipment and supplies is too expensive” while the majority of NHOF disagree with the statement (see Table 11). The Commitment Table was comprised of four questions; The majority from both groups disagreed with the first three statements and both groups agreed that “a lot of their life is organized around diving” (see Table 12).

*Question 2.* What is the relationship between self-efficacy and leisure participation (intent)? The intent for more frequent participation was comprised of three questions; “If I have chances, I intend to go diving more often over the next 12 months”; “I am determined to go diving more often over the next 12 months”; and “I will go diving more often over the next 12 months if my family or friends want to”. A Pearson correlation coefficient was performed to examine the relationship between total self-efficacy and total intent/motivation to dive among both groups of participants. There was a weak significant correlation between self-efficacy and intent/motivation for the total group  $r = .292$ ,  $p < .01$ ,  $R^2 = .085$ .

*Question 3.* Is there a relationship between self-efficacy and negotiating strategies among female scuba divers? A Pearson correlation was calculated examining the relationship between the participants using negotiation strategies and self-efficacy when participating with scuba diving activities. Among all participants there was a positive moderate correlation that was statistically significant  $r = .391$ ,  $p < .01$ ,  $R^2 = .152$ . This indicates a moderate relationship between self-efficacy and negotiation strategies.

*Question 4.* Are there differences in the relationships among self-efficacy, leisure constraints, negotiating strategies between HOF and NHOF divers? A Fisher's z-transformation was used for comparing the correlations between the constructs of total leisure constraints, negotiation strategies and self-efficacy for both groups.

A Fisher's z-transformation was used to compare the relationships between negotiation strategies and self-efficacy amongst the two dive groups. No significant difference was found between the correlations of negotiation strategies and self-efficacy between the HOF and NHOF divers.  $z = 1.38, p. > .05$ . Secondly, there was a significant difference in correlations found between total leisure constraints and self-efficacy variables, between HOF and NHOF,  $z = -2.27, p. < .05$ . The HOF group had a significantly higher correlation. Lastly, there was a significant difference in correlations between negotiation strategies and total leisure constraints variables between HOF and NHOF divers,  $z = -3.58, p. < .05$ . The HOF group had a significantly higher correlation.

## **Discussion**

The results of this study indicate that the constraints identified by earlier researchers are not fixed barriers to scuba diving. Constraints for women wishing to engage in leisure activities have traditionally been associated with dominant gender ideology and have included, lack of accessible time, family responsibilities, lack of participation partners, perceived social inappropriateness of the activity, lack of financial resources, lack of skills, and unavailable facilities. Due to the unique nature of scuba diving as a leisure activity many of the negotiation strategies may have been mitigated by the backgrounds

and personal circumstance of the participants. The active participants in this study had all chosen scuba diving as an active lifestyle choice, and because of their household income, no longer have to encounter lack of financial resources as a barrier. Certain family responsibilities such as child care, may have been mitigated as virtually none of the participants had young children living at home. Additionally, lack of facilities also was not a barrier for these participants because they either lived close to the water or had the resources to travel up to 250 miles to a suitable diving site. The median household income for Hall of Fame divers was between \$75,000 and \$100,000 and non-Hall of Fame between \$100,000 and \$150,000. In addition, the majority of participants in this study have Bachelors and/or advanced university degrees. Social class as it relates to scuba diving thus played an important role in the negotiation strategies of these participants.

Results of the survey provide support that using negotiation resources plays a central role in the process for Interpersonal, Intrapersonal, and Structural leisure constraints. According to Hubbard and Mannell's (2001) model for constraint-effects-mitigation, encountering constraints prompts individuals to enact negotiation strategies which resolves the impact of constraints on participation (p. 159). Thus female divers with higher negotiation strategies or resources participate more in scuba diving by overcoming perceived traditional barriers. The majority HOF and NHOF responses reflect this result when replying "strongly disagree" to the 14 constraint statements.

Little (2002) introduced the theoretical definition that leisure constraint constructs may not be perceived by women as being negative aspects of their lives in order to participate, instead constraints trigger a negotiation process which can lead to continued

participation that have been previously proven (p. 169). Over time the HOF and NHOF women have incorporated strategies to negotiate constraints of family commitments, lack of money, lack of skills, and restricted leisure time, to integrate their passion for scuba diving into their lifestyle.

