Species Status Assessment

Common Name: Clearnose skate **Date Updated:** 12/4/2023

Scientific Name: *Raja eglanteria* **Updated by:** Tajrian Sarwar (MISC)

Class: Chondrichthyes

Family: Rajidae

Species Synopsis *(a short paragraph which describes species taxonomy, distribution, recent trends, and habitat in New York):*

The Clearnose skate (*Raja eglanteria*) is a medium-sized skate endemic to the Western Atlantic Ocean. Its range is limited to North America, occurring in waters up to 330 m throughout the northern and eastern Gulf of Mexico and along the eastern coast of the U.S. from Cape Cod, Massachusetts, to Florida. They occur across a wide temperate range (9-30º C) at depths between 0 and 33m. However, most occurrences of this species occur north of Cape Hatteras, NC in depths < 110 m, at temperatures between 9-20 ºC (Packer et al., 2003, NYS DEC, 2015, Anderson et al., 2020). Evidence suggests strong genetic differentiation between the Gulf of Mexico and the east coast populations and smaller but still significant differences between populations north and south of Cape Hatteras (Nelson et al., 2022). Because of its relatively small size, this species is not targeted in the skate wing fishery (Curtis and Sosebee 2015). However, they are caught as bycatch in scallop dredge and otter trawl fisheries (Anderson et al., 2020). Most bycatch is discarded, although some are retained in the Gulf of Mexico for bait (Anderson et al., 2020). Seasonal inshore-offshore migrations have been documented for adults of this species related to temperature and depth (Packer et al., 2003; Nelson et al., 2022). In the New York Bight, clearnose skates are abundant inshore in the summer and fall. In winter and spring, clearnose skates are occur further offshore. In the Mid-Atlantic and Northeast region of the U.S., Clearnose skates are managed by The New England Fishery Management Council, which manages clearnose skates as a “stock complex” along with the other six species of skate found in the region. Based on NEFSC biomass indices, the Clearnose stock is not considered to be overfished by the NEFMC (New England Fishery Management Council, 2021).

I. Status

a. Current legal protected Status

i. **Federal:** Not Listed **Candidate:** No

ii. **New York:** Not Listed

b. Natural Heritage Program

i. **Global:** Not Ranked

ii. **New York:** SNR **Tracked by NYNHP?:** No

Other Ranks:

-New York 2025 SGCN status: Species of Greatest Conservation Need

-IUCN Red List: Least Concern

-Northeast Regional SGCN: Not listed

Status Discussion:

Northeast Fisheries Science Center (NEFSC) spring and autumn survey indices for clearnose skate have increased since the mid-1980s through 2000 and have since declined to about average values (NEFMC 2009). The biomass index is currently above the threshold and the maximum sustainable yield point, therefore the clearnose skate is not considered to be overfished (NEFMC 2009). Overfishing is not occurring because the three-year moving average of the biomass indices did not exceed the maximum threshold (NEFMC 2009). Overall, based on long-term increase in CPUE in northeast fisheries, the Clearnose skate's minimal presence in landings, medium size and likely moderately productive life history, and its high survivorship upon being discarded, the population is inferred to be increasing. There is no evidence of population decline and the species is not suspected to be close to reaching the population reduction threshold, and this species is assessed as Least Concern (Anderson 2020).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Stable	Last 12 years		-
Northeastern US	Yes	Declining	Stable	Last 12 years (Southern New England)		-
New York	Yes	Declining	Stable	Last 12 years		Yes
Connecticut	Yes	Declining	Stable		S4 – apparently secure	Yes
Massachusetts	Yes	Declining	Stable		Not Listed	No
New Jersey	Yes	Declining	Stable		Not Listed	No
Pennsylvania	No	-	-			-
Vermont	No	-	-			-
Ontario	No	-	-			-
Quebec	No	-	-			-

Column options
Present?: Yes; No; Unknown; No data; (blank) or Choose an Item
Abundance and Distribution: Declining; Increasing; Stable; Unknown; Extirpated; N/A; (blank) or Choose an item
SGCN?: Yes; No; Unknown; (blank) or Choose an item

Monitoring in New York *(specify any monitoring activities or regular surveys that are conducted in New York):*

The Northeast Area Monitoring and Assessment Program (NEAMAP), a cooperative state-federal program, conducted a trawl survey in the coastal zone (between 6.1 m and 27.4 m) of the Mid-Atlantic Bight (Montauk, NY to Cape Hatteras, NC). Surveys were conducted from 2008-2011 each fall and spring and collaboration is expected to continue in the future (NEAMAP 2012). The

National Marine Fisheries Service also conducts bottom trawl surveys every winter, spring, and autumn from Cape Hatteras, NC to the Scotian shelf off Nova Scotia. Stock assessments are generally estimated for the whole skate complex, which includes little skate, barndoor skate, winter skate, rosette skate, smooth skate, thorny skate and clearnose skate, by the NEFSC (NEFSC 2006).

