Wreckfish: Overview of Biology/Life History & Data for Assessments

Prepared by
Gregg Waugh, SAFMC Staff
(some of the material is taken directly
from FishWatch and from Vaughan et al. 2001)

Range & Habitat

- **Geographic range:** Wreckfish are found in the eastern Atlantic Ocean from Norway to South Africa, including the Mediterranean, Canary Islands, Madeira, Cape Verde, and Tristan da Cunha. In the western Atlantic Ocean, they range from Grand Banks, Newfoundland, to La Plata River, Argentina. Wreckfish are also found in the western Indian Ocean and in the Southwest Pacific Ocean near New Zealand.

- **Habitat:** In general, wreckfish inhabit depths ranging from 140 feet up to 3,300 feet. They are found in surface waters for the first several years of their life, often associating with floating debris. As adults, wreckfish are attracted to steep, rocky bottoms and deep reefs, which provide food and shelter. They are often associated with caves and overhangs.

Life History

- **Life span:** Long-lived (aged to 39 years)
- **Food:** Fish and squid
- **Growth rate:** Slow; juveniles are pelagic up to about 24 inches
- **Maximum size:** Large, about 220 pounds in weight and 6.5 feet in length.
- **Migrations:** Wreckfish migrate throughout the North Atlantic during its life cycle.
- **Predators:** None known.

Spawning

- **Reaches reproductive maturity:** The smallest mature female found in studies was 33.5 inches and the smallest mature male was 31 inches.
- **Reproduction:** Wreckfish are gonochorists, meaning that males and females are sexually distinct. Eggs are fertilized externally. Wreckfish spawn multiple times per season.
- **Spawning season:** December/January to mid-April
- **Spawning grounds:** The only known spawning ground of wreckfish in the western Atlantic is the Blake Plateau; the Charleston Bump, located 80 to 100 miles southeast of Charleston, South Carolina comprises a small portion of this plateau. The Bump is a deepwater bank that rises up from the Blake Plateau at depths of over 2,300 feet to 1,230 feet. From there, the bottom plunges 410 feet in a series of steep slopes with rocky cliffs, overhangs, and caves.