### **Self-efficacy and Participation**

The relationship of self-efficacy with participation for the entire group of women divers in the study resulted in a weak correlation. Once the groups were separated, HOF showed no correlation however NHOF showed a moderate correlation indicating that HOF divers already believe in their abilities to overcome challenges based on skill development (Bandura, 1997). The demographic results show HOF averaged 98 dives over the last twelve months while NHOF averaged 42 indicating HOF divers have an increased participation level of experience therefore a sharper skill set leading to higher self-efficacy and mastery in diving. These results suggest HOF have mastered scuba diving experiences (Bandura, 1997). The NHOF may have some skill level developments and improvements to continue overcoming in order to reinforce their achievements towards a higher confidence and self-efficacy, as results indicate with the majority HOF who averaged 26 years of diving and 5000 + lifetime dives while the majority NHOF averaged 14 years diving and 2500+ lifetime dives. It is clear that HOF divers' experience and confidence level in their diving skills and abilities impact their concept of constraints to the extent that they didn't consider traditional constraints to be barriers to diving participation. This is consistent with high level performers in any physical activity and

supports the idea that traditional constraint theory applies to individuals with moderate to low self-efficacy.

### **Self-efficacy and Negotiation**

The relationship between self-efficacy and negotiation strategies is associated with a higher motivation to participate (White, 2008). Positive negotiation resources influence a women's decision to continue, reduce or quit participation and their belief in creating positive commitment experiences in recreational activities (Little, 2002; Wood & Danylchuk, 2012). The results from the association provide support that a higher self-efficacy positively influences negotiation techniques for HOF, whereas, NHOF are still on a continuum working towards a higher experienced level of diving. This supports earlier leisure research models which implied that an increased confidence, and self-efficacy, would more likely attribute to an individual's ability to negotiate leading to a successful negotiation of constraints (Hubbard & Mannell, 2001; Jackson, Crawford, & Godbey, 1993, White, 2008).

Successful negotiating techniques introduced by Donna Little, (2002), can be applied towards scuba diving when these women divers *prioritized* constraint responsibilities in order to participate in diving; *compromised* their existing activities to customize their ability for participation while fulfilling interpersonal and structural obligations (p. 167). When life's circumstances limited their physicality and the demand of diving had to be adapted or *creatively alternated* for less physically demanding diving, or when divers temporarily leave diving for a period of time would *anticipate* the return to the activity giving them the emotional encouragement and commitment to wait (Little,



2002, p. 168). Once negotiation strategies have been put in place, the pursuit to continue diving can be seen with the majority of participants agreeing to further their education through additional certifications for other specialty or professional diving courses.

What is clear with all these participants is that even when life circumstances (interpersonal, intrapersonal and structural constraints) forced temporary cessation of diving they all eventually returned to the sport due to their high self-efficacy and ability to negotiate the constraints. The goal of the Scuba Industry promoters would be to include negotiation solutions for constraints by creating learning environments that systematically build skills, confidence and self-efficacy to achieve lifelong dedication to the sport.

### **Limitations**

Prior to discussing the results, it must be noted that the response rate to the questionnaire was relatively low and uneven between the two groups. The low response rate may be partly attributable to a long questionnaire format, no incentives, or recently, an increasing common use of online survey methods (Vaske as cited in Lyu & Oh, 2014). The possibility of a low response rate and unequal number of responses between the two groups are known to cause a selection bias which indicates factors for the sample may not be representative of the population from which it is drawn (Vincent & Weir, 2012).

### **Conclusion**

The implications that can be drawn from this study fall into two areas, 1) suggestions for further study and 2) recommendations for Scuba industry growth.

Further Study

a) As noted earlier, the participants in this study all had incomes that placed them in the upper middle to higher economic social class. This allowed them to have the resources to mitigate and even negate the impact of certain structural constraints. Further research is necessary on lower income scuba divers to investigate how they negotiate constraints related to lack of financial resources. A qualitative study involving in-depth interviews and focus groups would help determine the specific types of constraints and negotiation strategies employed by female scuba divers encountering the more traditional constraints associated with traditional female roles and limited resources.

b) Also, the average age of the participants in the two groups was 53 for HOF divers and 45 for NHOF divers. Most participants reported that no young children lived at home. Further research is needed on younger female divers who have children living at home and who have to negotiate family related constraints not encountered by the participants in this study.

### **Future Directions**

It is clear from the results of this study that scuba diving for women is a niche market industry that is catering to upper middle and upper class income participants. In order to promote growth and expand target markets the industry should focus on the following areas:

- a) The results of this study indicate that confidence and self-efficacy are major factors contributing to sustained participation and constraint negotiation. There is thus a need to create more cost effective introductory scuba experiences targeting middle and lower class households in non-traditional settings to introduce them

into diving to established confidence early and the new divers can ride the participation “escalator” from low to frequent.