Trends Discussion *(insert map of North American/regional distribution and status):*

The IUCN has reported the population of clearnose skate as increasing, inferred by this species' moderately productive life history, low fishing mortality, and lack of market demand despite an increased CPUE which suggest that the population is stable, and likely increasing (Anderson 2020). NEFSC spring and autumn survey biomass indices increased from the mid 1980s through 2000, but have since declined to about average values (Sosebee 2006, NEFMC 2009). Figure 7 shows the NEFSC bottom trawl survey results indicating that clearnose skates are most abundant in the mid-Atlantic offshore and inshore regions (off the coast of NJ, DE, MD, VA, and NC) (NEFMC 2003). Recreational landings are relatively insignificant when compared to commercial landings, although clearnose skate is one of the most frequently caught species of the skate complex with landings varying between 2,000 and 145,000 fish during 1981-1998 in recreational fisheries throughout the Atlantic Ocean (NEFMC 2003). Spawning stock biomass has increased in the 1990s and 2000s (NEFSC 2006).

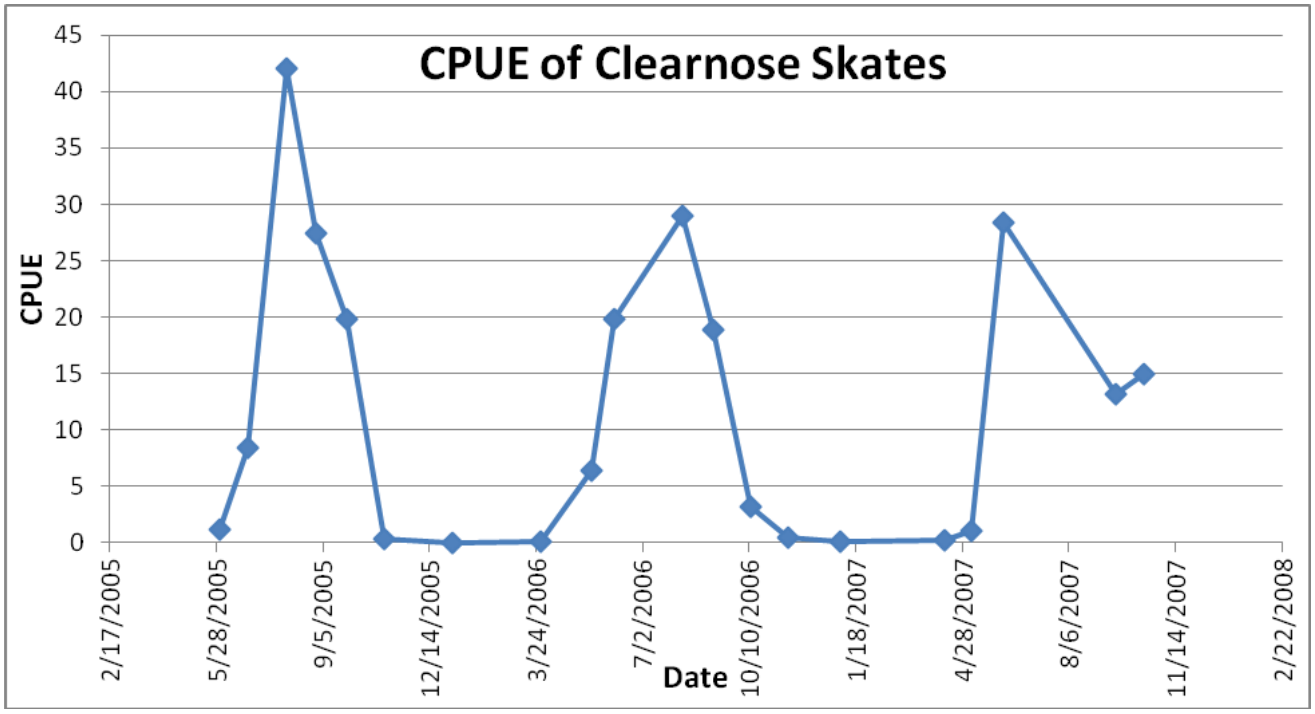

Figure 1. Catch per unit effort of clearnose skate off the south shore of Long Island, 2005-2008 (NYSDEC 2012)

