



City of Richmond

Report to Committee

To: Public Works and Transportation Committee **Date:** June 21, 2018
From: Peter Russell
Senior Manager, Sustainability and District Energy **File:** 10-6160-01/CL Vol. 02
Re: **Sturgeon Banks Assessment and Enhancement Update**

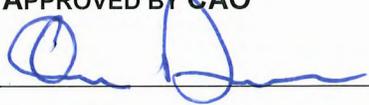
Staff Recommendation

That the staff report titled “Sturgeon Banks Assessment and Enhancement Update” dated June 21, 2018, from the Senior Manager, Sustainability & District Energy, be received for information.



Peter Russell
Senior Manager, Sustainability and District Energy
(604-276-4130)

Att. 3

REPORT CONCURRENCE		
ROUTED TO: Parks Services	CONCURRENCE <input checked="" type="checkbox"/>	CONCURRENCE OF GENERAL MANAGER 
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: CR	APPROVED BY CAO 

Staff Report

Origin

The purpose of this report is to inform Council of the provincial assessment activities ongoing at Sturgeon Bank as it relates to city-led enhancement initiatives such as the Grauer Lands, the Flood Management Strategy and other key guiding documents.

This report supports Council's 2014-2018 Term Goal #4 Leadership in Sustainability:

Continue advancement of the City's sustainability framework and initiatives to improve the short and long term livability of our City, and that maintain Richmond's position as a leader in sustainable programs, practices and innovations.

Background

Sturgeon Bank encompasses the intertidal, and near shore subtidal lands on the western portions of Sea Island, Lulu Island and a portion of Iona Island. A large portion of this area is owned by the province and is a designated Wildlife Management Area (WMA), pursuant to the provincial *Wildlife Act*. Other landowners in the area include private land (limited), federal land, joint federal-provincial land, Metro Vancouver land, and City land. The City-owned portion of land includes the area commonly referred to as the Grauer Lands that was purchased in partnership with Ducks Unlimited Canada (DUC).

Sturgeon Bank provides critical habitat for shorebirds, migrating and wintering waterfowl, and raptors. It is part of a major migration staging area known as the Pacific Flyway, which supports the largest wintering waterbird concentrations in Canada. The area is recognized as a part of the Shorebird Reserve Network for the western hemisphere, an international Important Birding Area and finally a major Hub (>10 ha) within the City's Ecological Network Management Strategy. In addition, all five species of Pacific salmon utilize marsh habitat in Sturgeon Bank at some point in their life cycle, as well an abundance of non-salmonid fish species, invertebrates and other flora and fauna common to estuary ecosystems.

Sturgeon Bank is comprised of a salt marsh and a hydrologic bench of sand and mud that extends approximately 6 km from the leading edge of the salt marsh. The leading edge of salt marsh was mapped in the late 1970s, and recent mapping information has identified significant marsh vegetation recession. In recent years, the province has been examining vegetation recession within the marsh to identify any contributing factors that may be responsible for the observable changes in vegetation patterns in the area. Variables such as erosion, sea-level rise, salinity, nutrient input and herbivory activities (by geese) have all been included in the provincial assessment. To date, provincial study results indicate no discernible correlation between the variables measured and marsh vegetation decline.

A healthy and enhanced Sturgeon Bank is critical to the City's flood protection program. The City's Flood Management Strategy and Dike Master Plans (1 & 2) recognize the important wave attenuation benefits the natural area provides to the City. The plans recommend key actions to mitigate sea-level rise including breakwater islands as the West Dike becomes more inundated.

The City has also made significant efforts to protect and enhance the Grauer Lands. These efforts, as well as, additional provincial and federal assessment initiatives regarding Sturgeon Bank are further discussed below.

Analysis

The Grauer Lands

In 2012, the City purchased the Grauer Lands in partnership with DUC. The property is the largest remaining section of privately-owned land along Sturgeon Bank that has been dedicated for the preservation of fish and wildlife habitat in the region (Attachment 1). A portion of the sale was donated by the Grauer Family, through Environment Canada's Ecological Gift Program. The remainder of the investment was shared between the City (two-third venture) and DUC (one-third venture). Contractually, DUC's interest was leased to the City and in return, the City will assume the responsibility of the day to day maintenance of the property. Additionally, the City also holds a contractual right to lease the Grauer Lands to the province to be managed as a part of the WMA if it is ever decided to be in both parties interest to do so.

A portion of the property was targeted for enhancement in 2013 as the accumulation of log debris, particularly in the northern portion, was thought to be limiting ecological productivity. The accumulation of woody debris can also limit site drainage, which can result in the densification of (freshwater) cattail stands that can out-compete native intertidal plant communities (Attachment 1). The 2013 enhancement works at the Grauer Lands included establishing:

- 1350 m² of new fish channels that connect to existing channels in the area,
- Three (3) acres of open water habitat at medium tide; and
- 500 m of wetland trench area.

In addition, woody debris within an area spanning approximately 14 acres was collected and corralled into piles onsite, and approximately 2 ha of cattail stands were removed. The material was side-cast on top of the piles to stabilize the logs, and support upland marsh habitat in proximity to the shoreline. The disturbed areas were revegetated with intertidal plant communities to promote a return to the natural habitat that can support birds and fish (Attachment 1).