- b) The industry should develop a marketing plan that can neutralize the constraint of family obligations by offering more packages for adults and children, or by offering day care services so mothers can engage in the sport with or without their families.
- c) Utilize HOF divers as “mentors” and bridges to novice divers in order to expose new divers to female role models and mitigate the potential inappropriate constraint many potential female divers might encounter.
- d) Broaden the male-centric marketing campaigns in industry magazines and journals to include ages 18-35 demographic of females in advertising and promotional materials.
- e) Innovations and alternative adaptations for younger crowds by utilizing technology and coming up with a way to show how exciting diving is when you can use your iPhone underwater to text or send videos while diving.

There is tremendous growth potential for the scuba industry. By analyzing the results of this study and examining the negotiation strategies utilized by the participants the industry can begin to implement programs and marketing strategies that will expand their traditional male dominated markets.

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## Appendix A

# Survey Monkey Cover Letter

Dear Research Participant:

Your participation in a research project is requested. The title of the study is Female Scuba Diving Leisure Constraints. The research is being conducted by Dawn Furlan, a student in the School of Human Performance and Leisure Sciences Department at Barry University, Miami Shores, FL, and it is seeking information that will be useful to increase participation and marketing to women scuba divers. The aims of the research are to examine and compare leisure constraints, negotiations and level of self-efficacy between female Hall of Fame and Non-Hall of Fame divers. In accordance with these aims, the following procedure will be used: A questionnaire called Female Scuba Diving Leisure Constraints follows this letter. I anticipate the number of participants to be a minimum of 100 participants.

If you decide to participate in this research, you will be asked to do the following: Answer the questions on Survey Monkey TM. The questionnaire is estimated to take no more than 20 minutes to complete.

Your consent to be a research participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects. If you are a student there will be no effect on your grades.

There are no known risks to the participant in this study. The following procedures will be used to minimize risks: You can skip any questions you do not want to answer. There are no direct benefits to you for participating in this study; however, your participation will contribute to research in the area of leisure constraints, negotiation and self-efficacy female scuba divers apply.

As a research participant, information you provide is anonymous, that is no names or other identifiers will be collected. SurveyMonkey TM.com allows researchers to suppress the delivery of IP addresses during the downloading of data, and in this study no IP address will be delivered to the researcher. However, SurveyMonkey.com does collect IP addresses for its own purposes. If you have concerns about this, you should review the privacy policy of SurveyMonkey TM.com before you begin.

By clicking on the “I agree” button below and by submitting a completed survey, you are voluntarily agreeing to participate, are acknowledging you are at least 18 years old and you are giving permission to use your data in this study. Participants must click on either the “I agree or “I do not agree” button to confirm consent or refusal. Once the “I agree” button is clicked, participant is directly linked to the Survey. If you click on the “I do not agree” button, you will immediately exit this site.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Dawn Furlan by email at [dawn.furlan@mymail.barry.edu](mailto:dawn.furlan@mymail.barry.edu). You may also contact the Institutional Review Board point of contact, Barbara Cook, by phone at (305) 899-3020 or by email at [bcook@mail.barry.edu](mailto:bcook@mail.barry.edu). Thank you for your participation. Sincerely, Dawn Furlan

## APPENDIX B

**Demographic Information**

1. How many years have you been certified to dive?

2. What is your highest level of certification today?

- Basic Open Water
- Advanced
- Master Diver
- Cave
- Wreck
- Rescue
- Technical
- Dive Master
- Instructor
- ITC Instructor
- Other

2 Which agency is your most recent certification with?

2. Do you want to pursue further education through additional certifications in scuba diving?

- Yes
- If No, why not?

3. Are you a Women's Diver Hall of Fame inductee?

- Yes
- No

Do you own your own mask, fins, snorkel, regulator, BC, Computer, PSI gauge, tanks, weights and wetsuit?

- Yes
- If No, what equipment are you missing?

Are you the main purchaser for your own equipment/gear?

- Yes
- If No, who purchases your equipment/ gear?

Which of the following have you purchased for yourself? Check all that apply

- Mask
- Fins
- Snorkel
- Buoyancy Compensator (BC)
- Diving Computer/PSI/ Depth Gauge/ Compass
- Regulator/ octopus
- Wetsuit/Drysuit
- Cylinders/tanks
- Save a dive emergency toolkit
- Underwater photography camera and accessories
- Miscellaneous diving accessories (flashlights, lift bags, line n reel, etc)
- Specialized technical gear (i.e. cave, wreck, decompression diving)

4. What is your Age?

5. Have you dived within the last 12 months?

- If Yes, how many times?
- If No, short reason why not

6. Total number of dives to date.

- <50
- 51-100
- 101-250
- 251-450
- 451-650
- 651-850
- 851-999
- Thousands
- Tens of thousands

7. From where you live now, how far will you travel to go diving?

- < 5 miles
- 6-20 miles
- 21-50 miles
- 51-100 miles
- 101-150 miles
- 151-250 miles
- Other

Do you travel to vacation destinations for scuba diving?

