

Diploid & Triploid Rainbow Trout in Idaho Lakes and Reservoirs

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Sterile Hatchery Trout - Program Goal

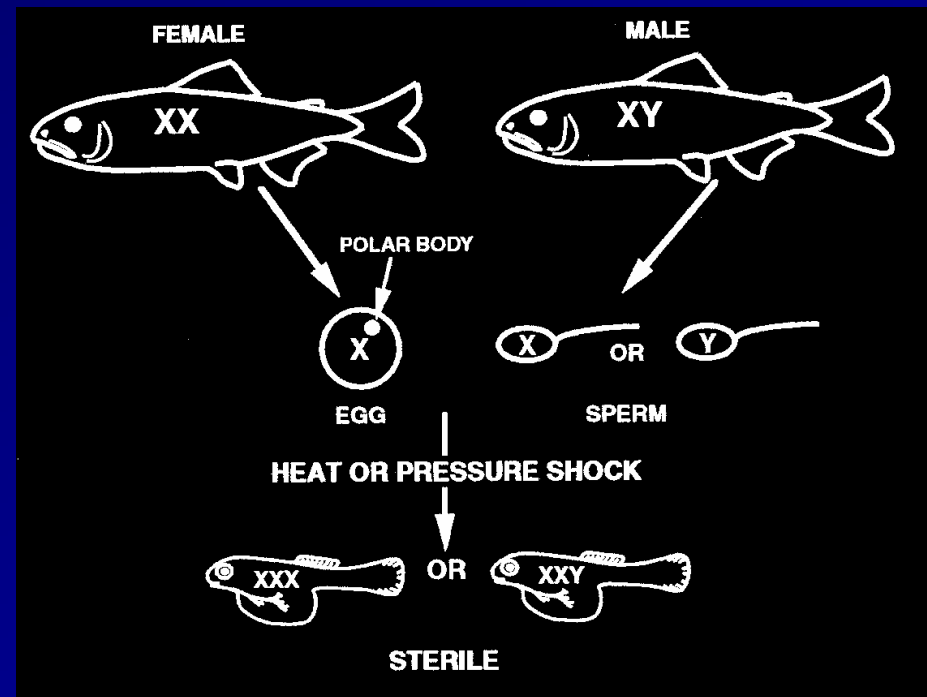
- Maintain harvest opportunity while reducing genetic risks to native trout

....IDFG Sterile fish policy in 2000



Background – sterile trout???

- Commercial + Sport fishing
- Triploid = 3 sets DNA
- Sterile
 - no maturation in females
 - disrupted maturation in males
- Performance in fisheries??
 - Survival
 - Growth
 - Longevity



Stream Catchables



Sterile Trout



Research

HML Fingerlings



Reservoir fingerlings



Questions remain...

- Uncertainty remains about 3N performance...
- Mainly fingerling studies in lakes
- Atypical lakes used for reservoir study

- Representative of typical hatchery stocking?

IDFG Resident Hatcheries



- \$2.3 million dollar program
- Catchable rainbow trout : \$1.2 million (50% !)
- About 1.6 million catchables per year
- Over 500 water bodies stocked

Reservoir catchable evaluation

- 2N vs. 3N Catchable rainbow
 - Growth (length / wt)?
 - Longevity?
 - Total harvest?





Size ranges: 35 – 482 ha

(Island Park Res = 2,947 ha)



Methods



- All-female 2N/3N
- Adipose clip + CWT
- Reared at Hagerman State
- Stocked equal numbers
 - Spring 2008

Methods – in the field



- Gill nets
 - Fall 2008
 - Spring 2009
 - Fall 2009



- Voluntary Creel (“snout boxes”)
 - Angler donated snouts
 - April to October 2008, 2009

