## Rock Hall Yacht Club Shoreline Management Plan (SMP)

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# Rock Hall Yacht Club Shoreline Management Plan (SMP)

## 1. SMP Background

The SMP promotes management policies for the RHYC waterfront into the next century, to achieve long-term objectives, while being technically sustainable, environmentally acceptable and economically viable. The SMP provides a high level, step by step management plan for meeting objectives with appropriate management change i.e. a 'route map' for RHYC decision makers to move from the present situation towards a more sustainable future protecting our most valuable asset as a Yacht Club – our Shoreline.

It is also important that the Shoreline Management Plan is recognized for what it is, which is the foundation for shoreline management planning. It is not the definitive solution. It is based upon the information that is available now and will need to evolve as future studies are undertaken to fill the gaps in existing knowledge.

The Shoreline Management Plan contains the RHYC shoreline defense strategy that will be adopted at the present time. However, it is a 'live' working document and must be capable of change to enable new information to be incorporated. Such change may arise through new planning requirements, a change in environmental factors, or from improved understanding of the natural processes influencing the evolution of the shoreline.

The RHYC Waterfront Committee is responsible for the ongoing maintenance and updates to this SMP.

## 2. SMP Objectives and Goals

The objectives of the SMP are as follows:

- 1. To define the elements of the RHYC Shoreline;
- 2. To define the environmental, flooding, and erosion risks to the shoreline over the next century;
- 3. To identify the preferred strategies for managing those risks;
- 4. To inform planners, developers and others of the risks identified within the SMP and preferred SMP policies when considering future development of the shoreline and land use changes;
- 5. To protect and enhance environmental attributes of our waterfront such as wetlands, habitat and spawning areas.
- 6. To preserve and enhance the natural scenic quality of the shoreline for both boaters and shore viewers and preserve specific scenic attributes.
- 7. To protect cultural resources.
- 8. To enhance recreational opportunities by considering boating densities and navigation and maximize available use of the project waters by the club and the public.

- 9. To cooperate with multiple governmental entities that surround the RHYC Shoreline to coordinate adjacent land uses and proposed infrastructure with shoreline uses and to coordinate with the local governments, and state and federal agencies to protect resources.
- 10. To strive for a balance that supports Club economic interests yet protects environmental and recreational resources and that allows the our members and the public to enjoy these interests and resources.
- 11. To set out procedures for monitoring the effectiveness of the SMP policies;
- 12. To coordinate with and comply with local, state, and national nature conservation legislation and biodiversity obligations;
- 13. To highlight areas where knowledge gaps exist; and,
- 14. To provide an action plan to facilitate implementation of the SMP policies and monitor progress.

### 3. History

The Rock Hall Yacht Club's history, since inception in 1937, has revolved around waterfront activities. The Club has a past and present rich with regattas, sailing, and many events situated on the beautiful Langford Bay and Chester River.

In 1965 the existing bulkhead was built with marina / slip and related facilities.

Since that time there have been a multitude of changes to the waterfront – both from natural events as well as planned construction. However the bulkhead has been in existence serving water-based activities for 51+ years at the time of this writing.

Without the waterfront the Yacht Club cannot host regattas, allow slip rental, nor safely hold water-oriented activities/events

The bulkhead/marina is a very valuable asset to the club and the county. Per code, it cannot be replaced once it deteriorates past a certain state. New Bulkheads are not permitted to be installed in Kent County.

## 4. Waterfront Committee and Consultants

#### Main Points of Contact

#### Internal

Name	Role	Contact Info
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## Working Meeting Dates

A weekly set of meetings was held from December 2016 – March 2017 in order to guide this process, get stakeholder input, and formulate this plan. Meeting minutes are available for those working meetings in Appendix A.

## 5. RHYC Shoreline Definition

There are 9 elements of the RHYC working waterfront. These elements comprise the RHYC shoreline. The aerial photo of the RHYC grounds depicts each of the 9 elements. They are described below, in North to South order.



Figure 1. Aerial view of RHYC shoreline

The impact on each of these elements must be considered when making change to any one area.

