



***Illex* Fishery Information Document**

April 2024

This Fishery Information Document provides a brief overview of the biology, stock condition, management system, and fishery performance for *Illex* squid with an emphasis on 2023. Data sources for Fishery Information Documents include unpublished National Marine Fisheries Service (NMFS) survey, dealer, vessel trip report (VTR), permit, and Marine Recreational Information Program (MRIP) databases and should be considered preliminary. For more resources, including previous Fishery Information Documents, please visit <http://www.mafmc.org/msb>.

Key Facts

- 2023 landings were slightly lower than 2022 landings. Only 14% of the 2023 and 2022 quotas were landed.
- Missing revenue information did not allow a total revenue calculation at this time. Price per pound was calculated based on records with revenue information, so is incomplete and should be considered preliminary.
- Substantial variability is to be expected with any squid species.

Basic Biology

Illex is a semi-pelagic/semi-demersal schooling cephalopod species that lives less than one year and is distributed between Newfoundland and the Florida Straits. *Illex* is a semelparous, terminal spawner whereby spawning and death occur within several days of mating. The northern stock component (also highly variable) in NAFO Subareas 3 and 4, is assessed and managed separately by the Northwest Atlantic Fisheries Organization (NAFO). The southern/U.S. stock component is located in NAFO Subareas 5 and 6 between the Gulf of Maine and Cape Hatteras, NC and is managed by the Mid-Atlantic Fishery Management Council (the Council or MAFMC) and NMFS. Additional life history information is detailed in the EFH document for the species, located at: <http://www.nefsc.noaa.gov/nefsc/habitat/efh/>.

Status of the Stock

The 2021 research track assessment (RTA) was unable to develop a method to resolve stock status, so the stock will officially remain “unknown” with respect to being overfished or overfishing. The RTA Review Panel agreed with the RTA Working Group Report that indications from the various assessment approaches were that the stock was lightly fished in

2019. However, the review report stated that the term “lightly fished” should be interpreted with caution because it has no specific definition relating to sustainable exploitation.

In light of the failure of the assessment to produce accepted reference points to guide ABC setting, the SSC had to rely on an ad-hoc approach to setting a 2023 ABC that would meet the Council’s risk policy to avoid overfishing and achieve optimum yield. Alternative quotas were examined with respect to their consequences for risk of exceeding escapement targets ranging from 40% to 50%, as has been used for other squid fisheries. In addition, harvest rates of $F=2/3$ M (natural mortality) have been used for forage species in various assessments around the world. The methodology allowed the SSC to examine the probability of violating the reference point for various levels of catch limits ranging from 24,000 to 60,000 mt. A 40,000 MT ABC was associated with an approximately 5% chance of exceeding a $2/3$ F:M generic guidance for data poor species. Model results suggested a 40,000 MT ABC provided greater than 50% escapement for *Illex* squid, and a catch of 60,000 MT increases the chance of less escapement in some years. Previous SSC review (March 2022) of the analyses allowed them to conclude that:

- Escapement had been relatively high over the previous 10 years, suggesting a relatively small impact of the fishery on the component of the stock that is exploited.
- Assumptions regarding parameters that were inputs to the analyses were thought to lead to minimum likely estimates.
- Distributions of the joint estimate of F:M suggests that exploitation rate in the fishery is likely low.
- By comparison to empirical escapement reference points used to manage squid fisheries elsewhere globally, the current ABC levels are associated with low risks of exceeding those escapement standards.
- A 40,000 MT ABC will lead to a low risk of overfishing.

(See reports at <https://www.mafmc.org/ssc-meetings/2022/march-15-16> and <https://www.mafmc.org/ssc-meetings/2022/july-25-26>)

The methodology to estimate the risk of overfishing at various quotas was updated in 2023 to include sampling uncertainty in the survey-based estimates of abundance in the NEFSC fall bottom trawl survey. This additional uncertainty is considered in conjunction with uncertainty in natural mortality, availability of *Illex* to the fishing areas, and catchability of research trawl gear. Addition of this uncertainty did not significantly alter the risk evaluation process previously used. The SSC retained their recommendation of a 40,000 MT ABC for 2023 and recommended the same *Illex* ABC for 2024 and 2025. The SSC noted the high level of uncertainty in our overall understanding of *Illex* population dynamics, and recommended continued collection of high resolution samples from the fishery and further investigations into their reproductive biology.

