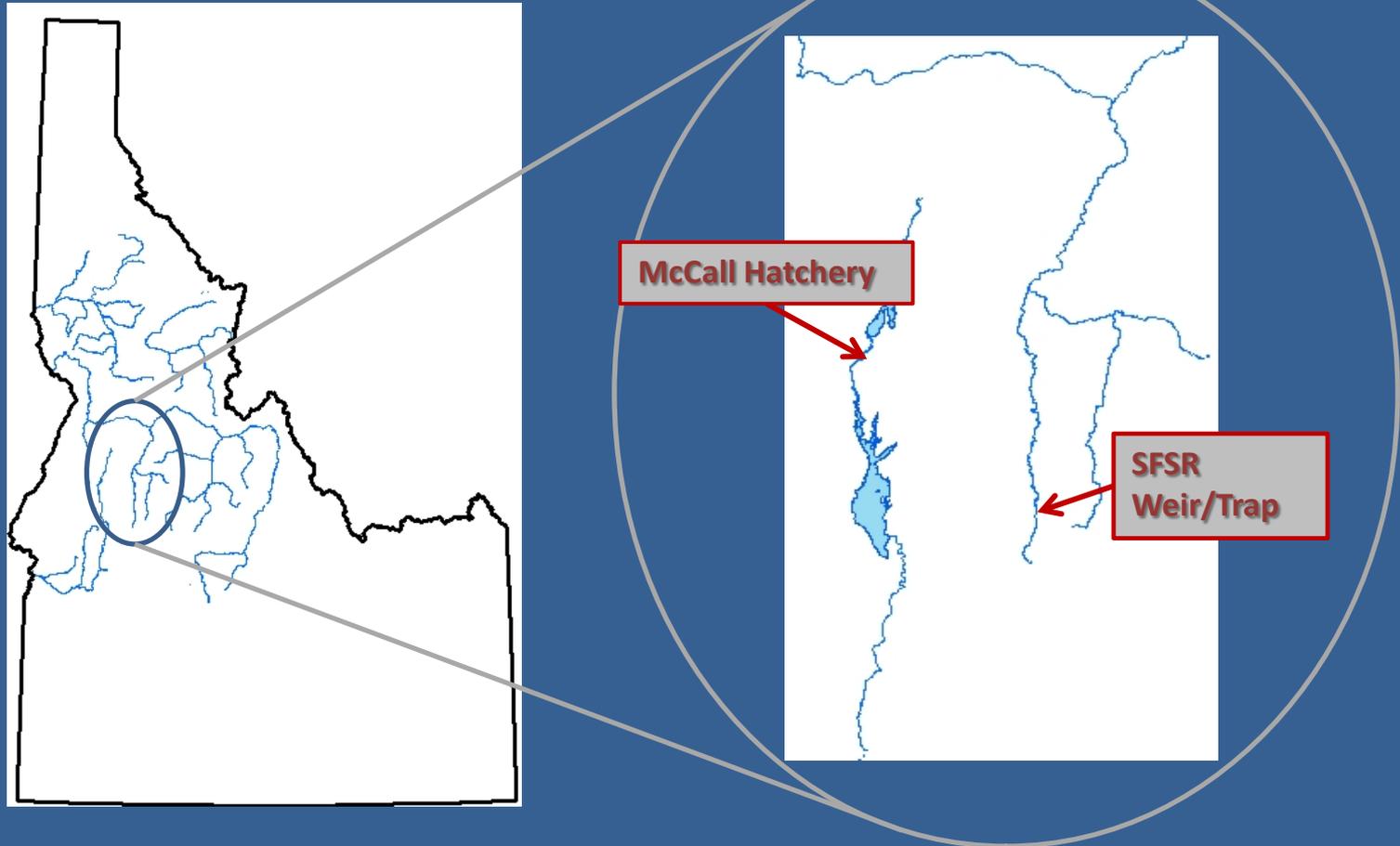


# South Fork Salmon River Summer Run Chinook Salmon

Brian Leth, John Cassinelli, Shane Knipper



# McCall Fish Hatchery and SFSR Trap

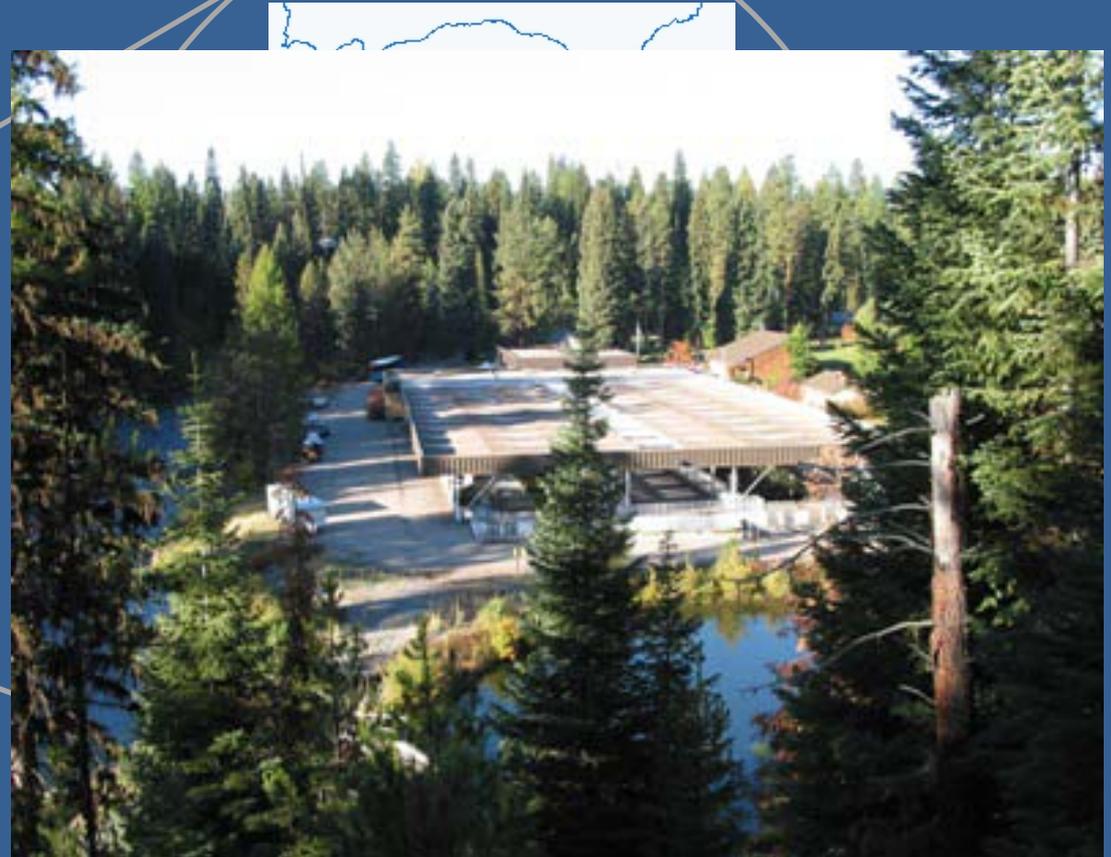
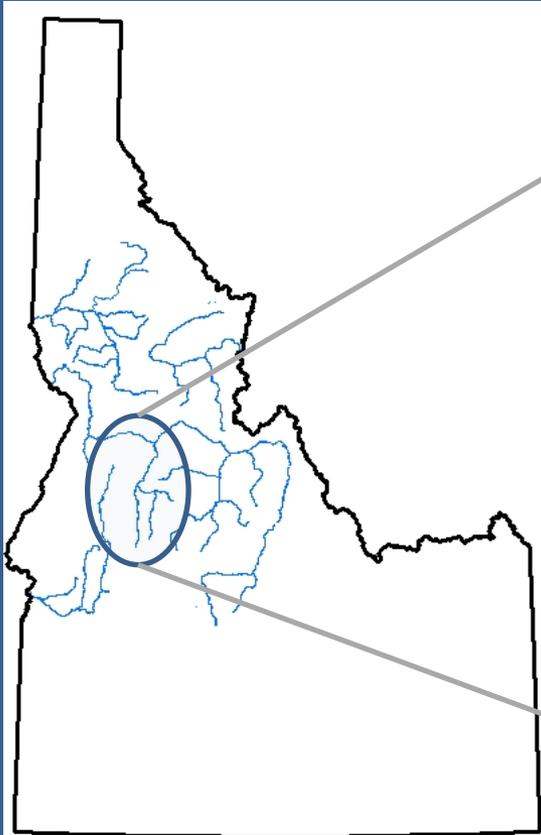


# McCall Fish Hatchery

**Built in 1980**

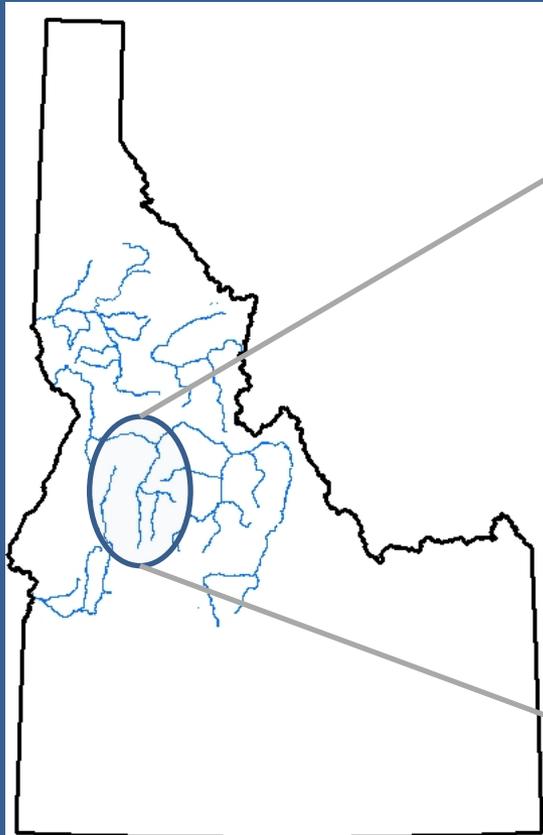
**Production Capacity 1 million**

**Water Source-Payette Lake**



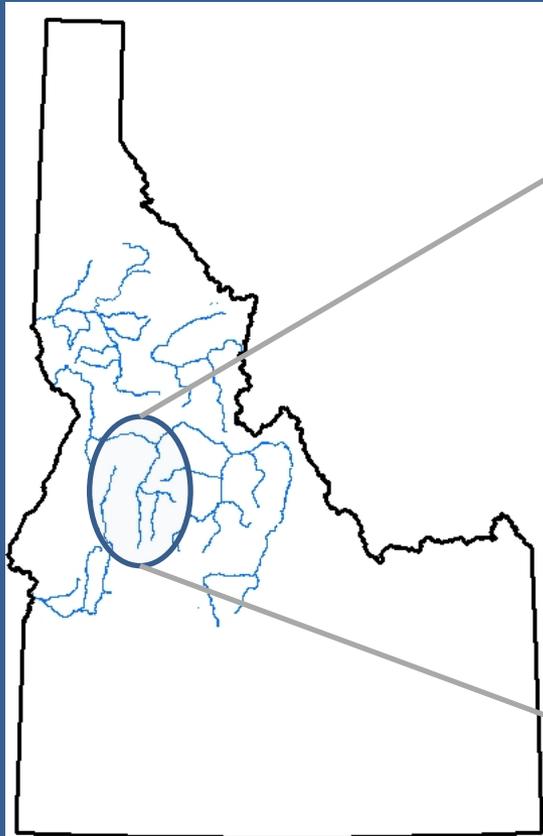
# South Fork Salmon River Trap

SRSF Weir/Trap- Trapping began in 1980  
Temporary picket weir (~70 mi US of mouth)  
Adult trapping and Spawning



# South Fork Salmon River Trap

**SRSF Weir/Trap- Weir Rebuilt in 2007  
Adult trapping and Spawning**



# Program Background

## Goals and Objectives

- **Mitigation Goals**
  - Adult Return- 8,000 above Lower Granite (32k below LGD)
  - Smolt Release- 1 million (0.8% SAR- post downriver harvest)

# Program Background

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- **Mitigation Goals**
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  - Restore and maintain natural population in SFSR
  - Restore and maintain recreational and tribal fisheries
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  - Minimize impact of hatchery program on the natural population

