

## Lobster Enhancement in Atlantic Canada: The Homarus inc. Experience



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## Introduction

- Lobster enhancement project (2002-today) in southern Gulf of St. Lawrence (sGSL)
- Maritime Fishermen's Union (MFU) initiative
  - Represents approx. 1,500 fishermen
    - New-Brunswick (1,200)
    - Nova Scotia (300)
- Reaction to decrease in lobster landings in sGSL

## Background

- Inspired by Maine hatchery/seeding work
  - Hatchery and seeding (not new concept)
  - Persistent lack of scientific proof
- Formation of the Homarus group (2002)
  - Public and private sector partners
  - Cautious approach backed by science
- Incorporation of group in 2004
  - Non-profit organisation managed by the MFU



## Homarus Inc.

### Mission :

- Introduce practical approaches for lobster enhancement
- Increase scientific knowledge of lobster biology, coastal habitat structure, and ecosystem processes.
- introduce educational tools to better explain ecological processes to the fishing industry

## Homarus Inc.

### ➤ Primary work :

- Experimental hatchery
- Experimental seeding

### ➤ Other collaborative projects:

- Artificial reefs (DFO)
- Larval eco-toxicity (DFO, EC)

## Experimental hatchery-seeding objectives

- Hatchery project
  - Produce stage IV lobsters for experimental seeding purposes.
  - Develop cost-effective methods for stage IV lobster production.
- Seeding project
  - Evaluate the effect of stage IV lobster seeding on natural population (DFO collaboration)
  - Initiate a seeding program with interested fishing communities

### Experimental Hatchery

Lobster larvae: stages I - IV

I                      II

III                      IV

### Experimental Hatchery

Why stage IV for seeding ?

- 1<sup>st</sup> benthic stage (cryptic) – bypass pelagic stages
- Short life cycle in hatchery (12-14 days)
- Most cost effective stage for seeding

### Stage IV lobster production: Review

- Wild berried females from fishermen
- St.I larvae are transferred to rearing tanks (12-14 days to st.IV)
- Females are returned to the wild, with stage IV larvae

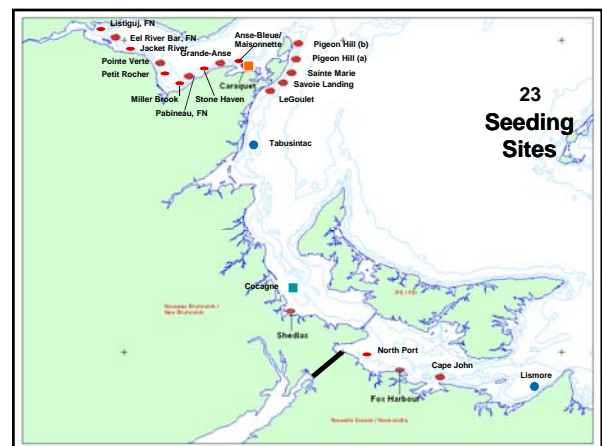
### Hatchery R&D (2002-07)

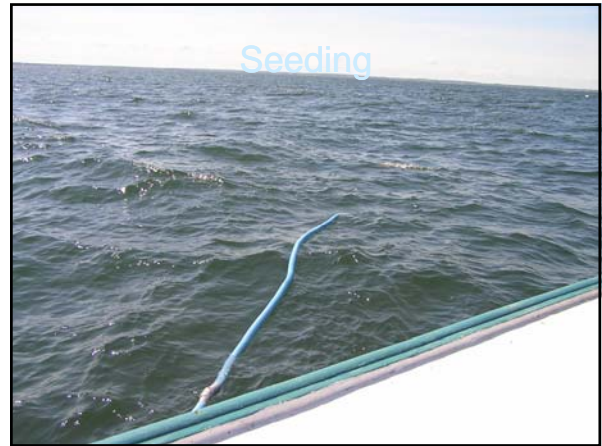
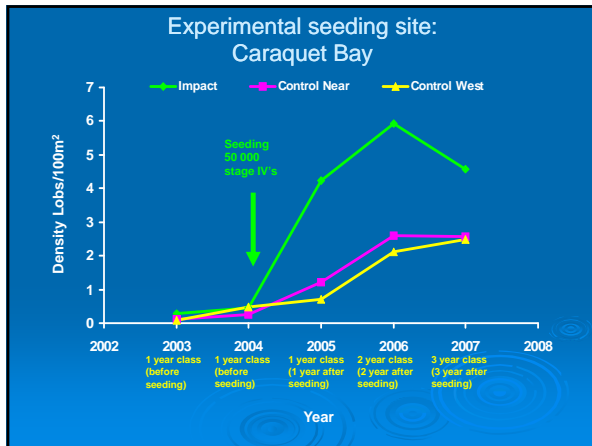
- Improved tank systems and production parameters.
  - 1200 L tanks
  - Flow-through system
  - Alternative feeds
- Survival: 15-38%
- Minimal manipulation of larvae during production
- Less labour
- Feed is inexpensive (20 \$/Lb)
- High production yield (3,000-12,000 per tank batch)

### Experimental hatchery production and costs (\$\$\$)

| Year    | Total cost | Stage IV  | \$/larvae |
|---------|------------|-----------|-----------|
| 2002    | 50K        | 1 500     | 33.33     |
| 2003    | 100K       | 3 500     | 28.57     |
| 2004    | 100K       | 60 000    | 1.67      |
| 2005    | 120K       | 87 000    | 1.38      |
| 2006    | 200K       | 220 000   | 0.91      |
| 2007 *  | 75K        | 100 000   | 0.75      |
| 2008    | 150K       | 360 000   | 0.42      |
| 200? ** | 250K       | 1 000 000 | 0.25      |

\* Lower production and costs due to reduced work space  
 (Costs include facilities, labour, feed, electricity)  
 \*\* Commercial hatchery production objective





## Next step

- Pursue research and development
  - Increase cost-effectiveness of hatchery – (better feed, optimize techniques) -
  - Larvae quality - (fitness, behaviour – develop condition indice)
  - Pursue work to evaluate effect of large-scale seeding on lobster populations (Caraquet-Cocagne)
- Develop a commercial size hatchery in NB (MFU)
  - Current installations are for research (300-500k production capacity)
  - Presently not meeting fishermen demand (over 800k ordered in 2008)
  - Production objective : 1 million lobsters/year (Minimum)
- Continue building ties and collaborations with fishermen communities:
  - Seeding
  - Artificial reefs
  - Other projects...

## Partners:

Blanchard Group  
 Coastal Zones Research Institute  
 Department of Fisheries NB  
 Department of Fisheries and Oceans Can.  
 Eel River Bar First Nation  
 Maritime Fishermen's Union  
 Orion Seafood

**Thank You**  
**Questions or Comments**