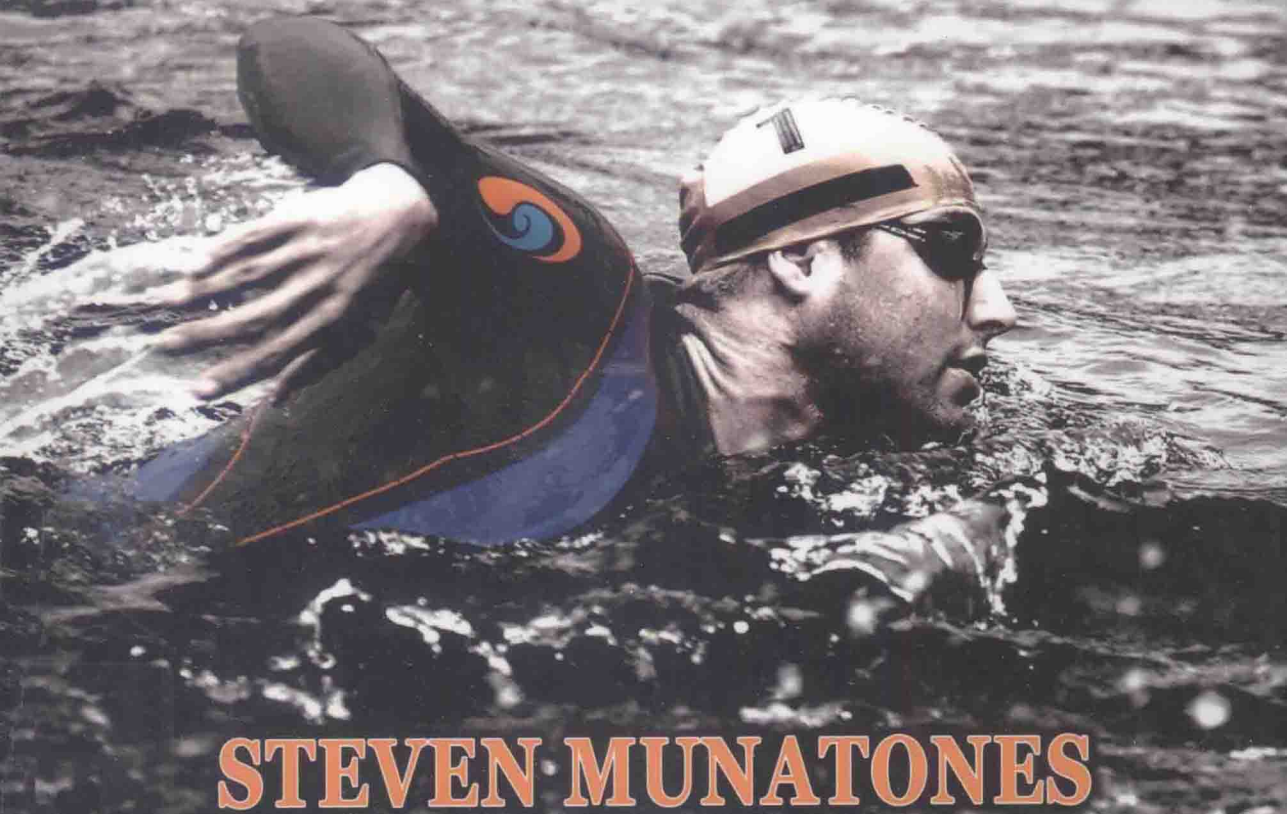


OPEN WATER SWIMMING

*Improved performance for
swimmers and triathletes*



STEVEN MUNATONES

Foreword by John Flanagan

OPEN WATER SWIMMING

Steven Munatones



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To my wife, parents and children, Sabrina, Skyer, Sydney, and Sofia,
whose support is forever appreciated.