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  - Minimize impact of hatchery program on the natural population
- **M & E Objectives**
  - Monitor production, productivity and life history characteristics of hatchery and natural populations
  - Evaluate broodstock and rearing strategies to increase adult returns
  - Cooperative effort between IDFG and NPT

# Program Background

## Broodstock and Release Strategy

- **Broodstock History**
  - Initial brood collected at Little Goose and Lower Granite 1974-1980
  - Local Broodstock since 1981
  - De facto integration/supplementation until 1995
  - 1995-2009 segregated brood with supplementation research
  - 2010 implementation of stepping-stone integration/supplementation

# Program Background

## Broodstock and Release Strategy

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  - Local Broodstock since 1981
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  - 1995-2009 segregated brood with supplementation research
  - 2010 implementation of stepping-stone integration
- **Current Release Strategy**
  - 1,000,000 full term smolts (integrated and segregated)
  - Direct release

# Program Background

## SFSR Natural Population

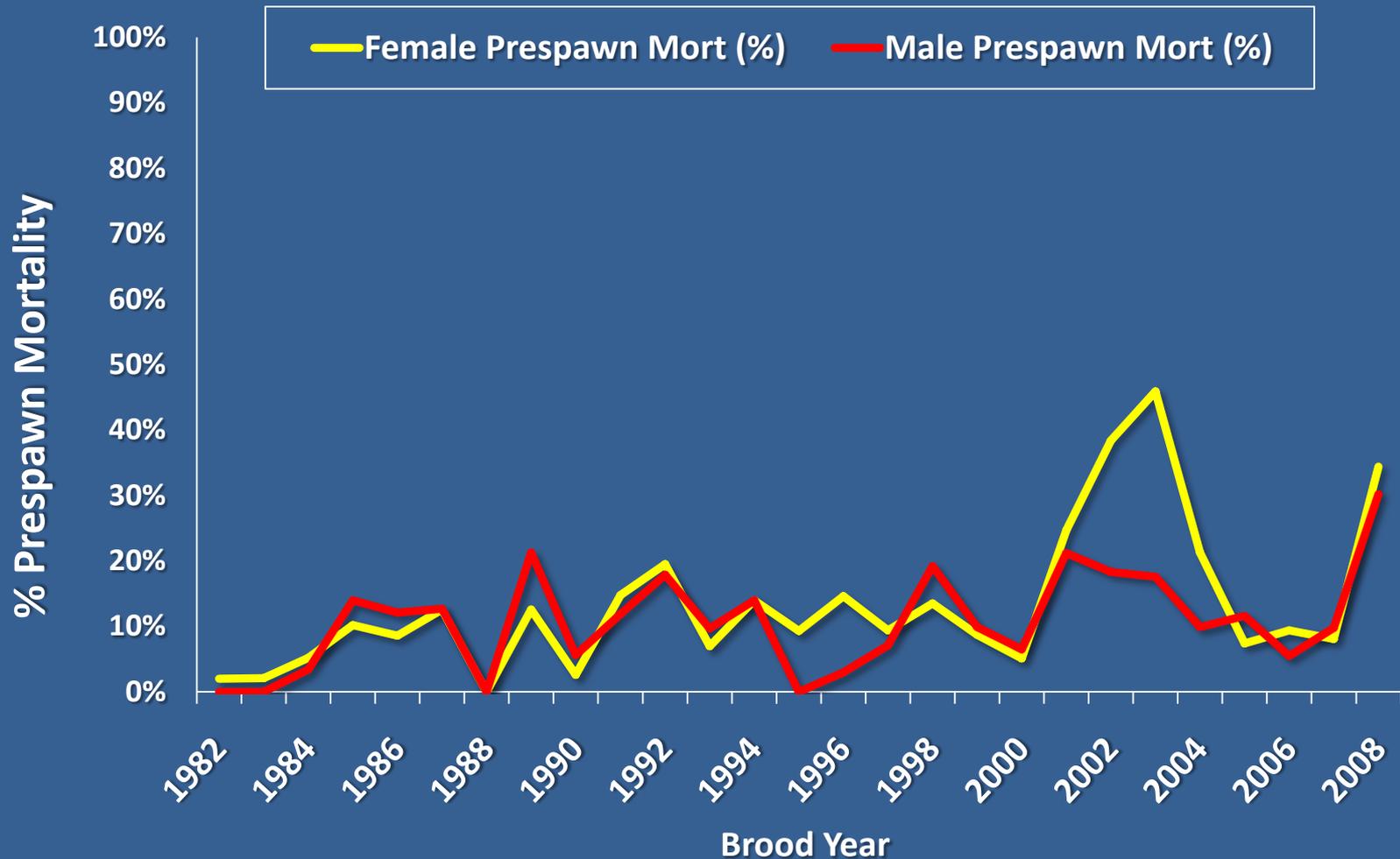
- Natural population listed as threatened in 1992
- Hatchery population included in listing in 2005
- Natural-origin abundance range 100-2380 (1982-2009)
- ICTRT Status assessment- Not Viable
  - High risk for abundance and productivity
  - Moderate risk for spatial structure and diversity

# Hatchery Production and Survival Data

- **Broodstock Performance**
- **In-hatchery survival**
- **Juvenile releases and survival**
- **Adult production and productivity**