- 1. NE Cove -200' living shoreline
- 2. Ramp concrete and gravel shallow small boat launch only
- 3. NE bulkhead (North of fixed pier) 200' timber bulkhead
- 4. SW bulkhead (South of fixed pier) 200' timber bulkhead
- 5. Fixed pier and finger piers timber on pilings
- 6. Lifts 1 & 2 Lift 1: 1 ton lift with large arm, Lift 2: 1 ton lift with smaller arm
- 7. Floating dock built 2008?
- 8. Kayak Cove / wetlands 75' living wetlands/phragmites/shoreline
- 9. Beach sandy beach extending into living shoreline on both sides

#### 6. Current Use and Condition

#### 6.1. Shoreline Condition and Stabilization

The current (Feb 2017) condition of each of the 9 RHYC shoreline elements is described below.

1. NE Cove -200' living shoreline

This portion of the shoreline is unused by the club. It currently has steep vertical banks which make access very difficult. Further this area is losing over 1' of shoreline property per year due to high wave energy from the long fetch from the SW across Langford Bay. The water in the NE Cove is very shallow, often 0' at low tides due to the eroding banks. Maximum water depth is 1' at high tides until approximately 300' from shore. Several trees along the shoreline have been

lost over the past several years as the soil holding their root ball is washed away. Several more trees are in jeopardy in the next 2-3 years if the shoreline is not stabilized. The area is currently unusable, not maintained in any way, and could be a safety hazard.



Figure 2. NE Cove Fall 2016

2. Ramp – concrete and gravel shallow small boat launch only
The boat ramp is constructed from poured concrete and rebar. Approximately 10 years ago it
was useful to launch small (less than 16') shallow draft power and sailboats on towable trailers.
The water depth off this ramp is at most 2'. In the past 10 years, the ramp has not been
maintained and was closed in 2016 as unsafe and unusable. There are holes in the concrete
where tires and feet can get stuck or damaged and rebar is poking through. The ramp was
patched with crush & run gravel in late 2016 which made it possible for Fall use for very small
boats. The gravel has since washed away due to high wave energy. The ramp is currently unsafe
and unusable, and due to the very shallow water depth not worth fixing.



Figure 3. Boat Ramp showing deterioration and exposed rebar

3. NE bulkhead (North of fixed pier) ~200' timber bulkhead

The bulkhead was originally constructed in 1965. In 2013, the entire bulkhead was determined
to be "in a state of advanced decay and is in need of full replacement" by Marine Technologies,
Inc. visual and underwater assessment. In Spring 2016 there were huge (4' long and 3' deep)
washout sink holes behind the bulkhead which were patched with gravel. These washouts reoccur each year and are gradually getting worse as the integrity of the structure is continually
battered by the high energy waves and the rotten timbers allow more soil to washout. Since

December 2016, the Waterfront Committee has walked the site with 5 dock contractors, all of whom recommend bulkhead replacement. There is not sufficient structure remaining to repair the existing bulkhead. Regatta and marina operations at the RHYC would allow for this section of bulkhead to be replaced with a living shoreline which would protect the land from waves while also allowing habitat for wildlife.



Figure 4. NE Section of Bulkhead - Spring 2016 - showing one area of washout

4. SW bulkhead (South of fixed pier) ~200' timber bulkhead

Please read NE bulkhead for condition assessment of retaining wall structure. This SW section of bulkhead is crucial to retain as bulkhead for boat lift operations as well as regatta operations. Both boat lifts are along this section of bulkhead and require the support of a bulkhead as well as the vertical drop-off for launching and retrieving boats on the sea side of the lifts. This is the most critical element of RHYC shoreline at this time, it is in an advanced state of decay and failure, the integrity of the boat lift's foundation is at risk, and the area is unsafe after major storms due to washout, and it compromises the continuation of the RHYC regatta programs which is a major source of income and pride for the club. Replacement of this SW section of bulkhead is the highest priority for shoreline management.



Figure 5. SW section of bulkhead - Spring 2016 - showing shore washout and deteriorating timber and hardware



Figure 6. SW bulkhead with Lift 1

#### 5. Fixed pier and finger piers – timber on pilings

In 2013, the fixed pier and finger piers also were assessed by Marine Technologies, Inc. as being in overall satisfactory condition. Since that time, the identified component issues were largely resolved with, new stringers, re-decking and replacement of several failing pilings. The fixed pier is currently adequate and safe. The finger piers are adequate to service the 7 current marina slips along the bulkhead. There is however continual degradation of pilings, stringers, and deck boards which should be addressed and maintained on an annual basis.



