



Veterinærinstituttet  
Norwegian Veterinary Institute



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**Eesti Maaülikool**  
Estonian University of Life Sciences



# Eradication of alien Signal Crayfish

## *Experiences from Norway*

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# The Norwegian Veterinary Institute

- The Norwegian Veterinary Institute is a research institute in the areas of **animal health**, **fish health** and **food safety**.
- National competence center.
  - Eradication *Gyrodactylus salaris*,  
Invasive freshwater fish  
Signal crayfish



# Crayfish Invaders

- Successful invaders
- Indigenous European freshwater crayfish threatened
- North American signal crayfish (*Pacifastacus leniusculus*) and crayfish plague (*Aphanomyces astaci*)
- Eradication attempts – Chemical!



# Information, media strategy

- Cooperation with national and local authorities
- Media strategy
- Possible conflicts and correct information
- Identify the real problem and the solution





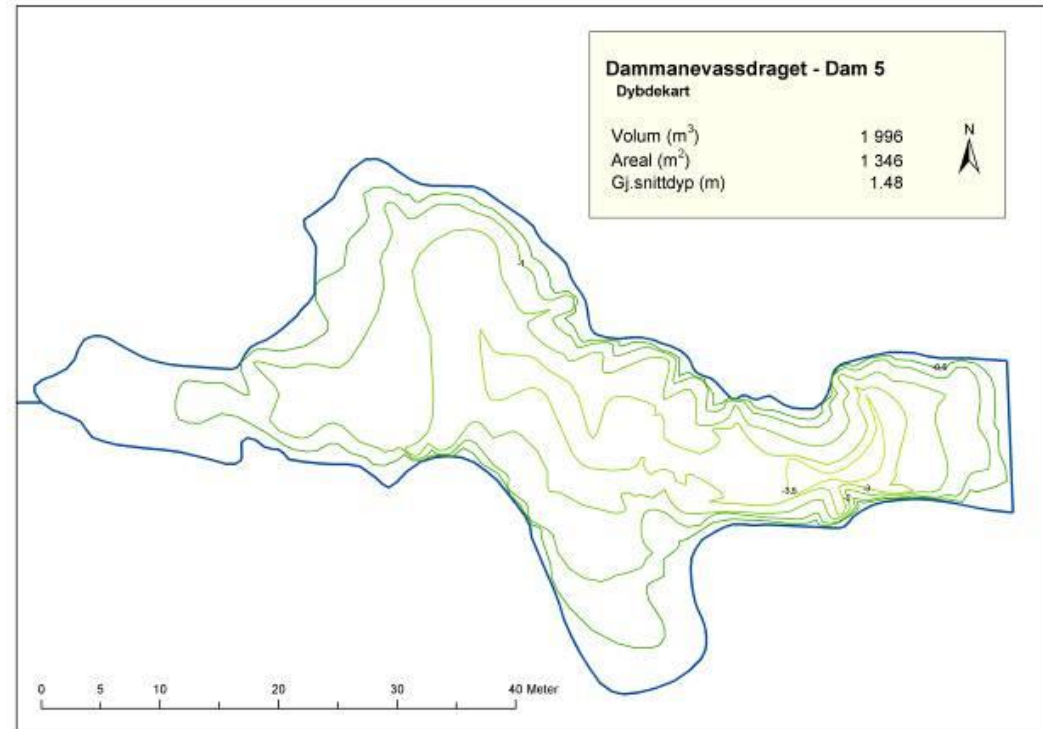
# Eradication Strategy

- Laboratory tests versus field trials
- Dilution, dispersion and degradation
- Complete eradication - aim for success



# Preparations

- Mapping of total watershed
- Calculations of water volume
- Production of treatment maps and treatment plans
- On site toxicity tests