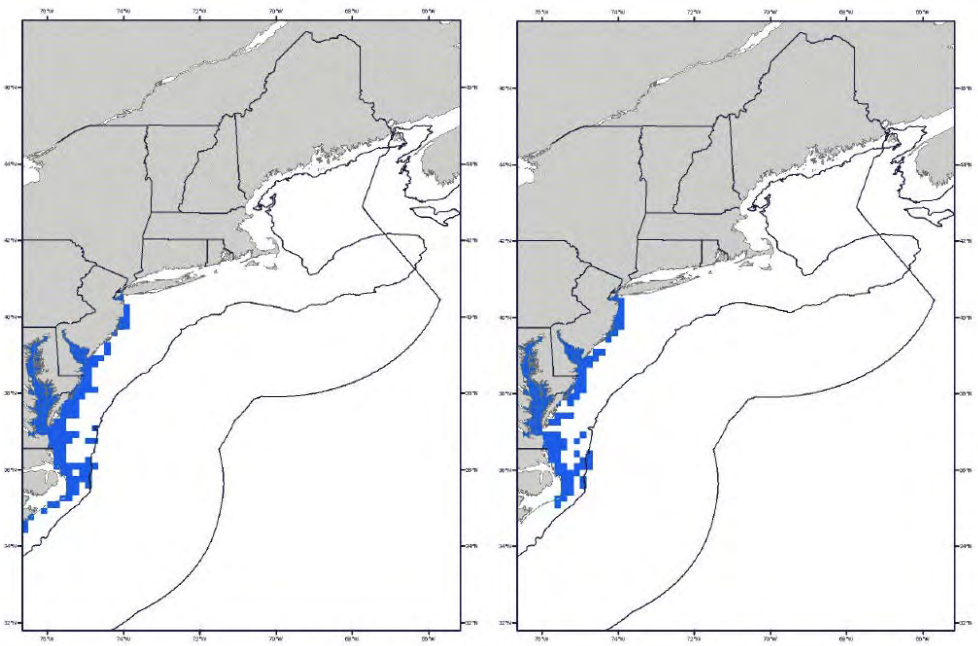

Figure 2. Designation of Essential Fish Habitat for juveniles (left) and adults (right) based on areas of highest relative abundance for clearnose skates from the NMFS trawl survey (1963-1999) (NEFMC 2003).