Figure 7. Finger Piers / Marina Area

#### 6. Lifts 1 & 2

Lift 1 is a 1 ton lift with large arm on the bulkhead just north of the floating dock. Lift 1 is in satisfactory condition and services approximately 200-300 small sailboat and power boat launches and retrievals each summer/regatta season by RHYC Members and RHYC Regatta competitors. There have been some issues with the usage of the lift and limit switches have been installed to prevent motor overload. The motor on the lift has not been, but should be serviced annually. Lift 1 was installed in approximately 2003 timeframe.

Lift 2 is also a 1 ton lift with smaller arm located on the bulkhead near the southern end. Lift 2 is older than Lift 1 but we do not have information regarding the year of installation. Lift 2 is not used as frequently as Lift 1, but is used for regattas, especially the larger regattas where there is contention for the lifts. Lift 1 also has had a number of repairs in 2016 it was repaired by an electrician 3 times due to issues with electrical supply and limit switches. The motor on the lift has not been, but should be serviced annually



Figure 8. Lift 1



Figure 9. Lift 2

#### 7. Floating dock

The Floating dock was built in 2008 as a joint venture with the RHYC and the RHYC Sailing School. It is in satisfactory condition. The floating dock requires annual maintenance in replacement and re-securing of deck boards and stringers are beginning to fail. It will likely be due for complete overhaul within 5 years and should be planned for in RHYC annual budget.

8. Kayak Cove / wetlands – 75' living wetlands/phragmites/shoreline
Southwest of the bulkhead is a wetlands area currently considered by Kent County to contain
tidal and non-tidal wetlands. This area has a large area of phragmites which is currently being
eradicated in cooperation with DNR / Chesapeake Wildlife Heritage (CWH). The first spray was
Fall 2016 and RHYC has a 5 year permit by the State of MD to continue eradication. Phragmites
can destroy a wetland's biodiversity by choking out the beneficial wetland plants, eventually
becoming a monoculture with little or no native wildlife value. However, a 5-year research study
by CWH documented that once a pure stand of Phragmites was eliminated, 61 different species
of plants emerged from the existing wetland seedbed. As we continue on this program to
eradicate phragmites, this will enable more use by kayakers and other small boats to use this
cove as an effective launch area. Additionally, per the County and DNR, the current path
through the wetlands area must be addressed to eliminate trampling of existing wetlands. The

non-tidal wetlands is to be confirmed by MDE and if confirmed will be an area requiring additional protection from erosion and tidal influence which is occurring naturally at this time.



Figure 10. Kayak cove

#### 9. Beach

The beach area is naturally formed and a treasured resource for regattas, the sailing school, and young families for swimming, launching small sailboats and other vessels, and holding beachfront events and activities. The beach extends from the phragmites wetlands area to the duck blind and edge of the RHYC property (Parcel 77). The water off the beach is generally shallow and gentle sloping as distance increases from the shore. The beach has some periods of significant erosion particularly in winter, and seems to rebuild itself with spring winds. The 2005 addition of the Long Point structure has helped to protect the beach and the southwestern most part of the RHYC shoreline. Maintenance is minimal for the beach area, clearing brush, trash, and debris and removal of occasional timbers which are exposed in the underwater sand.



Figure 11. Beach area

#### 6.2. Environmental Considerations

Wind and wave energy are key concerns along the majority of the RHYC Waterfront. The prevailing winds are from the SSW, as shown in the Figure 12 below. The long fetch from the Chester River into Langford Bay and to the RHYC shoreline create a very high energy environment. A 20 kt SSW breeze causes 2' to 2.5' waves against the bulkhead and into the NE Cove. This wave energy must be a consideration in all upgrades to the RHYC Shoreline.

