



Fifteen Years without an IHN Outbreak at Lyons Ferry Hatchery ... Just Good Luck?

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Overview

- Background – Hatchery & Steelhead Stocks
- IHN Outbreaks
- IHN Virus Management
- Outcome
- Conclusions

Lyons Ferry Hatchery

- Water source – wells
- Four stocks of steelhead reared
- Also - fall chinook, spring chinook and rainbow trout



Steelhead stocks

- Lyons Ferry stock – adults collected at LFH ...
345 K smolts/year
- Wallowa stock – adults collected at Cottonwood
AP ... 160 K smolts/year
- Touchet endemic stock – adults collected at
Dayton AP ... 50 K smolts/year
- Tucannon endemic stock – adults collected at 2
sites on Tucannon river ... 50 K smolts/year

IHN Virus Management – before 1992

- Testing female spawners – pooled sample
- Some rearing of progeny of IHN virus positive females
- Water hardening in iodophor (without rinsing)
- Limited isolation rearing

1989 IHN Outbreak

- Initial mortality in newly feeding steelhead in hatchery building
- Later spread to other steelhead and rainbow in outside raceways
- Resulted in the destruction of 967 K fish and disinfection of north hatchery and raceways
- IHN source – adult Lyons Ferry steelhead

1992 IHN Outbreak

- Outbreak confined to newly feeding steelhead in hatchery building
- No spread to other fish
- Resulted in the destruction on 372 K steelhead
- IHN source – adult Lyons Ferry steelhead

Current IHN Virus Management

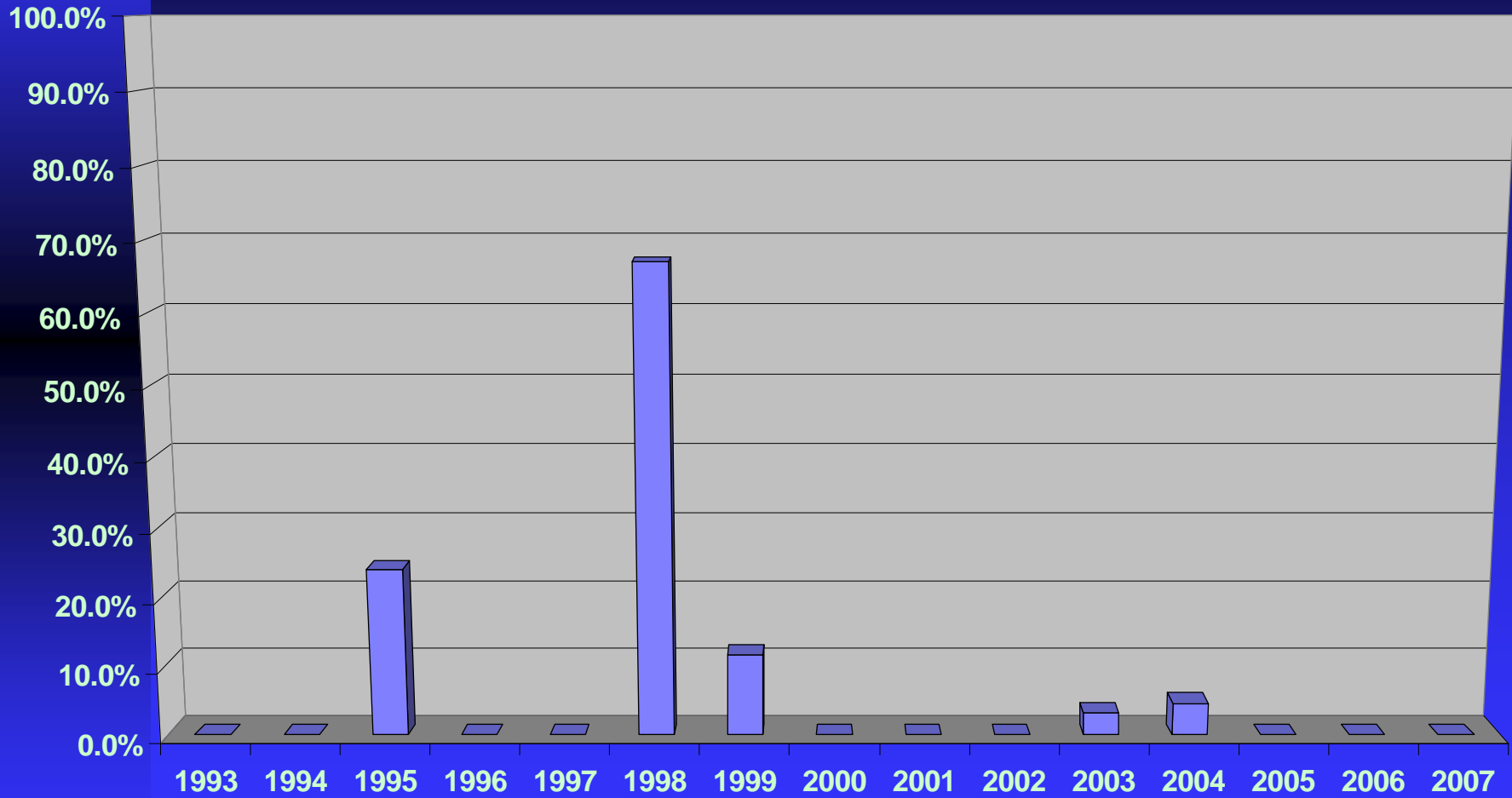
- Testing of all female spawners. Also, quantify level of virus.
- Lyons Ferry and Wallowa stocks: Destroy any eggs from females $> 10^3$ pfu/ml. Segregation rearing if prevalence $> 25\%$
- Touchet and Tucannon stocks: Release fry from IHN positive females