Methods – in the lab



- Snouts frozen
- CWT dissected
- Tag codes via microscope



Results

- Total Stocked

2N = 84,523

3N = 85,283

- Avg Size at Stocking

2N = 252 mm

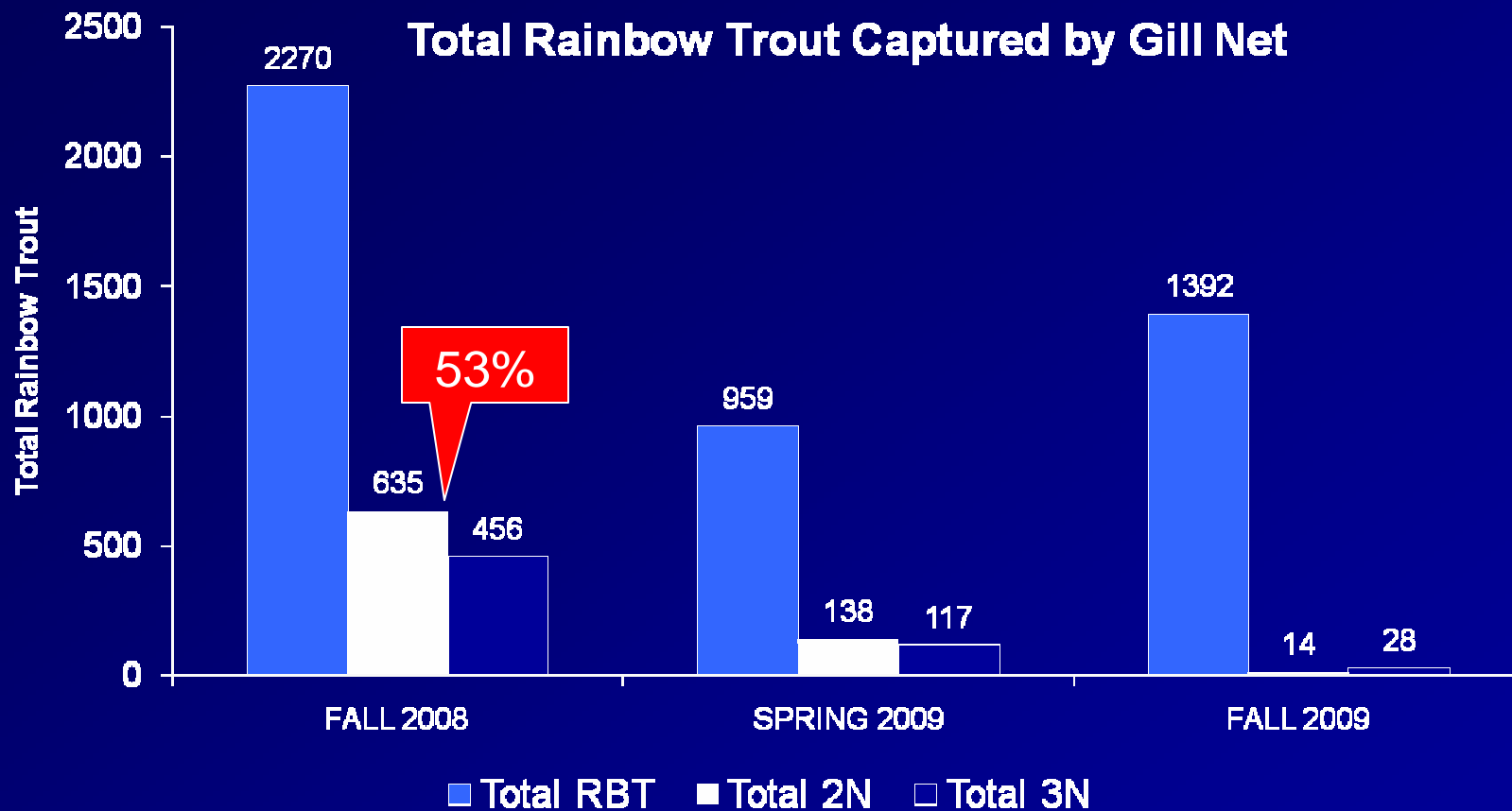
3N = 252 mm

- Avg Stocking Density

