

Lebbeus polaris (Polar Lebbeid Shrimp)

Priority 2 Species of Greatest Conservation Need (SGCN)

Class: *Malacostraca* (Crustaceans)

Order: *Decapoda* (Decapods)

Family: *Hippolytidae* ()

General comments: none

No Species Conservation Range Maps Available for Polar Lebbeid Shrimp

SGCN Priority Ranking - Designation Criteria:

Risk of Extirpation: NA

State Special Concern or NMFS Species of Concern: NA

Recent Significant Declines:

Polar Lebbeid Shrimp is currently undergoing steep population declines, which has already led to, or if unchecked is likely to lead to, local extinction and/or range contraction.

Notes:

recent decline - last record in Cobscook Bay 1973; climate change - Arctic Province species; understudied - little known about this species, professional judgement

Regional Endemic: NA

High Regional Conservation Priority: NA

High Climate Change Vulnerability:

Lebbeus polaris is highly vulnerable to climate change.

Understudied rare taxa:

Recently documented or poorly surveyed rare species for which risk of extirpation is potentially high (e.g. few known occurrences) but insufficient data exist to conclusively assess distribution and status. *criteria only qualifies for Priority 3 level SGCN*

Notes:

recent decline - last record in Cobscook Bay 1973; climate change - Arctic Province species; understudied - little known about this species, professional judgement

Historical: NA

Culturally Significant: NA

Habitats Assigned to Polar Lebbeid Shrimp:

Formation Name	Subtidal
Macrogroup Name	Subtidal Bedrock Bottom
Habitat System Name:	Bedrock **Primary Habitat** Notes: <i>assumed offshore mating habitat, assumed habitat of egg-bearing females; eggs hatch, assumed juvenile feeding habitat; nearshore and offshore, assumed male & spent female feeding habitat offshore</i>
Macrogroup Name	Subtidal Coarse Gravel Bottom
Habitat System Name:	Coarse Gravel **Primary Habitat** Notes: <i>assumed male & spent female feeding habitat offshore</i>
Macrogroup Name	Subtidal Mud Bottom
Habitat System Name:	Unvegetated **Primary Habitat** Notes: <i>assumed male & spent female feeding habitat offshore</i>
Macrogroup Name	Subtidal Pelagic (Water Column)
Habitat System Name:	Nearshore Notes: <i>larval development and dispersal</i>
Habitat System Name:	Offshore Notes: <i>larval development and dispersal</i>

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Stressors Assigned to Polar Lebbeid Shrimp:

Stressor Priority Level based on Severity and Actionability		Moderate Severity	High Severity
	Highly Actionable	Medium-High	High
	Moderately Actionable	Medium	Medium-High
	Actionable with Difficulty	Low	Low

IUCN Level 1 Threat Biological Resource Use

IUCN Level 2 Threat: Fishing and Harvesting of Aquatic Resources

Severity: Severe

Actionability: Highly actionable

Notes: Unintentional catch by commercial trawling reduces population size and subsequently results in local extinctions, impaired role of the functional group "predator," and subsequently results in decreased benthic diversity through trophic cascades and thus decreases the availability of food for other species.

IUCN Level 1 Threat Pollution

IUCN Level 2 Threat: Agricultural and Forestry Effluents

Severity: Severe

Actionability: Moderately actionable

Notes: Crustacean larvae and adults are exceptionally sensitive to excessive nutrients, toxic chemicals (including pesticides and chemical therapeutants), and/or sediments.

IUCN Level 2 Threat: Domestic and Urban Waste Water

Severity: Severe

Actionability: Moderately actionable

Notes: Crustacean larvae and adults are exceptionally sensitive to excessive nutrients, toxic chemicals (including pesticides and chemical therapeutants), and/or sediments.

IUCN Level 1 Threat Climate Change and Severe Weather

IUCN Level 2 Threat: Habitat Shifting or Alteration

Severity: Moderate Severity

Actionability: Actionable with difficulty

Notes: Ocean acidification results in decreased survivorship of larvae, and growth and feeding by crustaceans. Likelihood is high and large scale. The ability to mitigate ocean acidification is low.

IUCN Level 2 Threat: Temperature Extremes

Severity: Moderate Severity

Actionability: Actionable with difficulty

Notes: Polar lebbeid shrimp are cold-water species. Increased water temperatures have interactive effects with ocean pH decreasing survivorship of larvae and growth rate of crustaceans. Likelihood is high (high certainty) and large scale. The ability to mitigate sea temperature change is low.

IUCN Level 1 Threat Invasive and Other Problematic Species, Genes and Diseases

IUCN Level 2 Threat: Invasive Non-native-Alien Species-Diseases

Severity: Moderate Severity

Actionability: Actionable with difficulty

Notes: Invasives could have effects largely unknown at this time. Likelihood is high and large scale (throughout the region), so actionability is low.

Species Level Conservation Actions Assigned to Polar Lebbeid Shrimp:

None. *Only species specific conservation actions that address high (red) or medium-high (orange) priority stressors are summarized here.*

Conservation Actions Associated with the Shrimp Guild:

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Conservation Action	Category: Research	Biological Priority: high	Type: on-going
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Develop molecular tools to identify where specimens are collected.

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

Conservation Action	Category: Survey and Monitoring	Biological Priority: high	Type: on-going
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Ground-truth mapped habitat and compare to historical maps to monitor change over time, may require updating mapping plans to map more frequently

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

Conservation Action	Category: Policy	Biological Priority: critical	Type: on-going
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Through education and collaboration, reduce the use of antifouling agents and biocides that negatively affect SGCN, and investigate alternative biofouling agents.

Stressor(s) Addressed By This Conservation Action

Agricultural and Forestry Effluents

Conservation Action	Category: Research	Biological Priority: high	Type: on-going
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Expand existing education and research among researchers and managers to improve understanding and close data loopholes in order to inform management

Stressor(s) Addressed By This Conservation Action

Domestic and Urban Waste Water

Broad Taxonomic Group Conservation Actions:

Additional relevant conservation actions for this species are assigned within broader taxonomic groups in Maine's 2015 Wildlife Action Plan: Element 4, Table 4-1.

Habitat Based Conservation Actions:

Additional conservation actions that may benefit habitat(s) associated with this species can be found in Maine's 2015 Wildlife Action Plan: Element 4, Table 4-15. Click on the Habitat Grouping of interest to launch a habitat based report summarizing relevant conservation actions and associated SGCN.

The Wildlife Action Plan was developed through a lengthy participatory process with state agencies, targeted conservation partners, and the general public. The Plan is non-regulatory. The species, stressors, and voluntary conservation actions identified in the Plan complement, but do not replace, existing work programs and priorities by state agencies and partners.