


# A Brief History of the Umatilla River Coho Program




**Confederated Tribes of the  
Umatilla Indian Reservation**


# Coho Release History

- 1st releases of Coho occurred in 1966 and 1967 as fry from Little White Salmon NFH.
  - In addition, eggs were outplanted in 1967 & 1968.
  - 1st release of smolts occurred in 1969 – 200,000 from Carson NFH.
  - No releases again until 1987 when current smolt release program began.
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- A stylized, layered mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

# Production History

- 1987-1994 releases - 1.0M smolts produced at Cascade Hatchery.
  - 1995-2009 releases – 1.0M smolts from Cascade Hatchery and 500K smolts from Lower Herman Creek Hatchery.
  - 2010-present releases - 1.0M smolts produced at Cascade Hatchery.
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# Broodstock History

- From the onset of the program through BY09 - all smolts were Tanner Ck stock collected and spawned at Bonneville Hatchery.
  - Two years during this period brood were also collected from the Umatilla River (93 & 95 BYs).
  - Beginning with BY10 – brood for the program collected and spawned at 3MD
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- A stylized, layered mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

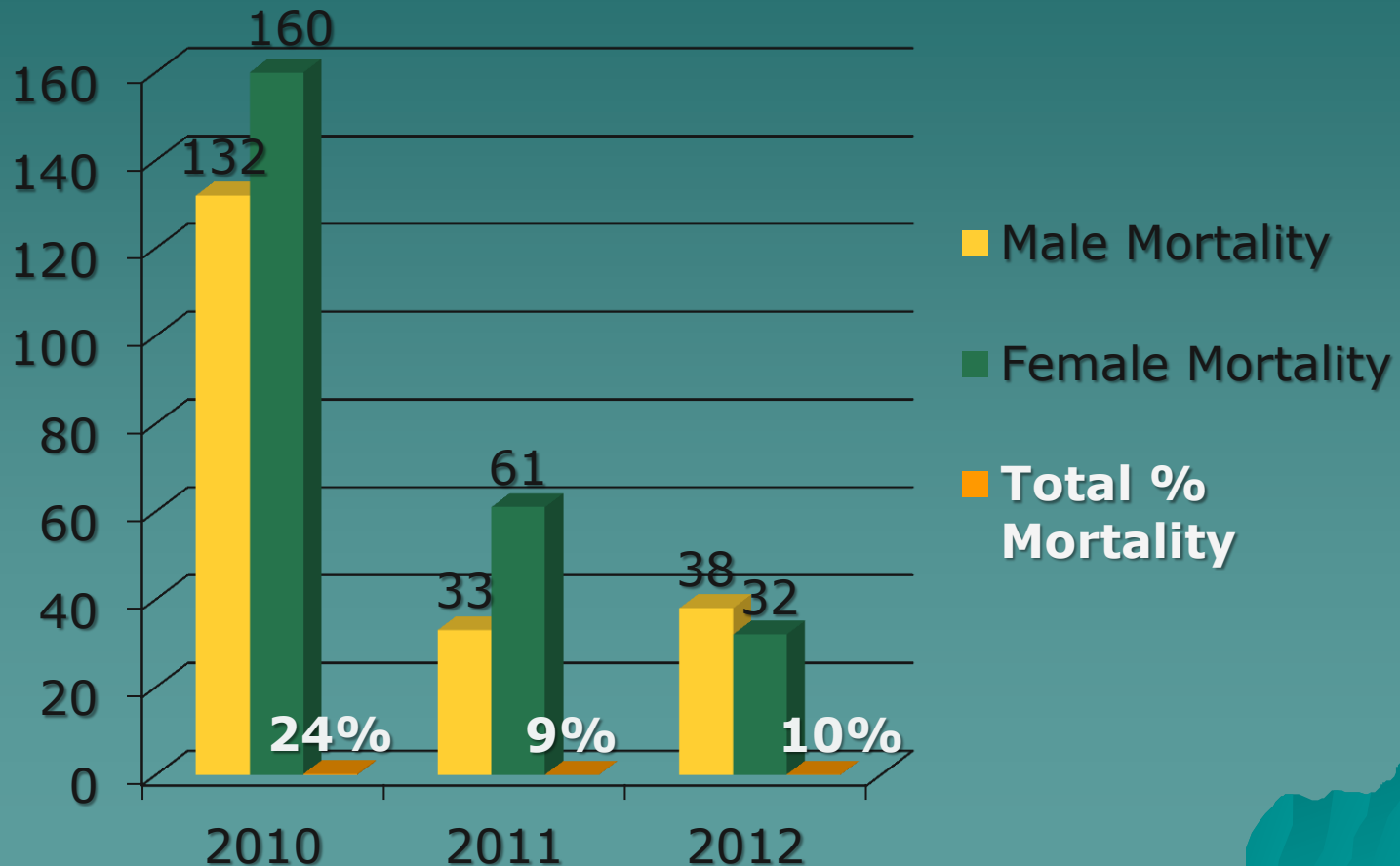
# Annual Coho Returns to 3MD



# Local Broodstock Program Issues



## Pre-spawn Mortality from last 3 years:

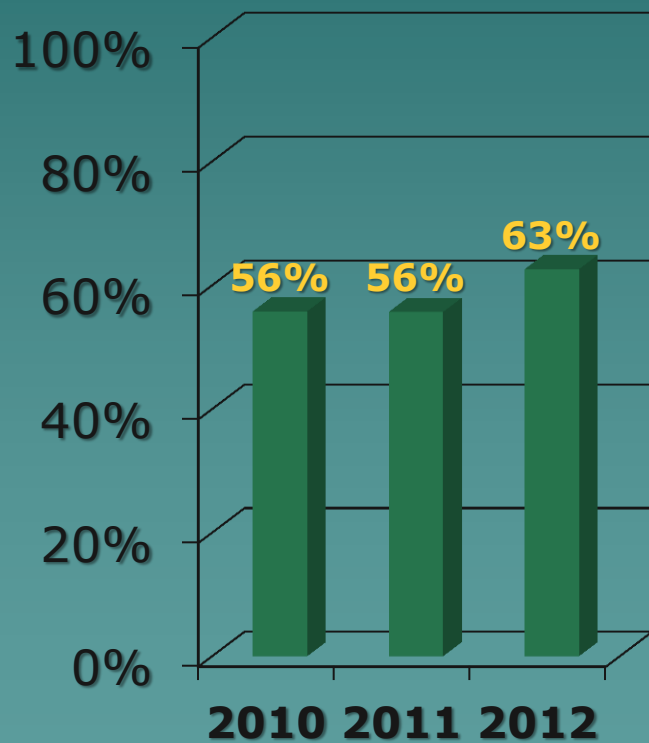




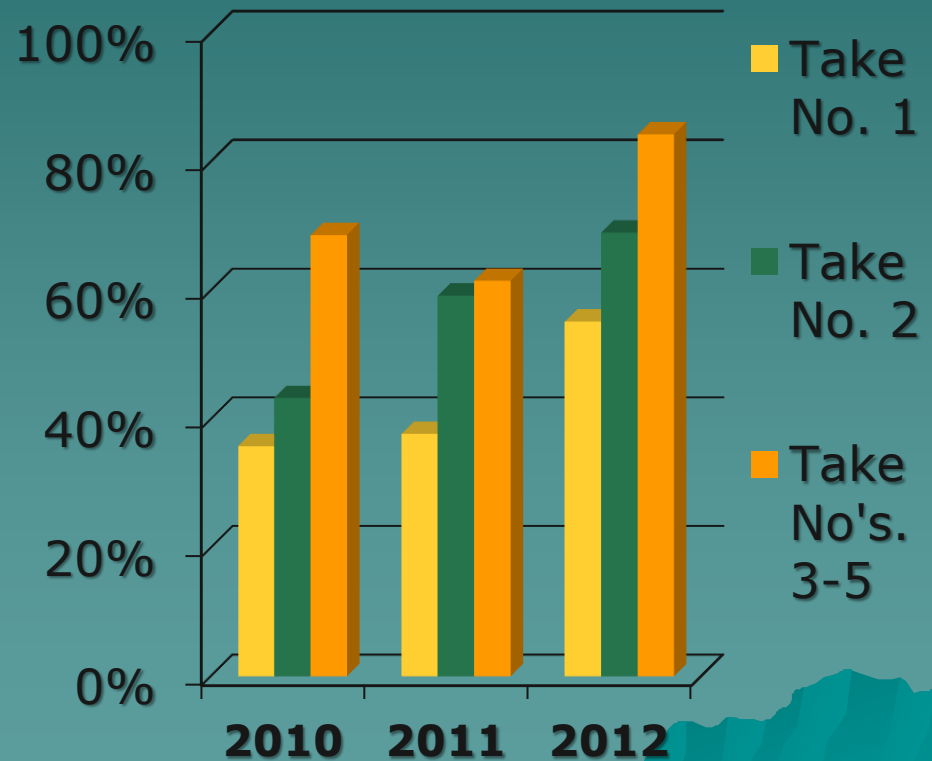
# Local Broodstock Program Issues (cont'd)