Trends in the NEFSC trawl indices are illustrated in Figure 5.

Management System and Fishery Performance

Management

The Council established management of *Illex* in 1978 and the management unit includes all federal East Coast waters.

Access is limited with moratorium permits. Trip limits are triggered when the quota is approached. Incidental permits are limited to 10,000 pounds per trip. Additional summary regulatory information is available at <https://www.fisheries.noaa.gov/new-england-mid-atlantic/resources-fishing/resources-fishing-greater-atlantic-region>. A 2020 action to reduce *Illex* permits given overcapitalization in the fishery was disapproved: <https://www.fisheries.noaa.gov/bulletin/amendment-22-mackerel-squid-and-butterfish-fishery-management-plan-decision>.

The current quota is 38,631 MT, based on a 40,000 MT Acceptable Biological Catch (ABC) and a 3.42% discard rate, which has varied slightly over time. The fishery closes when 96% of the quota is projected to be landed. In 2021 the fishery closed effective August 30, 2021 – there was not a closure in 2022 or 2023 as only about 14% of the quota was landed in those years.

Recreational catch of *Illex* is believed to be negligible. There are no recreational regulations except for party/charter vessel permits and reporting.

Commercial Fishery

Almost all 2023 landings were with bottom trawl gear. Figure 1, from a Science Center data update, describes *Illex* catch 1963-2023 and highlights the early foreign fishery and then domestication of the fishery. Figures 2-3 describe domestic landings, ex-vessel revenues, and prices (inflation adjusted) since 1996. Staff is investigating data issues with 2023 revenue data, which may also affect 2023 price data. Figure 4 illustrates preliminary weekly 2022 (yellow-orange) and 2023 (blue) landings through the year.

Most 2023 *Illex* landings occurred in NJ and RI but further breakdown may violate data confidentiality rules (in spirit if not to the letter). Table 1 provides preliminary information on *Illex* landings by statistical area for 2023. Table 2 describes vessel participation over time.

The Gross Domestic Product Implicit Price Deflator was used to report revenues/prices as “2023 dollars.”

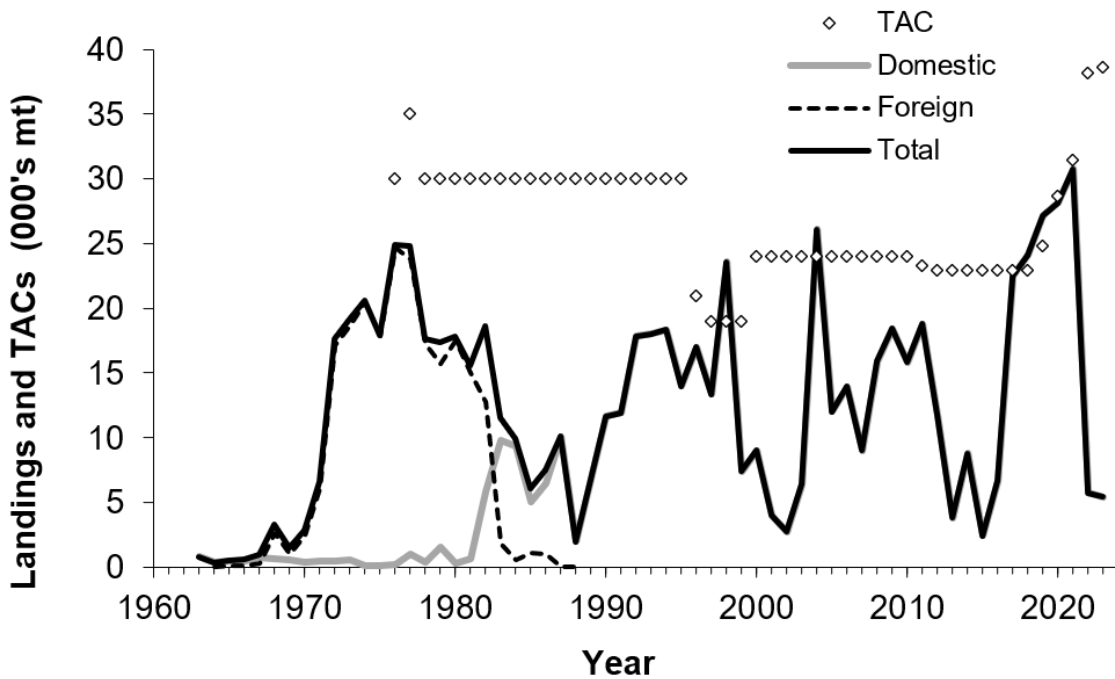


Figure 1. Landings (000's mt) of *Illex illecebrosus* from NAFO Subareas 5+6, by fleet during 1963-2023, and TACs (000's mt) for the same region during 1975-2023. Sources: NMFS Dealer Data and CAMS