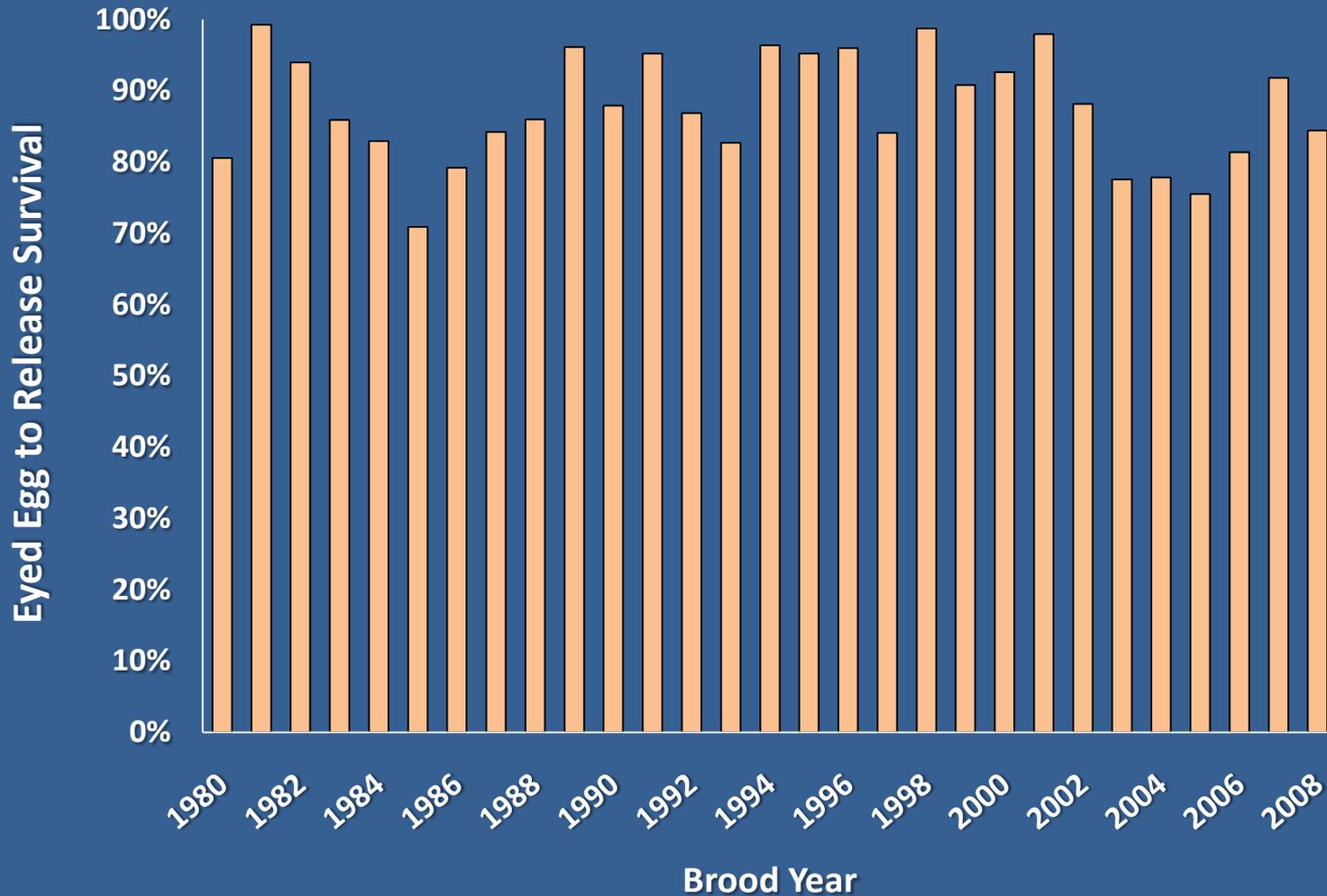
# Hatchery Production and Survival Data

## Broodstock Performance



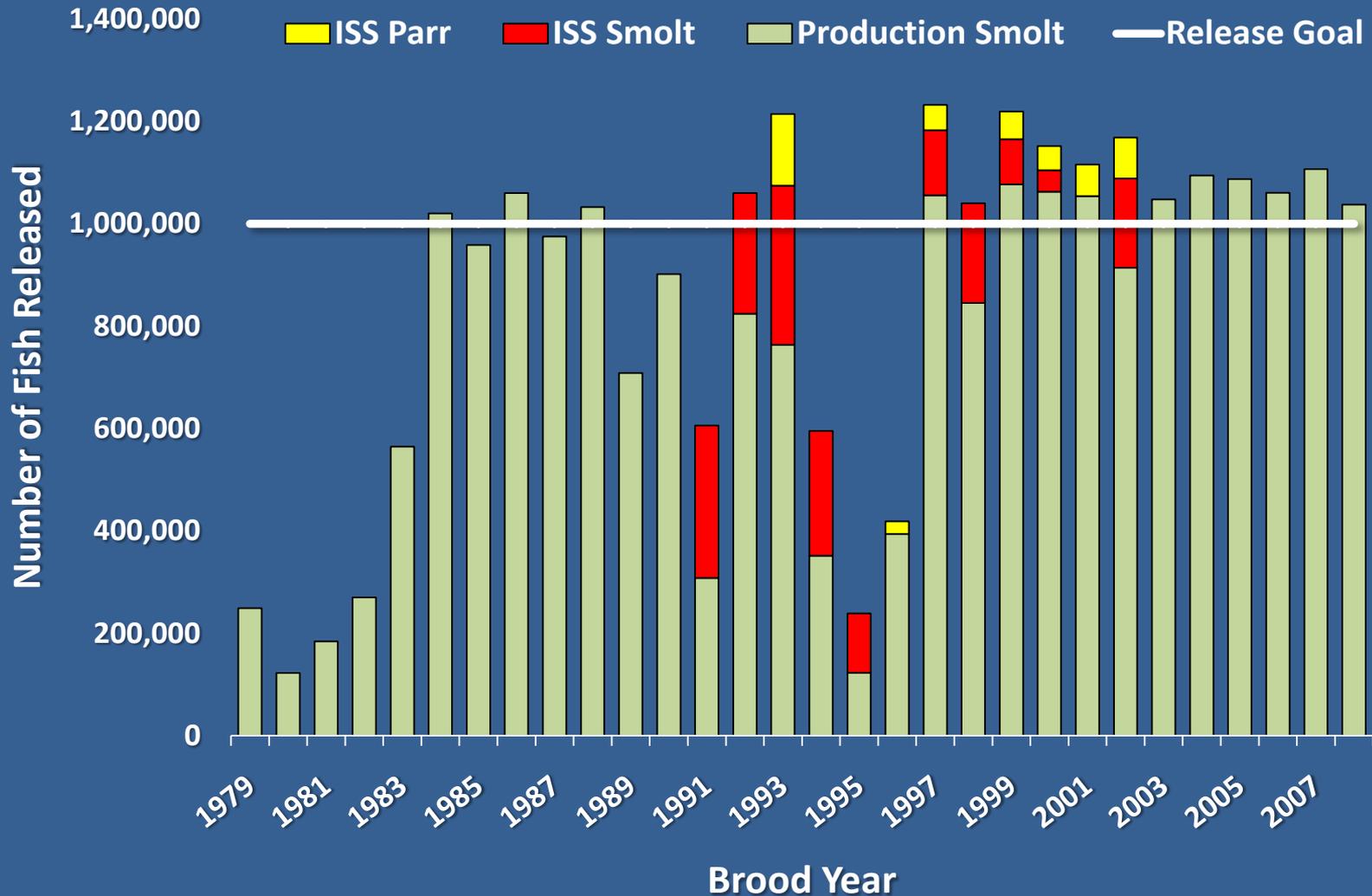
# Hatchery Production and Survival Data

## In-Hatchery Survival



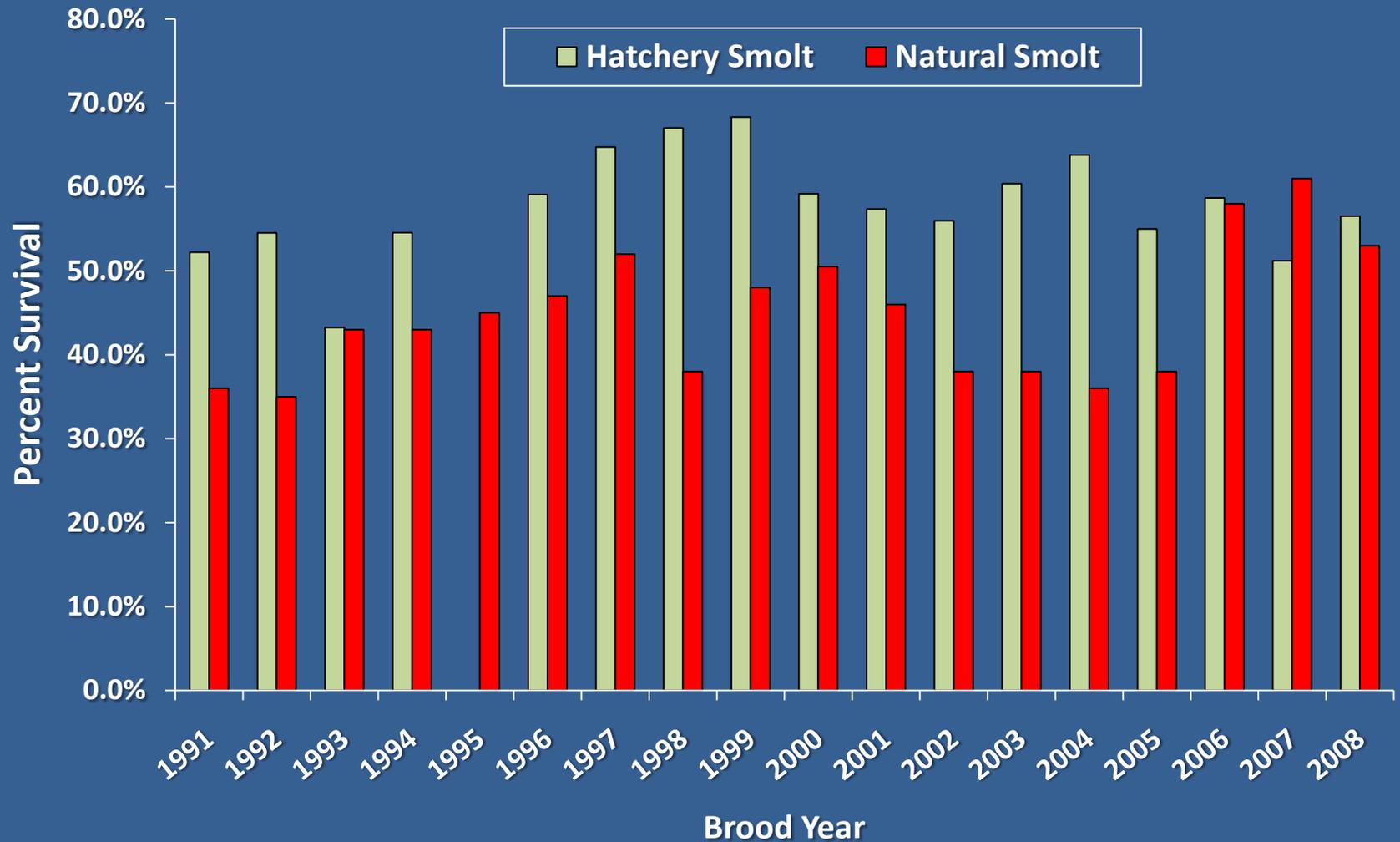
# Hatchery Production and Survival Data

## Juvenile Releases



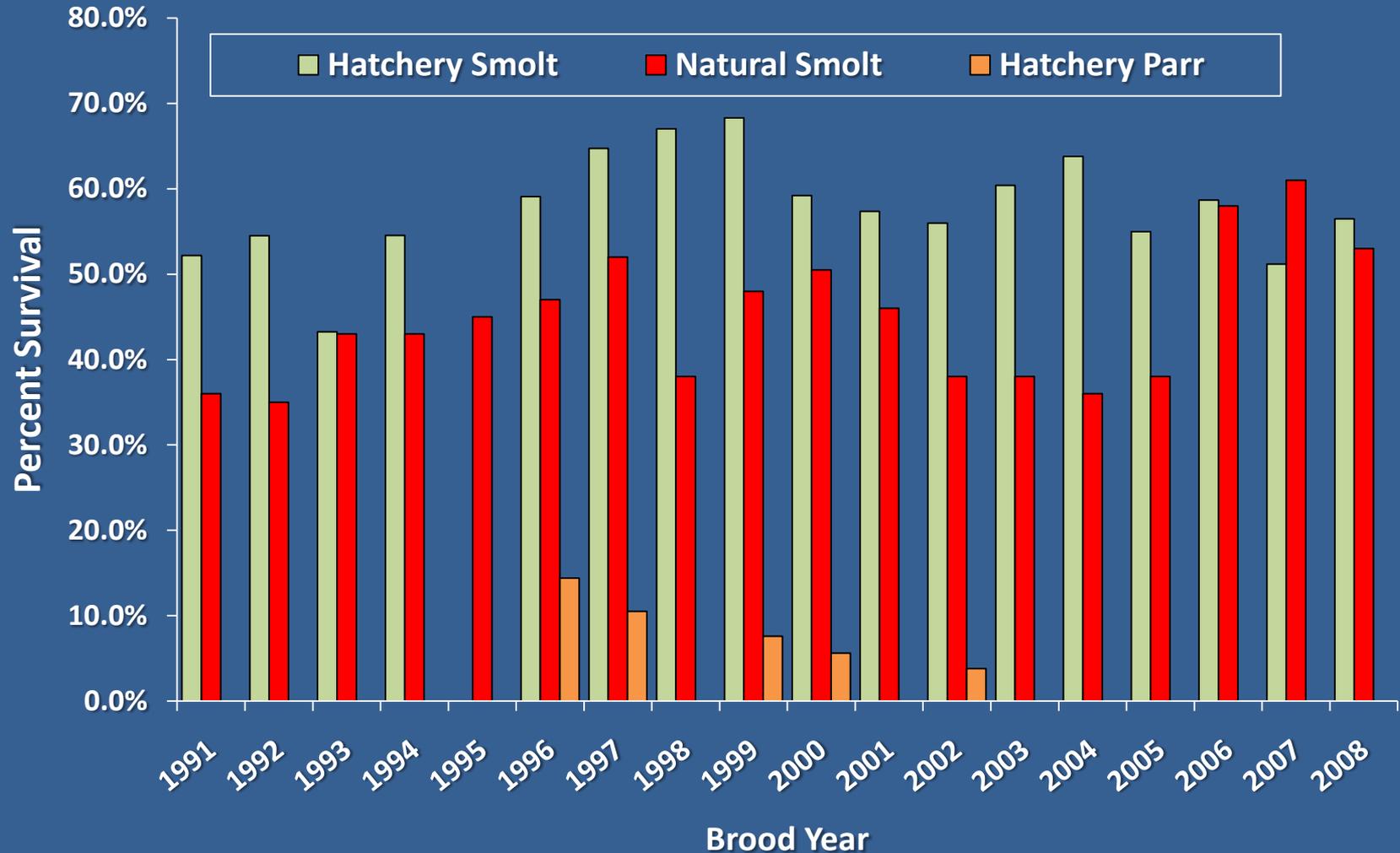
# Hatchery Production and Survival Data

## Juvenile Survival to LGD



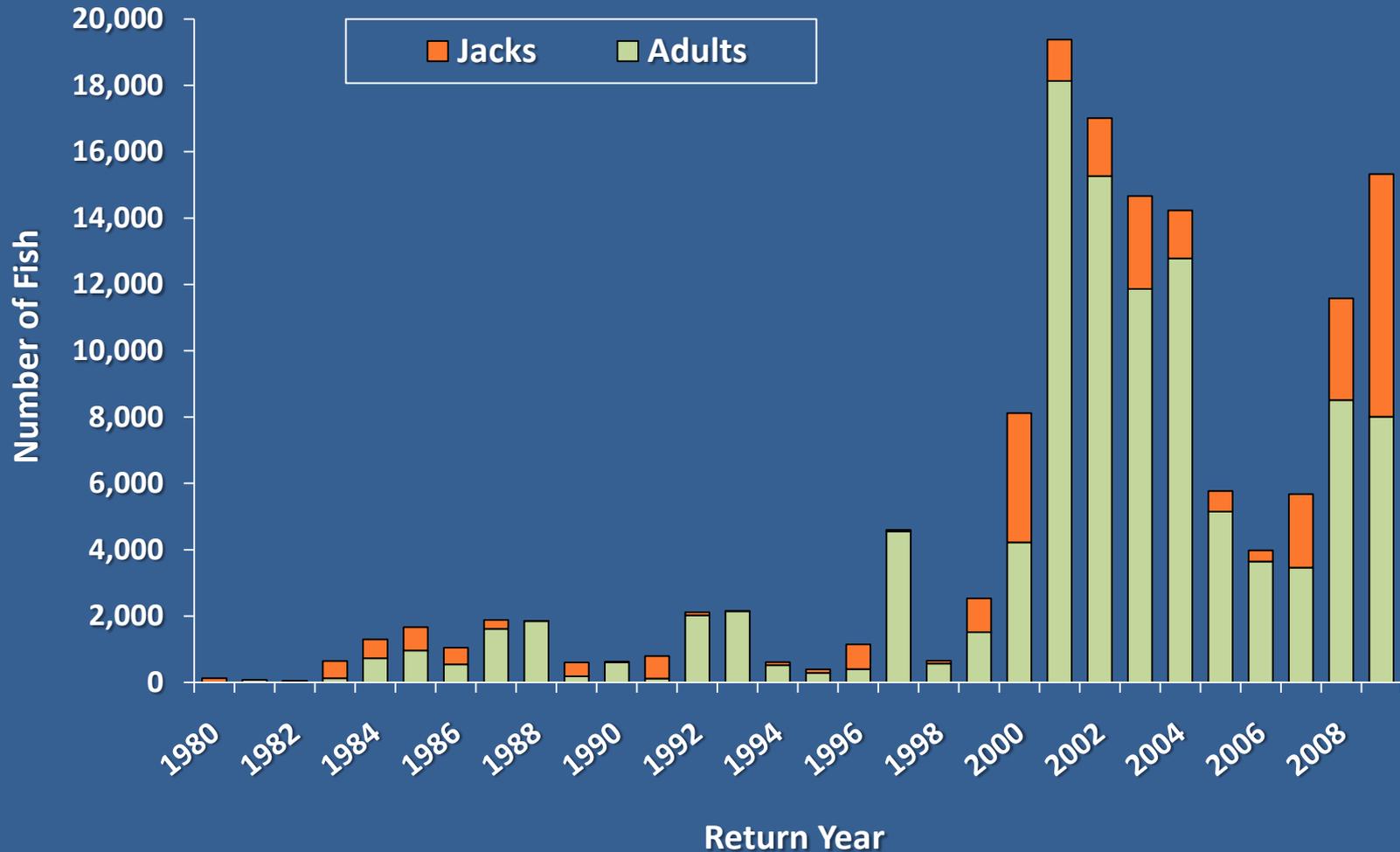