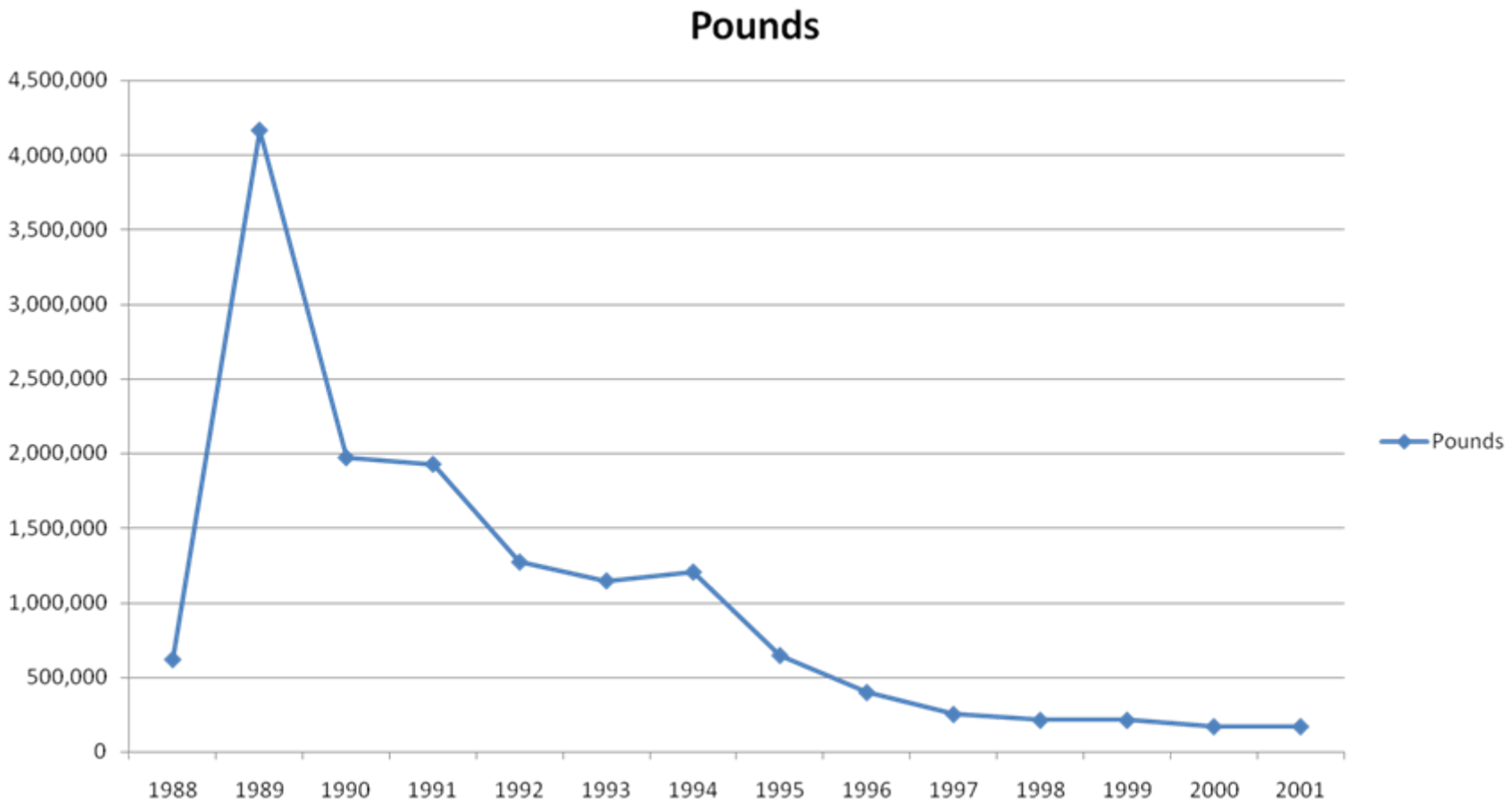
Stock Structure

- Genetic work by Sedberry et al. (1996) indicates the North Atlantic wreckfish are one stock that drifts or migrates across the North Atlantic