The restoration works and success monitoring over the past five years has been led by DUC and Fisheries and Oceans Canada (DFO). To date, site monitoring indicates improvements with water flow, fish access and the establishment of natural (salt marsh) plant communities, which indicates that the restoration works have been largely successful. As the project now moves into the operational management phase, City staff are working with DUC and DFO to develop an operational maintenance plan that clearly identifies and guides the City's maintenance requirements.

Fraser River Estuary Connectivity Project

This year, the Raincoast Conservation Foundation (Raincoast) was awarded funding from the Coastal Restoration Fund to manage the Lower Fraser River Estuary Connectivity Project (Attachment 2). The Coastal Restoration Fund is a \$75 million initiative under the federal Ocean Protection Plan that was launched in November 2016 to address threats to oceans and coastal areas. To date, the fund has awarded 32 projects throughout the country (including three in BC) approximately \$50 million. The City considered an Expression of Interest in 2017 however, an eligible project was not identified.

Raincoast is a charitable non-profit that follows a science-based approach to conservation in B.C., and has been monitoring the out-migration of juvenile salmon in the area for the last two years. Raincoast is working in partnership with DFO’s Resource Restoration Unit, and through the project, are looking to increase fish access, freshwater, nutrient loading and sediment flow from the Fraser River to Sturgeon Bank through a series of breach points. The project is currently in the planning stage, however, Raincoast is completing modeling to support the following restoration initiatives:

- A 50 metre linear breach in the Steveston Jetty.
- An intertidal channel with barrier island and marsh complex on the south side of the North Arm Jetty.
- A >10m wide intertidal box culverts connecting McDonald Slough to foreshore south of Iona outfall at the Iona Causeway.
- Three Way Iona intertidal connection between North Arm flats (north and south of Iona Outfall via waterfowl pond west of sludge ponds).

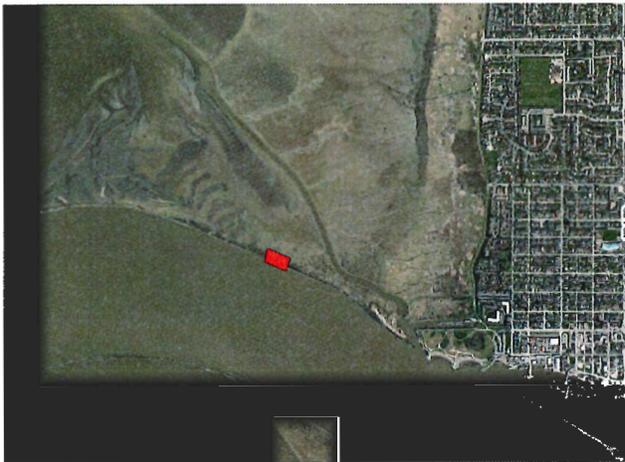


Image 1: Potential breach location on the South Arm Jetty area



Image 2: Potential breach locations along the North Arm and Iona Beach area

The City is committed to working with Raincoast to ensure that the City's goals in the flood protection and environmental strategies are addressed. This project presents an excellent opportunity for the City to engage in a coordinated manner to achieve sustainable flood management and environmental objectives. Staff recently met with the project's team to share City interest in flood and habitat management, and requested further stakeholder meetings when detailed modeling is available for review in the Fall 2018. Further, integrating modeling data with City information and provincial results may identify additional solutions to support flood mitigation planning along the West Dike.

South Arm Jetty Tidal Marsh Project

The proposed South Arm Jetty Tidal Marsh Project is a potential project still under consideration by the Vancouver Fraser Port Authority's (the Port) Habitat Enhancement Program. The proposed site is an unvegetated intertidal sand flat with shallow sub-tidal areas, and is immediately adjacent to the Sturgeon Bank WMA. If successful, the proposed project would increase the vegetated marsh area on Sturgeon Bank by approximately 30-40 ha (Attachment 4).

The project is proposed on provincial land and was issued an exemption under the BC *Environmental Assessment Act* from requiring a BC Environmental Assessment Certificate in 2016. The Port is anticipating a provincial land tenure application submission in July 2018. If accepted at that time, the Port anticipates that stakeholder consultation will be carried out until at least December 2019. Port staff have been meeting regularly with the City and stakeholders in the region to discuss the project, and are aware of the City's flood and ecological management priorities in the area. Port staff have committed to continuing to work with City staff on the project's ongoing design to ensure that any City concerns and/or opportunities are addressed.

Financial Impact

None.

Conclusion

Sturgeon Bank provides critical habitat in the region and offers invaluable flood mitigation protection to the City's western most boundaries. Recognition of these key functions are also noted by several inter-jurisdictional stakeholders and assessments are underway to better understand the factors contributing to the observable changes on Sturgeon Bank.

Staff will continue to work with provincial and federal stakeholders to ensure that any proposed projects at Sturgeon Bank continue to support City interests as it relates to the Flood Management and ecological protection.