# Hatchery Production and Survival Data

## Juvenile Survival to LGD



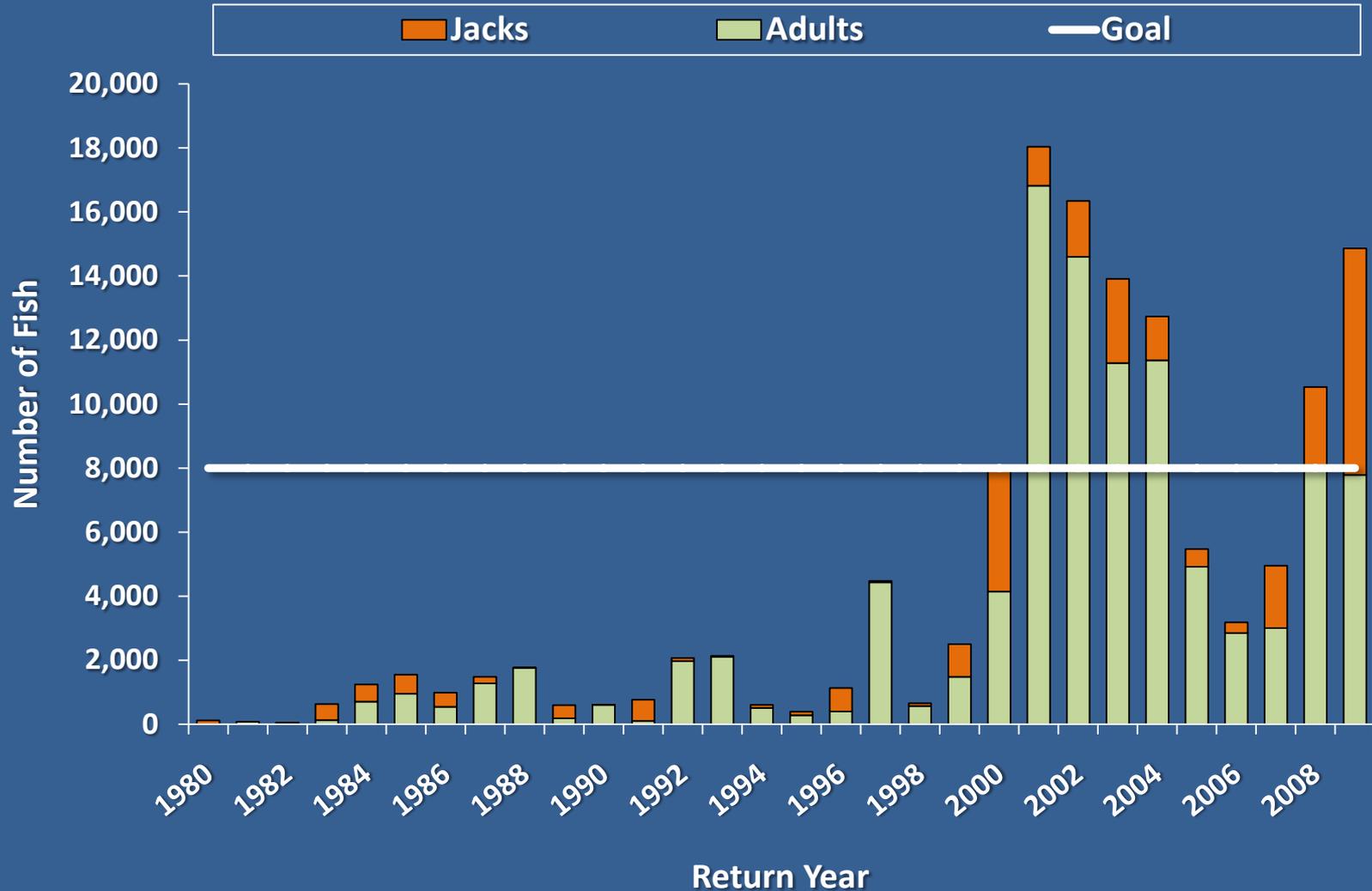
# Hatchery Production and Survival Data

## Adult Returns- Total Adults Produced



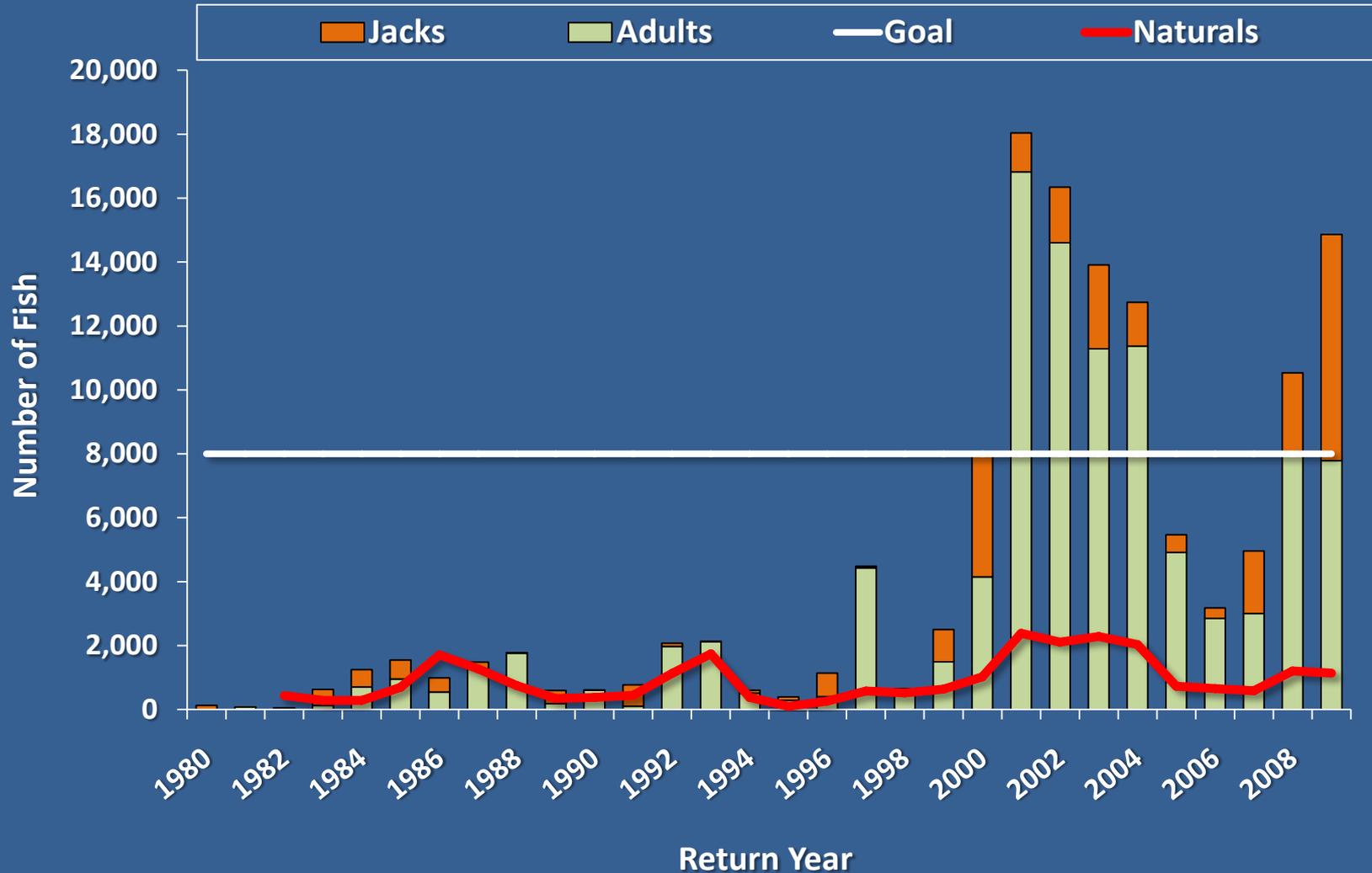
# Hatchery Production and Survival Data

## Adult Returns- Lower Granite Dam



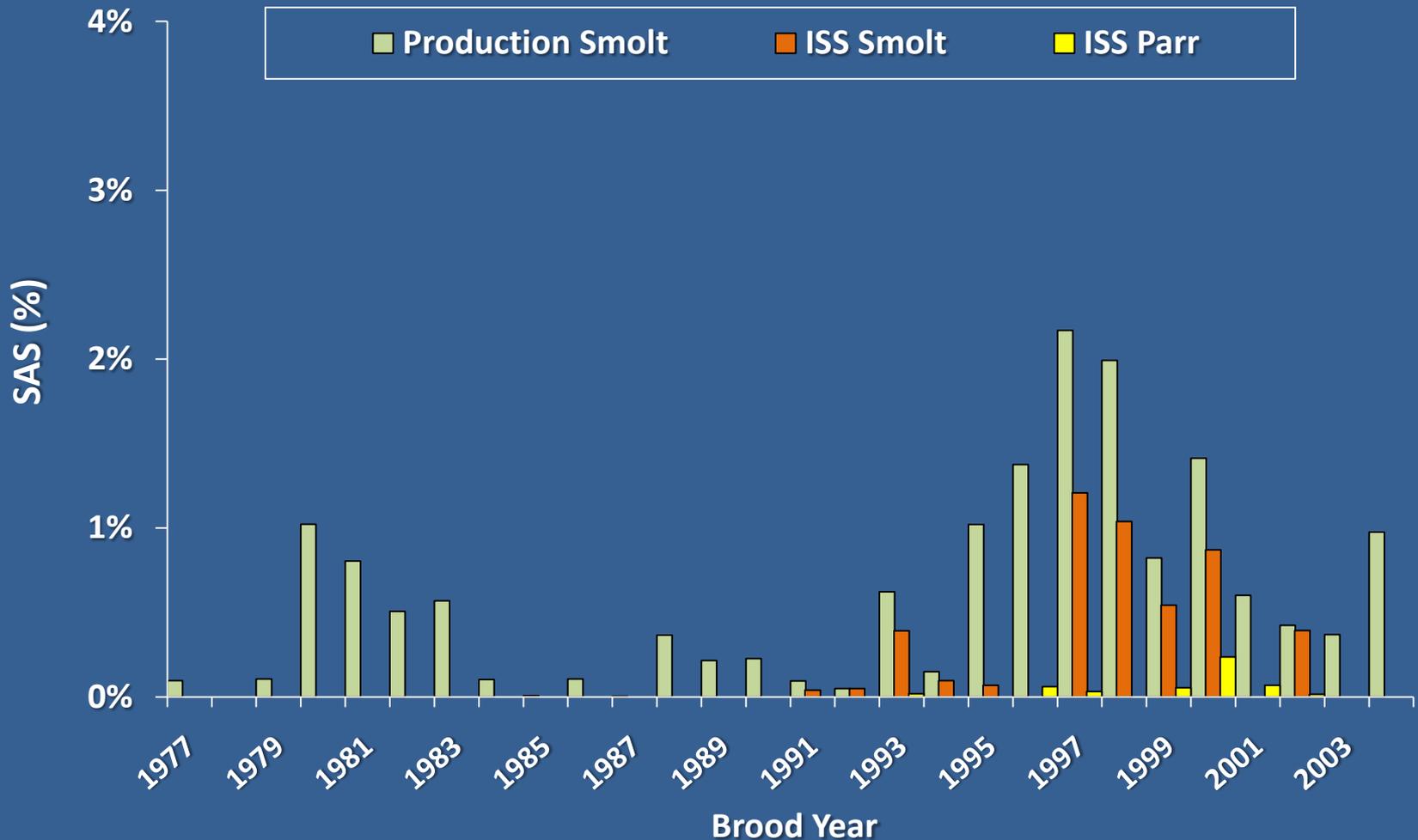