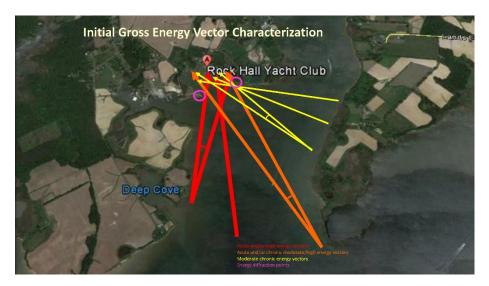


Figure 12. Wind Energy Characterization at RHYC, courtesy of Sovereign Consulting

#### 6.3. Ecological Resources

Ecological resources along the waterfront at the RHYC include grassy areas leading to the water, trees and vegetation along the waterfront, the water itself and tidal and non tidal wetland areas. There is no known underwater vegetation (SAV) and minimal living mammals or aquatic creatures. There is a osprey nest near the north end of the bulkhead which is typically occupied on an annual basis from the spring through summer. There are ribbed mussels at the bottom end of the ramp. With all shoreline projects, the RHYC shall consider the impact on existing ecological resources as well as have the goal of encouraging the beneficial ecological resources over time.

#### 6.4. Cultural Resources

At the current time, there are no cultural resources along the RHYC Shoreline. We would, however like to install interpretive / educational signage along the waterfront identifying key ecological and nautical elements.

#### 6.5. Public and Private Recreation Facilities

The RHYC is a private members only club; it is a 501c7 not-for-profit corporation. The public can be invited to the club through invitation, special events, regattas, and as guests of members. The RHYC Sailing School (RHYCSS) operates on the RHYC property, primarily at the RHYC beach area for 9 weeks each year. The RHYCSS is a 501c3 educational public charity; it is a completely separate organization from the RHYC. Both members and the public are invited to enroll in RHYCSS classes and programs, with non-members paying a higher fee.

#### 6.6. Federal, State and Local Regulations

All Kent County, Maryland DNR, MDE, and Federal regulations are to be complied with when considering any shoreline work or maintenance.

## 7. Implementation Recommendation

The Waterfront Committee recommends a 4 Phase Waterfront Project over the next 3-5 years beginning in 2017.

- 1) Bulkhead / Ramp
  - a) South bulkhead to be replaced with vinyl bulkhead ensuring continued use of lift
  - b) New ramp to be installed in North bulkhead
- 2) Docks & Slips
  - a) Marina reconfigured for effective use and wave energy attenuation
- 3) Living Shoreline
  - a) NE cove stabilized & old ramp removed/integrated into cove and permit people/kayak access
- 4) Protect Beach cove
  - a) Kayak launch and permeable wetlands walk installed to eliminate trampling of marsh near beach
  - b) Low profile dock for one-design sailboats south of beach
  - c) Kayak launch

#### 7.1. Concept

The Waterfront Committee is following standard PMI (Project Management Institute) project phases and guidelines. The overall goal of any project is to solve a problem to benefit the organization. The process of project management can be broken down into 5 main steps:

- 1. Project conception and initiation
- 2. Project definition and planning
- 3. Project launch or execution
- 4. Project performance and control
- 5. Project close

Throughout this project, the application of knowledge, skills, tools and techniques to a broad range of activities in order to meet the requirements of the RHYC waterfront stabilization and preservation. At this time of this writing in February 2017, the Waterfront Committee is in the middle of Step 2, project definition and planning; it is important to note that before moving to project launch and execution we have several gates to pass through in terms of funding and approvals.

The Waterfront Committee has a proposed concept for the entire RHYC waterfront, not just a piece of it. It's imperative that we look at the waterfront as a whole because shoreline elements are interconnected and interdependent. A change or failure of one waterfront element can be detrimental to other elements and RHYC operations (and income) overall.

The proposed concept is shown below.



Figure 13. RHYC Waterfront Stabilization Concept

Starting in the NE Cove, we propose stabilizing the banks with coir/biologs/oyster bags and providing a oyster reef for wave attenuation and an oyster sanctuary. The oyster reef will encourage additional aquatic wildlife and naturally grow in size and weight overtime, providing energy attenuation and protecting the living shoreline in the cove. The existing ramp will be removed and become part of the living shoreline, allowing a sandy, natural, gentle sloping access to shallow waters for young children, kayakers, and shallow water activities.