## ➤ Poor Viability:

**Total % Egg Viability**



**% Viability By Egg Take**



# Corrective Measures

- Delayed broodstock collections due to high early fall temps. Changed from late September (2010) to mid-October (2011) to late October (2012).
- Changed Male:Female ratio due to potential motility concerns. Changed from 1:3 (2010) to 2:4 (2011-12).
- Changed water hardening process prior to transfer in 2012.



## Corrective Measures (cont'd)

- Changed incubation operations in 2012.
  - MAIs to Heath trays
  - 3x/wk formalin treatments to 7x/wk
  - Jensorter to Van Gaalen egg picker
- BY13 will be first year using progeny of local broodstock.

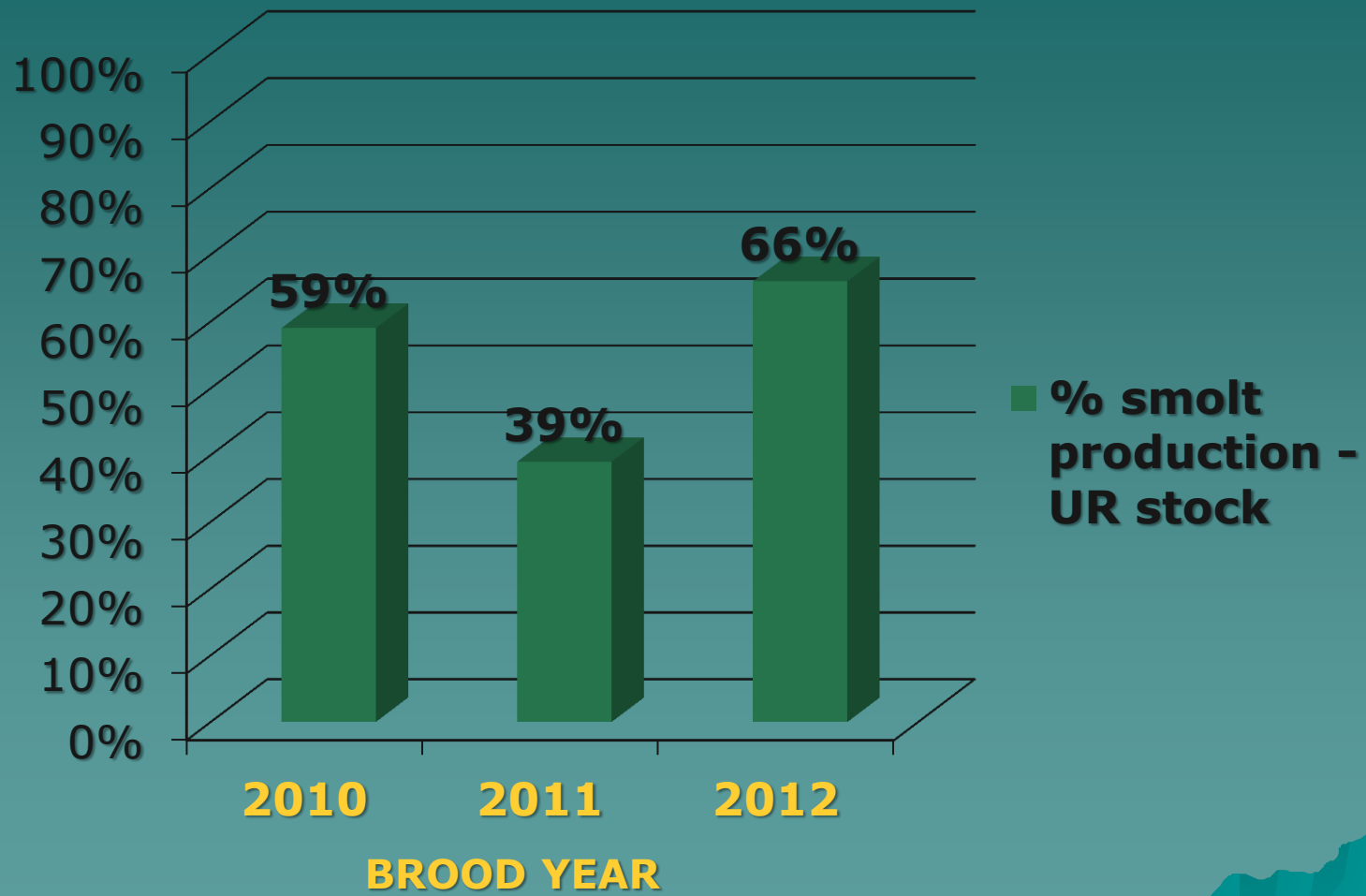
# Coho Smolt Releases by Year

1987	948,549
1988	996,433
1989	910,936
1990	988,928
1991	955,629
1992	961,386
1993	892,678
1994	884,105
1995	1,514,266
1996	1,477,383

1997	1,400,939
1998	1,606,786
1999	1,475,922
2000	1,561,290
2001	1,474,559
2002	1,621,857
2003	1,546,167
2004	1,552,595
2005	1,559,916
2006	1,493,816

2007	1,510,214
2008	1,514,432
2009	1,563,504
2010	1,029,159
2011	987,515
2012	999,352
2013	890,820

# % Smolt Production - Umatilla Stock



# Marking History

- From 1987-1996 releases were unmarked with representative production evaluation groups (AdCWT).
- In 1997, production at Cascade Hatchery wiped out. Production from lower river hatcheries marked with an Ad-clip only with both evaluation and “double index” (no clip - CWT only) mark groups.
- From 1998-2003, releases were unmarked with both representative production evaluation and double index mark groups.
- In 2004, the double index group was eliminated.
- Beginning with 2010 releases, production fish have been Ad-clipped with a no clip - CWT only production evaluation mark group.

# Marking History Table

Release Year(s)	Ad-clip only	AdCWT	No mark	CWT only
1987-1994		75K	925K	
1995-1996		75K	1.425M	
1998-2003		75K	1.4M	25K
2004-2009		75K	1.425M	
2010-Present	900K			100K