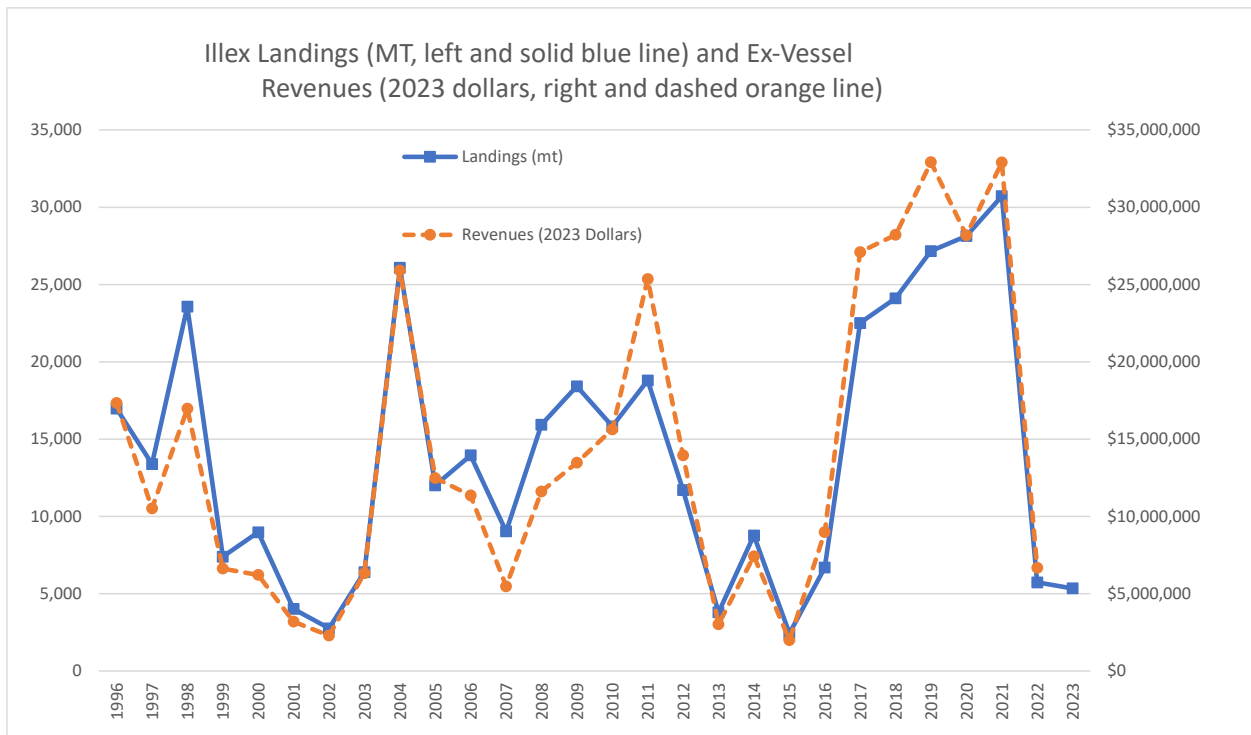


Figure 2. U.S. *Illex* Landings 1996-2023 and Ex-Vessel Values 1996-2022. Source: NMFS unpublished dealer data.

