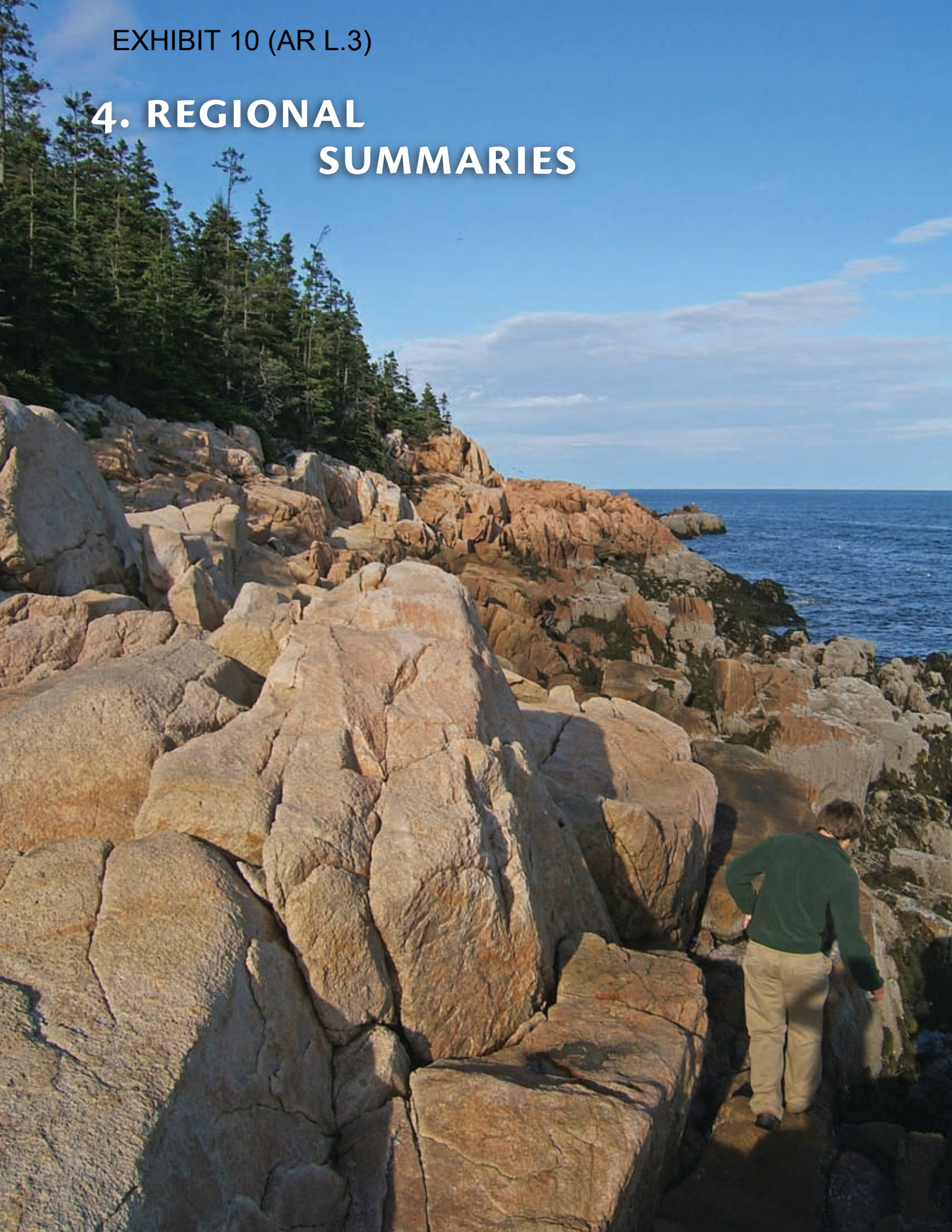


4. REGIONAL SUMMARIES



NORTH ATLANTIC REGION

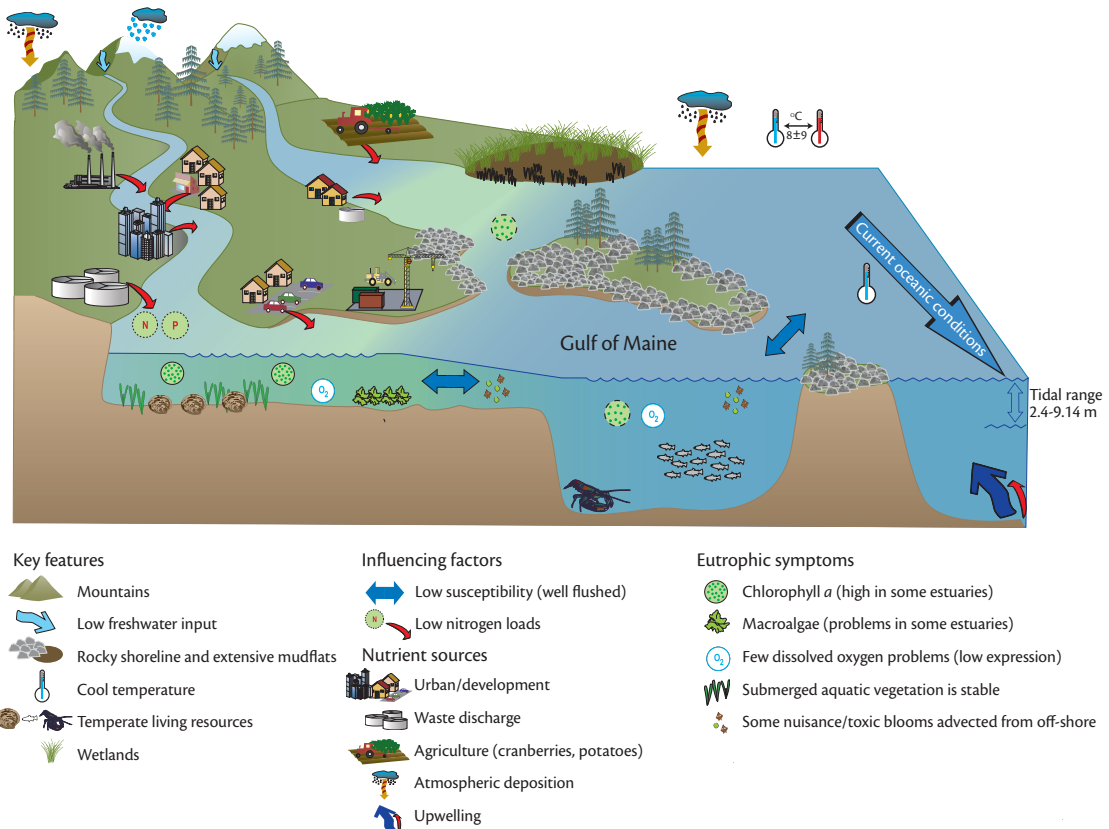
- Factors influencing eutrophication were low for all assessed systems (9 out of 20 in the region).
- The least impacted region—no systems had a high overall eutrophic condition rating.
- Some systems had worsening chlorophyll *a* and macroalgae.

The North Atlantic region includes 20 estuarine systems, encompassing roughly 5,300 km² of water surface area. In the north, the coastal shoreline consists mainly of drowned river valleys characterized by numerous small embayments, rocky shorelines, wave-cut cliffs, and large, rocky islands (Figure 4.1). The southern part consists of drowned river valleys characterized by cobble, gravel, and sand beaches, and extensive tidal marshes. Average depth ranges from less than one meter to more than 45 meters. The large tidal ranges, about two to five meters, result in a high degree of tidal flushing, often combined with low freshwater input. The high tidal range and circulation patterns in the Gulf of Maine result in offshore waters contributing nutrients and toxic algal



blooms to some of the northern systems. The North Atlantic climate is cooler than the other regions, with an average annual air temperature of 8°C, 156 frost days, and 1.2 m precipitation per year. The average regional watershed population density is 65 people km⁻² and major population centers are Portland and Boston.

Figure 4.1. Conceptual diagram of North Atlantic key features, major nutrient sources, and resulting symptoms.



Influencing factors

- All systems for which data were available exhibited low influencing factors.

Nitrogen loads, represented as the ratio of watershed to oceanic inputs, are rated as high in only one North Atlantic system and low in eight others (Figure 4.2). Overall, this region has low human influence due to low freshwater inflow and generally sparse population. Dominant sources of nutrients in this region are wastewater treatment, urban runoff, septic tanks, and atmospheric deposition. For northern systems, offshore coastal waters may be a more significant source of nutrients than land based sources. Susceptibility is predominantly low, resulting from high tidal flushing and moderate to



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Rocky shorelines are common along the North Atlantic coast.

good dilution capabilities of systems. A particularly notable reduction in influencing factors since the 1999 assessment occurred in Boston Harbor, due to the diversion of wastewater treatment plant discharge.

Figure 4.2. Map of influencing factors ratings, ratings of components of influencing factors, and 1999 ratings in the North Atlantic region.