# Hatchery Production and Survival Data

## Adult Returns- Lower Granite Dam



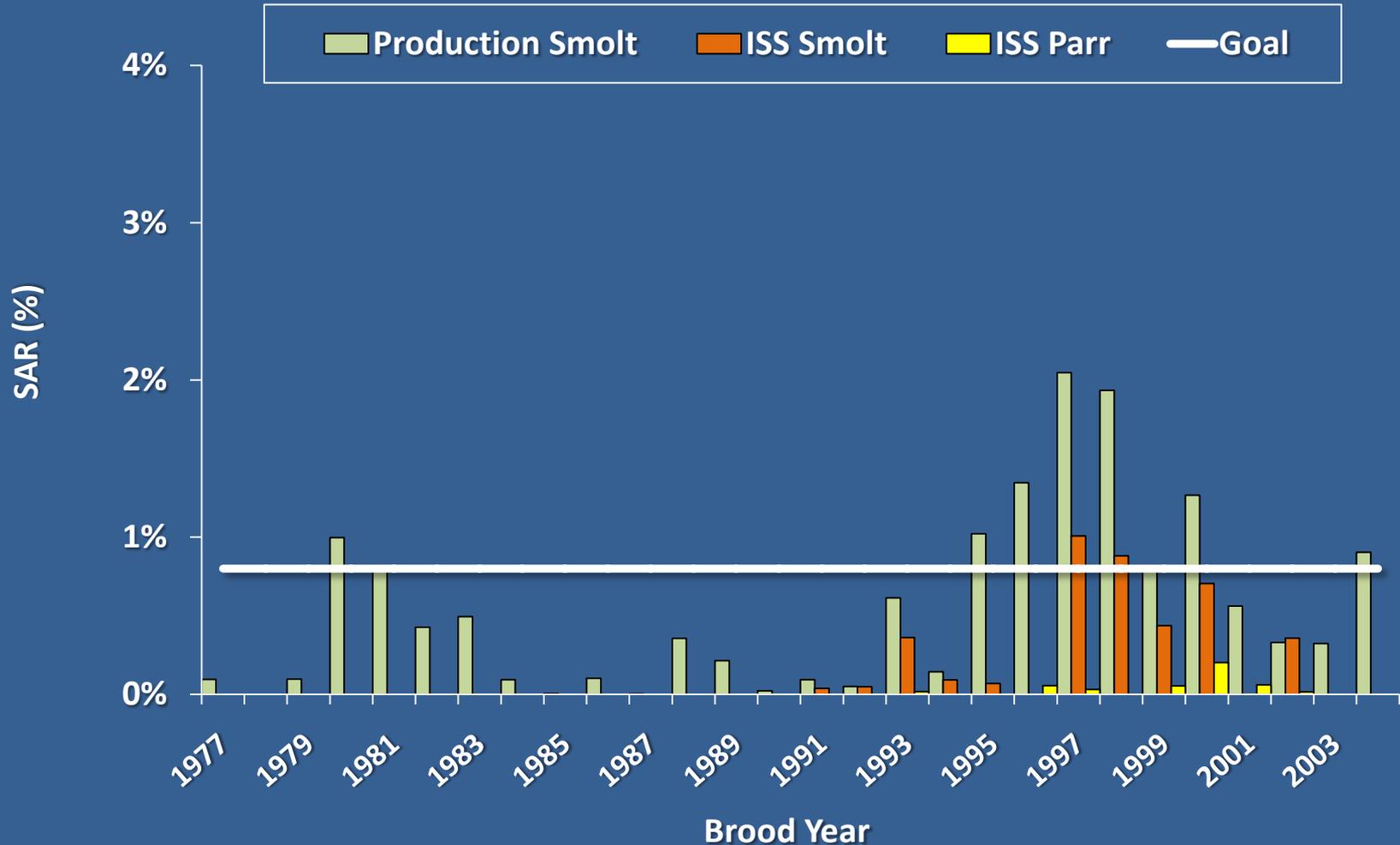
# Hatchery Production and Survival Data

## Smolt to Adult Survival (SAS)

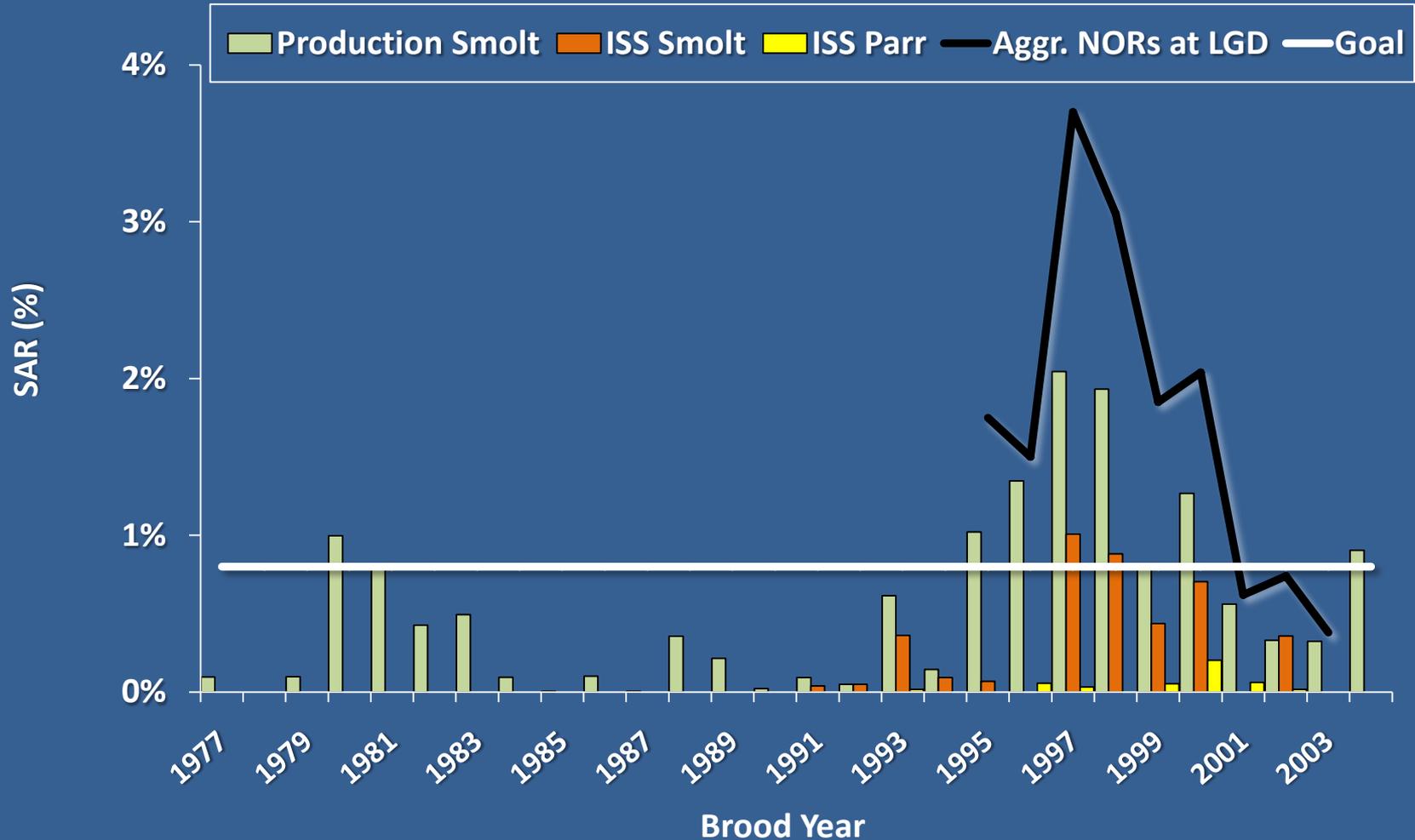


# Hatchery Production and Survival Data

## Smolt to Adult Return (SAR)



# Hatchery Production and Survival Data Smolt to Adult Return (SAR)



# Life History

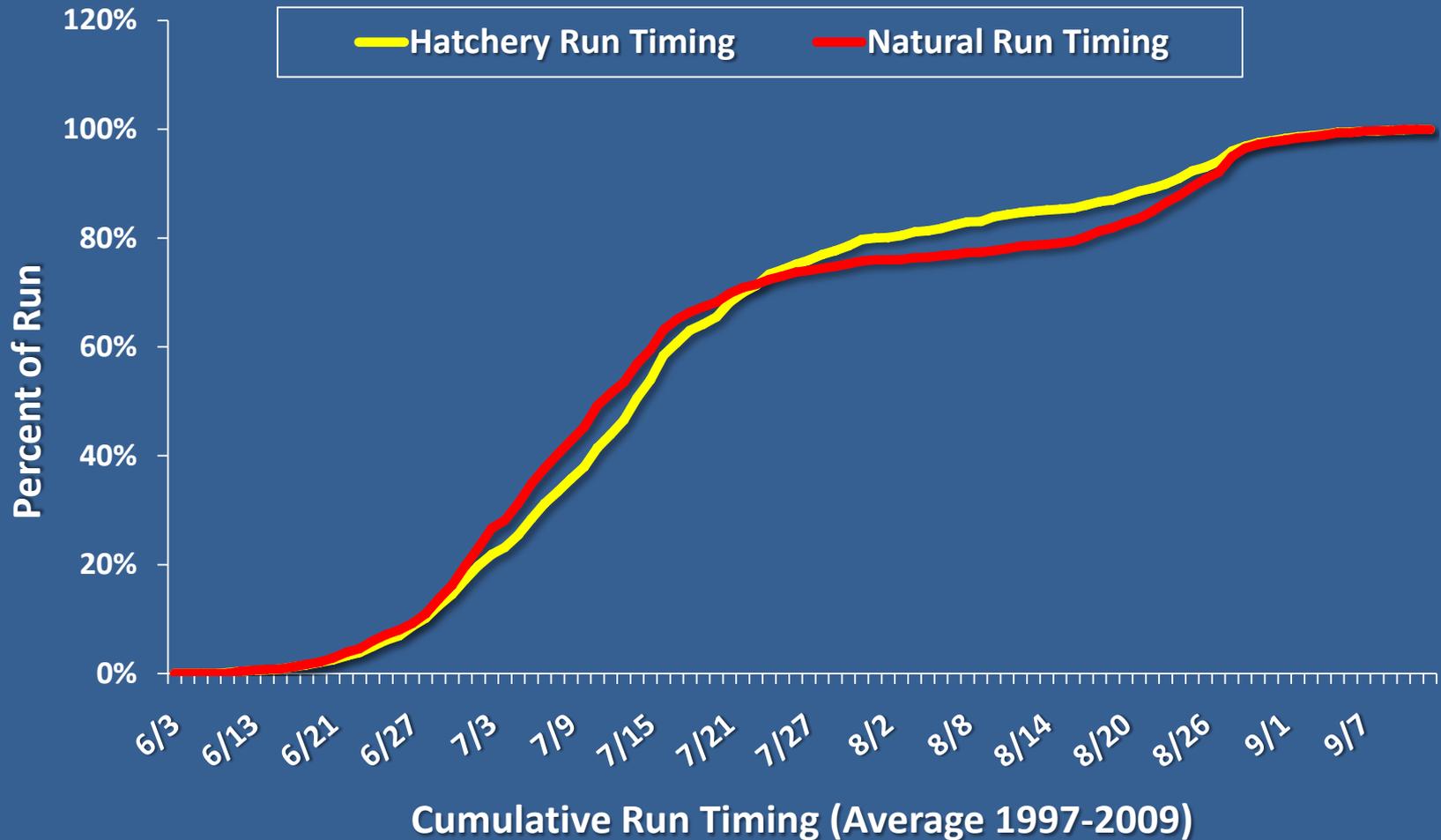
Trends and comparison to natural population

