VICTORIA BEACH CLUB

**Victoria Beach Club: Swim Program Policy**

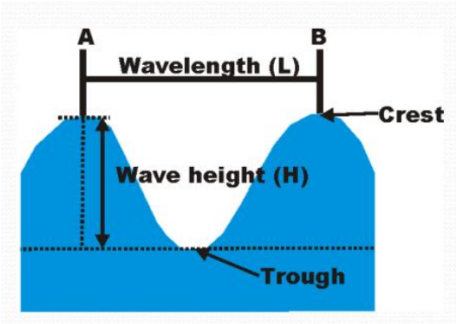
## Wave Height

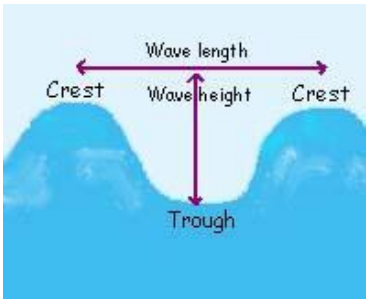
Background and Introduction

When considering safety in open water, wave height is not the only factor to consider ensuring safety for water users. Factors such as wavelength and wave period will assist in determining if the conditions are safe for users. Wind speed, wind direction and water temperature should be taken into consideration when determining if it is safe to commence or continue water use.

In fluid dynamics, the wave height of a surface wave is the difference between the elevations of a crest and a neighbouring trough.[1]

In other words, wave height refers to the vertical distance between the trough (bottom) and the crest (top) of a wave. The wavelength is measured as the distance (length) between the crest of consecutive waves. See figures below.




Wave period measures the time frame it takes for consecutive waves to reach a static point, usually measured in seconds. The wave period should be considered when determining safety of the water condition for swimmer use. A long wave period will allow for swimmers to rest between waves, resulting in decreased risk, compared to a short-wave period, which sees waves hitting a swimmer or object repeatedly in a short time frame, which increases risk to swimmers.

Currently, there is no research available that determines a safe wave height for swimmers of any age or ability, due to many factors affecting safety whilst swimming in open water. It is recommended each situation be evaluated based on wave height, wavelength, and wave period in conjunction with current weather conditions and swimmer ability to determine if the waterfront is safe for swimming.

Understanding how water depth, wind, current and water movement interact at your specific location will assist in determining safety in the water when waves are present.

Application of the policy guidelines to swimmers of varying ages and abilities, with consideration of weather conditions, will assist in ensuring the safety of all swimmers.

## Policy Objectives/Goals

The primary objective of this policy is to prevent accidents and protect lives. It is important to remember that drowning incidents can be prevented through awareness and informed decision making. The wave height policy is to establish guidelines and limits to help prevent drowning incidents and to ensure the safety of individuals in various contexts, including during swim and lifesaving lessons.

## Processes and Procedures

1) Pre-Season: evaluation of water depth and condition of the beach, determine if there is an appropriate fixed location to mark water depth based upon calm water conditions, and then be able to calculate height markings based upon wave activity. Where appropriate, mark the areas with buoy lines or buoys.
2) Regardless of swimmer age, swimmer height should be considered in relation to water depth and wave height. Where possible, swimmers should be moved to more shallow water if wave activity begins during the lesson.
3) Determine if swim lessons can commence or continue based on wave height, wavelength and wave period for each age and ability of swimmer. *Please review and determine the guideline based on your comfort level and insurance recommendations. The air temperature and wind conditions should be considered at all times when making any decision regarding swimmers in the water.*
    a) Swimmers under the age of four should be removed from water with wave activity that would risk compromising their airway.
    b) Children four and above should be removed from water if wave height is 30cm or above[3].
4) Factors that must be considered when determining safe swimming with wave conditions
    a) Weather forecast
    b) Water Temperature
    c) Air Temperature
    d) Wind conditions (strength, direction)
    e) Wavelength (Examples found here)[4]
    f) Swimmer Ability
    g) Availability of supervision
    h) Swimmer attire (PFD, swimsuit, long pants)

## Responsibility

It is the responsibility of Victoria Beach Swim Club to ensure the safety of its employees, members, and users. The responsibility of evaluating wave height will be determined by management to an employee present at the beach at the time of the wave activity. The

employee will follow the direction of the Victoria Beach Swim Club to ensure that employees, members, and users are as safe as possible during any wave activity.