- If Yes, how often?
- No

8. What type of diving do you prefer to do?

- Local Shore diving
- Local Boat diving
- Destination Shore diving
- Destination Boat diving
- Destination Liveaboards
- Travel to Dive Resort Destination

9. Education: What is the highest degree or level of school you have completed? *If currently enrolled, highest degree received.*

- Some high school, no diploma
- High school graduate, diploma or the equivalent (for example: GED)
- Some college credit, no degree
- Trade/technical/vocational training
- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree

10. Marital Status: What is your marital status?

- Single, never married
- Married or domestic partnership
- Widowed
- Divorced
- Separated

- Would rather not say
11. Employment Status: Are you currently...?
- Employed for wages
  - Self-employed
  - Out of work and looking for work
  - Out of work but not currently looking for work
  - Stay at home/ caregiver
  - A student
  - Military
  - Retired
  - Unable to work
12. What is your current household income in U.S. dollars?
- \$0 - \$14,999
  - \$15,000-\$24,999
  - \$25,000-\$34,999
  - \$35,000- \$49,999
  - \$50,000- \$74,999
  - \$75,000- \$99,999
  - \$100,000 - \$149,999
  - \$150,000 - \$199,999
  - Over \$200,000
  - Would rather not say
13. In what country do you currently reside?
- United States
  - Other
14. Which of the following best describes the area where you live?
- Urban
  - Suburban
  - Rural
15. How many children under 18 years old live in your household?
- None
  - 1
  - 2
  - 3
  - 4 or more

Do you consider scuba diving a lifestyle?

- Yes
- No

Do you consider scuba diving one of many recreational activities to participate in?

- Yes
- No

What other outdoor recreational activities do you participate?

## APPENDIX C

**Leisure Constraint Questionnaire**

| Use the responses to answer the following 26 statements                                       | <b>Strongly Disagree</b> | <b>Disagree</b> | <b>Neutral</b> | <b>Agree</b> | <b>Strongly Agree</b> |
|---|--------------------------|-----------------|----------------|--------------|-----------------------|
| I don't have enough time (V1)   |                          |                 |                |              |                       |
| I have too many family responsibilities (V2)  |                          |                 |                |              |                       |
| I don't have the necessary diving skills (V3)   |                          |                 |                |              |                       |
| I can't find dive buddies who want to go diving(V4)   |                          |                 |                |              |                       |
| I can't find dive buddies who have similar free time to dive (V5)                             |                          |                 |                |              |                       |
| I can't find other divers who have the necessary diving skills (V6)                           |                          |                 |                |              |                       |
| Diving facilities sare poorly developed and maintained (V7)                                   |                          |                 |                |              |                       |
| Diving regulations are too restrictive (V8)   |                          |                 |                |              |                       |
| I am not aware of scuba diving opportunities close to home (V9)                               |                          |                 |                |              |                       |
| The cost of diving equipment and supplies is too expensive (V10)                              |                          |                 |                |              |                       |
| If I stopped diving, I would lose touch with my friends (V11)                                 |                          |                 |                |              |                       |
| If I couldn't go diving, I am not sure what I would do (V12)                                  |                          |                 |                |              |                       |
| Because of diving, I don't have time to spend participating in other leisure activities (V13) |                          |                 |                |              |                       |
| I find that a lot of my life is organized around diving (V14)                                 |                          |                 |                |              |                       |
| I try to ignore some problems resulting from my diving (V15)                                  |                          |                 |                |              |                       |
| I try to push myself harder when I encounter some obstacles in diving (V16)                   |                          |                 |                |              |                       |
| I try to persist until I overcome some obstacles in diving (V17)                              |                          |                 |                |              |                       |
| I try to swallow my pride when I encounter some obstacles in diving (V18)                     |                          |                 |                |              |                       |
| I try to organize my schedule (V19)   |                          |                 |                |              |                       |
| I try to budget my money (V20)  |                          |                 |                |              |                       |
| I try to find people with similar interests (V21)   |                          |                 |                |              |                       |
| I try to persuade my family or friends to go diving (V22)                                     |                          |                 |                |              |                       |
| I try to practice to improve my diving skills (V23)   |                          |                 |                |              |                       |
| If I have chances, I intend to go diving more often over the next 12 months (V24)             |                          |                 |                |              |                       |
| I am determined to go diving more often over the next 12 months (V25)                         |                          |                 |                |              |                       |
| I will go diving more often over the next 12 months if my family or friends want to (V26)     |                          |                 |                |              |                       |