- Run Timing
- Age  
Composition
- Length at Age
- Spawn Timing
- Fecundity



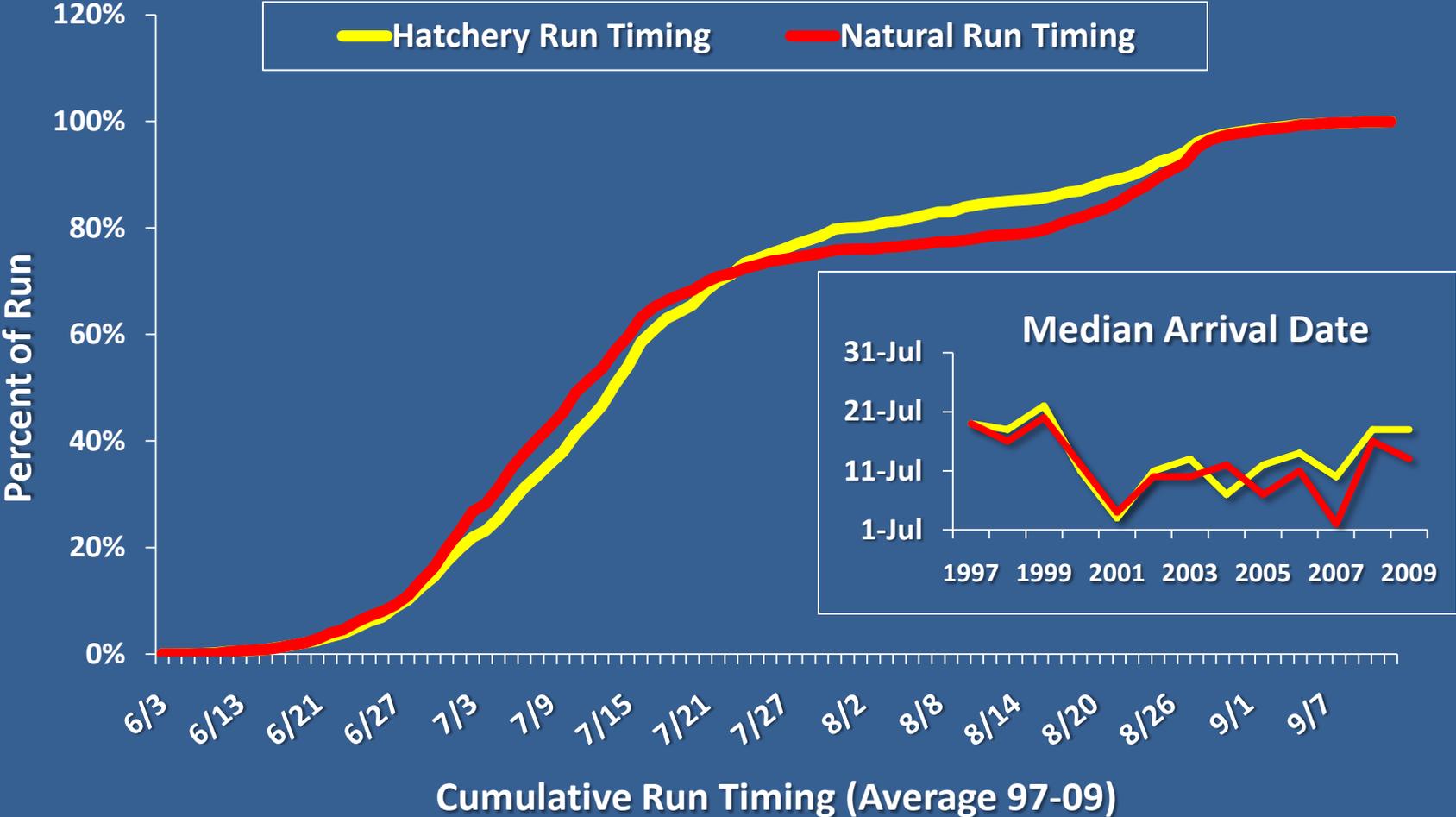
# Life History

## Adult Run Timing at SFSR Trap



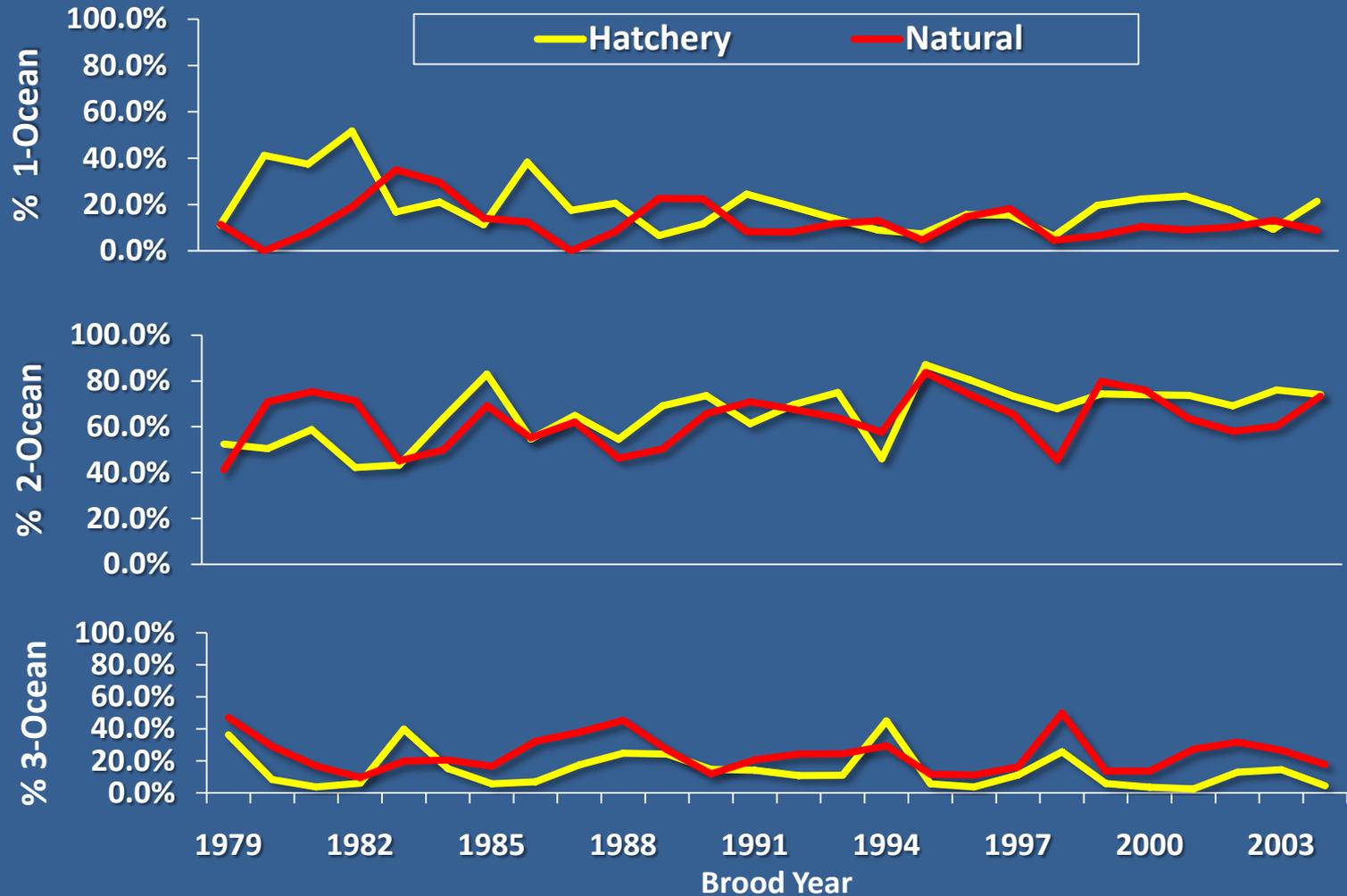
# Life History

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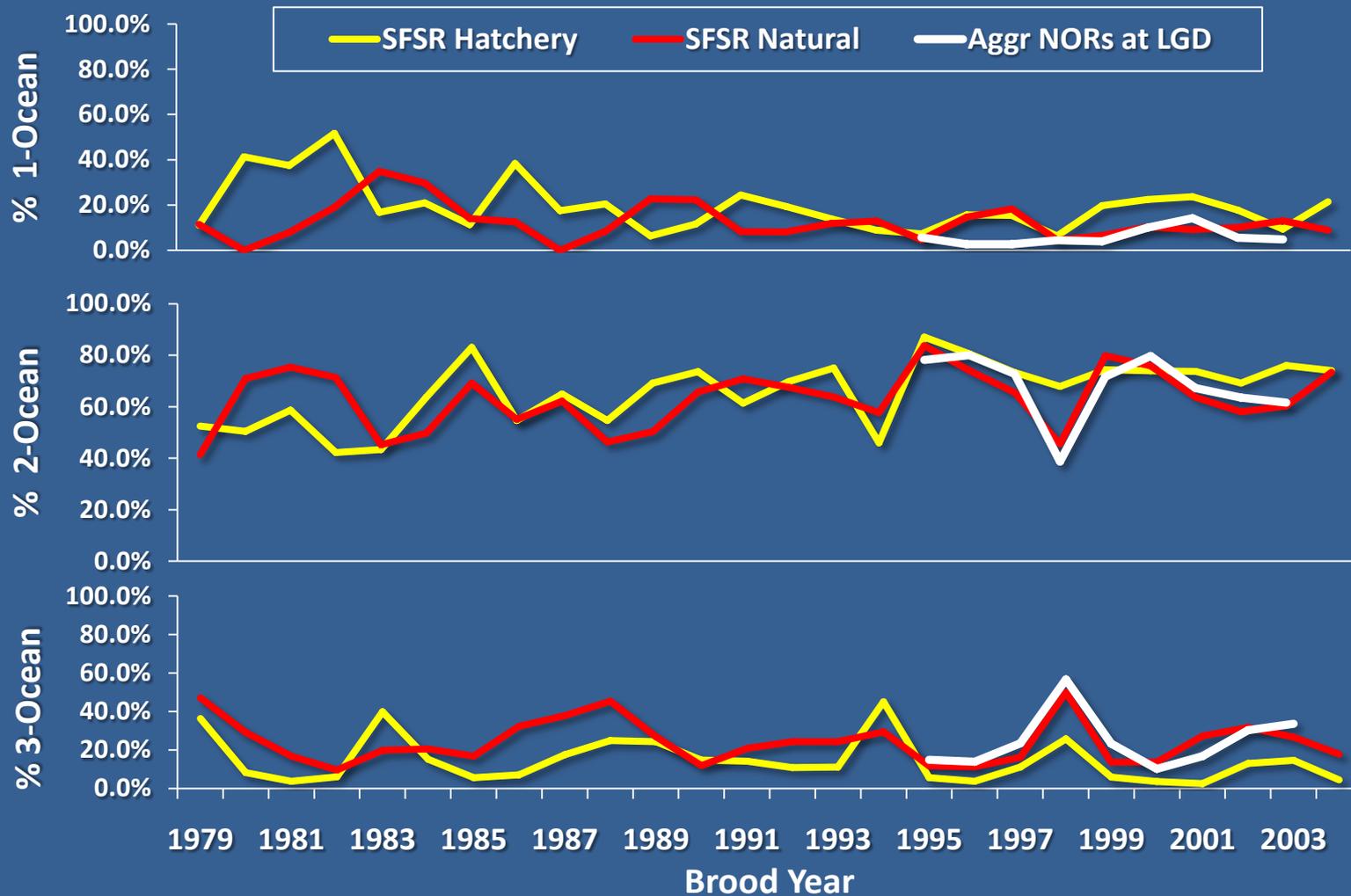
# Life History