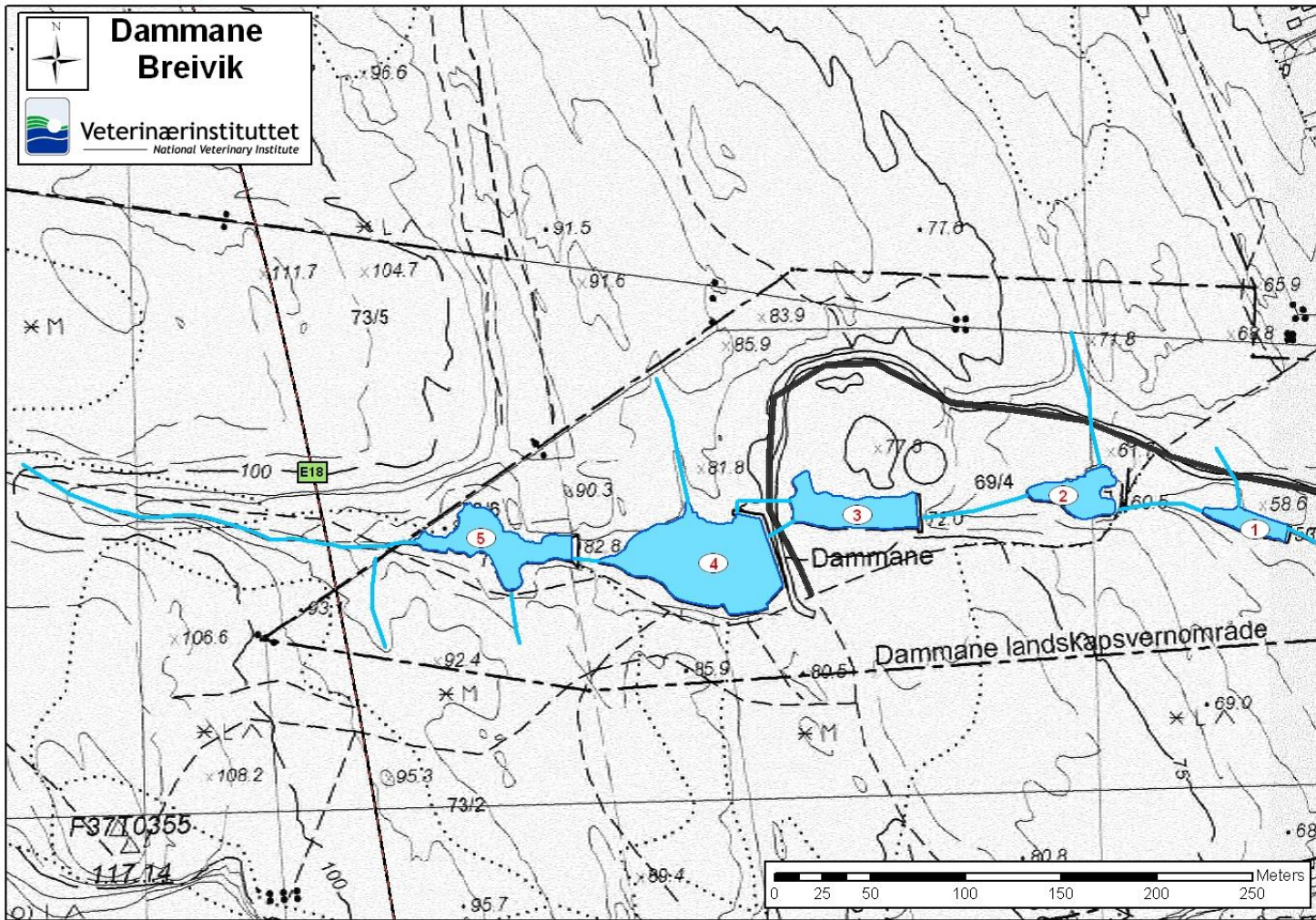


# BETAMAX VET. 50 mg/ml

- Cypermethrinbased pharmaceutical
- Syntetic pyrethroids, a common agent in commercial insecticides
- Crayfish extremely sensitive
- Great potential for eradicating crayfish
- No accumulation og biomagnification

