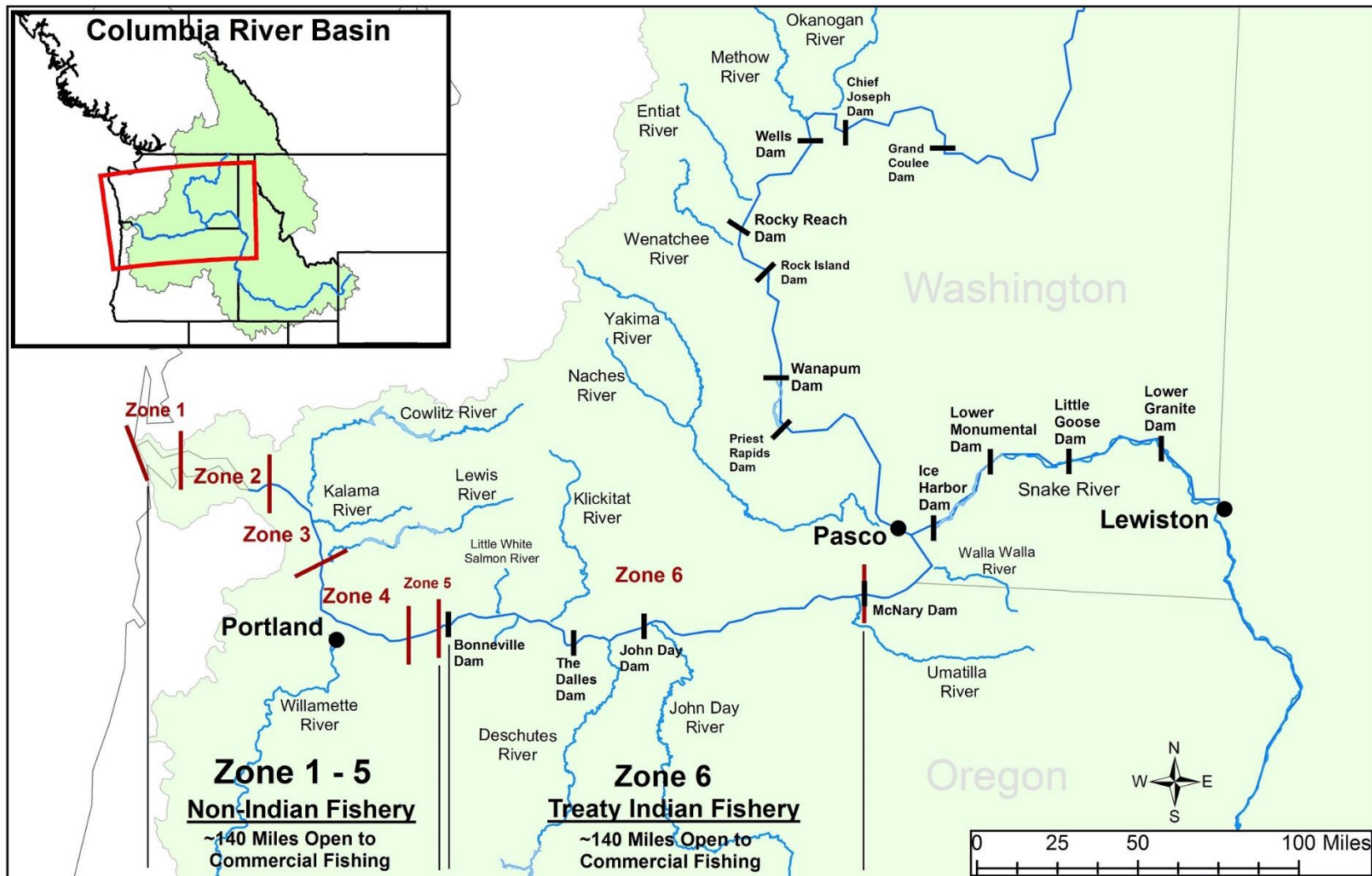


Summer Steelhead stock composition in the Columbia River sport and treaty fisheries 2015 - 2019

- Alan Byrne
- Idaho Department of Fish and Game
- Boise, Idaho



Management of Columbia River fisheries

- Fisheries are managed under *U.S. v. Oregon Management Agreement* from the Columbia River mouth to Highway 395 bridge near Pasco, WA
- Four tribes with federally secured Columbia River treaty fishing rights and the states of Oregon, Washington, and Idaho and the Shoshone-Bannock Tribe.
- Chinook fisheries managed for 50/50 harvest share between treaty and non-treaty. However fisheries must remain within allowed impacts to wild chinook and steelhead
- No harvest sharing for steelhead fisheries. Limited by impacts that are size based.
 - A and B-Index steelhead abundances are estimated at Bonneville Dam from July 1 to October 31
 - A-Index (small) are fish less than 78 cm
 - B-Index (large) are fish 78 cm and larger
 - All non-treaty fisheries must remain under a 2% impact each on wild A and B-Index steelhead. No harvest of unclipped steelhead allowed.
 - Treaty fisheries limited by total B-Index abundance that ranges from 13% to 20%. Unclipped steelhead may be kept and sold.

