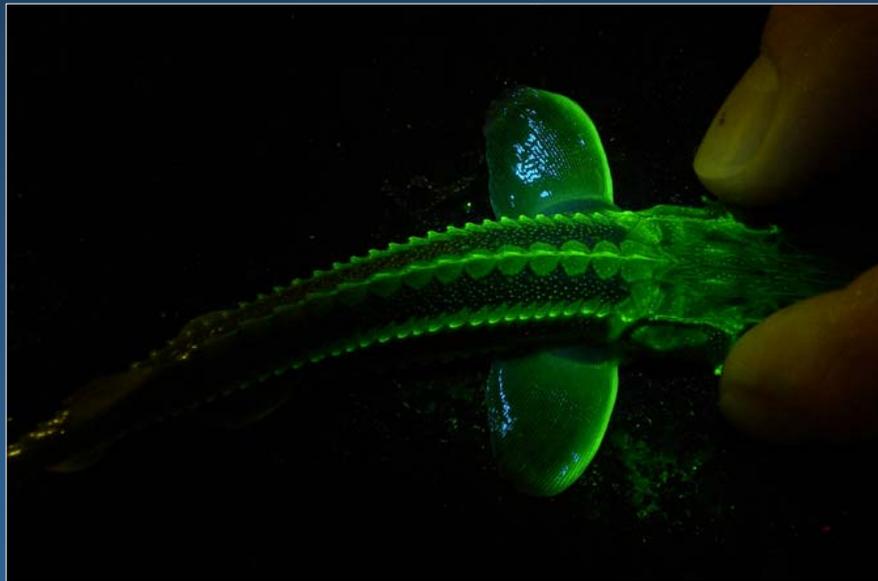


Introduction to Calcein as a Marking Agent

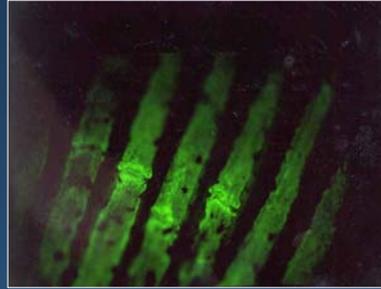


Bonnie Johnson
U.S. Fish & Wildlife Service
Aquatic Animal Drug Approval Partnership Program
Bozeman, MT



Various Uses of Calcein

Calcein



- fluorescent chromophore that binds to calcium
- used in ophthalmology in humans
- used in bone growth and formation studies
- more recently been used in fish as a marking compound

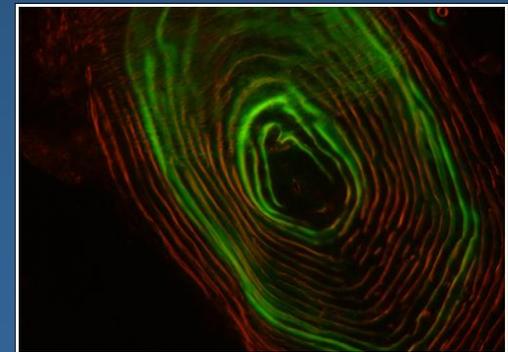


Early Research on Calcein as a Marking Agent

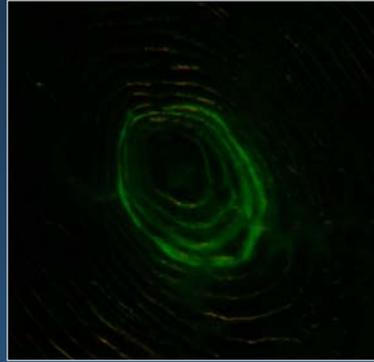
- 1987** First published paper of Calcein use in fisheries
“... Marking Otoliths of Larval and Juvenile Fish” (Wilson et al.)
- 1993** Biologists at Northeast Fishery Center started investigating a low-cost tagging/mass-marking technology in which mark could be detect non-lethally

Jerre Mohler (NEFC)

- extensive work with Atlantic sturgeon and salmon
- developed the SE-MARK® detector
- peaked interest of others to expand research



How does it work



Calcein

- chemically binds with calcium phosphate in tissues such as otoliths, fin rays, scutes, and scales
- able to achieve double-marks marks
- results in non-lethally detectable fluorescent



SE-MARK[®] DETECTOR



- ◆ Wave length = 495 nm
- ◆ Barrier filter = 520 nm



Legal Access via an INAD

2003 INAD #10-987 Calcein (SE-MARK™) Immersion

USFWS – AADAP Program

Sponsor: Western Chemical Inc., Ron Secor

Product: SE-MARK™



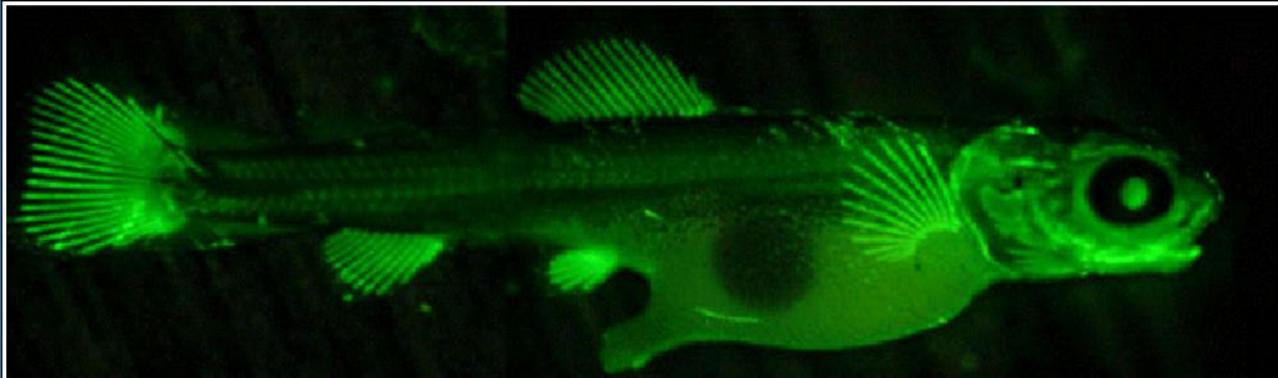
INAD 10-987

Use under the INAD

Body weight restriction of fish 2 g or less !

NO withdrawal period !

NO discharge of Calcein solution !



INAD 10-987

Treatment options under the INAD

1. 1 – 6 hours @ 125 – 250 mg/L

or

2. 1 – 7 minutes @ 2.5 – 5.0 g/L

(requires pre-treatment w/ a 1–5% salt bath for ~3.5 min)



? QUESTIONS ?



Website: www.fws.gov/fisheries/aadap



Calcein Immersion Demonstration Video

