

WELCOME TO THE FISH AGEING LAB!



Why is it important to age fish?

- Age information is necessary to calculate growth rates, maturity schedules, mortality rates, recruitment strength and productivity of fish stocks.
- Age data help fishery managers to assess the ability of a species or a population to sustain harvest and set harvest goals.
- Reliable age data allows researchers and managers to better understand the dynamics of fish stocks and how populations react to natural and man-made stresses, such as El Niño or commercial fishing.



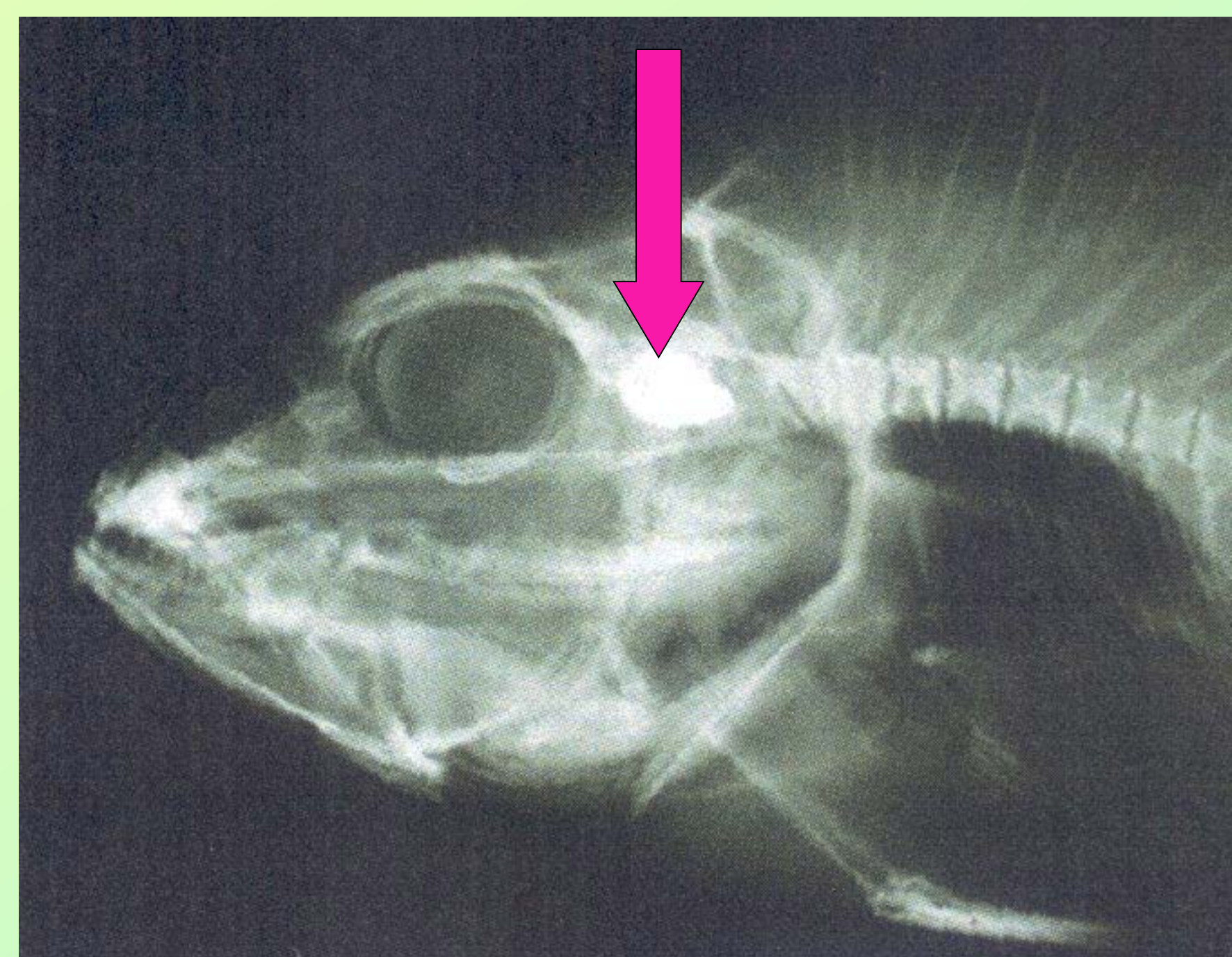
Why do we use otoliths?