\*1997 left out – anomaly year

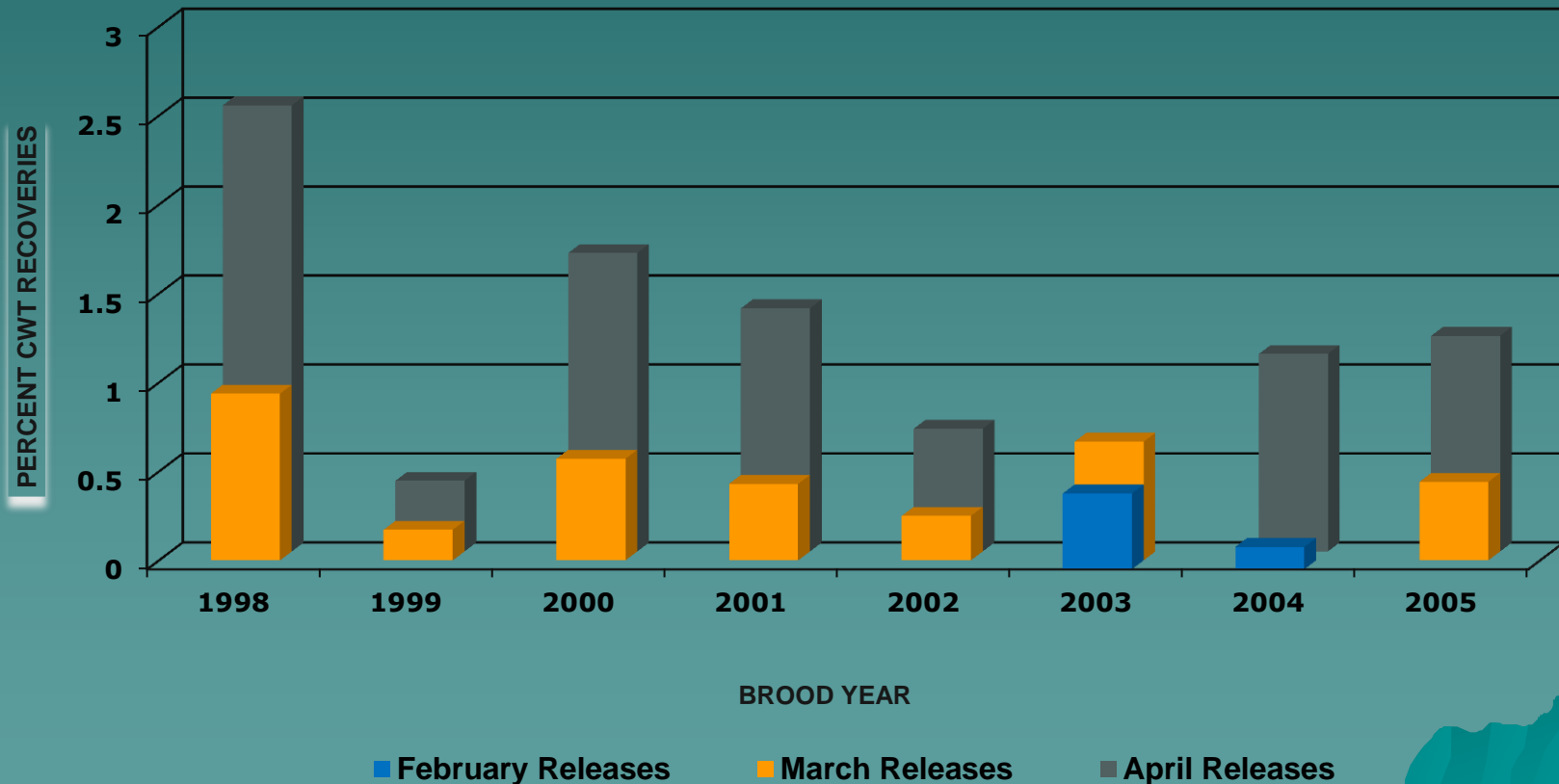
# Release Strategies

- From 1989-91, smolts were both acclimated and direct stream released as part of a release strategy survival evaluation. Results showed a survival advantage for acclimated smolts.
- From 1992-99 all smolts were direct stream released due to lack of facilities @ end of March.
- From 2000-09, fish acclimated and volitionally released in 2 groups. One in late March and the rest in mid-late April.
- From 2010-present, fish are acclimated and released in two groups. One in late March and the rest in mid-late April.
- Have discontinued volitional release strategy.