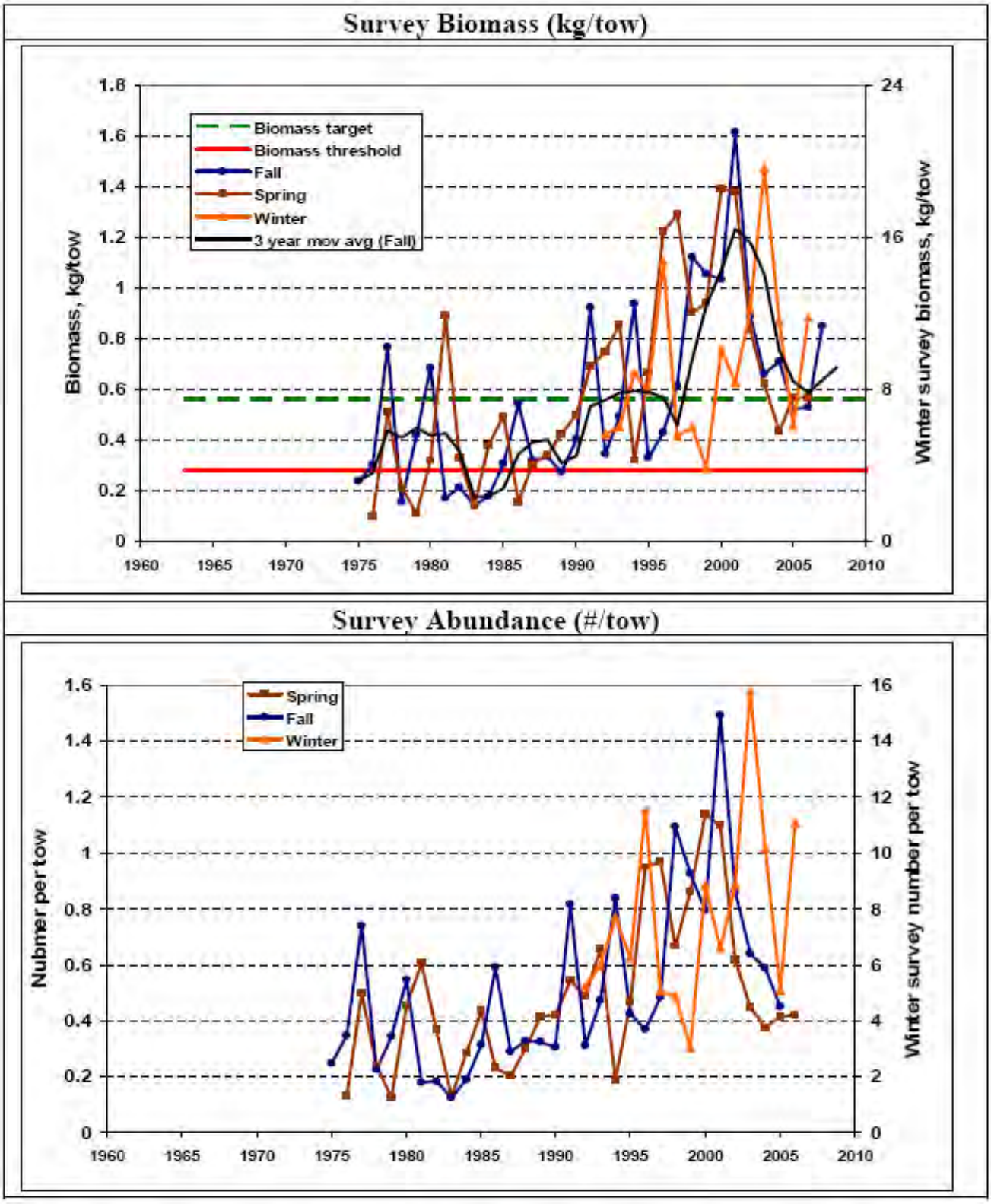

Figure 3. Clearnose skate stratified mean weight and number per tow for the winter, spring and fall NEFSC trawl surveys, Cape Hatteras, NC to the Gulf of Maine (NEFMC 2009).