- Otoliths are structures in bony fish that record age and growth from the date of hatch until the time of death: as the fish grows, so does the otolith.
- Each year, alternating opaque (summer) and translucent (winter) bands are deposited on the otolith. A full year's growth ring, called an annulus, consists of both an opaque and translucent band.
- The age of the fish can then be determined by interpreting how many annuli are present, much like the rings on a tree trunk can be used to determine the age of the tree itself.



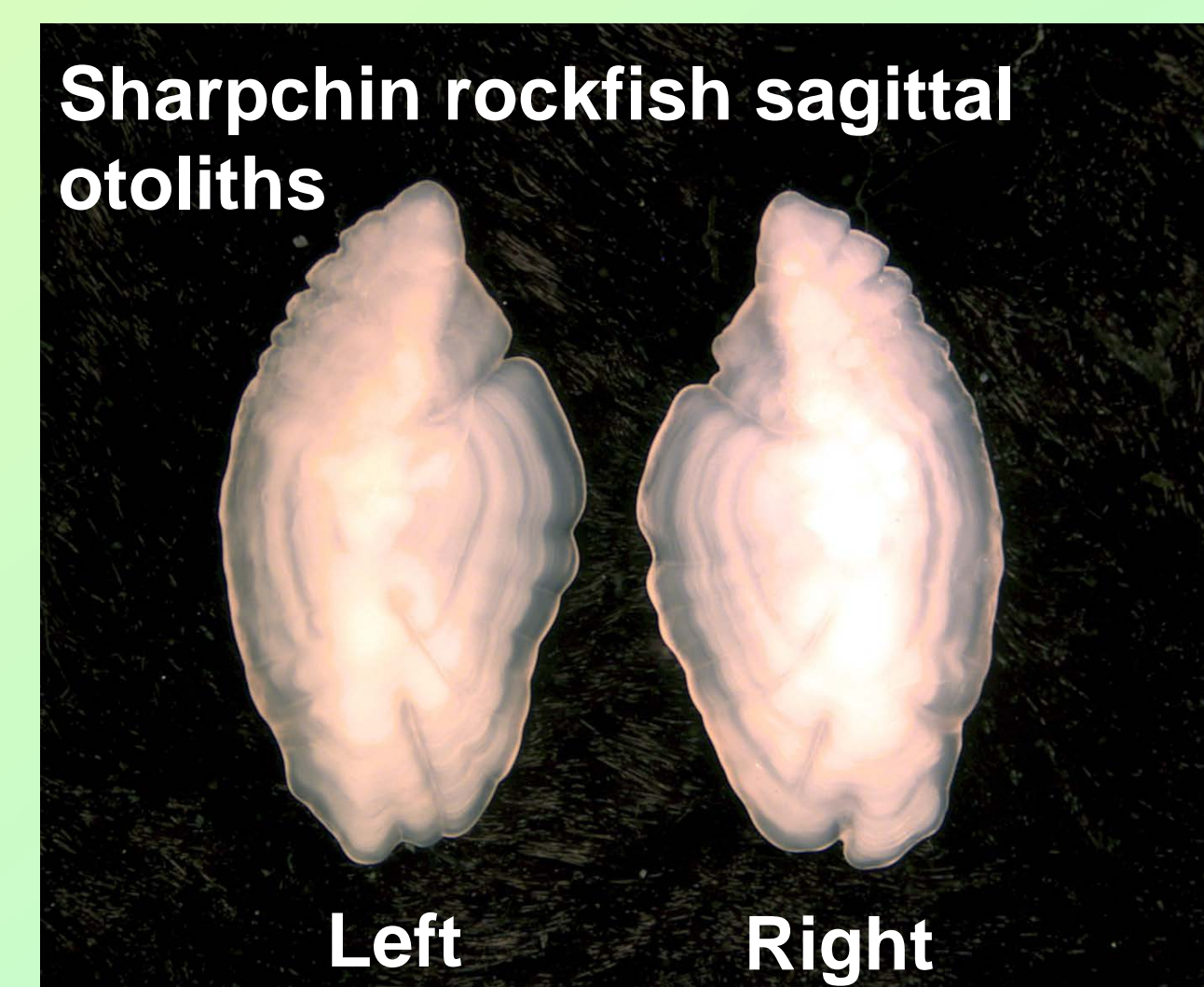
What is an otolith?