## Other Considerations

Additional considerations include the following, though are not limited to:

1. Water levels will vary throughout the season and from year to year. Any depth, object or wave markings should be re-evaluated regularly
2. Swimmer ability can change throughout a season, swim lesson registration period or swim lesson duration; as such, swimmer ability to remain in the water when waves are present should be evaluated continuously
3. The use of personal floatation devices (PFDs) or lifejackets should not be considered to remove all risk when swimmers are in the water, regardless of the wave activity
4. Review of the Supervised Waterfront Operations Equipment Standard[2] by the Lifesaving Society Canada will assist to ensure the waterfront is equipped to manage any incident, should it occur.

## References

(1) *Kinsman, Blair (1984), Wind waves: their generation and propagation on the ocean surface, Dover Publications,* 704 pages.

(2) "Supervised Waterfront Operations Equipment Standard." Lifesaving Society Canada. June 2020. Retrieved from: Aquatic Safety Certification Program Acceptance Review (lifesaving.ca)

(3) "Ocean Safety - Why it Matters & How to Check the Ocean Forecast" Manta Ray Advocates. June 2024. Retrieved From: Ocean Safety - Why it Matters & How to Check the Ocean Forecast - Manta Ray Advocates Hawaii

(4) Slade, Andre. "When are big waves, too big?" *OceanFit*. Web. 12 December 2019. Retrieved from: How Do You Know When The Waves Are Too Big? (oceanfit.com.au)

## Air Quality

Refer to the Victoria Beach Club Weather & Air Quality Policy at:
https://www.victoriabeachclub.com/policies

## Water Temperature

Background and Introduction

Comfort whilst swimming depends on several factors, one of which is water temperature. How each body responds to water temperature will be based on age, and the amount of body fat each person has. Those with a higher ratio of body fat will likely feel comfortable in water temperatures lower than those with a lower ratio of body fat.

Individuals with differing ages or conditions will respond differently in water temperatures. For example, babies are not able to regulate their temperatures as easily, so will feel the cold easier than another, though a pregnant woman can often be warmer, so may prefer the water cooler.

Cold water is often defined as water below 18C, and water temperatures of 10C are not recommended for swimming without appropriate protections and/or medical guidance.[2] It is important to remember that water temperature of 18C will feel much different with air temperatures of 30C than with air temperatures of 20C.

Policy Objectives/Goals

The primary objective of this policy is to prevent accidents and protect lives. It is important to remember that drowning incidents can be prevented through awareness and informed decision making. The water temperature policy is to establish guidelines and limits to help prevent hypothermia incidents and to ensure the safety of individuals in various contexts, including during swim and lifesaving lessons.

“Ensure environmental conditions do not adversely affect candidate safety…Monitor candidate safety for potential…hypothermia.”[1]

Teen and adult participants in an open water lifeguard course are told to wear wetsuits when water temperature is 13C or less (measured 30cm below the surface), or when wind chill is deemed dangerous.[1]

Processes and Procedures

1. During pre-opening or pre-swim lesson safety checks, water temperature should be evaluated, along with weather conditions such as air temperature, precipitation, and wind speed.
2. The process recommended by Lifesaving Society Canada is 30cm below the surface of the water[1]
3. Check the current weather conditions and weather forecast by Environment and Climate Change Canada (Environment and Climate Change Canada - Canada.ca) and

Government of Canada (Prairies - Manitoba Lakes - Marine Weather - Environment Canada)