There will be a new ramp constructed by cutting through the North section of bulkhead and grading as needed. The ramp is envisioned to have a floating dock on the north side to facilitate launching and retrieval of small craft.

North of the fixed pier, the bulkhead will be replaced with living shoreline with a toe. The existing finger piers will be removed. This living shoreline will provide a gentle sloping natural delineation between the grassy area and the water which will absorb energy, storm surge, and flooding. This living shoreline will be planted with indigenous plant and shrubs and enhance the club's vista as well as the connection to the water. Living shoreline is less expensive to install than replacement bulkhead and after initial install will be more maintenance free. The replacement of the bulkhead with living shoreline should also allow a smooth permitting process as it is favored by county and state regulatory agencies.

The existing fixed pier will be retained and reinforced as needed. An L will be created, extending the dock to the North. Under the corner pf the L, wave attenuation will be installed to reduce wave energy and create a safe and low energy marina basin. Dredging may be necessary, and if permitted, material could be used to fill the NE Cove or the kayak cove. This will be determined after bathymetric studies are complete. New finger piers and pilings will be installed perpendicular to the existing fixed pier to allow

boats to be docked in new slips bow into the prevailing wind. Electric and water will need to be run to the slips.

The South section of bulkhead will be replaced with vinyl bulkhead which lasts far longer than timberonly. The existing floating dock will be retained and rebuilt in the next few years. Lift 1 will need piling reinforcement under its concrete footing. Lift 2 can be retained or removed and sold. Both lifts may need modification to be fully operational following the bulkhead replacement, as the replacement is done to the waterside of the existing bulkhead and will add 18" to the shoreline.

The kayak cove shoreline requires reinforcement with coir/biologs and some wave protection in the form of oyster bags just off the bulkhead to ensure wave attenuation from the SW winds. A permeable wetlands walk is needed to allow access from the beach area to the bulkhead area. The permeable walkway will allow access while stopping the current trampling of the wetlands in that area. This walkway is key during regattas and also in facilitating a continual path along our waterfront.

Water and electric is needed near the beach area to facilitate maintenance, cleaning of boats and allow events to be hosted at the beach. A low profile dinghy dock in the waters south west of the beach would allow a fleet of sailing boats to be ready and accessible for summer months.

#### 7.2. Quotes

All estimates and quotes received from contractors and consultants are in Appendix B. Since December 2016, the RHYC Waterfront Committee has met with and walked the RHYC shoreline with 6 contractors and consultants. Each of these visits has resulted in an estimate or quote which has been examined in detail by the Waterfront Committee for applicability and usefulness and cost. The best fit and most cost effective solution from all quotes received have been selected. An important point which was mentioned by most contractors is that if all work is performed all at once there will be significant cost savings, in that equipment will not need to be brought in and out and all permitting can be done at once.

#### 7.3. Priority

The Waterfront Committee recommends Phase 1, the South Bulkhead and Boat Ramp portion of the project be initiated as soon as funding allows. It is critical to the continuation of the RHYC as a yacht club. The rationale for this is that if the bulkhead is not replaced immediately and is damaged or collapses, the waterfront becomes unusable, a severe safety hazard, and we will not be able to host regattas or any waterfront activity. The boat ramp is a significant asset for any yacht club and is necessary for continued membership boat storage and boating activity.

The following phases 2-4 should also be initiated as funding allows. There should be a significant emphasis on fundraising for these Phases such that the RHYC waterfront can be used and enjoyed by its members and guest and support the mission, growth and prosperity of the club.

#### 7.4. Schedule

Weekly Meetings continuing	Mondays 6:30pm
Initial concept drafted	Jan 9
Continue site visits and meeting with contractors	January
Circulation of presentation & letters to Board	Jan 30

Initial Grants identified; applications ASAP	Feb-Mar
Board Mtg - review presentation & letters	Feb 9
Email/Send letters	Feb 15
Complete Shoreline Management Plan initial issue	Feb 27
Board Mtg – Review and adopt Shoreline Management Plan for	Mar 9
Stockholders Mtg	
Presentation to members Saturday 1pm at RHYC	Mar 12
Send meeting notice to Stockholders	Mar 10
Special Stockholder's Meeting March 26	Mar 26
Continue work with contractors and consultants	April>
Finalize overall design (if possible)	May
Early Fundraisers	April & May
1 <sup>st</sup> phase of studies & waterfront work begins (if funding allows)	Spring 2017
2 <sup>nd</sup> phase	Spring 2018
3 <sup>rd</sup> phase	Spring 2019
4 <sup>th</sup> phase	Fall 2019