Contributors and Cooperators

- **Washington Department of Fish and Wildlife**
- Joe Hymer (retired), Ken Keller, Bonnie Jackson
- **Yakama Nation**
- Roger Dick II, Megan Begay
- **Columbia River Inter-Tribal Fish Commission**
- Stuart Ellis, Jon Hess, Hagerman Genetics Lab
- **Oregon Department of Fish and Wildlife**
- Rod French
- **Idaho Department of Fish and Game Genetics Lab**
- Craig Steele, Thomas Delomas

- And most importantly all the technicians that collected and analyzed the samples

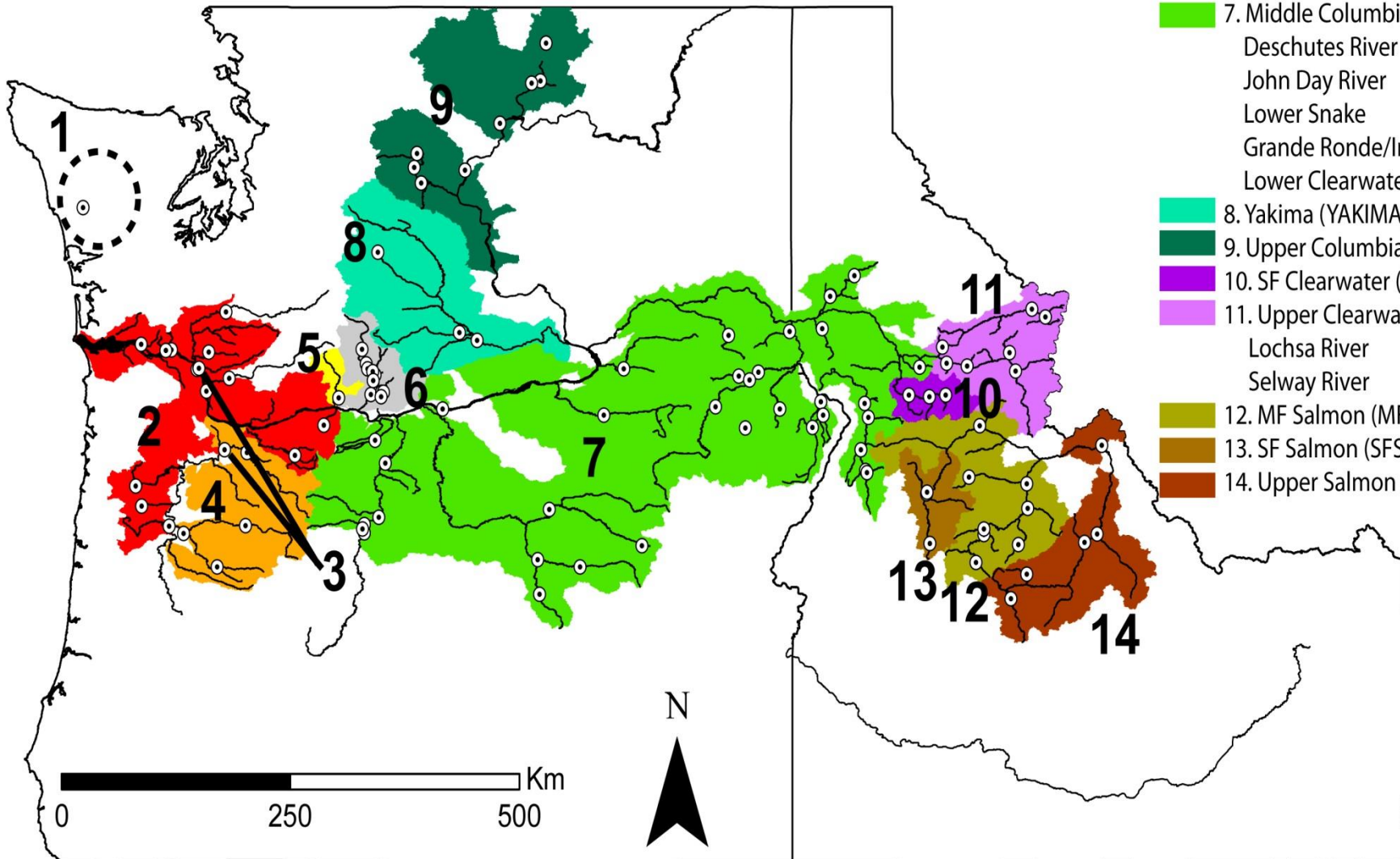
Benefits of PBT

- Provides same the information as CWTs (stock and cohort)
- No handling or physical marking of juveniles is required
