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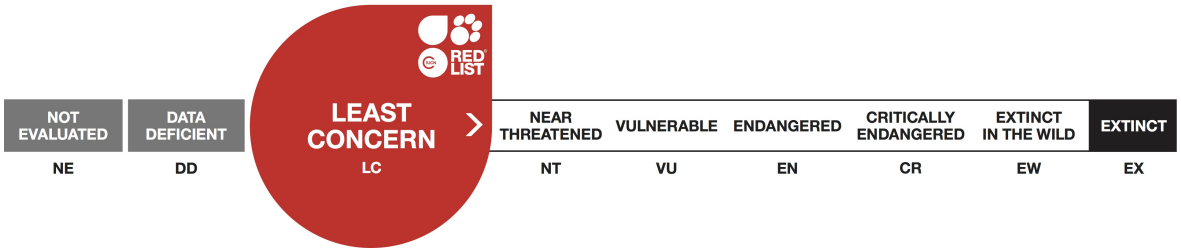
Engraulis encrasicolus, European Anchovy

Assessment by: Tous, P. *et al.*



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Actinopterygii	Clupeiformes	Engraulidae

Taxon Name: *Engraulis encrasicolus* (Linnaeus, 1758)

Synonym(s):

- *Anchoa guineensis*
- *Anchoa guineensis*
- *Anchoviella guineensis*
- *Anchoviella guineensis*
- *Clupea encrasicolus*
- *Clupea encrasicolus*
- *Engraulis amara*
- *Engraulis amara*
- *Engraulis argyrophanus*
- *Engraulis argyrophanus*
- *Engraulis capensis*
- *Engraulis capensis*
- *Engraulis encrasicholus*
- *Engraulis encrasicholus*
- *Engraulis encrasicholus ponticus*
- *Engraulis encrasicholus ponticus*
- *Engraulis encrasicolus russoi*
- *Engraulis encrasicolus russoi*
- *Engraulis encrassicolus*
- *Engraulis encrassicolus*
- *Engraulis engrasicholus*
- *Engraulis engrasicholus*
- *Engraulis guineensis*
- *Engraulis guineensis*
- *Engraulis meletta*
- *Engraulis meletta*
- *Engraulis russoi*
- *Engraulis russoi*
- *Engraulis vulgaris*
- *Engraulis vulgaris*
- *Engraulus encrasicholus*
- *Engraulus encrasicholus*

Regional Assessments:

- Mediterranean
- Europe

Common Name(s):

- English: European Anchovy, Anchovy, Anchovy Paste, Black Sea Anchovy, Italian Sardel, South African Anchovy, Southern African Anchovy, Southern Anchovy
- French: Amplovo, Anchois, Anchois Commun, Anchois de L'Afrique Australe, Anchois Européen, Anchois Italien, Carne A Carne

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- Spanish: Anchoa, Anchoa de Africa Austral, Anchoa Europea, Bocareu, Boquerón, Carne Con Carne, Longorón, Pasta Fermentada de Anchoas

Assessment Information

Red List Category & Criteria: Least Concern ver 3.1

Year Published: 2015

Date Assessed: May 23, 2013

Justification:

This is a widespread and highly commercial species in the Eastern Central Atlantic, Mediterranean and Black Seas. It is a target species for purse seine fisheries. The population shows large fluctuations depending on environmental conditions. In some areas, these fluctuations are showing a declining trend (e.g., in Morocco, where there has been a declining trend since 1998); other areas show stable to increasing trends. Overall in the Mediterranean Sea the population is variable from one area to another, but at present it is not considered to be in serious decline. Nevertheless, population monitoring needs to continue and exploitation must be carefully managed. It is assessed as Least Concern.

Geographic Range

Range Description:

In the east Atlantic, this species is present from Bergen, Norway to East London, South Africa (perhaps reaching Durban; Whitehead 1990). In the west Indian Ocean, it is present in Mauritius, Seychelles and upwelling areas around Somalia (Whitehead *et al.* 1988). In the Eastern Central Atlantic, it is found throughout entire area, including Canary Islands and possibly Madeira. It occurs in the Azores, Mediterranean Sea, Black Sea and Azov Sea. It possibly mixes with *E. capensis* southward from the Angolan/Namibian border.