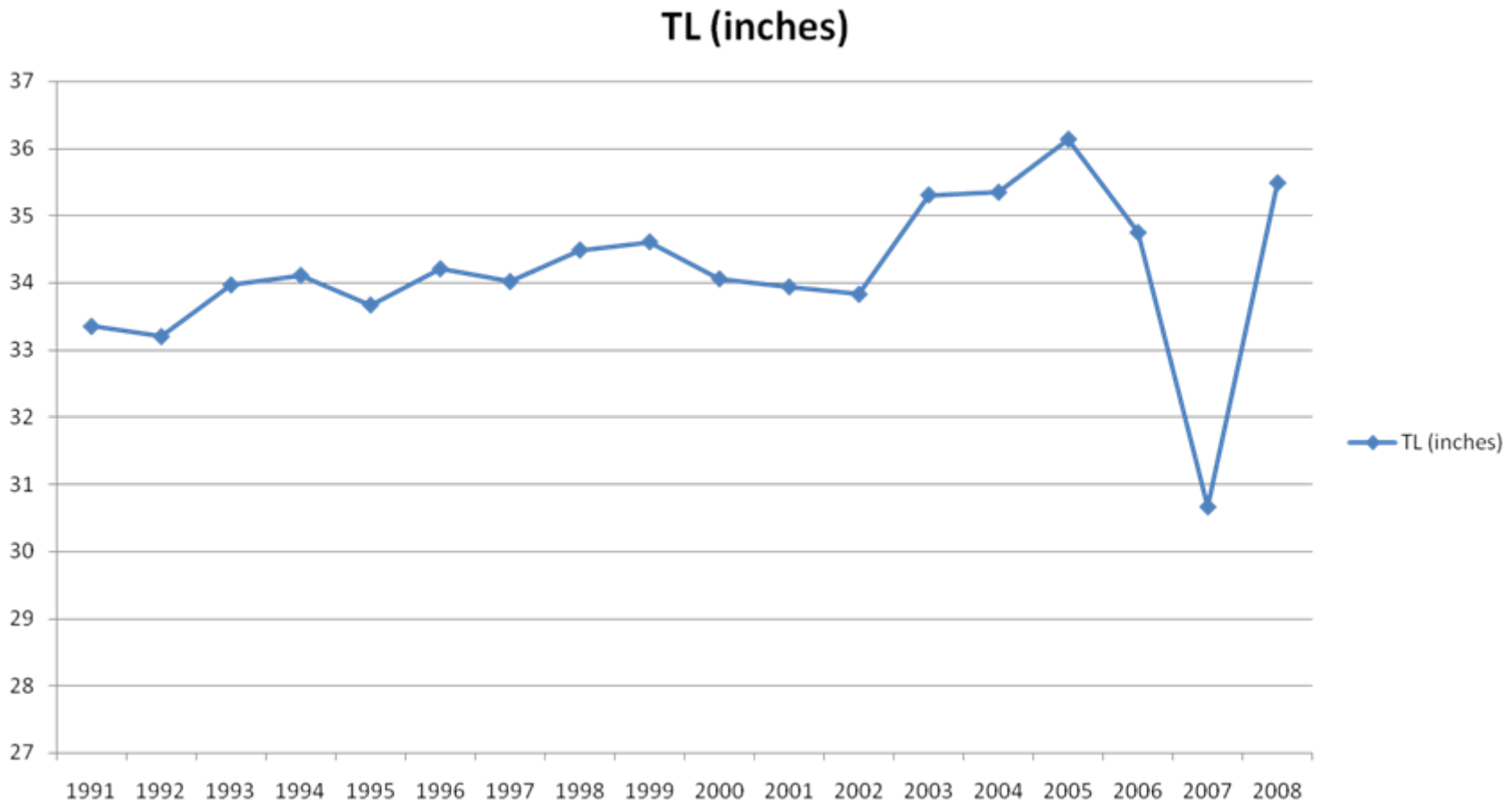
Data Available

- Landings from 1988 onwards; however, confidential from 2002 onwards…..
- Assessment of the Wreckfish Fishery on the Blake Plateau – Vaughan et al. (2001); included as Attachment 12.
- Average size & CPUE over time
- SEDAR Assessment planned for 2013