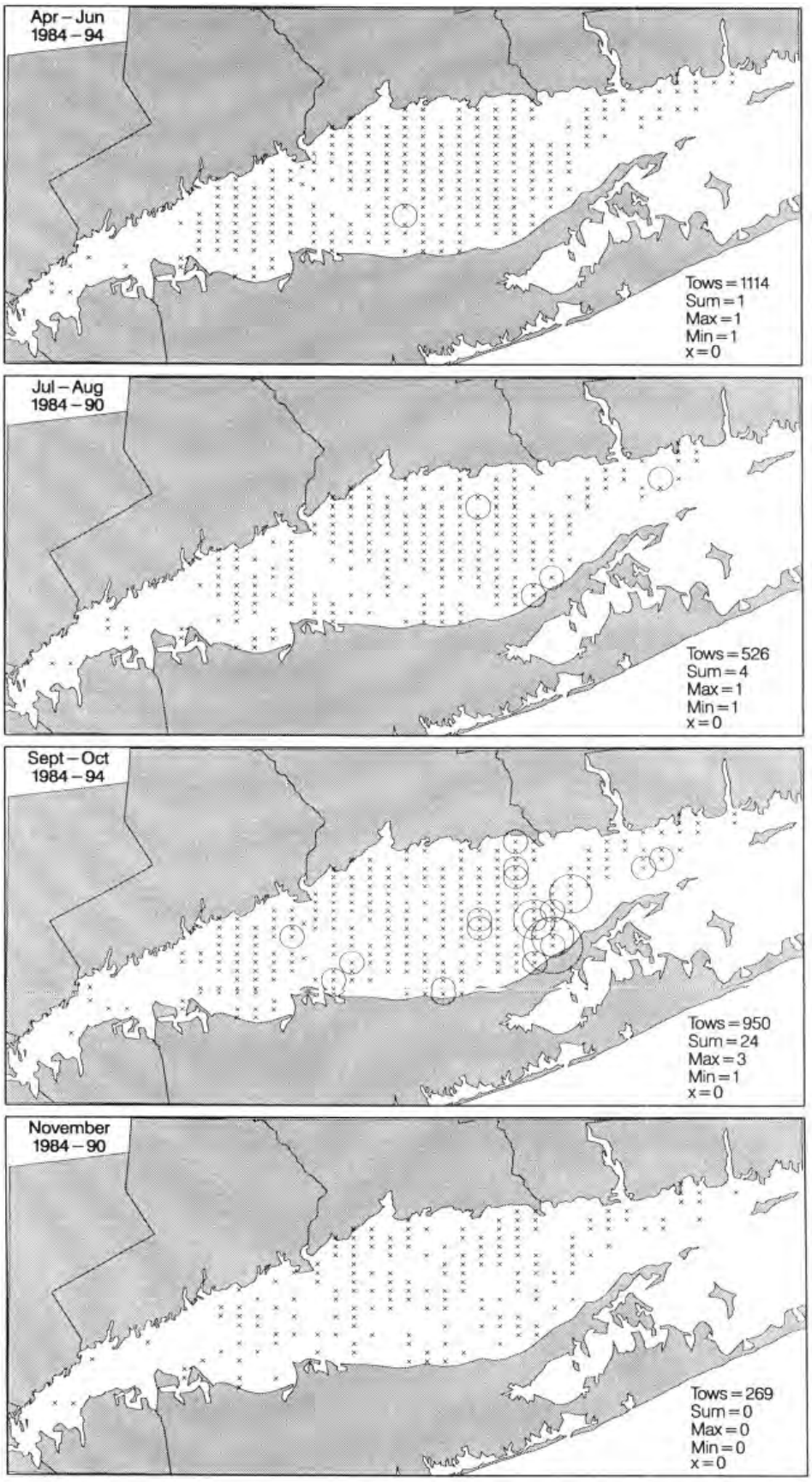

Figure 4. Distribution and abundance of juvenile and adult clearnose skate collected in Long Island Sound from 1984-1994 (Packer et al. 2003)

III. New York Rarity *(provide map, numbers, and percent of state occupied)*

Clearnose skate is a southern species that is considered rare in the northern part of its range, with highest abundance in the inshore middle Atlantic and southern New England area (Packer et al. 2003, Sosebee 2006).

Details of historic and current occurrence:

Skates have been reported in New England fishery landings since the late 1800s, but landings were not reported by species. NEFSC trawl surveys go back to 1963 and the Hudson-Raritan estuary survey to 1992, both finding clearnose skates in New York waters mostly in autumn and rarely during winter and spring (Packer et al. 2003)

Clearnose skates are relatively rare in the Long Island Sound but frequently caught off the south shore in NEFSC trawl surveys during spring and autumn (Packer et al. 2003, NEFMC 2009).

Clearnose skates are increasingly being caught in LIS and the Peconic bay trawl. Percentage of area occupied within the bight is also increasing.

New York's Contribution to Species North American Range:

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	

Column options
Percent of North American Range in NY: 100% (endemic); 76-99%; 51-75%; 26-50%; 1-25%; 0%; Choose an item
Classification of NY Range: Core; Peripheral; Disjunct; (blank) or Choose an item

IV. Primary Habitat or Community Type *(from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):*

a. Marine, Shallow Subtidal

b. Estuarine, Brackish Shallow Subtidal

c. Marine, Deep Subtidal

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
No	No	Declining	

Column options
Habitat Specialist and Indicator Species: Yes; No; Unknown; (blank) or Choose an item
Habitat/Community Trend: Declining; Stable; Increasing; Unknown; (blank) or Choose an item

Habitat Discussion:

The clearnose skate is found on soft bottoms along the continental shelf, but also occur on rocky or gravely bottoms from inshore to depths up to 330m (Ha et al. 2009). The 1992-1997 Hudson-Raritan estuary trawl survey showed that the highest densities occurred at depths of 5-8 m for both adults and juveniles during all seasons, at salinities of 20-36 ppt. The Hudson-Raritan survey also found most juveniles occurred at temperatures of 13-24˚C and adults between 9-24˚C (Packer et al. 2003). The highest abundance of clearnose skates in New York waters can be found in the sublittoral zone out to depths of 55 m, frequenting shallow inshore areas and estuaries (Packer et

al. 2003). Seagrass is critical habitat for many important prey species of the clearnose skate, including shrimps, crabs, bivalves and many small teleost fish species (Sagarese et al. 2011).

