



# Calcein (SE-MARK<sup>®</sup>) Marking Agent Overview & Introduction

presented  
by

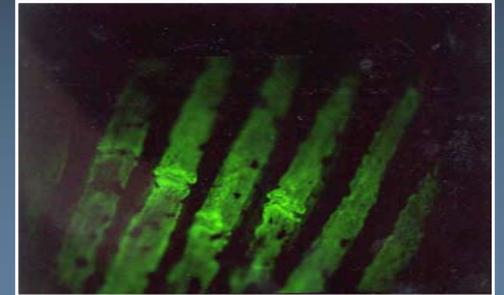
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# Calcein Background Information



- ▶ used in ophthalmology in humans
- ▶ used in bone growth and formation studies
- ▶ recently used in fish as a marking compound
  - ▶ fluorescent fluorescein dye that binds to calcium phosphate in ossified tissue, including fin rays, otoliths, scutes and bone
  - ▶ 1987 – first published paper on calcein use in fish
  - ▶ 1993 – FWS began work on non-lethal mass-marking techniques at the Northeast Fisheries Center in Lamar, PA; Jerre Mohler
    - ▶ developed detector; demonstrated marking, including doubles
    - ▶ got others interested, including Western Chemical, Inc.

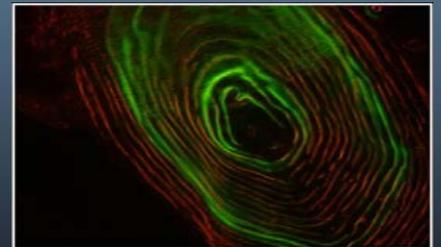
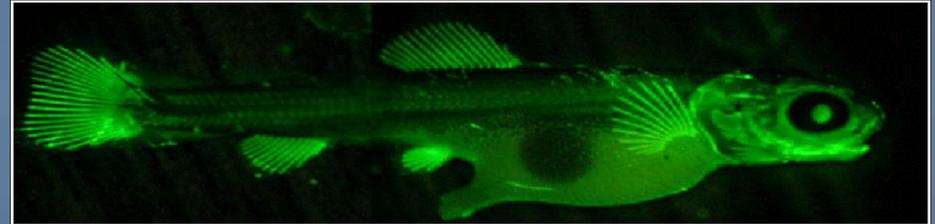




# Calcein Background Information



- ▶ **FWS-AADAP INAD/NADA involvement**
  - ▶ **INAD # 10-987 (SE-MARK<sup>®</sup>) immersion**
    - ▶ **AADAP is INAD sponsor; Western Chemical, Inc. is manufacturer and ultimate NADA sponsor**
    - ▶ **permitted treatment regimens**
      - ▶ **1–6 hours @ 125–250 mg/L**
      - ▶ **1–7 minutes @ 2.5–5.0 g/L**
        - ▶ **requires pre-treatment with 1–5% NaCl for ~3.5 min**
    - ▶ **restrictions**
      - ▶ **body weight  $\leq$  2 g, NO withdrawal period & NO discharge of calcein solution !**
    - ▶ **some apparent toxicity problems with one species**





# Calcein Background Information



- ▶ **FWS-AADAP INAD/NADA involvement (con't)**
  - ▶ **feed-additive INAD – submission forthcoming**
    - ▶ **will request investigational withdrawal time, i.e, slaughter authorization**
  - ▶ **preliminary studies being conducted with FWS-NEFC & USGS-NARL**
    - ▶ **marking, palatability and retention studies on 6 species, including non-salmonids**
    - ▶ **some encouraging results with sturgeon**
    - ▶ **palatability problems with some salmonids**





# Calcein Background Information



- ▶ **Western Chemical INAD/NADA involvement**
  - ▶ **Acquired exclusive license for FWS-patented detector (\$\$\$\$)**
  - ▶ **Tradenname: SE-MARK®**
  - ▶ **Immersion INAD # 10-979**
  - ▶ **Feed INAD #11-522**
    - ▶ **no slaughter authorization; i.e. dead-end lab studies only**
  - ▶ **Tested immersion on several salmonids in USA and Canada with great marking success and retention**
  - ▶ **Very active engagement; working with AADAP and others**