## Age Composition



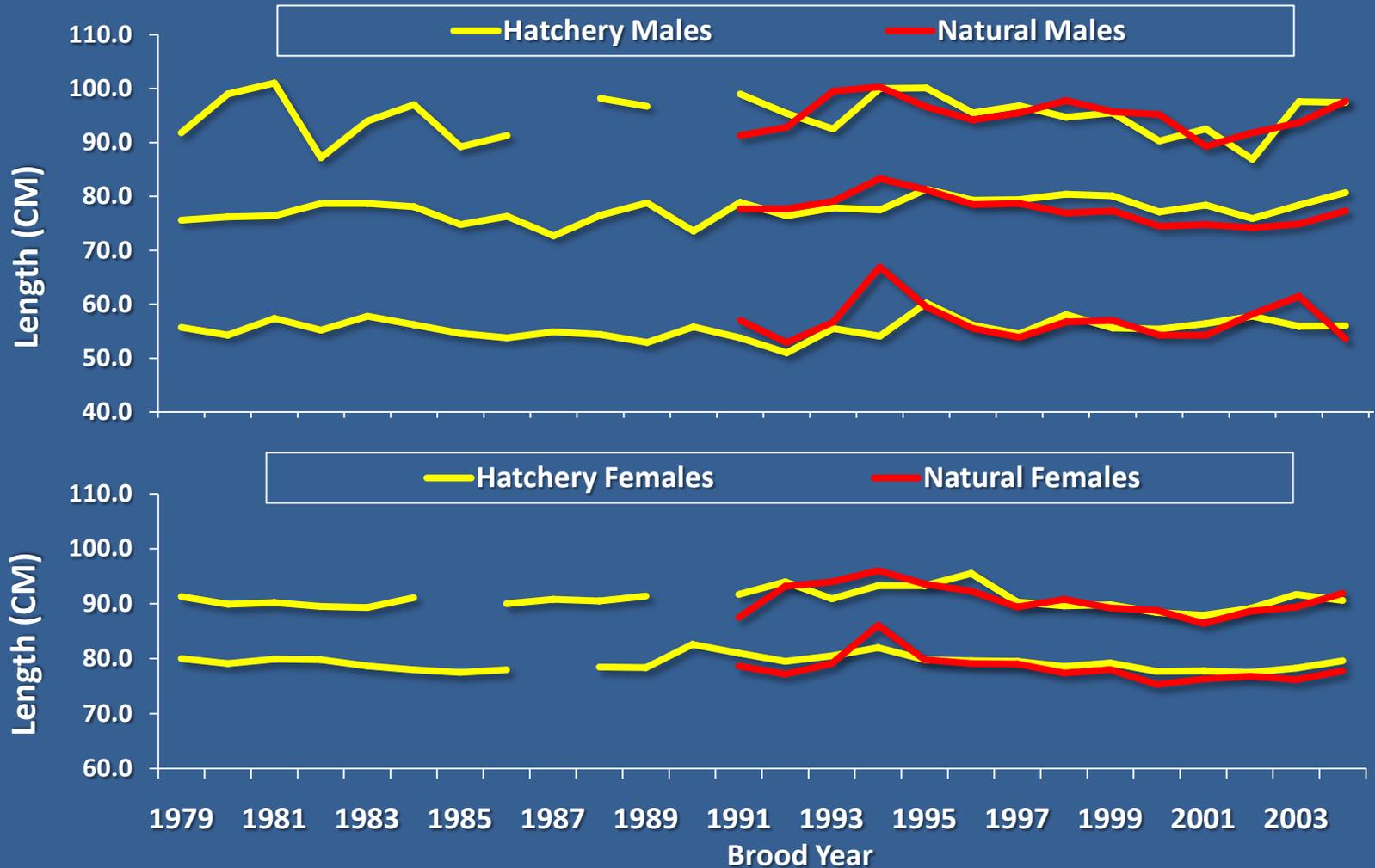
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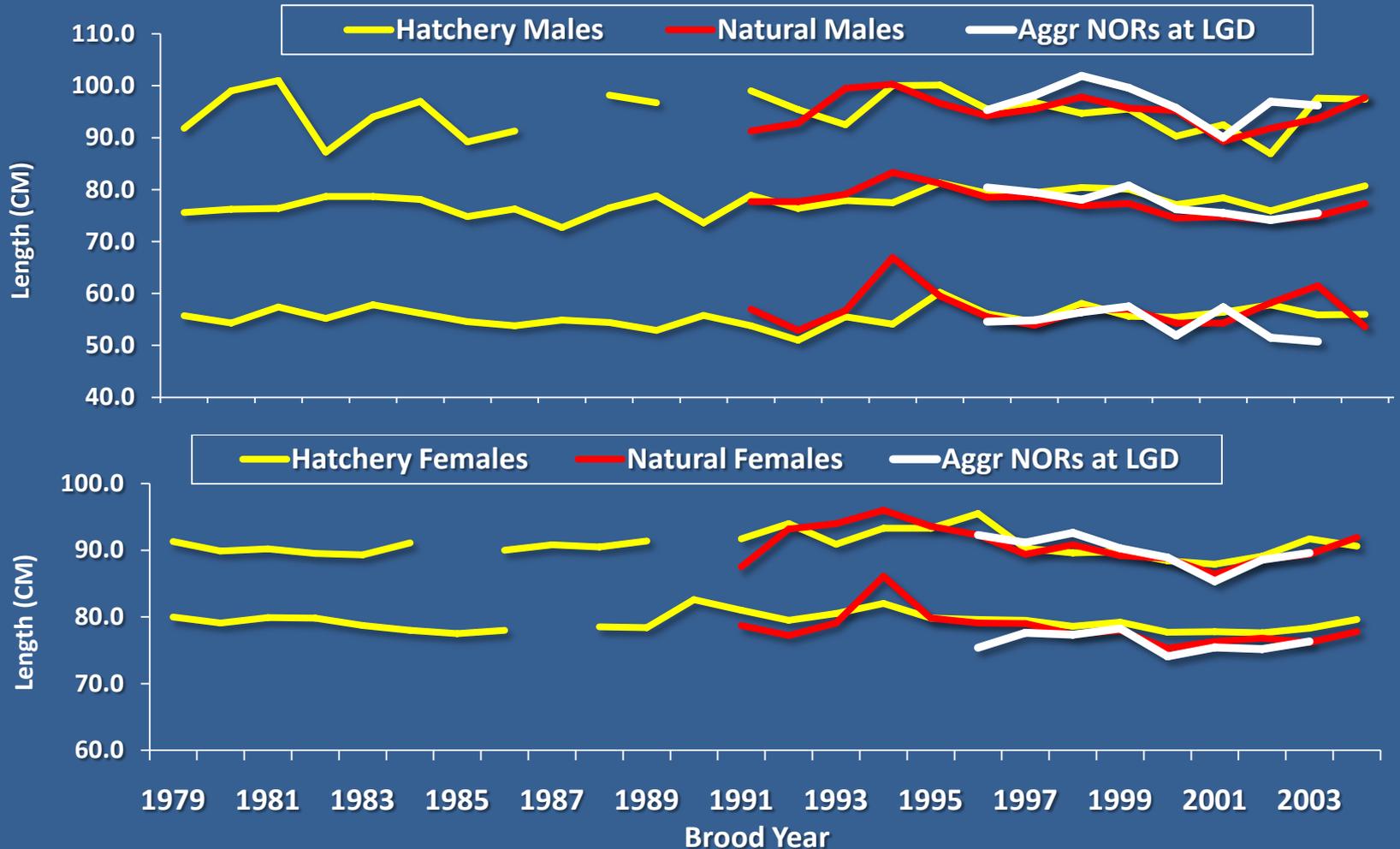
# Life History

## Length at Age



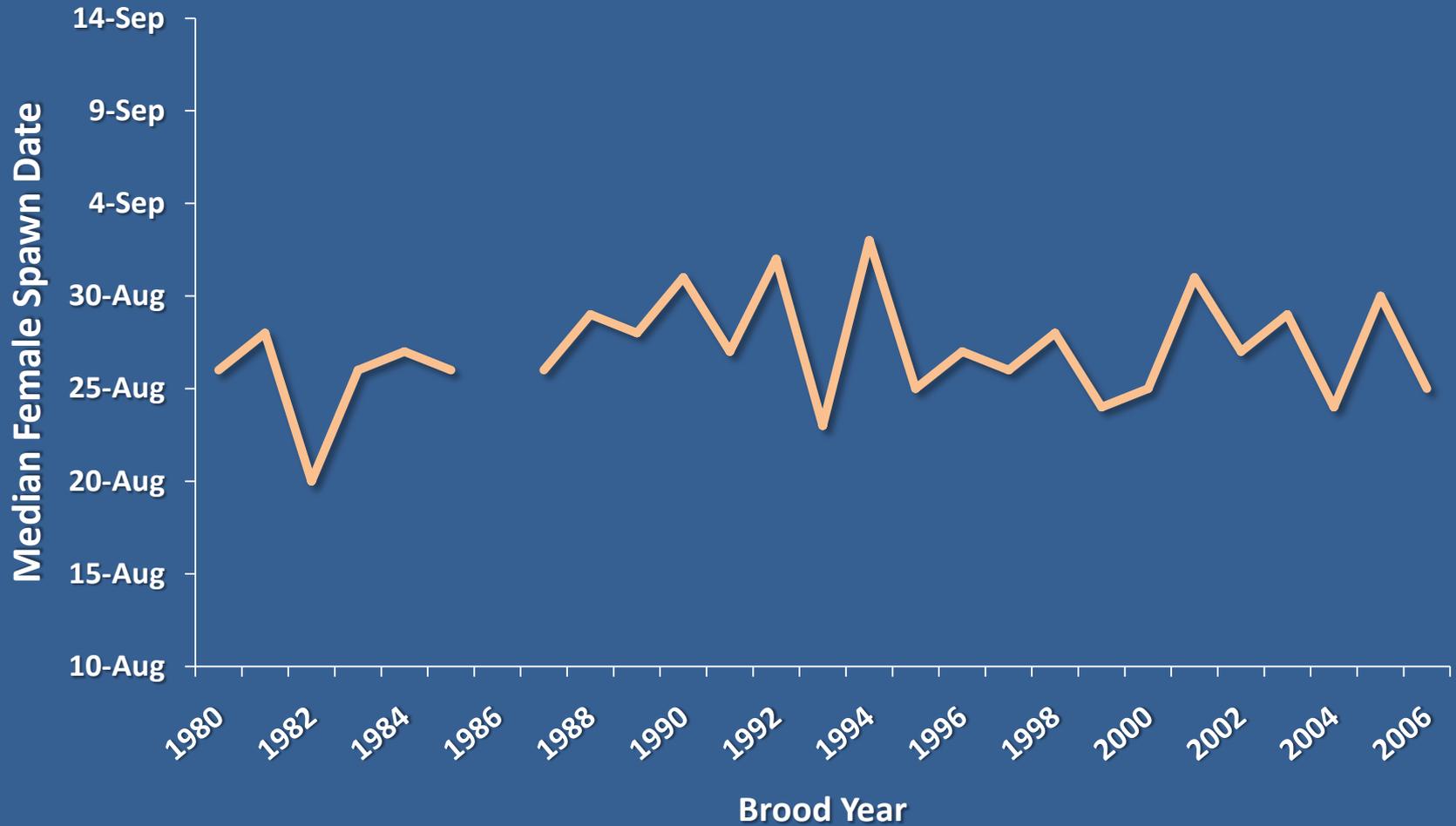
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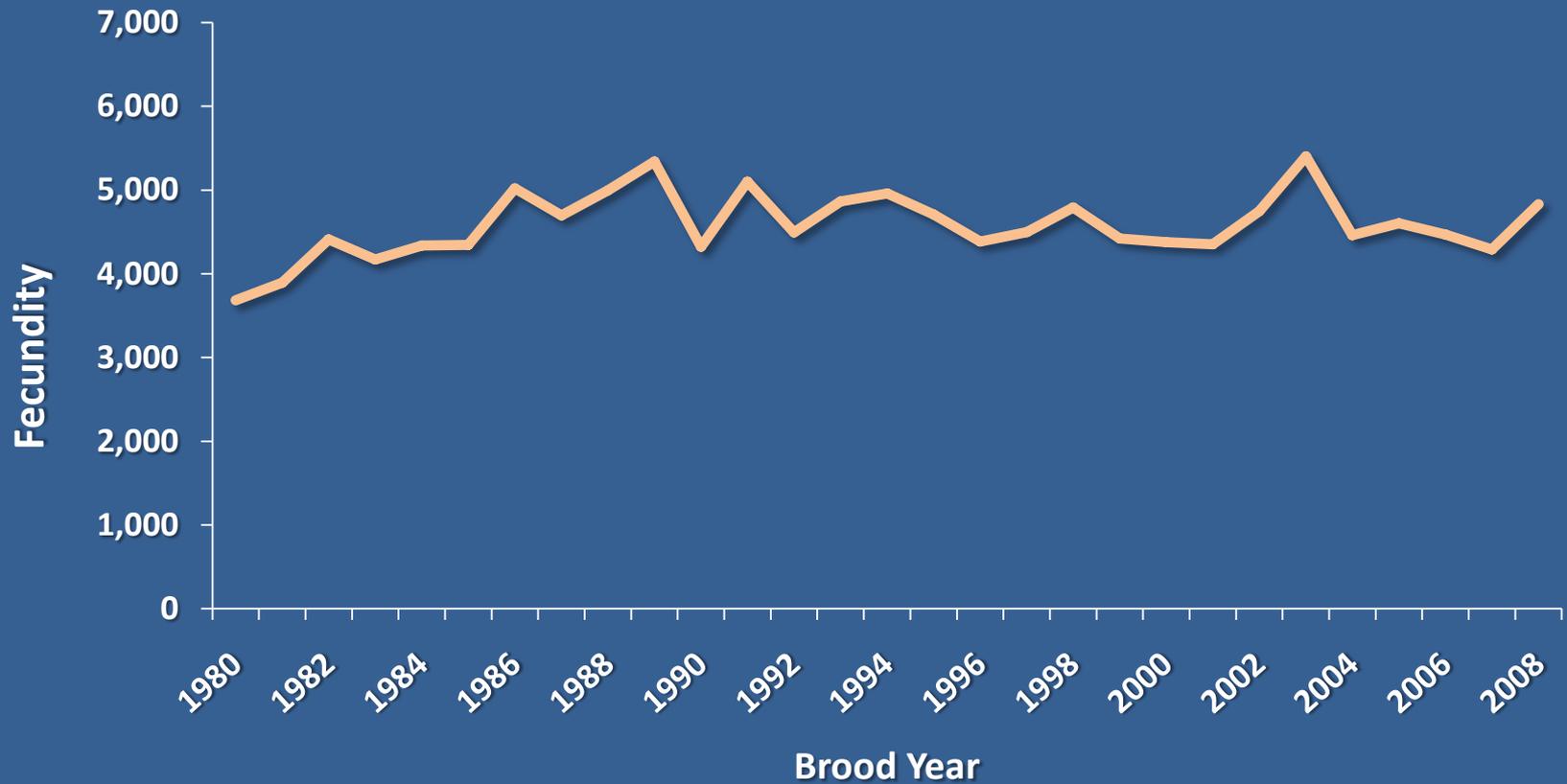
# Life History