FOREWORD

If you are reading this, you have probably already heard open water swimming's call. For me, it started at an early age while growing up in Hawaii, swimming at the beach and surfing and bodysurfing with friends after school. As I progressed from surf grom to swim club kid, the ever-changing conditions of open water proved an irresistible respite from the constant metronome of the pool. Open water swimming meant freedom—freedom to pit myself against the elements, freedom to work with the elements. Currents served as salvation or misfortune, offering an adventure and raw challenge that no pool workout could ever replicate. With no clocks on deck on which to base my performance, the open water demanded a heightened sense of awareness. Effort and a keen sense of adaptability reigned paramount—along with, of course, a little bit of strategy, technique, and luck too. Open water swimming resonated with my inner adventurous athlete.

No one understands the unique allure of open water swimming better than Steven Munatones. Through my travels as an open water competitor, I have crossed paths with Steven many times—from swimming the Waikiki Rough-water Swim as a child, to competing at the World Championships. Steven has shown more passion for the sport than anyone I have ever met. His unparalleled experiences and breadth of open water knowledge as a swimmer, coach, race organizer, Olympic commentator, and writer undoubtedly make him the go-to source for all things open water. He is open water swimming's best ambassador.

This book covers all aspects of open water swimming from finishing the swim leg of a triathlon to solo channel swims. It includes training and racing tips that will help both beginner swimmers and world-class open water swimmers. The wealth of knowledge put into this book makes it the best source for anyone braving the open water. I only wish I had access to it when I was starting my career.

The information comes from a person who lives and breathes the sport. Steven has always selflessly shared his passion and knowledge with others, but he is also always wanting to learn more. Without a doubt, this book is just one more step in Steven's desire to promote the sport and help others understand why open water is so compelling.

As he often says, "Expect the unexpected," and enjoy swimming without lines.

John Flanagan

Professional triathlete and world-class open water swimmer

INTRODUCTION

Welcome to *Open Water Swimming*, a comprehensive book to help you navigate the world of open water swimming. This book provides a wealth of information and recommendations based on firsthand observations of elite athletes in training and competition, solid scientific research, and the personal experiences of a world champion who has swum in dozens of countries on five continents over the last 40 years.

Open Water Swimming divides the sport into three categories: short-distance swims under 5K, middle-distance swims up to 25K, and marathon swims over 25K. Each distance requires a unique type of preparation, both in the pool and in open water, to optimize performance. Pool training sets, freestyle swimming techniques, and specialized open water training for the three categories are explained in detail, so you will know what is required to perform at your best in every condition.

The sport of open water swimming—despite its inherent challenges and risks—is attracting a growing number of athletes from every background and of all ages and ability levels. Since the addition of triathlon to the 2000 Sydney Olympics and the inclusion of the 10K marathon swim in the 2008 Beijing Olympics, the sport has continued on an upward trajectory in terms of the number of athletes involved and events offered. The community of marathon swimmers is growing as quickly as the number of races under 5K. Although the largest demographic group in the sport is currently men between the ages of 30 and 49, women over the age of 40 comprise the fastest-growing segment of open water swimmers.

Open water venues include oceans, lakes, rivers, canals, bays, dams, reservoirs, and rowing basins with water temperature varying from 35 to 85°F (1.7 to 29.4°C) where you will inevitably encounter the unexpected. The conditions can range from glassy and calm to rough and windy, creating challenges for newcomers and professionals alike. *Open Water Swimming* offers tips, tactics, and techniques to overcome the natural elements you will face as an open water swimmer.

Open Water Swimming also describes the training tools and equipment needed for success at each distance. The range of equipment can be overwhelming for newcomers: short-distance triathletes use wetsuits, middle-distance swimmers take gels and drinks during a race, and marathon swimmers use feeding sticks and lanolin on their solo swims. *Open Water Swimming* offers convenient checklists to help you prepare for solo swims and races.

Based on sophisticated underwater analytical tests conducted on Olympic gold medalists and world champions—both in the pool and in open water—*Open*

Water Swimming describes the optimal freestyle swimming styles and techniques that will help you swim faster and more efficiently at each distance.

The book also describes how to properly prepare logistically, physically, and mentally for open water swims one day, one month, and one year in advance. As your body acclimates to certain conditions as a result of a focused training regimen, you will gain the ability and confidence to reach your full potential.

