

## **Priority 3 Summary**

### **Highlights:**

- Current Salish Sea population ~8.75 million (Government of Canada [GOC], 2021)
- Puget Sound estimated growth of 1.8 million by 2050 (Fesler, 2018)

### **Socio-ecological Repercussions of Urbanization:**

- Urbanization is correlated with declining ecosystem services (Yee et al., 2021)
  - Ecosystem services contribute to human wellbeing in a plethora of ways (food, air, water, fiber, fuel, medicinal compounds, aesthetics, climate control, etc.; Yee et al., 2021)
- Leisure time, social cohesion, education and living standards are all projected to decline as climate change impacts increase (Yee et al., 2021)
  - likely correlated with decreasing food, fuel & fiber, requiring more individual energy expenditure to acquire resources (Yee et al., 2021)

### **Sustainable Infrastructure:**

- 2013 Washington State legislation enforced mandatory green stormwater infrastructure (Jayakaran et al., 2020)
- Green infrastructure increases ecosystem service functioning, unlike grey infrastructure which often decreases or inhibits ecosystem functioning (Jayakaran et al., 2020)
- Barriers to widespread adoption include misconceptions about longevity and affordability, lack of institutional coordination, lack of tangible benefits, maintenance requirements, and scale mismatches (Jayakaran et al., 2020)

-Green infrastructure can increase green gentrification and environmental injustice by excluding or displacing lower-income groups from newly “greened” neighborhoods (Haase et al., 2020)

-Urban greenspaces associated with higher real estate prices (Brander & Koetse, 2011)

-Lower-income regions often have much less vegetation and parks (Brander & Koetse, 2011)

### **Social Considerations for Shoreline Protection:**

-Shoreline armoring is happening at a much slower rate, and being removed in some cases (Dethier, 2016)

-Much of current shoreline armoring being implemented is being done so illegally (Dethier, 2016)

-Soft shore armoring often considered less durable and costly (Scyphers, 2014)

-Traditional shoreline armoring perceived as cheaper, more resilient, and requiring less maintenance (Powell et al., 2019)

-Main influencing factors for shoreline armoring include price, efficacy and resilience (Syphers, 2014)

-also greatly influenced by social norms and peer influence (e.g., neighbor’s installation of armoring; Syphers, 2014)

### **Encompassing Themes:**

-Urbanization encroaches on wildlife habitat and natural systems, impacting ecosystem services and human quality of life (Yee et al., 2021)

-Traditional grey infrastructure methods further fuel this problem, while greener methods try to work with nature and minimize human impacts.

### **Implications/Suggestions for Policy/Management:**

- Increase efforts to educate people on Green Infrastructure benefits- e.g., lower costs, durability, ecological benefits
- Green infrastructure policy which addresses green gentrification/environmental justice impacts- e.g., Prohibiting real estate price increases due to proximity to parks and green spaces and more equitable distribution of green spaces, including in low-income regions
- Consider developing local divisions/associations of experts (e.g., ecologists, engineers, specialists, etc.) that can help implement green infrastructure based on the needs of individual regions
- Increase enforcement of shoreline armoring permits- remove illegal cases
- Increase public and contractor education efforts and guidance for soft shore armoring benefits, and traditional shoreline armoring drawbacks; provide policy incentives to increase compliance

### **Limitations/Knowledge Gaps:**

- Lack of local social science research on human wellbeing and ecosystem services
- Lack of local social science research on social science and shoreline armoring

### **Suggested Future Research:**

- Local simulations of projected urbanization scenarios on ecosystem functioning and human wellbeing in the Salish Sea
- Implement long-term monitoring of pre- and post-installation shoreline protection methods to increase knowledge on the impacts of each on ecological systems and better understand maintenance requirements

-Research on the effects of awareness and education of soft shore armoring benefits and armoring decisions (does educating individuals on the benefits/drawbacks impact final decisions?)