## Spawn Timing



# Life History

## Fecundity

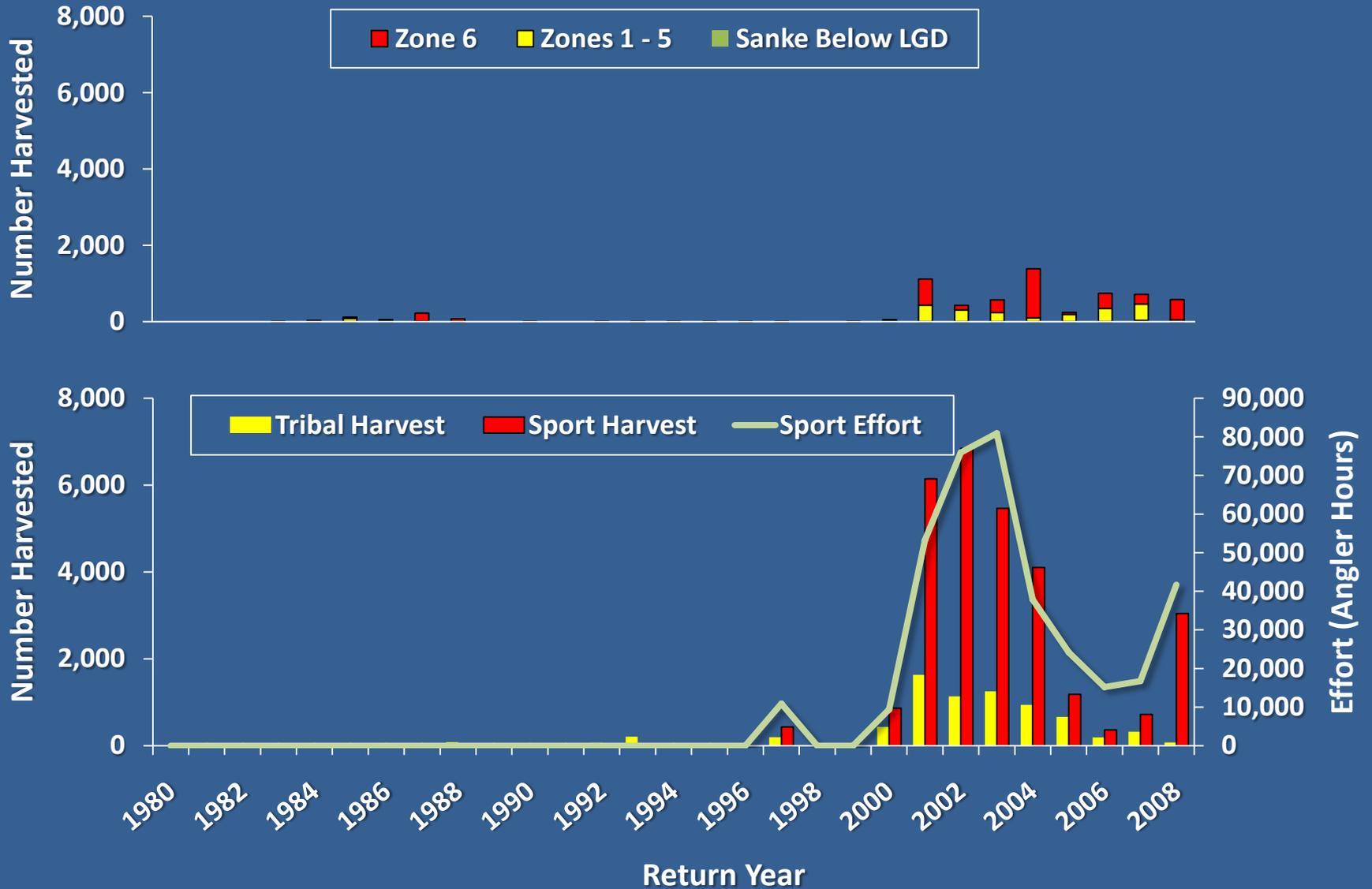


# Harvest and Escapement

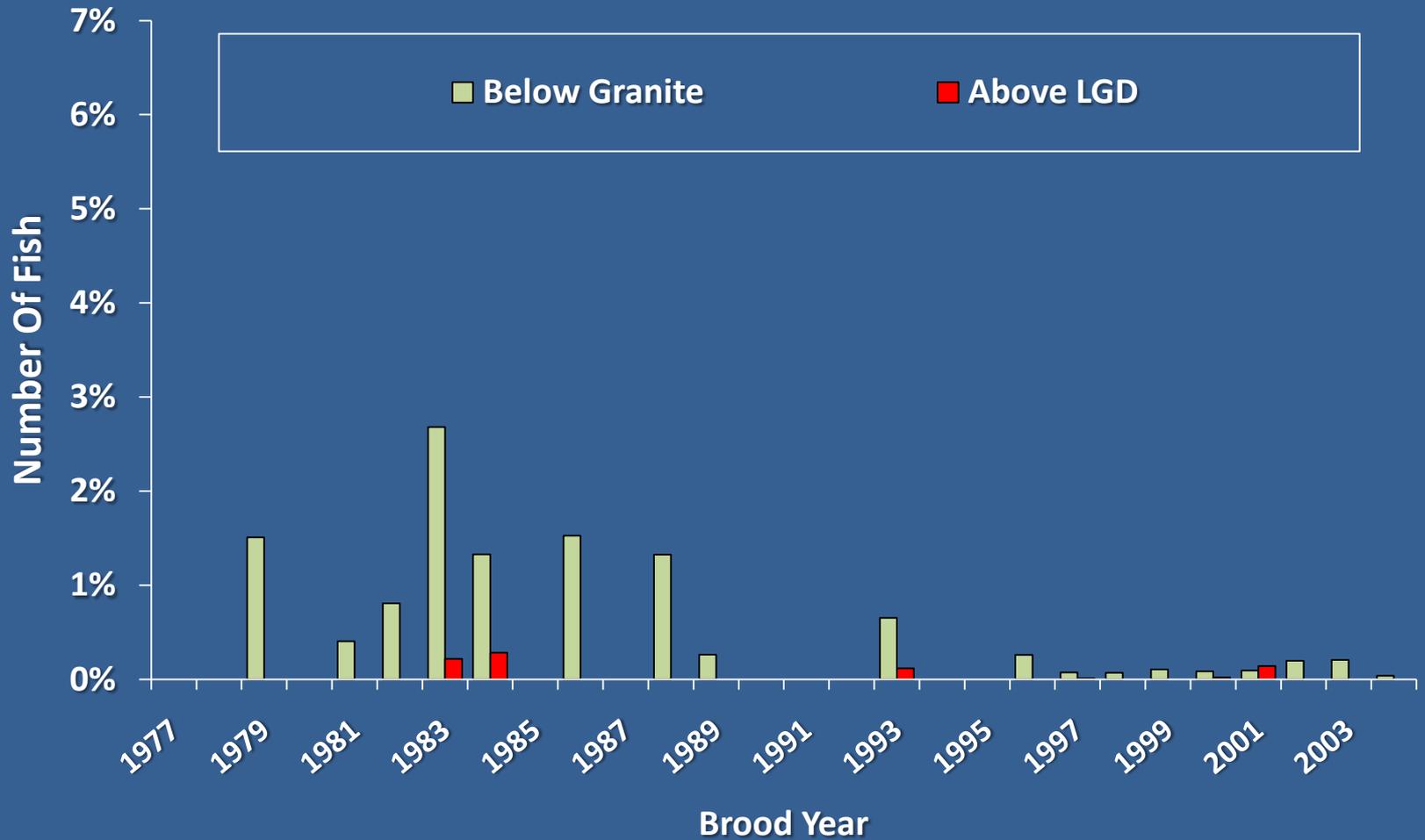
- Catch and Effort
- Harvest Opportunity
- Strays
- Disposition of Escapement



# Harvest- by Return Year



# Strays



# Escapement

## Disposition of fish at SFSR weir

- **Collaboration between Idaho and tribes to determine beneficial use of escapement**
  - **Broodstock needs and spawning escapement above weir**
  - **Maximize harvest opportunity**
  - **Subsistence use**
  - **Outplants for natural spawning**

# Disease / Pathology

- **BKD has been an issue in the past**
- **No significant loss due to disease**

# Program Summary

**Remember the management objectives....**

- **Restore and maintain natural population in SFSR**
- **Restore and maintain recreational and tribal fisheries**
- **Meet LSRCP mitigation objectives**
- **Minimize impact of hatchery program on the natural population**

# Program Summary

- Restore and maintain the natural population in the SFSR
  - Integrated Broodstock
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  - Highly dependent on post release survival
- **Meet LSRCP Mitigation Objectives**
  - Consistent high survival during hatchery culture
  - Poor survival of subyearling releases
  - Highly variable post-release survival (40x)
  - Upswing in post release survival since 1996
  - Have never met total mitigation goal
  - Achieved Project Area goal in seven years (all in the last 10 years)

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  - Upswing in post release survival since 1996
  - Have never met total mitigation goal
  - Achieved Project Area goal in seven years (all in the last 10 years)
- **Minimize impacts of hatchery program on natural populations**
  - Synchrony between hatchery- and natural-origin fish
  - No apparent trends in life history characteristics
  - Very low observed stray rates
  - Broodstock and weir management

# M&E Outlook

## Hatchery Program Monitoring

- Continued monitoring of hatchery production and productivity measures

# M&E Outlook

## Hatchery Program Monitoring

- Continued monitoring of hatchery production and productivity measures
- PIT Tagging
  - Estimating adult survival
  - Migration timing and inter-dam conversion
  - In-season fisheries management
  - In-stream PIT Arrays

# M&E Outlook

## Hatchery Program Monitoring

- Continued monitoring of hatchery production and productivity measures
- PIT Tagging
  - Estimating adult survival
  - Migration timing and inter-dam conversion
  - In-season fisheries management
  - In-stream PIT Arrays
- **Parental Based Tagging (PBT)**
  - **Catch contribution**
  - **Stock Identification**
  - **Heritability/ Family Effects**

# M&E Outlook

## Natural Population Monitoring

- Continue above/below weir monitoring

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## Natural Population Monitoring

- Continue above/below weir monitoring
- Intensive fish-in, fish-out monitoring (ISEMP)
  - In-stream PIT arrays
  - Juvenile Trapping and PIT Tagging
  - Representative PIT tagging adults at Lower Granite Dam

# M&E Outlook

## Natural Population Monitoring

- Continue above/below weir monitoring
- Intensive fish-in, fish-out monitoring (ISEMP)
  - In-stream PIT arrays
  - Juvenile Trapping and PIT Tagging
  - Representative PIT tagging adults at Lower Granite Dam
- Genetic Stock Identification (GSI) at Lower Granite Dam

# Moving Forward

- Program will continue to support both harvest and conservation objectives
- Continue to mitigate for lost sport and tribal fishing opportunity
- Expanded coordination between state, tribal and federal managers
- Program direction incorporates current and emerging science
  - HSRG and HRT hatchery reviews
  - Hatchery and Genetic Management Plan (HGMP)



**Questions?**