Open Water Swimming explains basic and the most sophisticated open water racing tactics, for both newcomers and professionals. You will read about the best practices of professional open water swimmers from how to recognize the shape of a pack to how and where to quickly down a gel pack. You will learn how to make tactical moves in all kinds of racing situations, no matter what your speed, experience, or level of competition.

You can read the book from cover to cover or simply flip through it at your leisure.

Use the sample training plans for the three categories of the sport as is or as references so you can design a customized training program based on your own goals.

Whether you are an open water swimmer who does solo swims, a triathlete who races to win, or a newcomer initially exploring the waterways of the world, you will appreciate the sport more when you understand its unique duality: the simplicity of swimming from point A to point B and the complexity of doing so quickly, safely and efficiently.

The ultimate goal of *Open Water Swimming* is to help you swim faster and with greater efficiency. Enjoy the challenge.

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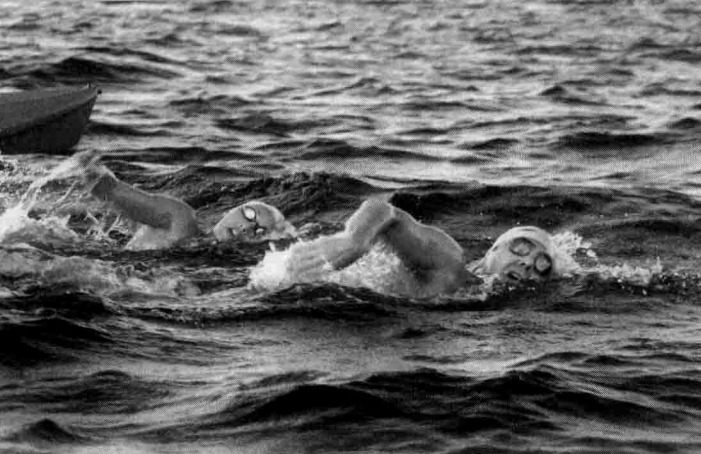
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Norma Connolly, Cayman Free Press

THE OPEN WATER SWIMMER

People throughout history have feared swimming in natural bodies of water. The open water has been considered mysterious, a place where safety is not guaranteed. Oceans are filled with the unknown, and shorelines create natural boundaries. For millennia, people have believed that the depths of the oceans are best observed from the deck of a ship rather than being a resource to be enjoyed.

Safety and comfort were two important reasons to stay firmly rooted to solid ground. Terrestrial or aquatic—there was no question. The wisdom of the ages was not questioned.

But the fear of the open water has been largely transformed over the last century. Many people now embrace it as a place to explore and test their physical and psychological limits.

Whereas the open water was once the province of only sailors and fisherman, it now offers a strong allure to swimmers of all ages, abilities, and backgrounds. The fear of the unknown has been replaced by its challenge. Channels and lakes, once traversed only by boats, are now regularly crossed by swimmers without trepidation. Rivers and bays once primarily used for commercial shipping are now popular venues for fitness and competition. Previously, the open water was something to avoid; it is now fully embraced by those who accept its challenges.

Adventure, a sense of accomplishment, and the thrill of competition are a few of the many reasons millions of people are heading to the open water. Contemporary athletes' desire to accept the challenge of the open water is no longer questioned, but rather encouraged, supported, and celebrated.

The world of open water swimming is vast and growing rapidly, but what exactly is open water swimming? Who enjoys this sport?

Open water swimming is defined as swimming for pleasure, fitness, or competition in natural or man-made bodies of water including oceans, lakes, bays, rivers, reservoirs, rowing basins, seas, ponds, coves, lagoons, canals, channels, dams, estuaries, fjords, and gulfs. With over 70 percent of the world covered by water, scenic and safe venues for open water swimming are limited only by swimmers' creativity and willingness to swim beyond the shores.

Open water swimming can be in saltwater or freshwater, calm or rough conditions, warm or cold temperatures, and still or with currents, depending on the time of day, the season, and the location. Today, over 3,600 open water events are held in at least 84 countries—and this number does not include triathlons, solo swims, lifeguard competitions, polar bear swims, and other multisport events involving the open water.

