

Gorgonocephalus arcticus* (Northern Basket Starfish)*Priority 2 Species of Greatest Conservation Need (SGCN)**Class: *Ophiuroidea* (Brittle Stars)Order: *Euryalida* (Basket Stars)Family: *Gorgonocephalidae* (Basket Stars)**General comments: none****No Species Conservation Range Maps Available for Northern Basket Starfish****SGCN Priority Ranking - Designation Criteria:****Risk of Extirpation: NA****State Special Concern or NMFS Species of Concern: NA****Recent Significant Declines:**

Northern Basket Starfish 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 - Trott, in review; Applehans et al 2012; last record in Cobscook Bay 1975; climate change - Arctic Province species; subjected to targeted collections for public aquaria display; understudied as dredge by-catch, professional judgement

Regional Endemic: NA**High Regional Conservation Priority: NA****High Climate Change Vulnerability:**

Gorgonocephalus arcticus 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 - Trott, in review; Applehans et al 2012; last record in Cobscook Bay 1975; climate change - Arctic Province species; subjected to targeted collections for public aquaria display; understudied as dredge by-catch, professional judgement

Historical: NA**Culturally Significant: NA****Habitats Assigned to Northern Basket Starfish:****Formation Name Intertidal****Macrogroup Name Intertidal Bedrock**

Habitat System Name: Low-Intertidal ****Primary Habitat**** **Notes:** *assumed spawning habitat, assumed juvenile feeding habitat; cling to adults which may provide nutrition, juvenile and adult, feeding habitat*

Macrogroup Name Intertidal Gravel Shore

Habitat System Name: Lower Intertidal ****Primary Habitat**** **Notes:** *assumed spawning habitat, assumed juvenile feeding habitat; cling to adults which may provide nutrition, juvenile and adult, feeding habitat*

Formation Name Subtidal**Macrogroup Name Subtidal Bedrock Bottom**

Habitat System Name: Bedrock ****Primary Habitat**** **Notes:** *assumed spawning habitat, assumed juvenile feeding habitat; cling to adults which may provide nutrition, adult feeding habitat, over-wintering habitat*

Gorgonocephalus arcticus (Northern Basket Starfish)

Priority 2 Species of Greatest Conservation Need (SGCN)

Class: *Ophiuroidea* (Brittle Stars)

Order: *Euryalida* (Basket Stars)

Family: *Gorgonocephalidae* (Basket Stars)

IUCN Level 1 Threat **Climate Change and Severe Weather**

IUCN Level 2 Threat: Temperature Extremes

Severity: Severe

Actionability: Actionable with difficulty

Notes: Northern Basket Stars are cold-water species. Increased water temperatures have interactive effects with ocean pH decreasing survivorship of larvae and growth rate of sea stars. Likelihood is high (high certainty) and large scale (through the region where this species occurs). 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 such as encrusting colonial tunicates (*Didemnum vexillum*) could decrease availability of habitat and have other 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 Northern Basket Starfish:

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

Conservation Actions Associated with the Echinoderms Guild:

Conservation Action	Category: Research	Biological Priority: high	Type: on-going
Expand existing education and research among researchers and managers to improve understanding and management ability			

Stressor(s) Addressed By This Conservation Action

Domestic and Urban Waste Water

Conservation Action	Category: Policy	Biological Priority: critical	Type: on-going
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

Marine and Freshwater Aquaculture

Conservation Action	Category: Public Outreach	Biological Priority: high	Type: on-going
Encourage the use of more targeted fishing gear in order to reduce bycatch and habitat disturbance			

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

Conservation Action	Category: Research	Biological Priority: high	Type: new
Investigate the effect of various harvesting practices on the integrity of habitats and trophic and ecological systems			

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
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

Gorgonocephalus arcticus* (Northern Basket Starfish)*Priority 2 Species of Greatest Conservation Need (SGCN)****Class:** *Ophiuroidea* (Brittle Stars)**Order:** *Euryalida* (Basket Stars)**Family:** *Gorgonocephalidae* (Basket Stars)

Conservation Action	Category: Research	Biological Priority: high	Type: on-going
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Conduct research to support management, including but not limited to stock assessments, population genetics, population monitoring, etc.

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

Conservation Action	Category: Public Outreach	Biological Priority: high	Type: on-going
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Encourage the use of more targeted fishing gear in order to reduce bycatch and habitat disturbance

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

Conservation Action	Category: Research	Biological Priority: high	Type: new
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Research to understand how effects such as habitat modifications, population changes, and pollution can influence SGCN

Stressor(s) Addressed By This Conservation Action

Habitat Shifting or Alteration

Conservation Action	Category: Research	Biological Priority: high	Type: new
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Identify species that are resilient to ocean acidification (OA) and rises in sea surface temperature (SST).

Stressor(s) Addressed By This Conservation Action

Habitat Shifting or Alteration

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.