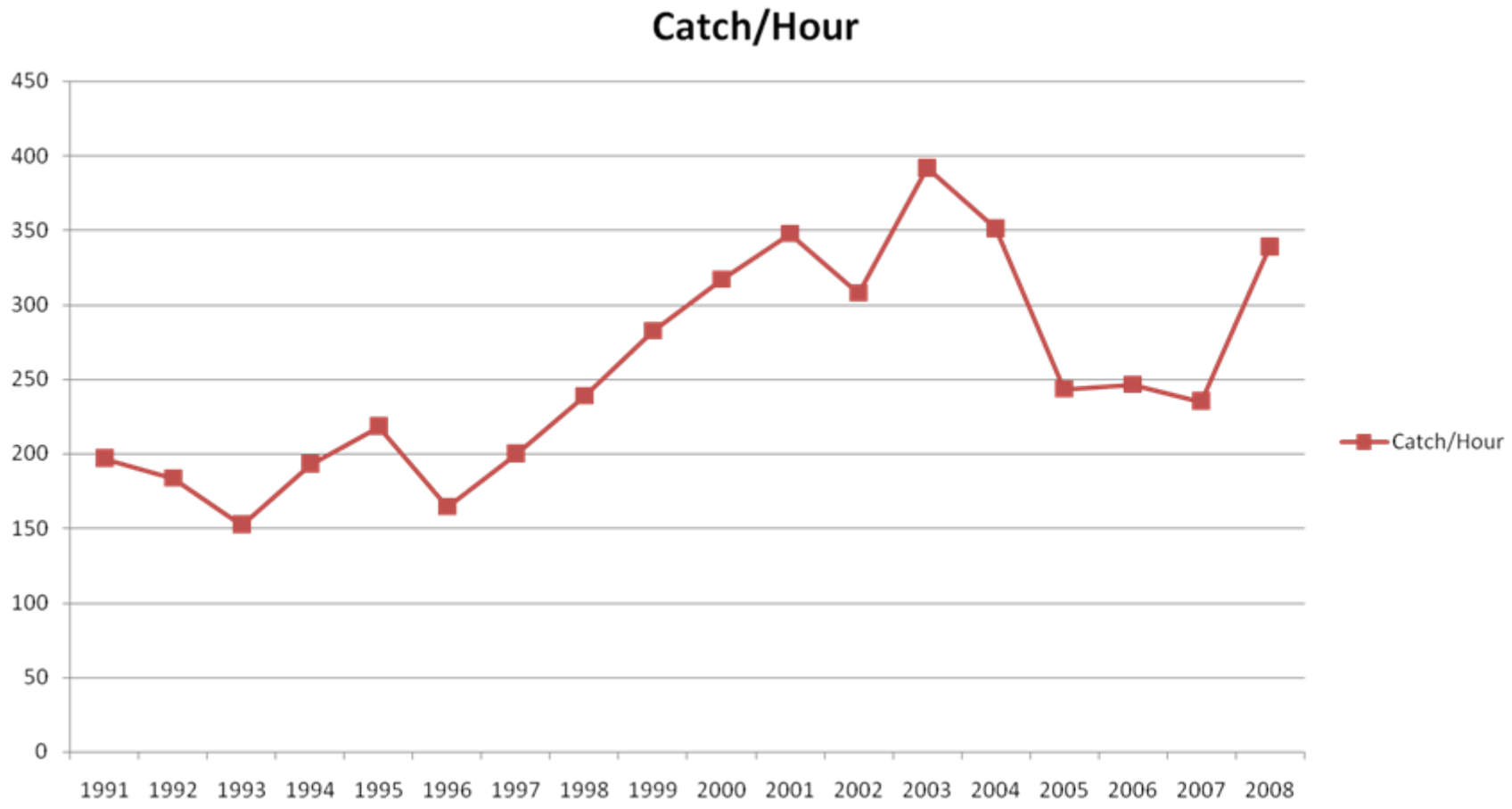
Landings
(post 2001 confidential)