Country Occurrence:

Native: Albania; Algeria; Angola (Angola); Belgium; Benin; Bulgaria; Cameroon; Cape Verde; Congo; Congo, The Democratic Republic of the; Côte d'Ivoire; Croatia; Cyprus; Denmark; Egypt; Equatorial Guinea; Estonia; Finland; France; French Southern Territories (Mozambique Channel Is.); Gabon; Gambia; Georgia; Germany; Ghana; Gibraltar; Greece; Guernsey; Guinea; Guinea-Bissau; Ireland; Israel; Italy; Jersey; Jordan; Latvia; Lebanon; Liberia; Libya; Lithuania; Madagascar; Malta; Mauritania; Mauritius; Monaco; Montenegro; Morocco; Namibia; Netherlands; Nigeria; Norway; Poland; Portugal (Madeira, Portugal (mainland)); Réunion; Romania; Russian Federation; Saint Helena, Ascension and Tristan da Cunha (Ascension, Saint Helena (main island)); Sao Tomé and Principe; Saudi Arabia; Senegal; Serbia (Serbia); Seychelles; Sierra Leone; Slovenia; Somalia; South Africa; Spain (Canary Is.); Sweden; Syrian Arab Republic; Togo; Tunisia; Turkey; Ukraine; United Kingdom; Western Sahara

FAO Marine Fishing Areas:

Native: Atlantic - southeast, Atlantic - northeast, Atlantic - eastern central, Indian Ocean - western, Mediterranean and Black Sea -

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Distribution Map

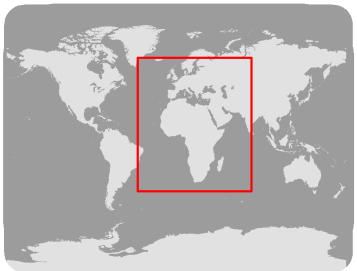
Engraulis encrasicolus

NE DD LC LEAST CONCERN NT VU EN CR EW EX

Range

Extant (resident)

Compiled by:
International Union for Conservation of Nature



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

In the Eastern Central Atlantic (ECA), this species is considered to be fully exploited (FAO CECAF 2011). The Working Group for Small Pelagics recommended that the effort should not exceed the present level. Reported FAO catch statistics in the ECA show gradual increase in landings over the past 60 years (1950-2010), with the exception of an extremely high catch in 1990 of more than 340,000 tonnes. However, catches in the last 10 years (2000-2010) show an estimated 40% decline from 200,000 tonnes in to approximately 120,000 tonnes (FishSTAT J). However, this decline is not considered to be significant, as overall catches are increasing. At least from Morocco to Gambia, although this species is considered fully exploited, it is not considered that catches are declining and effort is considered stable. This species is most commercially important in Morocco. This species is most abundant in Morocco and Mauritania. In Mauritania, this species is not targeted by artisanal fisheries and the industrial fisheries have size limitations.

In Nigeria, this species is abundant and is important in commercial fisheries, with no record of decline in catch. In Ghana, this species is one of the most popular small pelagic species, and is abundant. It is mainly exploited by the artisanal fisheries after the upwelling season (as they change from *Sardinella* species). They change their net size to catch this species. This species is also taken by the tuna bait boats (1,000-2,000 tonnes per year). In Ghana, catches for this species are fluctuating, but overall there is a decline in catch. In Benin, this is the same stock as in Ghana, and since 2003 there is also a trend of declining catch. In Guinea, this species is not frequently caught, and is reported as mixed stock as it represents less than five percent of all catches. In Gambia, this species is not important, and it is really only caught as by-catch by purse seine. In Senegal, this species is not reported separately, and it is not as commercially important.

This is a very common and abundant species in the Mediterranean Sea.
Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

This coastal, pelagic species is found mainly in shallow water (to 50 m) and to depths of about 400 m, often forming large shoals and is migratory. It is euryhaline, tolerating salinities of five to 41% and in some areas entering lagoons, estuaries or lakes, especially in the warmer months during spawning season. Spawning occurs multiple times over an extended period from April to November with peaks usually in the warmest months, the limits of the spawning season dependent on temperature and thus more restricted in northern areas. Eggs ellipsoidal to oval, floating in the upper 50 m, hatching in 24 to 65 hours. After hatching, larvae are colourless and transparent. Growth is rapid with fish reaching a length of 9-10 cm after one year. First spawning occurs at sizes greater than 12-13 cm. Maximum age of individuals from southwestern Africa was three years. Two hyaline rings are formed annually on otoliths; one being clearly visible, well formed and laid down in June-July, the other diffuse, faint, and laid down in November-December. It feeds on planktonic organisms, chiefly copepods, cirripede and mollusc larvae, and fish eggs and larvae**.**

In the Mediterranean Sea, it occupies nearly all the water column, with the core of the population occurring in less then 50 m depth. In winter months it moves deeper in the water column (to around 200 m). Depth range in Mediterranean Sea is from sea level to 285 m and it is common over the

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continental shelf. A study of Lloret *et al.* (2004) provide evidence of the influence of riverine inputs and wind mixing on the productivity of small pelagic fish such as *Engraulis encrasicolus* in the Mediterranean Sea. It tends to move further north and into surface waters in summer, retreating and descending in winter. It feeds on planktonic organisms (Plounevez and Champalbert 2000). It spawns from April to November with peaks usually in the warmest months. In the central Adriatic Sea the main reproductive activities occurs between April and September (Sinovcic and Zorica 2006). In the Adriatic, age at maturity is reported as 8.2 cm (males and females; Sinovcic and Zorica 2006). In the Ligurian sea juvenile and post larvae occur in shallow waters from September to January (Tunesi *et al.* 2005). The sex ratio is 45% female (Koranteng 1993). A study on the genetic of *E. encrasicolus* in the Mediterranean Sea (Tudela *et al.* 1999) underline that in this basin there is a single subpopulation with different spawning grounds. Individuals in the eastern Mediterranean Sea (Israel) are smaller than individuals further west. Maximum size is 20 cm standard length and it is common to 12 to 15 cm.