- Otoliths are small bony structures found in the head of all fishes other than sharks, rays and lampreys.



X-ray of a red snapper's head, showing the location of the otoliths

Photo: Stacy Randall, Gulf States Marine Fisheries Commission

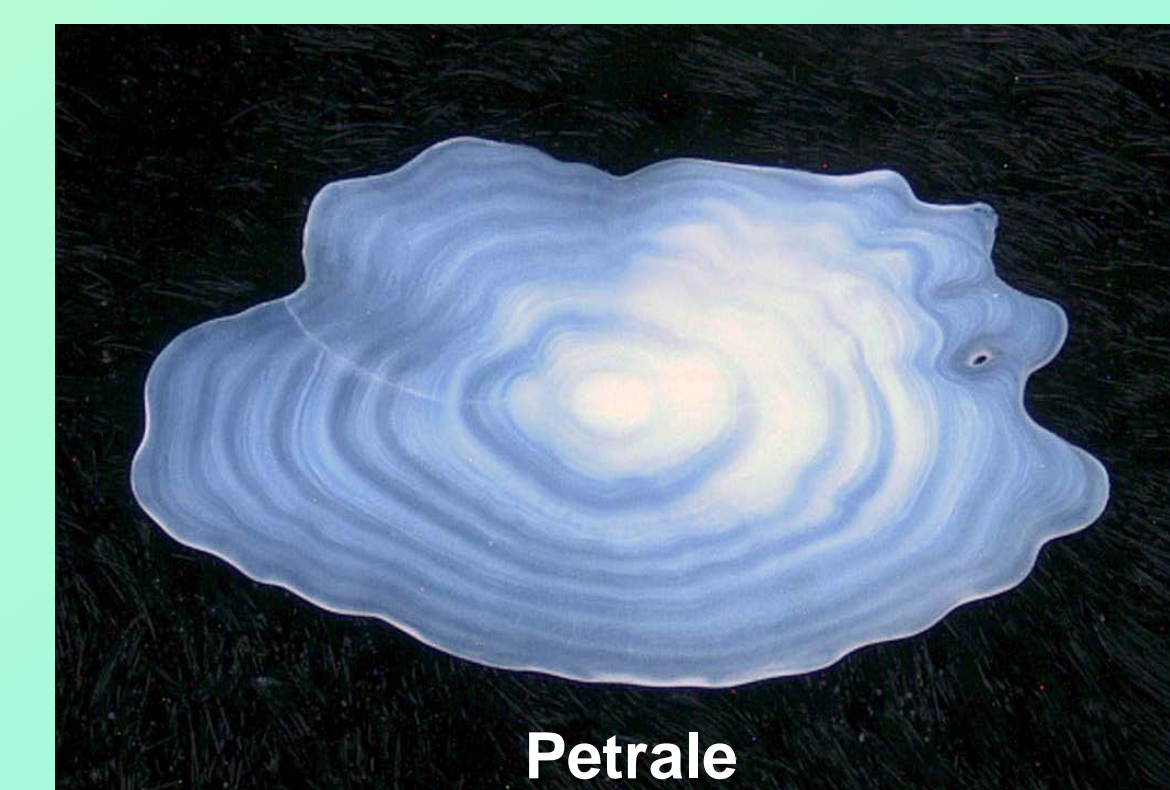


- Otoliths are part of the inner ear system and serve as sensory organs, playing a role in hearing and balance.
- There are three pairs of otoliths: the sagitta, the lapillus, and the asteriscus. Sagittal otoliths are the largest and most often are the only pair used for age determination.

How do we use otoliths to age fish?

- The preferred method depends on the species being aged:

Surface ageing



For some fast-growing, short-lived species, annuli are visible directly on the surface of the otolith.

Break-and-burn



The otolith is broken through the center and carefully burned (our preferred method). Mineral oil brightens & clarifies the annuli.

Thin



A thin section (~0.3 mm) is cut through the core of the otolith and mounted onto a glass slide.

Poster by Lisa Lysak, PSMFC, Cooperative Ageing Project, October 2005