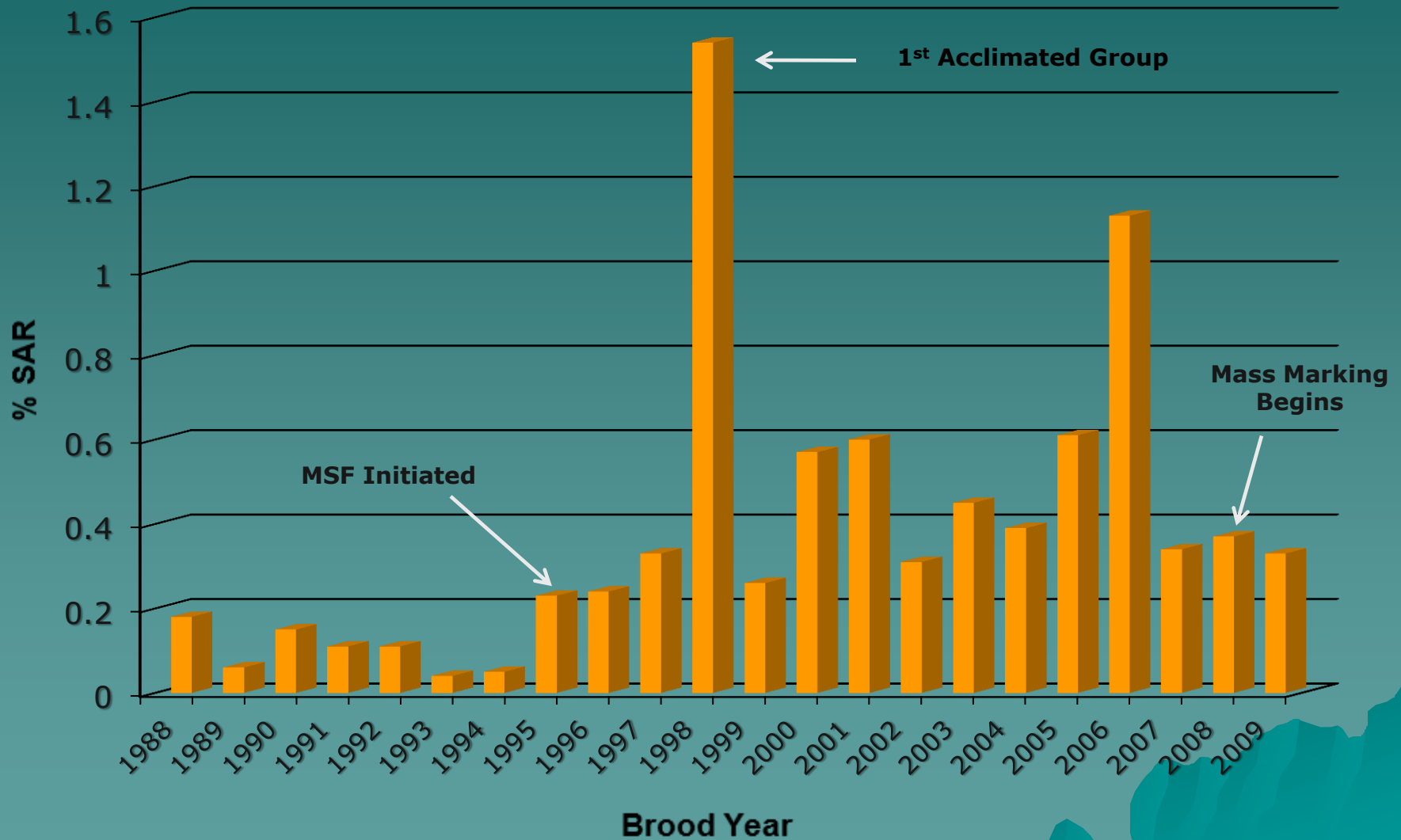


# March versus April Release Comparison

Total Estimated Coho Survival from Juvenile Releases in the Umatilla River



# % SAR to the Umatilla River




# Harvest, Marking and Effects on Return

- Brood Years 1985-1994: annual SAR returns to 3MD was 12.2% of overall SAS.
- Mark Selective Fisheries initiated in 1995.
- Brood Years 1995-2005: annual SAR returns to 3MD was 88.0% of overall SAS.