- Offspring can be sampled non-lethally at any life stage
- **Very high tagrates. Usually 90% - 100% in the Snake basin**
- **All Snake basin steelhead broodstock genotyped since BY2009**
- **Mid-C and Up-C steelhead broodstock genotyped beginning BY2012**
- Information can be used for run reconstruction, harvest composition estimates, and hatchery evaluations
- Additionally, many issues associated with tagging studies go away
 - ✓ There is no tag loss
 - ✓ All “tagged” fish can accurately be identified
 - ✓ There is no differential mortality or tag effect

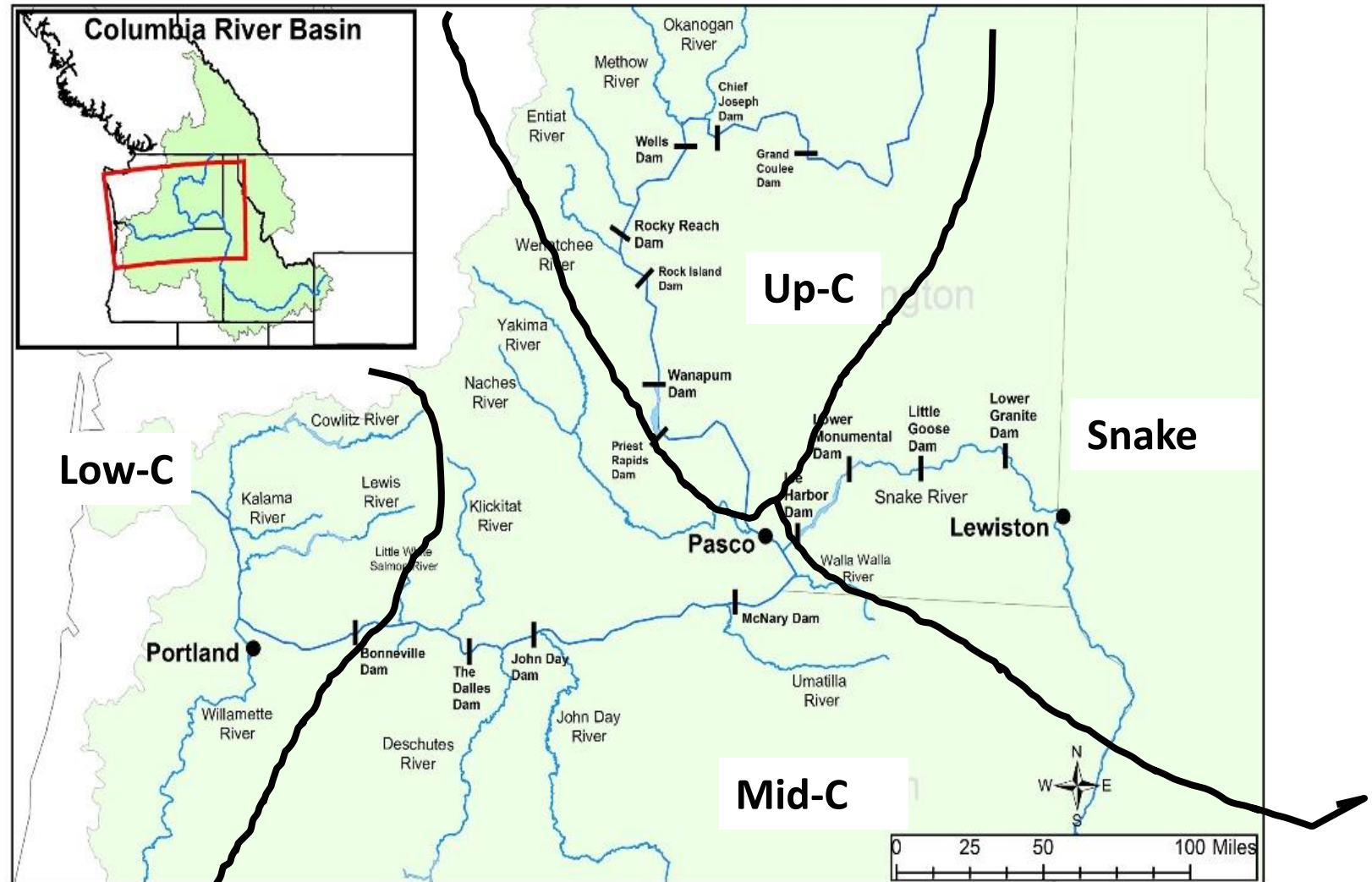
Steelhead GSI reporting groups used for PBT unassigned fish