Types of Open Water Swimming

Rough water swimming	Swims in the ocean or any body of water with surface chop
Long-distance swimming	Swims up to 10K (6.2 mi) in distance
Marathon swimming	Nonstop swims at of least 10K
Ultramarathon swimming	Nonstop swims over 25K (15.5 mi)
Free swimming	Noncompetitive swims of any distance in natural bodies of water
Wild swimming	Noncompetitive swims of any distance in natural bodies of water
Night swimming	Swims done after the sun goes down and before it rises
Expedition swimming	Noncompetitive swims done with partners as part of guided tours
Swim trekking	Noncompetitive swims done with equipment and partners
Open water orienteering	Swims that require navigation between randomly placed buoys in the natural bodies of water
Cold water swimming	Swims of any distance done in cold water
Winter swimming	Swims of any distance done in winter, generally in cold water
Ice swimming	Swims of any distance done in near-freezing water

GOVERNING BODIES IN THE WORLD OF OPEN WATER SWIMMING

Because of the history and nature of the sport, there is no global organization that governs the entire spectrum of open water swimming. Instead, the sport is managed and promoted by a plethora of domestic and international entities, organizations, governing bodies, and individuals, including the Fédération Internationale de Natation (FINA) and its 202 member countries.

International Governing Bodies and Associations

FINA	International Olympic Committee (IOC)-recognized aquatic governing body with 202 member federations
UANA/ASUA	Unión Americana de Natación governing body for the Americas
AASF	Asian Amateur Swimming Federation for the Asian continent
ASC	African Swimming Confederation for the African continent
OSA	Oceania Swimming Association for the Oceania region
LEN	Ligue Européenne de Natation for the European continent
CS&PF	Channel Swimming & Piloting Federation for the English Channel
CSA	Channel Swimming Association for the English Channel
BLDSA	British Long Distance Swimming Association for Great Britain
ILDSA	Irish Long Distance Swimming Association for Ireland
GSSA	Gibraltar Strait Swimming Association for the Strait of Gibraltar
CLDSA	Cape Long Distance Swimming Association for Cape Town, South Africa
SSO	Solo Swims of Ontario in Canada
JIOWSA	Japan International Open Water Swimming Association for Japan
RLSA	River and Lake Swimming Association in Great Britain

OSS	Outdoor Swimming Society in Great Britain
IMSHOF	International Marathon Swimming Hall of Fame
VOWSA	Vancouver Open Water Swim Association in Canada
IOWSA	International Open Water Swimming Association
SOWSA	Stage Open Water Swimming Association
WOWSA	World Open Water Swimming Association
TCSA	Tsugaru Channel Swimming Association
IISA	International Ice Swimming Association
IWSA	International Winter Swimming Association

U.S. Governing Bodies and Associations

USA Swimming	With 59 Local Swimming Committees
U.S. Masters Swimming	With 52 Local Masters Swimming Committees
CCSF	Catalina Channel Swimming Federation
NYC Swim	For swims around Manhattan Island in New York City
SBCSA	Santa Barbara Channel Swimming Association in California
ASA	American Swimming Association in Austin, Texas
NEMSA	New England Marathon Swimming Association in Boston
NEKOWSA	Northeast Kingdom Open Water Swimming Association
FISA	Farallon Islands Swimming Association
LTSA	Lake Tahoe Swimming Association
GLOWS	Great Lakes Open Water Swim Series

Besides the domestic governing bodies in the United States, there are triathlon sanctioning bodies, lifesaving associations, independent race organizations, and municipalities with full autonomy over their own events. Because so many organizations have oversight in the open water world, the sport's rules and regulations vary from country to country, from venue to venue, and from race to race, which can be confusing.