Systems: Marine

Use and Trade

This is a species with high commercial importance. It is marketed fresh, dried, smoked, canned and frozen, and can be used as fish meal (Frimodt 1995).

Threats (see Appendix for additional information)

This is a species with high commercial importance. Catches in the northern and equatorial parts of the Eastern Central Altantic are reported as *E. encrasicolus*; those for Namibia as *E. capensis*. It is caught with purse seines, lamparas (light fishing), trawls and beach seines and marketed fresh, frozen, processed, salted and dried, and canned. It is also used as bait. It is important in the Namibian pelagic fisheries for the production of fishmeal and fish oil.

In the Mediterranean Sea, it shows strong spatio-temporal variability related to environmental conditions. There is an important fishery of frys (very young individuals) in some areas in the Mediterranean Sea. Its annual landings (tons) in the Mediterranean Sea (1996-2005), obtained from the FAO FISHSTAT Fisheries Statistical Database (2007): 83,412 (1996), 102,203 (1997) 86,708 (1998), 87,149 (1999), 104,159 (2000), 110,768 (2001), 104,748 (2002), 100,738 (2003), 109,449 (2004) and 107,909 (2005). Landings figures show a sharp decline around 1990 in the Black Sea (it apparently disappeared from the Azov Sea then but has since recovered). Figures in the Mediterranean Sea show strong fluctuations. Some stocks have been assessed by FAO-General Fisheries Commission for the Mediterranean (GFCM) SAC (Scientific Advisory Committee) and Sub-Committee on Stock Assessment (SCSA). GSA areas assessed were: GSA1, GSA3, GSA6, GSA7, GSA16, GSA17, GSA18, GSA22. In general these stocks showed a high variability and only in a few cases are showing decreasing trends in recent years.

In the Black Sea, this species showed a sharp decline in 1989-1991 due to a combination of environmental problems and exploitation. The predatory species *Mnemiopsis leidyi* was brought into the Black Sea from ballast water and this species preyed upon the eggs of many native species in the Black Sea. Landings figures have been low since then and they are now showing a very gradual increase after *Boreo ovata*, a predator of *Mnemiopsis leidyi* (Isinibilir and Tarkan 1998), was also introduced again through ballast water.

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Conservation Actions (see Appendix for additional information)

In the Eastern Central Atlantic, for the western areas (Ghana, Togo, Benin) it is recommended that catch level should not exceed the average level of the three last years (e.g. 40,000 tonnes). In the southern area (Congo) it is recommended that catch level should not exceed the average level of the five last years (e.g. 530 tonnes; FAO CECAF 2011).

In the Black Sea and Azov Sea, there are minimum catch sizes: 6.5 cm (Georgia and Ukraine), 7 cm (Romania), 8 cm (Bulgaria) and 9 cm (Turkey). In the Black Sea, minimum catch size is 10 cm (Unsal 1989). In the Mediterranean Sea, the minimum catch size set by the General Fisheries Commission for the Mediterranean (GFCM) is 9 cm. In some cases there are national efforts to control the fisheries (e.g., time and area closures).

Credits

Assessor(s): Tous, P., Sidibé, A, Mbye, E., de Morais, L., Camara, Y.H., Adeofe, T.A., Monroe, T., Camara, K., Cissoko, K., Djiman, R., Sagna, A., Sylla, M. & Carpenter, K.E.

Reviewer(s): Weller, S., Strongin, K. & Polidoro, B.

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Appendix

Habitats
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
9. Marine Neritic -> 9.1. Marine Neritic - Pelagic	-	Suitable	-
9. Marine Neritic -> 9.10. Marine Neritic - Estuaries	-	Suitable	-
10. Marine Oceanic -> 10.1. Marine Oceanic - Epipelagic (0-200m)	-	Suitable	-

Threats
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.1. Intentional use: (subsistence/small scale)	Ongoing	-	-	-
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.4. Fishing & harvesting aquatic resources -> 5.4.2. Intentional use: (large scale)	Ongoing	-	-	-
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
8. Invasive & other problematic species & genes -> 8.1. Invasive non-native/alien species -> 8.1.2. Named species (Mnemiopsis leidyi)	Ongoing	-	-	-
	Stresses:	2. Species Stresses -> 2.1. Species mortality		

Conservation Actions in Place
(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Actions in Place
In-Place Species Management
Harvest management plan: Yes

Additional Data Fields

Distribution
Lower depth limit (m): 400
Upper depth limit (m): 0

Population
Population severely fragmented: No
Habitats and Ecology
Movement patterns: Full Migrant

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