V.Species Demographics and Life History

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/ Catadromous?
Yes	-	-	Yes	-	-

Column options
First 5 fields: Yes; No; Unknown; (blank) or Choose an item
Anadromous/Catadromous: Anadromous; Catadromous; (blank) or Choose an item

Species Demographics and Life History Discussion *(include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):*

Like all skates, clearnose skates are oviparous, laying eggs in capsules (also known as mermaid purses) that are then deposited in sandy or muddy flats at intervals ranging from 1–13 days. A single female may lay up to 66 eggs in one season. Eggs laid initially in the season have been found to hatch in about 88-94 days while those laid later in the season may decrease to 77-80 days. Age data suggests that females mature at 4-6 years and males between 2-4 years with a lifespan of 5-8 years (Ha et al. 2009). Maximum size and size at maturity varies with latitude, with larger individuals occurring at higher latitudes (Packer et al. 2003).

Large carnivorous fish, such as the sand tiger shark, are potential predators of the clearnose skate. Mortality rates are also attributed to by-catch during groundfish trawling in otter trawls and scallop dredge operations as skates are frequently caught and discarded, although no directed fishery exists for this species (Sosebee 2006). Discarded recreational landings are deemed insignificant to population stability, at less than 1% of the total fishery landings (Packer et al. 2003).

VI. Threats *(from NY 2015 SWAP or newly described)*

No direct fishery exists for this species, but they are commonly taken as by-catch in groundfish trawling and scallop dredging. Otter trawling is the principal commercial fishing method that affects clearnose skates. The effect of increased global ocean temperatures on elasmobranches including the clearnose skate is unknown but is likely to result in changes in distribution, migratory movements, and prey availability. Synergistic effects between climate and other present threats, particularly by-catch mortality, will likely exacerbate climate-induced changes (Harley et al. 2006). Coastal development and degraded water quality have decreased the productivity and sustainability of New York's coastal ecosystems, which the clearnose skate heavily relies on. Seagrass acreage in New York has heavily declined since the 1930s, resulting in declining water quality and habitat for many important prey species of the clearnose skate, including the rock crab and sand shrimp (NYS Seagrass Taskforce 2009).

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
3. Energy Production & Mining	3.3 Renewable Energy	3.3.2 Wind farms (offshore)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5. Biological Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.2 Commercial fishing (bycatch)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5. Biological Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.2 Commercial fishing (harvest)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 1. Threats to clearnose skate

Are there regulatory mechanisms that protect the species or its habitat in New York?

Yes: X **No:** **Unknown:**

If yes, describe mechanism and whether adequate to protect species/habitat:

Skates are currently managed under the New England Fishery Management Council's Skate Fishery Management Plan, implemented in 2003. This plan includes mandatory reporting by species for both dealers and vessels and many other measures to aid in the recovery of skate species deemed overfished, such as development of biomass and mortality reference points (NEFMC 2003). Essential fish habitat is designated for the clearnose skate by the NEFMC through the Magnuson-Stevens Fishery Conservation and Management Act (Packer et al. 2003).

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

Life history studies (age, growth, maturity, and fecundity studies) are needed to better understand the demographics of the clearnose skate in New York waters. Studies of stock structure are also needed to understand individual abundance of the clearnose skate and distribution. Investigating the influence of annual changes in water temperature or other environmental factors on shifts in the range and distribution of this species will be important for anticipating climate change affects on the species. Protection and restoration of critical habitat for prey species of the clearnose skate is another measure needed to support New York populations.

Action Category	Action	Description
C.8 Research and Monitoring	C.8.1.0.0 Basic research and status monitoring	
C.8 Research and Monitoring	C.8.1.5.4 Climate change vulnerability assessment	

Table 2: (need recommended conservation actions for clearnose skate).

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