

Current and Future Research Updates 2013

**OHRC Advisory Committee
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David L. G. Noakes

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OSU - OHRC**

David L. G. Noakes

Homing and Straying

Angler Harvest

Passive Marking

Hatchery : Wild Differences

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Homing and Straying

Olfactory imprinting (in progress)

Magnetic Imprinting (in progress)

Otolith Marking (in progress)

Population Genetics (in progress)

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Angler Harvest

Behavioral syndromes (forthcoming)

Population genetics (in progress)

Early life history (in progress)

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Passive Marking

Otoliths (in progress)

Genetics (in progress)

Chinook surrogates (in progress)

Steelhead surrogates (forthcoming)

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Hatchery : Wild Differences

Chinook surrogates (in progress)

Steelhead surrogates (forthcoming)

Behavioral syndromes (forthcoming)

Engineered log jams (in progress)

Steelhead temperature (in progress)

Fish passage (forthcoming)

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- **Otoliths**

- Water, feed, otoliths
- David Noakes, Ryan Couture, Joseph O'Neil, Yongwen Gao, Jessica Miller, Jennifer McKay
- Chinook salmon, steelhead
- Microstructure and microchemistry (stable isotopes)
- Passive marking (hatchery and wild fish); reduced costs; wider application

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- **Steelhead temperature**
 - Rear wild and hatchery fish at different temperatures – measure size at age, genetic and phenotypic sex
 - David Noakes, Ryan Couture, Joseph O'Neil, Kathleen Cole, Carl Schreck, Michael Blouin, Bruce Morrison, Neil Thompson
 - Potential effects of climate change; hatchery: wild comparisons; hatchery operations

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- **Olfactory Imprinting**

- Rear fish in surface (river/stream) or well water, test against combinations of water sources
- Chinook salmon and steelhead – OHRC, Leaburg (Umatilla?)
- David Noakes, Ryan Couture, Joseph O'Neil, Andy Dittman, Lance Clarke, Marc Johnson
- Homing and Straying; Hatchery Management; Hatchery : Wild comparisons

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- **Engineered log jams**

- Observations of wild fish (coh0) and “natural” log jams; controlled studies in OHRC stream channels
- Desiree Tullos, Jason Dunham, Jeremy Monroe, Cara Walters, Ryan Couture, Joseph O’Neil, David Noakes (others)
- Habitat Restoration; Hatchery : Wild comparisons; Fishery management

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- **Geomagnetic sensitivity**

- Experimental studies of embryos, juveniles and adults – Chinook salmon, steelhead – OHRC
- Nathan Putman, David Noakes, Ryan Couture, Joseph O'Neil (several collaborators)
- Homing and Straying; Hatchery operations; Coastal energy developments; Rearing and tagging procedures

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- **Fish passage, fish screens**

- Research Workshop – OHRC, OSU, ODFW, NOAA, farmers, ranchers, landowners, commercial interests
- Acceptable screens and passage designs – alternative solutions
- David Noakes, Ryan Couture, Joseph O'Neil, Sierra Lewis, others
- Habitat restoration; Barrier, screen and passage design and operations

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- **Chinook surrogates**

- Survey of Chinook life history; production of surrogates for field studies; experimental rearing under controlled conditions
- David Noakes, Carl Schreck, Eric Billman, Ryan Couture, Joseph O'Neil, Rob Chitwood, Cam Sharpe – many others
- Hatchery : Wild comparisons; Hatchery management; Fish passage; Honing and straying

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- **Steelhead surrogates**

- Survey of steelhead life history; production of surrogates for field studies; experimental rearing under controlled conditions
- David Noakes, Carl Schreck, Eric Billman, Ryan Couture, Joseph O'Neil, Rob Chitwood, Cam Sharpe – many others
- Hatchery : Wild comparisons; Hatchery management; Fish passage; Homing and straying

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- **Behavioral syndromes**

- Detailed observational studies of Chinook salmon, steelhead and rainbow trout – OHRC, stream channels, tanks, aquaria, raceways
- David Noakes, Eric Billman, Ryan Couture, Joseph O'Neil, Julia Unrein, Carl Schreck, Cam Sharpe, others
- Angler harvest vulnerability; Hatchery : Wild comparisons; Hatchery operations

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- Olfactory imprinting
- Geomagnetic sensitivity
- Otoliths
- Fish passage
- Chinook surrogates
- Steelhead surrogates
- Behavioral syndromes
- Engineered log jams
- Steelhead temperature