IHN Virus Management

- Strict equipment disinfection.
- Rinsing and water hardening eggs in iodophor.
- Isolation egg incubation.
- Segregation rearing



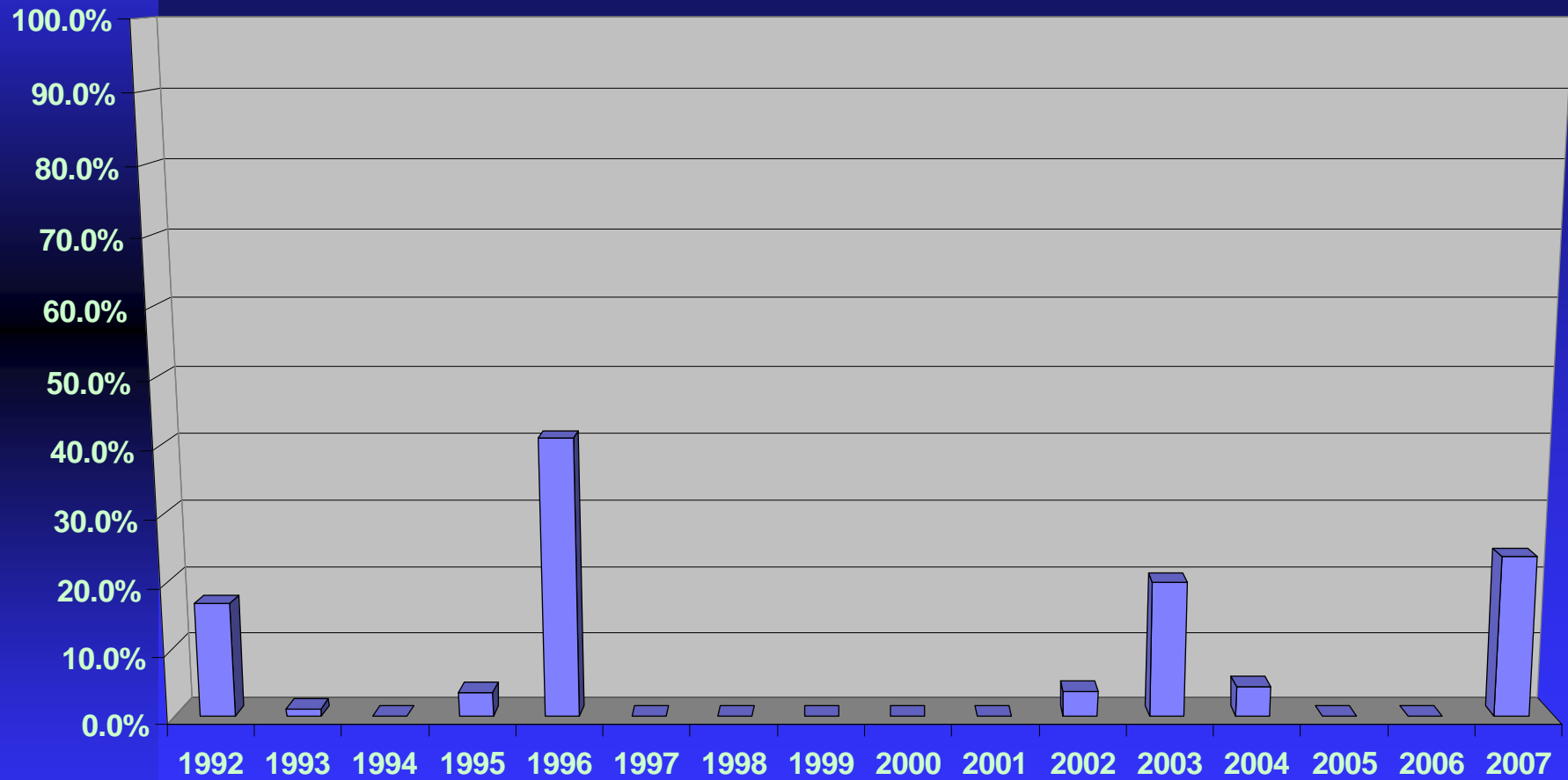
IHN Virus Prevalence - Lyons Ferry Stock



Outcome with Lyons Ferry stock

- 3,037 females tested
- IHN virus detected in 5 out of 15 years
- In 1995, progeny of 8 IHN+ ($< 10^2$) females successfully reared
- In 1998, progeny of 90 IHN+ ($< 10^3$) females were successfully reared
- **No IHN Outbreaks in 15 years!**

