Europharma

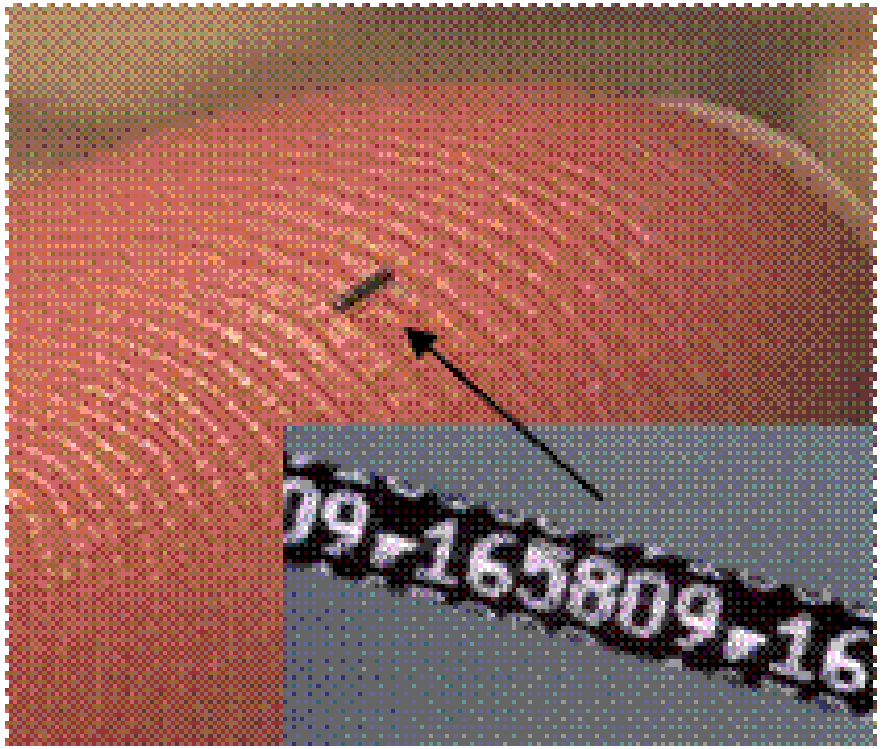
CWT-merking

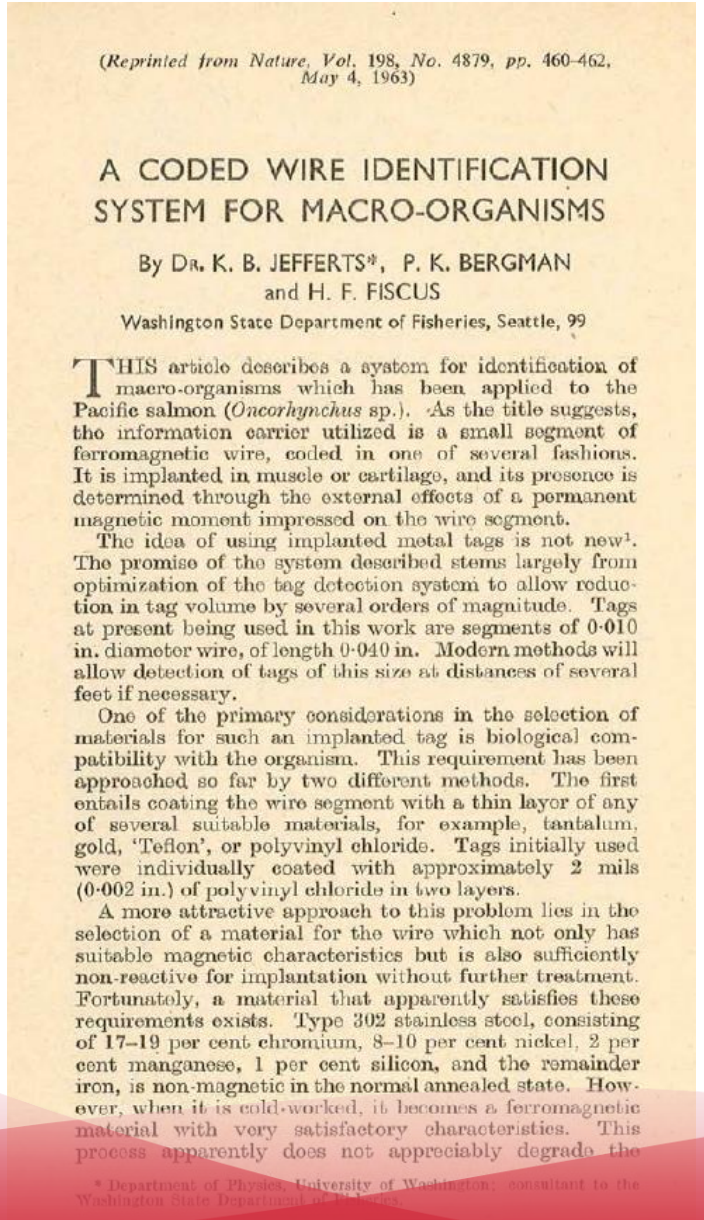
Enkel vei til sporing av rømt laks

www.europharma.no

Hva er en Coded Wire Tag?