## 8. Budget & Funding

#### 8.1 Budget

The proposed budget is detailed in Appendix C, it is presented in the 4 phases as recommended above and utilizes the most effective, in terms of cost and viability, proposals received to date from the contractors that have been engaged.

A summary of the budget is shown below. The Engineering / Plans phase and Phase 1 (Bulkhead and Boat Ramp) are critical to initiate in 2017 to protect currently planned regattas and waterfront programs and earning potential for the RHYC.

Study /Engineering/ Plans	\$22,300.
Phase 1	\$86,840.
Phase 2	\$167,202.
Phase 3	\$26,197.
Phase 4	<u>\$27,110.</u>
TOTAL	\$329,649.

This budget will be updated as studies are performed and contractors selected in the next step of this project. Additionally, the use of volunteers and donations will greatly assist in removing the burden from the RHYC budget and borrowing needs.

Return on Investment (ROI) is shown below. Given a \$330,000 capital expenditure and assuming the benefits of the enhanced shoreline are achieved when all phases of the project is complete, there is a 5% Return on Investment annually. That is a positive return given the magnitude of this investment and does not take into consideration the benefits that are not quantifiable.

#### **RHYC Shoreline Restoration & Preservation**

Cost of Shoreline Project			\$ 330,000	
Life of Shoreline			50	years
Ammortized Cost			\$ 6,600	
Quantifiable Benefits of Project				
New Slip Rentals	6	\$ 1,200	\$ 7,200	assume 6 of 8 are rented
Additional Regatta Income	1	500	\$ 500	regatta base fee
New members	2	850	\$ 1,700	new family membership
Additional Special Event	2	750	\$ 1,500	draw more special events
Total annual additional Rev			\$ 10,900	
Add'l annual costs / fees			\$ (4,000)	mortgage interest & fees
Net gross Rev			\$ 6,900	
Profit on annualized CapEx Investment			\$ 300	
ROI			5%	

#### Not quantifiable

Risk reduction / Safety
Aesthetics
Membership enjoyment
Draw for Kent County tourism
Increase in flora and fauna

Note that the full return on investment cannot be realized until all phases of the project are complete, hence it is important to continue the implementation of RHYC waterfront project phases, as funding allows, until completion and also to ensure there is waterfront maintenance funding incorporated in the annual budget.

#### 8.2 Funding Sources

Funding availability will drive Phase initiation. As previously mentioned it is more cost effective to execute phases together to save start up and ramp down and equipment moving costs. There are options for funding sources, each of these options have been initially brainstormed and each needs to be pursued.

Grants

Loans

**Fundraisers** 

**Donations** 

The Waterfront Committee has begun to apply for grants, low interest loans and has initiated discussions with several banks to determine the feasibility of borrowing a portion of the needed funds. As the RHYC is a private club, there is little grant money available for this type of project. Donations and volunteers are crucial in seeing this project come to fruition.

## 9. Monitoring and Maintenance

In order that this plan is useful to the RHYC and the future of the Waterfront, it's recommended that the Waterfront Committee actively reports status at each Board of Directors Meeting.

## 10. Plan updates

This SMP is a living document and requires an annual review by the Board of Directors. It is suggested that this review and update take place by the end of February or as needed each fiscal year. The continual review and update of this document will ensure a viable, safe and resilient shoreline for our RHYC members and future generations.

#### **Version Update Record**

<u>Date</u>	Action(s)	Author's Name	<b>Board Approval</b>
2/22/2017	Initial Issue	C. Ranney, J Skinner	

## APPENDIX A Meeting minutes from Waterfront Committee Meetings

All meeting minutes are in DropBox:

APPENDIX B Estimates and Quotes from Contractors

## APPENDIX C Budget

The proposed budget is presented below.