**Numbers based on CWT recoveries**



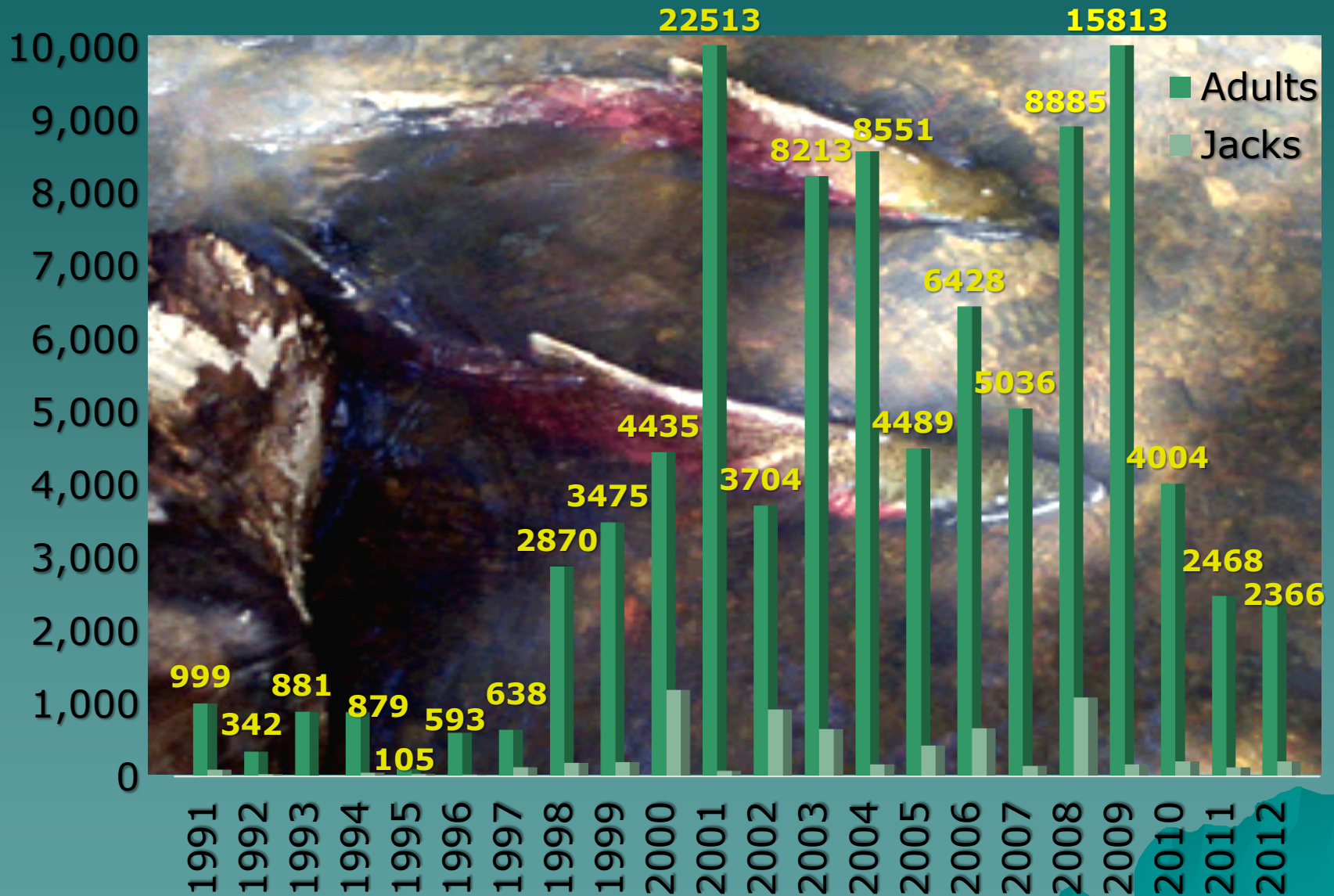
# Coho Escapement Management History

- 1989 – Escapement limited to 500 adults and 50 jacks hauled and released upstream of Stanfield Dam for natural spawning evaluation. Excess adults were sacrificed.
  - 1990/1991 - Escapement limited to 500 adults and 50 jacks hauled and released upstream and 500 adults and 50 jacks released at 3MD. In 1991 excess adults recycled below 3MD for fishery.
  - 1989/1991 - Total and upstream escapements limited due to ODFW concerns with negative interactions with STS.
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# Coho Escapement Management History