On the other hand, these open water swimming organizations offer events with four key benefits:

1. Athletic competitions in scenic and natural environments
2. The challenge and enjoyment of swimming from start to finish in an open body of water
3. The enjoyment of group swimming with many swimmers in the open water compared with standing up on a starting block alone in a pool
4. Camaraderie with like-minded athletes in a sport that combines collegiality and competition

RULES OF OPEN WATER SWIMMING

The watershed event in open water swimming history occurred in 1875 when Captain Matthew Webb became the first person to swim across the 21-mile (33.8K) English Channel. His effort, and the way he crossed, set in place the widely accepted rules of open water swimming.

His legacy was followed at the 1896 Athens Olympics, the 1900 Paris Olympics, and the 1904 St. Louis Olympics, where the swimming events were conducted in open bodies of water. In the case of competitive swimming, no flotation devices or artificial aids were allowed and no touching of other people or objects for assistance was permitted. In the case of channel swimming, swimmers were required to “clear the water” under their own power.

In 1927, the Channel Swimming Association was established to organize, regulate, and authenticate swims in the English Channel based on Captain Webb’s precedent. The 2010 Channel Swimming Association Ltd. Handbook posted on their website states the following:

No person in an attempt to swim the Channel shall use or be assisted by an artificial aid of any kind, but is permitted to grease the body before a swim, use goggles, wear one cap and one costume. A “Standard Swim Costume” (for both sexes) shall be of a material not offering Thermal Protection or Buoyancy and shall be Sleeveless and Legless. “Sleeveless” shall mean the Costume must not extend beyond the end of the shoulder onto the Upper Arm; “Legless” shall mean the Costume must not extend onto the Upper Leg below the level of the Crotch.

With the advent of triathlons and the acceptance of wetsuits in the open water, millions of new enthusiasts have joined the sport. Although traditionalists have strictly adhered to the original rules of the Channel Swimming Association, the evolution of swimwear technology led to a schism in the open water world. The latest swimwear provides buoyancy, reduces hydrodynamic drag, maximizes water repellency (i.e., does not absorb water), and incorporates muscle compression panels. Compression panels reduce vibrations of the chest, thighs, and gluteal muscles and reduce the accumulation of lactic acid in the

blood. Reducing muscle vibrations increases the energy available to propel the swimmer through the water, and reduced lactic acid levels lead to faster performance. Wetsuits and new swimsuit technology have led to evolving rule interpretations that continue to be debated. Differences in the uses of swimwear have led to the creation of different divisions and separate awards for athletes who use wetsuits and those who do not.

But, Commander Gerald Forsberg, longtime president of the Channel Swimming Association, observed in 1957, “Despite the march of time and progress, the basic essentials remain precisely the same. Whatever the era, a Channel swim is, and always will be, a battle of one small lone swimmer against the sometimes-savage vastness of the open sea” (Long Distance Swimming).

CATEGORIES OF OPEN WATER SWIMMING

For ease of explanation, the sport can be generally divided into three categories: short-distance (up to 5K, or 3.1 mi), middle-distance (up to 25K, or 15.5 mi), and marathon-distance (over 25K) events. In an age of specialization, each distance can be further broken down, each with its own subset of enthusiasts, equipment, training methodologies, and racing strategies.

Solo swims, stage swims, circumnavigations, charity swims, relays, sanctioned races, competitive swim series, cold water swims, mass participation events, eco-swims, expedition swims, Paralympics, and Special Olympics races represent the variety of genres of the open water world.

Solo swimmers are supported by escort teams that include kayakers, paddlers, and motorized boats. These swims tend to be marathon distances and are conducted under English Channel rules (e.g., no wetsuits or touching a person during the swim). Exceptions are made depending on the circumstances, the organizer’s creativity, and the goals of the swimmer. These swims use modern technologies including global positioning system (GPS) units and micro-weather forecasting. Additionally, the swimmer’s progress and results, as well as photographs and videos, are often reported and shared in real time via e-mail, text messages, tweets, blogs, and photo- and video-sharing websites over online social networks.

Stage swims are conducted over a specific number of consecutive days; the swimmers start at the location where they exited the day before. Circumnavigations are swims around islands that dot shorelines from coast to coast, ranging from Alaska (8.2 mi [13.2K] Pennock Island Challenge) and California (3.2 mi [5K] Alcatraz Island Swim) to Florida (12 mi [19.3K] Swim Around Key West) and New York (28.5 mi [46K] Manhattan Island Marathon Swim).