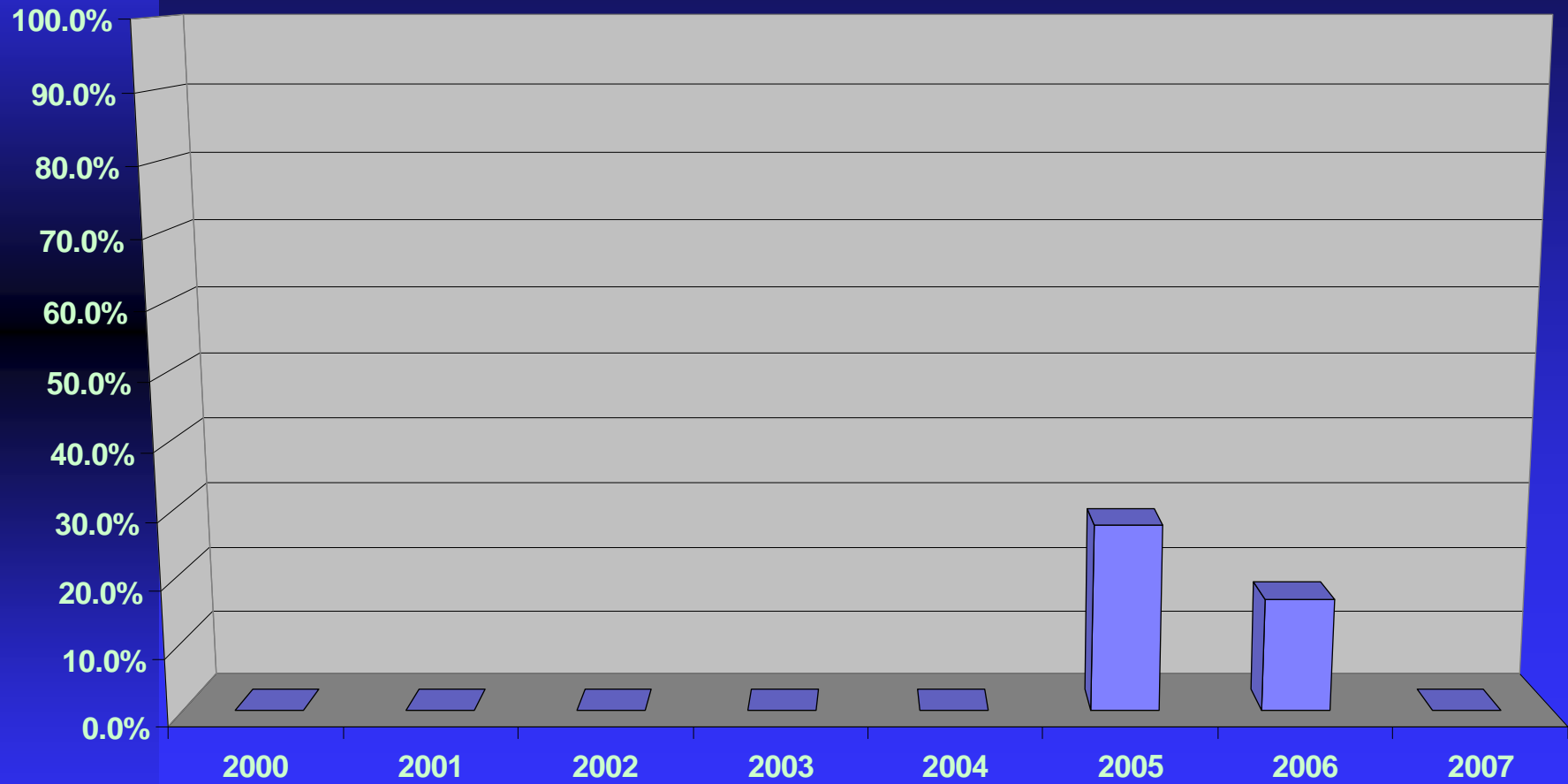
IHN Virus Prevalence - Wallowa Stock



Outcome with Wallowa stock

- 1,518 females tested
- IHN virus detected in 8 out of 16 years
- In 1998, progeny of 33 IHN+ ($<10^3$) females were successfully reared
- **No IHN Outbreaks in 16 years!**

IHN Virus Prevelance - Touchet Stock



Outcome with Touchet stock

- 120 females tested
- IHN virus detected in 2 out of 8 years
- All progeny of IHN positive females were released at fry
- **No IHN Outbreaks in 8 years!**

Outcome with Tucannon stock

- 100 females tested
- No IHN virus detected in 8 years
- **No IHN Outbreaks in 8 years!**

Conclusions

- Source of IHN virus in outbreaks was adult steelhead
- IHN outbreaks were a result of vertical transmission and/or inadequate egg disinfection
- IHN virus was detected in adult steelhead despite a lack of IHN outbreaks in the hatchery

Conclusion continued

- Progeny of IHN virus positive females can be successfully reared
- Current IHN management has prevented further outbreaks or

.... or just good luck!!!



Acknowledgements

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