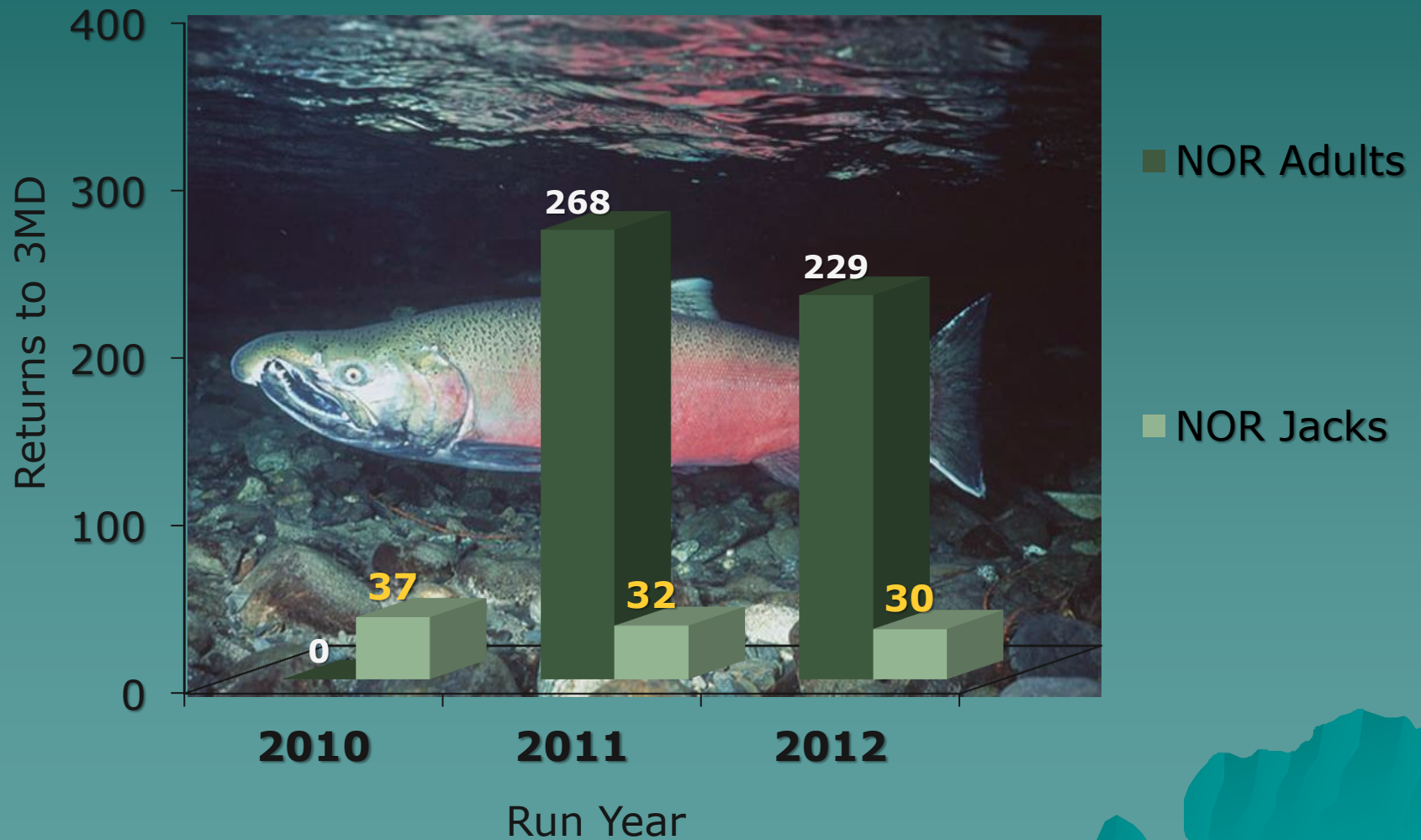
- 1992/2000 - Escapement limited to 500 adults and 25 jacks hauled and released upstream. No limit on number of adults released at 3MD.
  - 1992 – Total escapement limitation removed. Passage and flow conditions would limit escapement upstream of Stanfield Dam.
  - 1995 on – All Coho released at 3MD. Flow criteria met due to implementation of Phase II of the Umatilla Basin Project.
  - 2001 to present – No escapement limitations.
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# Annual Coho Spawning Escapement





# Natural Origin Returns



# A look back at the future as seen in 2005

- Tribal Fisheries effort low

Same situation.

- Quality of fish flesh poor

Same situation.

- Start Umatilla broodstock program?

Began with brood year 2010 but major fish culture issues yet to be resolved. First year of returns in 2013.

- Proposal to reduce Umatilla production

Program reduced to 1.0M beginning with BY08 (2010 releases) – all from Cascade Hatchery.

\* reprogram 500K for Wallowa River release

Identified in U.S. v. OR production table footnotes. No progress.

# A look back at the future as seen in 2005 (cont)

- Lack of program data – limited M&E

Similar situation.


Data collection limited to ancillary efforts associated with BPA projects, no direct Mitchell Act funding for M&E.

Limited or no analysis of release group CWT data.

External marking now allows for natural adult return estimations to be determined.



# The Future?

- Appears that Umatilla River is habitat limited for Coho
  - No tributary harvest
  - Wallowa identified in U.S. V. OR for reprogramming of Umatilla production
  - Mitchell Act transfer – no need for formal Master Plan
  - Coordinate with ODFW through Hatchery Management Plan?
  - Begin transfer of Umatilla production in 2015 (BY13)?
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