- ✓ Lengde:1.1 mm
- ✓ Diameter: 0.25 mm
- ✓ Rustfritt stål
- ✓ Magnetisert (4x)
- ✓ Individuelt merke





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A CODED WIRE IDENTIFICATION SYSTEM FOR MACRO-ORGANISMS

By Dr. K. B. JEFFERTS*, P. K. BERGMAN and H. F. FISCUS

Washington State Department of Fisheries, Seattle, 99

THIS article describes a system for identification of macro-organisms which has been applied to the Pacific salmon (*Oncorhynchus* sp.). As the title suggests, the information carrier utilized is a small segment of ferromagnetic wire, coded in one of several fashions. It is implanted in muscle or cartilage, and its presence is determined through the external effects of a permanent magnetic moment impressed on the wire segment.

The idea of using implanted metal tags is not new[1]. The promise of the system described stems largely from optimization of the tag detection system to allow reduction in tag volume by several orders of magnitude. Tags at present being used in this work are segments of 0·010 in. diameter wire, of length 0·040 in. Modern methods will allow detection of tags of this size at distances of several feet if necessary.

One of the primary considerations in the selection of materials for such an implanted tag is biological compatibility with the organism. This requirement has been approached so far by two different methods. The first entails coating the wire segment with a thin layer of any of several suitable materials, for example, tantalum, gold, 'Teflon', or polyvinyl chloride. Tags initially used were individually coated with approximately 2 mils (0·002 in.) of polyvinyl chloride in two layers.

A more attractive approach to this problem lies in the selection of a material for the wire which not only has suitable magnetic characteristics but is also sufficiently non-reactive for implantation without further treatment. Fortunately, a material that apparently satisfies these requirements exists. Type 302 stainless steel, consisting of 17–19 per cent chromium, 8–10 per cent nickel, 2 per cent manganese, 1 per cent silicon, and the remainder iron, is non-magnetic in the normal annealed state. However, when it is cold-worked, it becomes a ferromagnetic material with very satisfactory characteristics. This process apparently does not appreciably degrade the

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Velprøvd og dokumentert

- ✓Utviklet av Bell Labs på 60-tallet
- ✓85 mill. laks CWT-merket i 2011
- ✓Database-oversikt over all merket fisk
- ✓40 år med praktisk erfaring på laks
- ✓300 arter av fisk og dyr merket

CWT i laksen

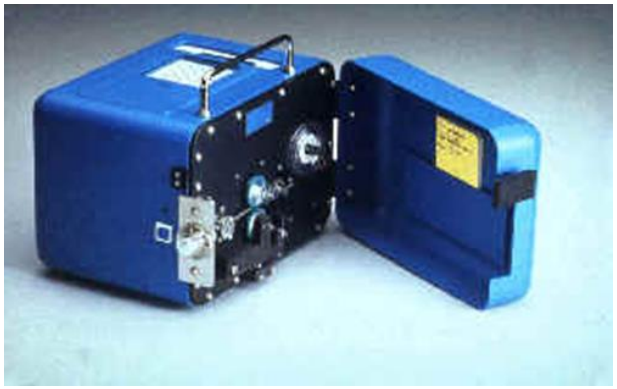
- ✓ Bruskvev i snute
- ✓ Enkel deteksjon
- ✓ Høy sporingsgrad

Gjennomføring av merking

- ✓ Parallelt med vaksinering
- ✓ Samme kapasitet som vaksineringen
- ✓ Hver fiskegruppe får sin nummerserie
- ✓ Merkes etter siste sortering
  - ➡ Sporing på merdnivå

Teknologi modifisert for Norge

- ✓ Grunnenhet: Mark IV merkemaskin
- ✓ 2-3 operatører merker70 000 - 105 000 fisk (8 timers arbeidsdag)
- ✓ Størrelse fisk: 20 – 100 gram
- ✓ Kan tilpasses vaksineringsmaskiner



Deteksjon

✓Håndholdt detektor for bruk i felt

✓Umerket fisk kan slippes ut i live

✓Større enheter – tunneldetektor for økt sensitivitet

✓For nøyaktig sporing må merket sendes inn

Fiskevelferd

- ✓ Fisk bedøvet under merking
- ✓ Merket er 0.25 mm tykt (vaksinenål er 0.7 mm)
- ✓ Settes i bruskvev i snuten
- ✓ Ingen rapporterte bivirkninger

Folkehelse/marked

- ✓ Størrelse merke (0.25 x 1.1mm) utgjør ingen fare ved inntak
- ✓ Rustfritt stål: Ufarlig materiale
- ✓ Ingen forbrukerklager til FDA etter 40 års bruk i USA

Kostnader

- ✓ 2-kanals merkeenhet: 150.000 kr
- ✓ Pris pr merke: 30 øre

Konklusjon

✓Merking med Coded Wire Tags (CWT) er i dag det eneste alternativet som oppfyller alle kriteriene for et godt system for merking og sporing.

✓Ferdig utviklet teknologi gjør at systemet raskt kan rulles ut i stor skala.

✓Kostnadene er på et nivå som næringen fint kan leve med.

Den logiske videreføringen