4. Record the weather and water temperature observations in the daily log
5. At all times, the parent/guardian of any minor individual should make the decision about their swimmer and their exposure to water temperatures below 18C. Any concerned parent/guardian should be provided as much information as possible, and provided with options of wetsuit, shorter duration of swim lesson, "dry" lesson, etc for their swimmer where possible.
6. Any of the recommendations based on water temperature should be considered in conjunction with air temperature, wind, cloud cover and precipitation conditions. Any of the above may result in swimmers feeling much colder than based on water temperature alone.
7. Determine if swim lessons can continue as planned based on the following recommendations. *Please review and determine the guideline based on your comfort level and insurance recommendations. The air temperature and wind conditions should be considered at all times when making any decision regarding swimmers in the water.*
   a) If swimmers are aged infant to 2 years, water temperatures below 18C are not recommended
   b) Swimmers aged 2-8 years should be encouraged to wear wetsuits if water temperatures are below 18C and water exposure kept to a maximum of 30 minutes
   c) Swimmers aged 8-12 years should be encouraged to wear wetsuits if water temperatures are below 18C and water exposure kept to a maximum of 45 minutes
   d) Swimmers aged 12+ should be encouraged to wear wetsuits if water temperatures are below 15C and any prolonged water exposure be monitored closely

Other Considerations

1. The age and size of the individuals swimming must be considered. An infant in the water will feel the cold much faster than an adult.
2. The swimming attire of an individual must be considered when determining safety with water temperatures for swimming. An individual in a full-length wetsuit will be able to swim in water temperatures of 18C comfortably compared to an individual in a traditional swimsuit.

References

(1) Royal Lifesaving Society Canada. (2022). *National Lifeguard Award Guide.* (p. vii) "Candidate Safety"

(2) "Swimming Temperature Guide" Sea Temperatures. Web. 18 June 2024. Retrieved from: Swimming Temperature Guide (With Chart) (seatemperatures.net)

# Algae Blooms/Growth

Background and Introduction

Algae growth is of concern to human health. The World Health Organization (WHO) has a document, Guidelines on Recreational Water Quality, which outlines many potential hazards with recreational water. The concern is not primarily the algal bloom itself, but the fact the bloom can host some toxic organisms which can be hazardous to animal and human health. The presence of bacteria cannot be distinguished by visual inspection alone; it requires chemical analysis.[1]

Recreational exposure to cyanotoxins is possible through:

• uptake of cells and toxins ingested with water – generally unintentional through reflex swallowing (although for small children it may occur during play); large amounts can be swallowed during recreational accidents.

• aspiration – water entering the nasopharynx and subsequently being swallowed.

• inhalation – when spray is formed, and droplets contain cells (e.g. during jet skiing) or when dried scums present on the beach are raised as dust; and

• skin and mucous membrane contact, including contact with scum, dislodged material from benthic mats or vegetation with attached cyanobacteria floating in swimming areas or accumulated on beaches.[1]

Policy Objectives/Goals

The primary objective of this policy is to prevent accidents and protect lives. It is important to remember that drowning incidents can be prevented through awareness and informed decision making. The algae bloom/growth policy is to establish guidelines and limits to help prevent illness and incidents and to ensure the safety of individuals in various contexts, including during swim and lifesaving lessons.

Clean water is essential for safe swimming. Areas with poor water quality should be avoided.

Processes and Procedures

1. During pre-opening or pre-swim lesson safety checks, water quality should be evaluated visually, looking for any sign of algal blooms or growth.
2. Monitoring of Environment and Climate Change Canada, provincial and municipal algal bloom monitoring and alerts should be undertaken daily.
3. If algal blooms/growth is found or reported by any authority, swimming should be discontinued immediately.

Other Considerations

1. Any potential or current employees with compromised immunity should disclose this to the employer upon hiring or as soon as possible.

2. Any swimmer with compromised immunity should evaluate whether swimming in open water is appropriate for their situation.

References

(1) “Guidelines on Recreational Water Quality” World Health Organization. Web. 2021. Retrieved from: 21158_WHO Recreational water quality guidelines 12-07-21.pdf

(2) Interactive algal bloom monitoring tool. Government of Canada. Web. 2024. Retrieved from: Interactive algal bloom monitoring tool - Canada.ca