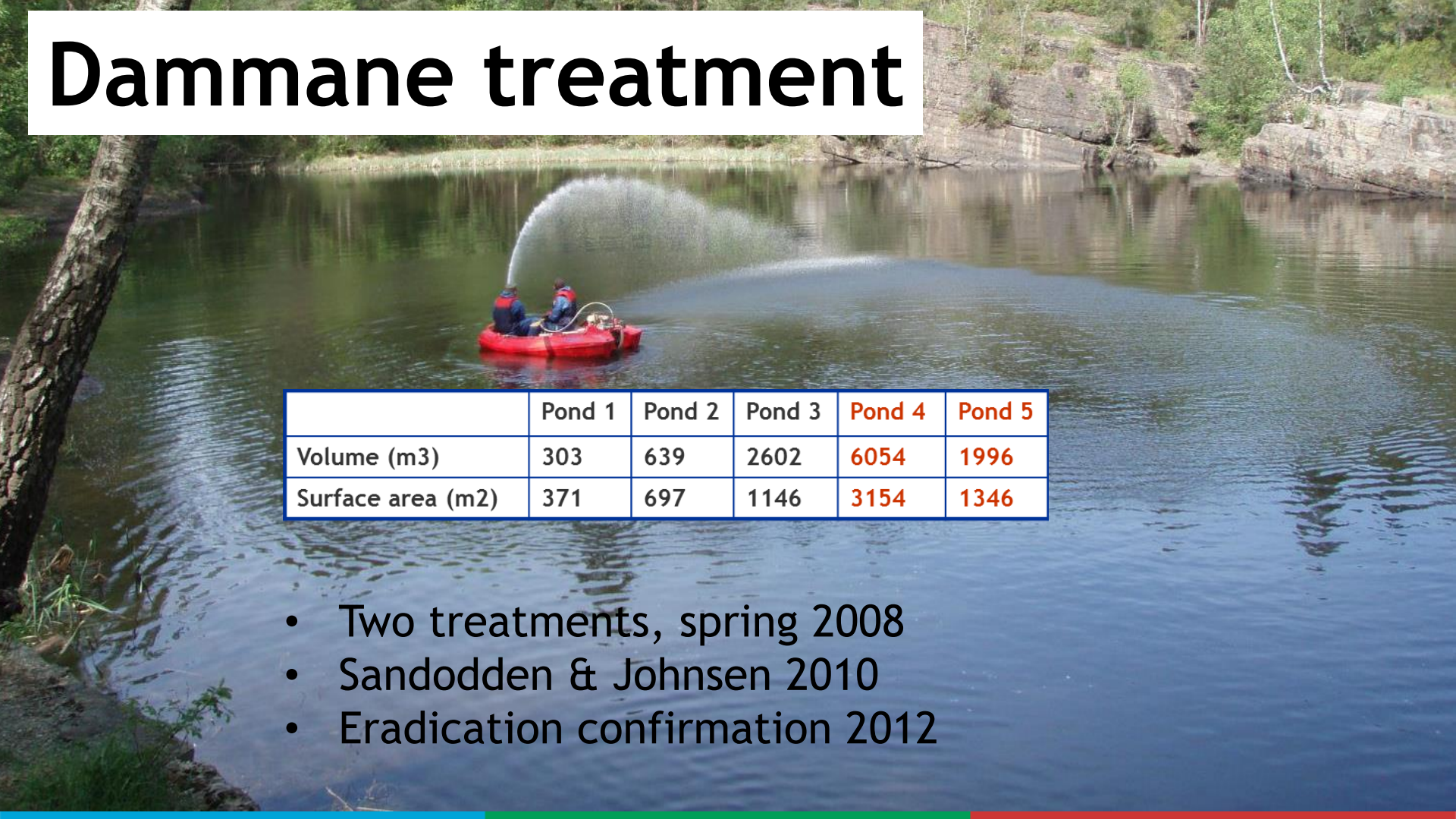








# Dammane treatment

A red inflatable boat with two people is positioned in the middle of a pond. They are spraying water from a hose, creating a large, wide arc of water that falls back into the pond. The background shows a rocky shoreline with some greenery.

|                   | Pond 1 | Pond 2 | Pond 3 | Pond 4 | Pond 5 |
|-------------------|--------|--------|--------|--------|--------|
| Volume (m3)       | 303    | 639    | 2602   | 6054   | 1996   |
| Surface area (m2) | 371    | 697    | 1146   | 3154   | 1346   |

- Two treatments, spring 2008
- Sandodden & Johnsen 2010
- Eradication confirmation 2012



# Ostøya treatment

|                   | Pond 14 | Pond 18 | Pond 13 | Pond 2 | Pond 1 | Pond 8 |
|-------------------|---------|---------|---------|--------|--------|--------|
| Volume (m3)       | 6726    | 2520    | 1782    | 3960   | 1897   | 370    |
| Surface area (m2) | 2242    | 1400    | 990     | 2200   | 1054   | 370    |

- Two treatments, fall 2009
- Sandodden & Bardal 2010 (In Norwegian)
- Eradication confirmation 2017



# Noble crayfish eradication plan

Instruks/Retningslinje

Bekjempelsesplan for krepsepest

Statens tilsyn for planter, fisk, dyr og næringsmidler

Mattilsynet



| Utarbeidet av | Godkjent av | Dokumenttiter   | Referanse til                    | Referanse til |
|---------------|-------------|---|----------------------------------|---------------|
| av<br>ratho   | krjan       | Leder for Tilsynsavdelingen   | kontrollordningen<br>Artikkel 13 | kontrollplan  |
| Dokument-ID   | Utgave      | Instruks/retningslinje for Mattilsynet<br>Bekjempelsesplan for krepsepest | Gyldig fra<br>03.07.2009         | Side 1 av 22  |



# Procedure - What to do?



## NINA Rapport 572

Prosedyre ved funn eller mistanke  
om introduksjon av signalkreps

Iverksetting av tiltak og eventuell friskmel-  
ding av lokalitet

Stein I. Johnsen  
Trude Vrålstad  
Roar Sandodden



LAGSPILL



ENTUSIASME



INTEGRITET



KVALITET

Samarbeid og kunnskap for framtidens miljøløser

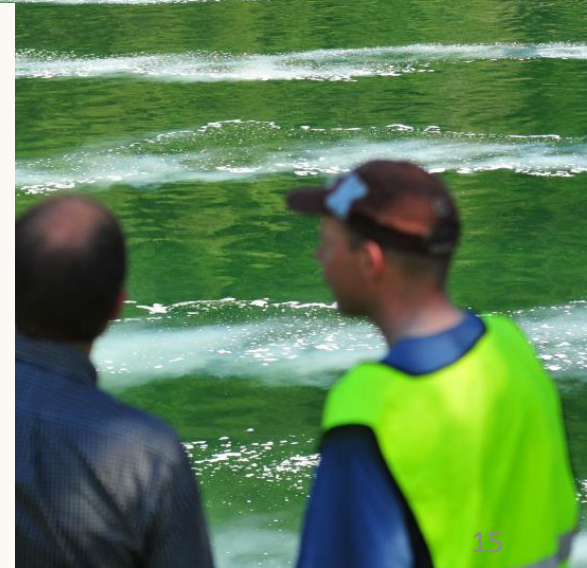


# Possibilities - eradication





# Nothing is impossible!



# Thank you!