Average Size



Catch Per Hour



Stock Assessment – 2001

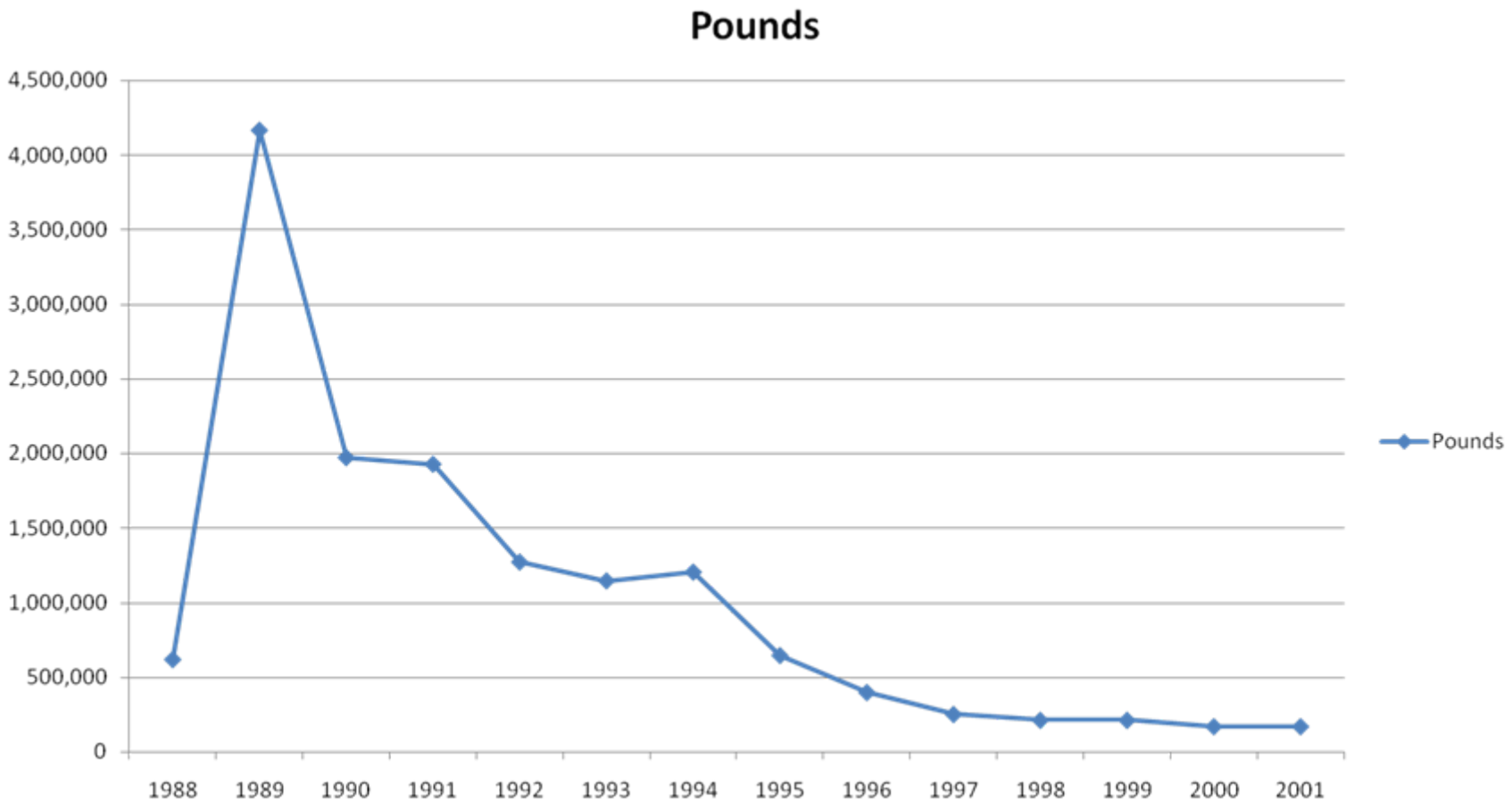
Vaughan et al. (2001) - Attachment 12

- Maximum Age = 39 years
- Natural Mortality = 0.1 (0.05-0.15)
- Stock biomass (7+) in 1998 had falledn to 10-14% of levels in 1988
- Encouraging signs are noted with the increasing levels of recruits to Age 7 starting in about 1994-95.

Stock Assessment – 2001
Vaughan et al. (2001) - Attachment 12

- Wreckfish undergoing overfishing prior to 1994 (especially 1989) leading to depressed levels of stock biomass.
- Fishing mortality has declined to values at or about threshold levels for overfishing (30%SPR) thru 1998.
- Recruitment levels appear to be improving & will hopefully lead to rebuilding as long as F does not significantly increase for current levels.

Landings
(post 2001 confidential)



Potential MSY/OFL/ABC Values (temporary until SEDAR assmt in 2013)

- Maximum Sustainable Yield (MSY)
  - 1.946 MP (avg. landings 1989-1994; high landings)
  - 0.862 MP (avg. landings 1988-2008; all years)
- Overfishing Level (OFL)
  - OFL=F_{MSY}=$F_{30\%SPR}$=0.25 (M=.1; Vaughan)
  - OFL=F_{MSY}=$F_{40\%SPR}$=0.14 (M=.1; Vaughan)
- Allowable Biological Catch (ABC)
  - ABC=1.75 MP (196,000 lb < MSY, high)
  - ABC=1.5 MP (446,000 lb < MSY, high)