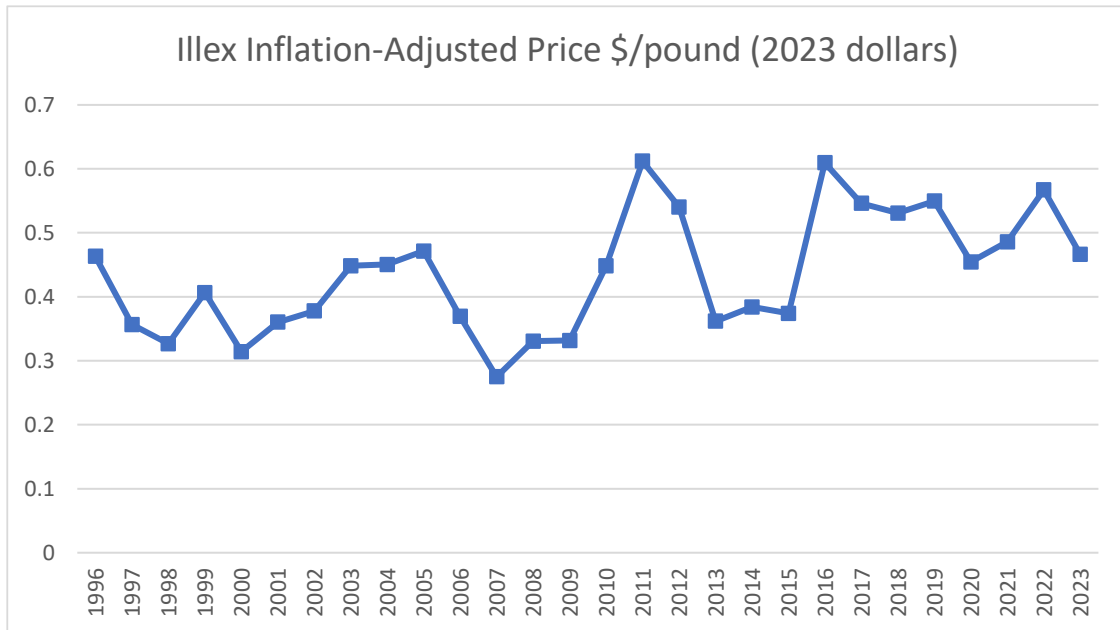


Figure 3. Ex-Vessel *Illex* Prices 1996-2023 Adjusted to 2023 Dollars Source: NMFS unpublished dealer data.

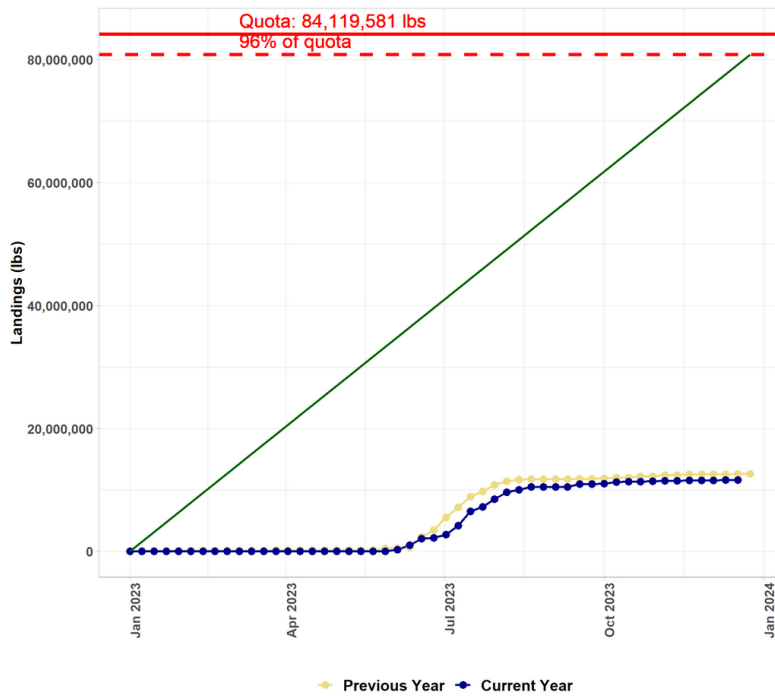


Figure 4. U.S. Preliminary weekly *Illex* landings; 2023 (“current”) in blue, 2022 in yellow-orange (“previous”). Source: <https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region>

