



Crustaceans

Polar Lebbeid Shrimp

Lebbeus polaris

Priority 2 Species of Greatest Conservation Need (SGCN)

Class: Crustaceans (*Malacostraca*)

Order: Decapods (*Decapoda*)

Family: (*Thoridae*)



General comments:

The Polar Lebbeid Shrimp is a cold-adapted crustacean in the family Hippolytidae, typically found in Arctic and subarctic waters. In Maine, it occurs in deeper, colder offshore habitats on sandy or muddy substrates, where it feeds on detritus and small benthic invertebrates. This species can be identified by its short, straight rostrum, pale pink to reddish body, and compact, robust form compared to other lebbeid shrimps. It is considered at risk in Maine because of its restricted range, specialized cold-water habitat, and the potential impacts of ocean warming and changing current patterns.

No Species Conservation Range Maps Available

SGCN Priority Ranking - Designation Criteria:

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
High Climate Change Vulnerability:	Vulnerability: 3, Confidence: , Reviewers:

Habitat Associations:

Formation: Subtidal

Macrogroup: Subtidal Bedrock Bottom

* Primary Habitat	Habitat System: Bedrock <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>
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Macrogroup: Subtidal Coarse Gravel Bottom

* Primary Habitat	Habitat System: Coarse Gravel <i>assumed male & spent female feeding habitat offshore</i>
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Macrogroup: Subtidal Mud Bottom

* Primary Habitat	Habitat System: Unvegetated <i>assumed male & spent female feeding habitat offshore</i>
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Polar Lebbeid Shrimp *Lebbeus polaris*

Priority 2 SGCN



Formation: Subtidal

Macrogroup: Subtidal Pelagic (Water Column)

	Habitat System: Nearshore <i>larval development and dispersal</i>
	Habitat System: Offshore <i>larval development and dispersal</i>

Threats

Threat 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: High Severity **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: High Severity **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: High Severity **Actionability:** Moderately Actionable

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

Polar Lebbeid Shrimp *Lebbeus polaris*

Priority 2 SGCN



IUCN Level 1 Threat Climate Change and Severe Weather

IUCN Level 2 Threat: Changes in Temperature Regimes

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 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 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:

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

Conservation Actions Associated with the Shrimp Guild:

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

Threat(s) Addressed By This Conservation Action

- Fishing and Harvesting of Aquatic Resources

Polar Lebbeid Shrimp *Lebbeus polaris***Priority 2 SGCN**

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

Threat(s) Addressed By This Conservation Action

- Fishing and Harvesting of Aquatic Resources

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

Threat(s) Addressed By This Conservation Action

- Agricultural and Forestry Effluents

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

Threat(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 Wildlife Action Plan: Element 4.

Habitat Based Conservation Actions:

Additional conservation actions that may benefit habitat(s) associated with this species can be found in Maine's Wildlife Action Plan: Element 4. 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, threats, and voluntary conservation actions identified in the Plan complement, but do not replace, existing work