2N = 64.5 fish/ha

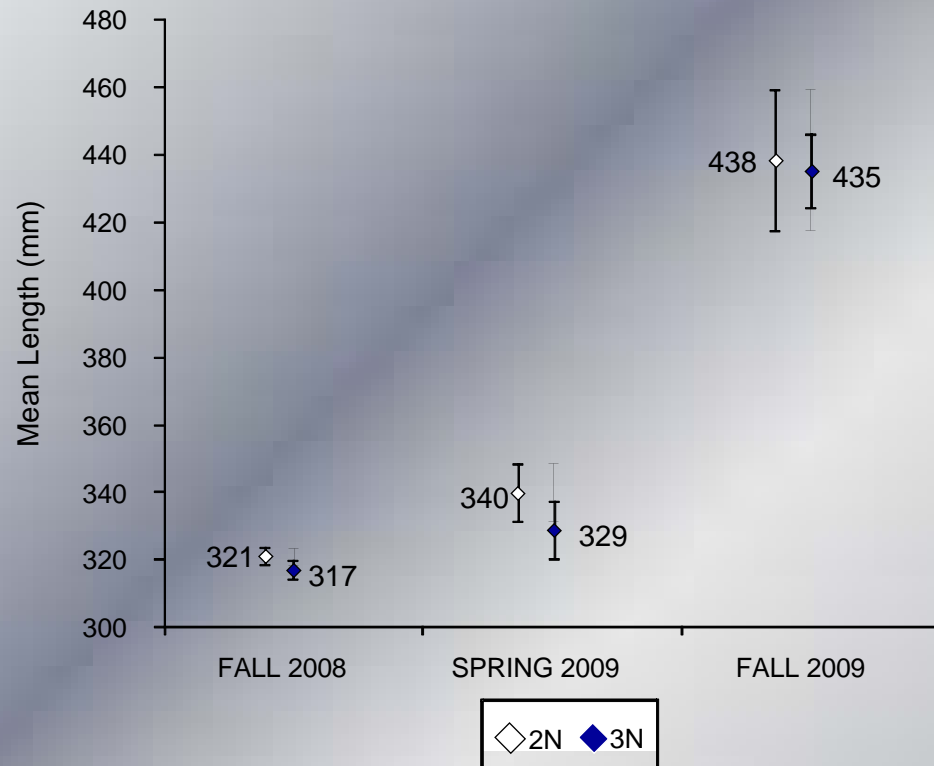
3N = 64.2 fish/ha





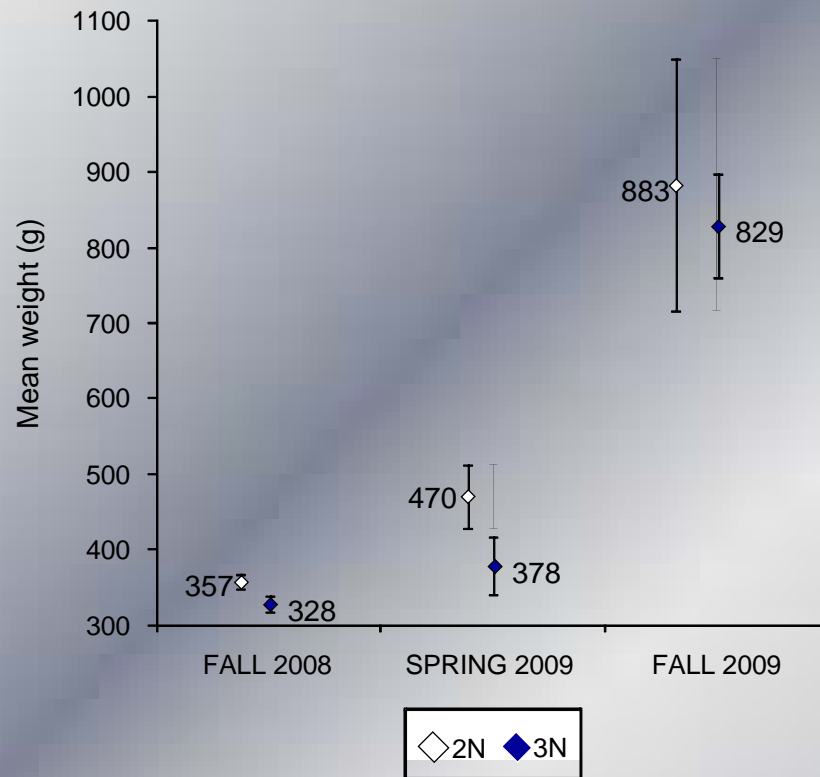
- Bulk of RBT captured are hatchery fish
- Carry-over to next season is limited
- 3N trout had 28% lower return in first year

Mean length (mm)