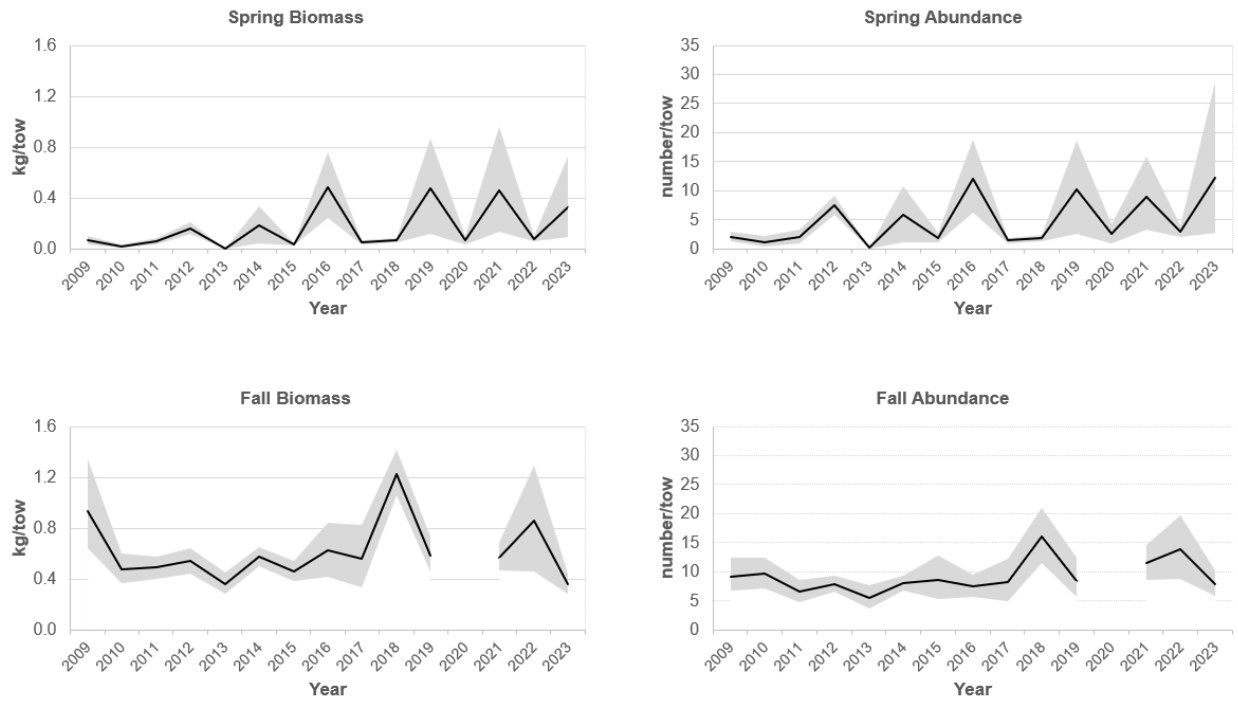


Figure 5. *Illex* indices of relative biomass (stratified mean kg per tow; left column) and abundance (stratified mean number per tow; right column) indices derived from NEFSC spring (top row) and fall (bottom row) bottom trawl surveys conducted during 2009-2023. Shaded areas represent the 95% confidence intervals. The fall 2020 survey did not occur due to the COVID-19 pandemic.

Table 1. Commercial *Illex* landings by statistical area in 2023. Source: CAMS

AREA	Metric Tons
622	3,656
626	612
627	307
616	242
Other/CI	614
Total	5,431

Table 2. Vessel participation over time in the *Illex* Fishery based on annual landings (pounds)

YEAR	Vessels 500,000+	Vessels 100,000 - 500,000	Vessels 50,000 - 100,000	Vessels 10,000 - 50,000	Total
1982	7	7	0	10	24
1983	1	8	7	11	27
1984	4	15	4	6	29
1985	2	6	4	3	15
1986	8	6	4	3	21
1987	7	10	2	1	20
1988	3	3	1	2	9
1989	8	5	1	3	17
1990	12	3	0	1	16
1991	12	1	1	0	14
1992	16	1	0	1	18
1993	19	3	1	3	26
1994	21	7	5	8	41
1995	24	5	2	7	38
1996	24	5	6	4	39
1997	13	9	2	0	24
1998	25	4	1	3	33
1999	6	9	2	10	27
2000	7	7	0	2	16
2001	3	4	1	2	10
2002	2	3	1	1	7
2003	5	6	1	2	14
2004	23	5	2	0	30
2005	10	10	2	2	24
2006	9	8	1	2	20
2007	8	2	1	0	11
2008	12	5	0	0	17
2009	10	3	1	1	15
2010	13	5	0	4	22
2011	17	4	2	0	23
2012	8	3	2	2	15
2013	5	4	3	5	17
2014	5	3	2	2	12
2015	3	0	1	1	5
2016	4	3	3	2	12
2017	14	6	0	0	20
2018	19	7	0	5	31
2019	26	6	0	3	35
2020	25	4	2	1	32
2021	23	8	0	2	33
2022	8	3	3	7	21
2023	6	8	2	6	22

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