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Peter Russell
Senior Manager, Sustainability and District Energy
(604-276-4130)

- Att. 1: Grauer Land Enhancements Works
- 2: Fisheries and Oceans Canada Lower Fraser Estuary Connectivity Project news release
- 3: Proposed Port of Metro Vancouver South Arm Jetty Tidal Marsh Project

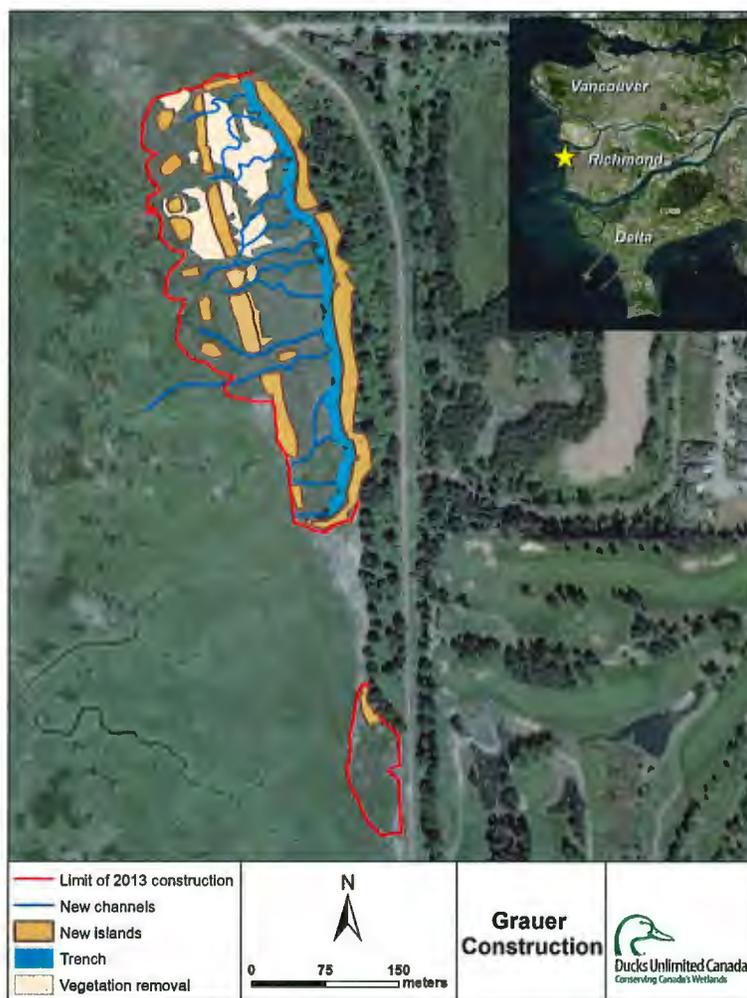
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Attachment 1. Grauer Land Enhancements Works



Large woody debris dispersion and log corrals on Grauer Lands



Summary of enhancement work completed in 2013

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Attachment 2. Fisheries and Oceans Canada Fraser River Estuary Funding Announcement

Government makes a significant coastal restoration fund investment in Fraser River Estuary in British Columbia through the Oceans Protection Plan

The protection and restoration of the environment is a top priority of the Government of Canada, which is providing resources through the Oceans Protection Plan that will make our oceans and coasts safer, cleaner and healthier for the benefit of all Canadians and future generations.

The Honourable Carla Qualtrough, Member of Parliament for Delta and Minister of Public Services and Procurement, on behalf of the Honourable Dominic LeBlanc, Minister of Fisheries, Oceans and the Canadian Coast Guard, announced on June 8 that the Raincoast Conservation Foundation will receive \$2,658,217 over five years for a project to help restore coastal habitats in the Fraser River Estuary of British Columbia.

The Raincoast Conservation Foundation's estuary connectivity project will improve connectivity and natural processes on the banks of the Fraser River Estuary for the benefit of juvenile chinook, pink and chum salmon, as well as other fish species, and the species which rely on them. The work will involve the collaborative efforts of many people working and living on the lower Fraser River.

In May 2017, the Government of Canada announced the \$75 million Coastal Restoration Fund to help rehabilitate some of our most vulnerable coastlines and protect marine life and ecosystems. The Coastal Restoration Fund, under the responsibility of Fisheries and Oceans Canada, supports projects that contribute to coastal restoration on all of Canada's coasts, with preference given to projects that are multiyear and involve a broad number of partners, including Indigenous groups.

The Coastal Restoration Fund is part of the \$1.5-billion Oceans Protection Plan the largest investment ever made to protect Canada's coasts and waterways. In collaboration with Indigenous peoples, local stakeholders and coastal communities, the Government of Canada is creating a world-leading marine safety system that provides economic opportunities for Canadians today, while protecting our coasts and waterways for generations to come.

(Source: Fisheries and Oceans Canada, May 24, 2018)

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Attachment 3. Proposed Port of Metro Vancouver South Arm Jetty Tidal Marsh Project



Current state at low tide.



Rendering of proposed new habitat at low tide

(Source: Port of Metro Vancouver)