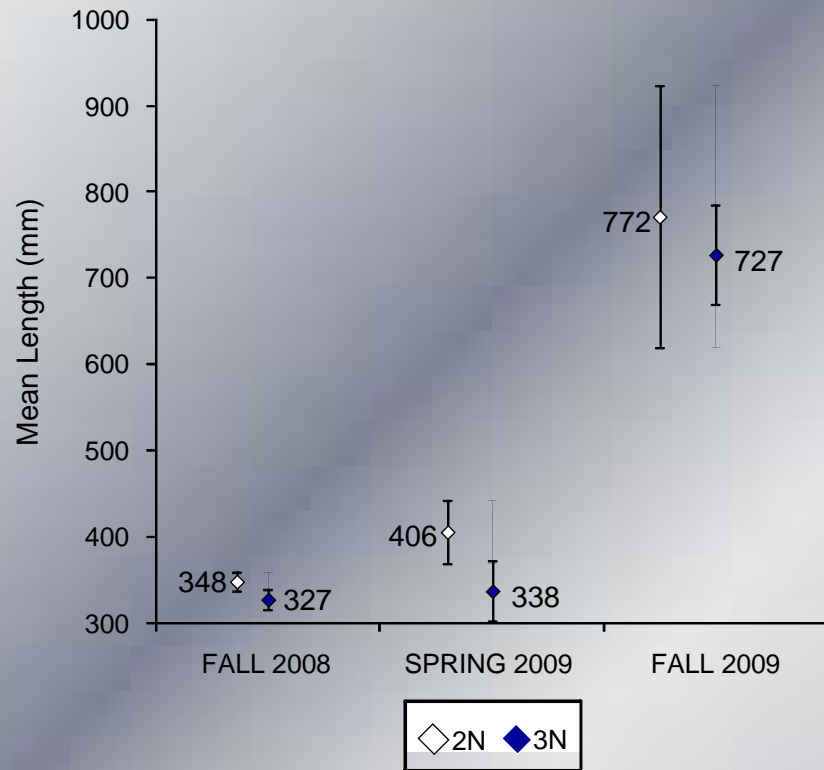
- No Length advantage of 3N fish
- 2N fish actually average a little longer (not significant)
- Length comparison consistent over time

Mean Weight (g)



- No weight advantage of 3N fish at first
- 2N fish significantly heavier, until second fall
- 3N catch up in weight by Fall 2009... sexual maturity?

Mean Dressed Weight (g)



- No 3N advantage for dressed weight
- Even with removing gonads in 2N fish, still no advantage for 3N fish

Results

Lake Name	2008				2009			
	Gill Nets		Voluntary Creel		Gill Nets		Voluntary Creel	
	<u>2N</u>	<u>3N</u>	<u>2N</u>	<u>3N</u>	<u>2N</u>	<u>3N</u>	<u>2N</u>	<u>3N</u>
Devil Creek Res	33	36	47	39	3	2	6	1
Horsethief Res	98	118	442	454	10	18	11	14
Island Park Res	46	30	56	28	18	6	16	14
Little Camas Res	85	46	46	44	0	0	-	-
Lost Valley Res	144	94	66	70	44	45	31	18
Mann Lake	6	6	57	55	-	-	-	-
Oakley Res	5	5	65	26	2	0	2	1
Paddock Res	10	1	5	4	-	-	-	-
Roseworth Res	16	2	82	44	0	1	0	0
Soldier Meadow Res	35	33	59	35	13	11	11	9
Stone Res	70	27	81	41	-	-	-	-
Thorn Creek Res	30	20	111	89	0	0	-	-
Waha Lake	57	38	98	60	62	62	13	7
<i>Grand Total</i>	<i>635</i>	<i>456</i>	<i>1215</i>	<i>989</i>	<i>152</i>	<i>145</i>	<i>90</i>	<i>64</i>
	58%	42%	55%	45%	51%	49%	58%	42%

- Differences in 2N v. 3N performance varies across reservoirs
- Differences seen in both nets and creel with similar results

What does it mean...?

- Idaho reservoirs heavily dependent on hatchery trout
- 2N seem to have better performance after stocking
 - Slightly better length and weight
 - Better initial survival and return to creel
- Differences in 2N vs. 3N performance variable across reservoirs
 - Water management...?
 - Species compositions...?
- Similar results from the creel and net data
 - Suggests survival differences, not harvest

Now what...?

- Examine angler-caught tag returns:
 - Do catch ratios mimic gill net ratios?

- Lake-specific results
 - Do ratios change differently across lakes...?

- Length / Weight changes next year:
 - Sexual maturity/spawning...?

- Relative abundance next year:
 - Overwinter survival...?

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Questions?