Charity swims can be competitions, relays, solo swims, or stage swims of any distance. Financial contributions are solicited and received from people around the world, sometimes via specialty online charitable donation aggregators.

Open water relays include any number of swimmers, although two to six is generally the norm. Relays held under English Channel rules, first established



StrelSwimming.com

Martin Strel of Slovenia swam 3,273 miles (5,267K) down the length of the Amazon River over 66 days in 2007.

in 1964 by the Channel Swimming Association, require people to swim for one hour each in the same order from start to finish and without substitutions. Other competitive relay events (e.g., Maui Channel Swim in Hawaii) have different time periods that can be shorter as time passes (e.g., 30 minutes for the first leg and 10 minutes for subsequent legs). In the extreme, freestyle relays give swimmers complete flexibility to decide for themselves their rotations, their substitution patterns, and the length of time they swim during each leg. Environmentally oriented relays, called carbon-neutral relays, require swimmers to complete their swims without the benefit of a motorized escort boat. In these events, swimmers rotate between swimming and powering themselves with paddles in an outrigger canoe or other non-motorized watercraft.

Eco-swims have different goals and characteristics:

- Focus on protecting, conserving, or calling attention to the environment or ecology
- Focus on improving or protecting the welfare of marine life or the local area
- Are conducted in an ecologically sustainable or environmentally friendly manner
- Are held in areas that are under environmental protection
- Raise money or provide direct financial benefits for conservation, marine life, or environmental protection, research, or education
- Lobby governments or local officials for access to, protection of, or a clean-up of a waterway

Many open water events also have fun short-distance parent–child relays to introduce children to the sport in a relaxed atmosphere. On the competitive side, 5K (3.1 mi) team pursuit races have been introduced in which same-sex or mixed-gender teams of athletes start, swim, and finish together in a peloton, separated from the other teams in a staggered start. A team’s finish time is taken when the last swimmer crosses the finish line.

Groups of swimmers are also increasingly coming together to see how far they can swim as a team. In 2010, the Ventura Deep Six became the longest open water relay swum under traditional English Channel rules when they swam 202 miles (325K) along the Southern California coastline in the Pacific Ocean. The longest continuous open water relay swum with wetsuits consisted of 220 swimmers, each completing one leg in Camlough Lake in Northern Ireland. They collectively covered 426.5 miles (686.4K) nonstop in 10 days.

Sanctioned races are officially and legally overseen by recognized governing bodies, each with certain standards regarding safety, awards, timing requirements, and course measurement. The most visible of these sanctioned races is the Olympic 10K Marathon Swim.

Competitive swim series offer prizes for the overall series winners. These events include amateur races of the same distance (e.g., New Zealand Ocean Swim) and professional marathon swims ranging from 9 to 54 miles (14.5 to 87K) (e.g., FINA Open Water Swimming Grand Prix). The world’s fastest open water swimmers participate in the highly competitive FINA 10K Marathon Swimming World Cup, the proving ground for athletes who qualify for the Olympic 10K Marathon Swim.

Cold water swims, often marketed as polar bear swims, are celebrated in the winter months and during winter holidays; swimmers jump in water often less than 50 °F (10 °C) with occasional snow on the ground. The most serious cold water swimmers participate in competitive ice swimming events in bodies of water less than 41 °F (5 °C), sometimes carved out of frozen rivers or lakes and part of the International Winter Swimming Association and the International Ice Swimming Association.

Many athletes with physical and intellectual disabilities participate in competitive open water races and do solo swims on their own, but there are also exclusive events for Paralympic and Special Olympics athletes.

FACT

The 2008 Olympic 10K Marathon Swim was held in a rowing basin outside Beijing. The 2012 open water race will be held in a man-made lake in Hyde Park in the center of London, and the 2016 race will be held in Copacabana Beach in Rio de Janeiro, Brazil.