Reporting groups

- 1. Quinault (WCOAST)
- 2. Lower Columbia (LOWCOL)
- 3. Skamania (SKAMAN)
- 4. Willamette (WILLAM)
- 5. Big White Salmon (BWSALM)
- 6. Klickitat (KLICKR)
- 7. Middle Columbia (MGILCS)
Deschutes River
John Day River
Lower Snake
Grande Ronde/Imnaha
Lower Clearwater/Salmon
- 8. Yakima (YAKIMA)
- 9. Upper Columbia (UPPCOL)
- 10. SF Clearwater (SFCLWR)
- 11. Upper Clearwater (UPCLWR)
Lochsa River
Selway River
- 12. MF Salmon (MFSALM)
- 13. SF Salmon (SFSALM)
- 14. Upper Salmon (UPSALM)

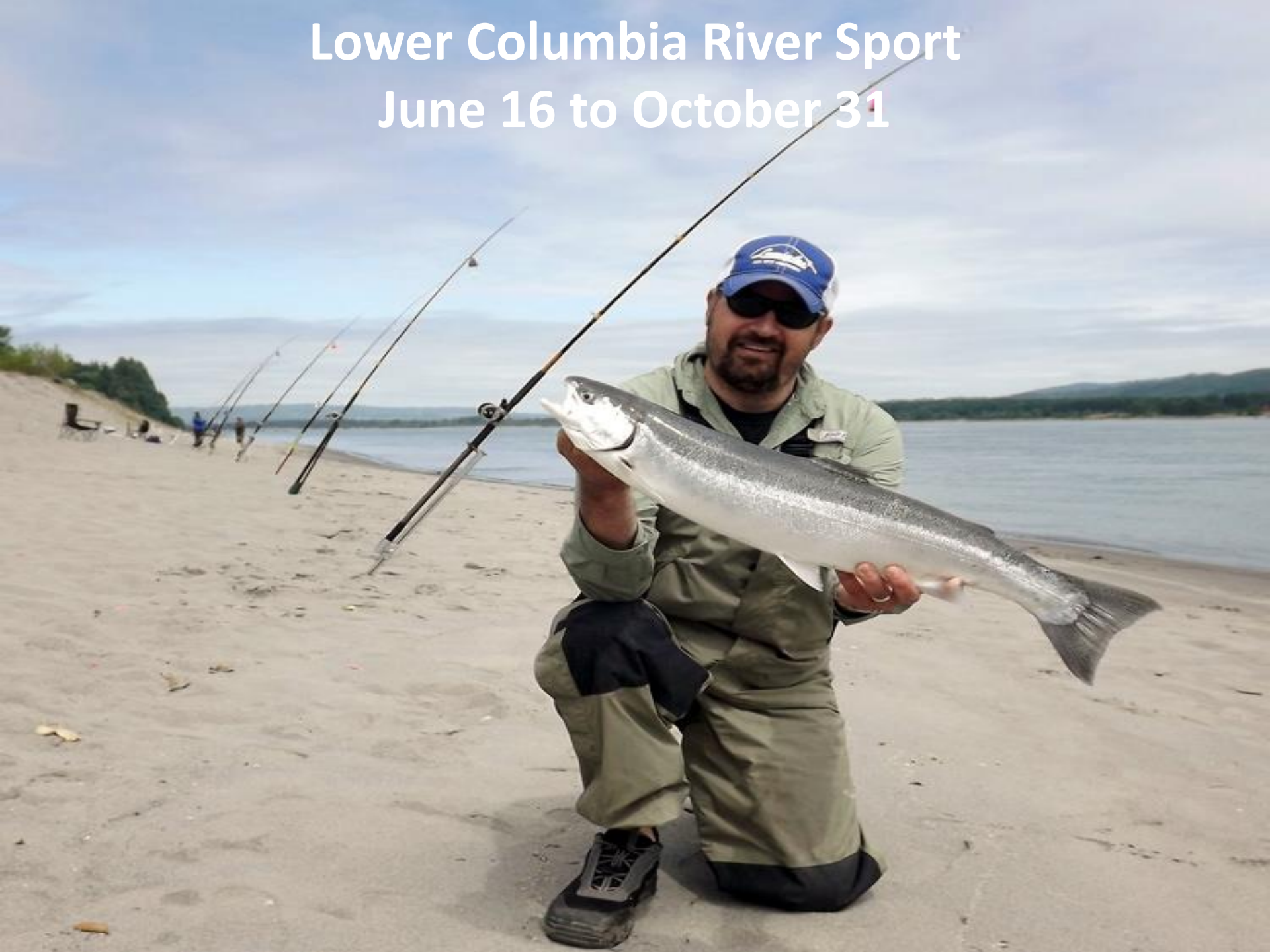


Columbia River reporting basins used in the analysis



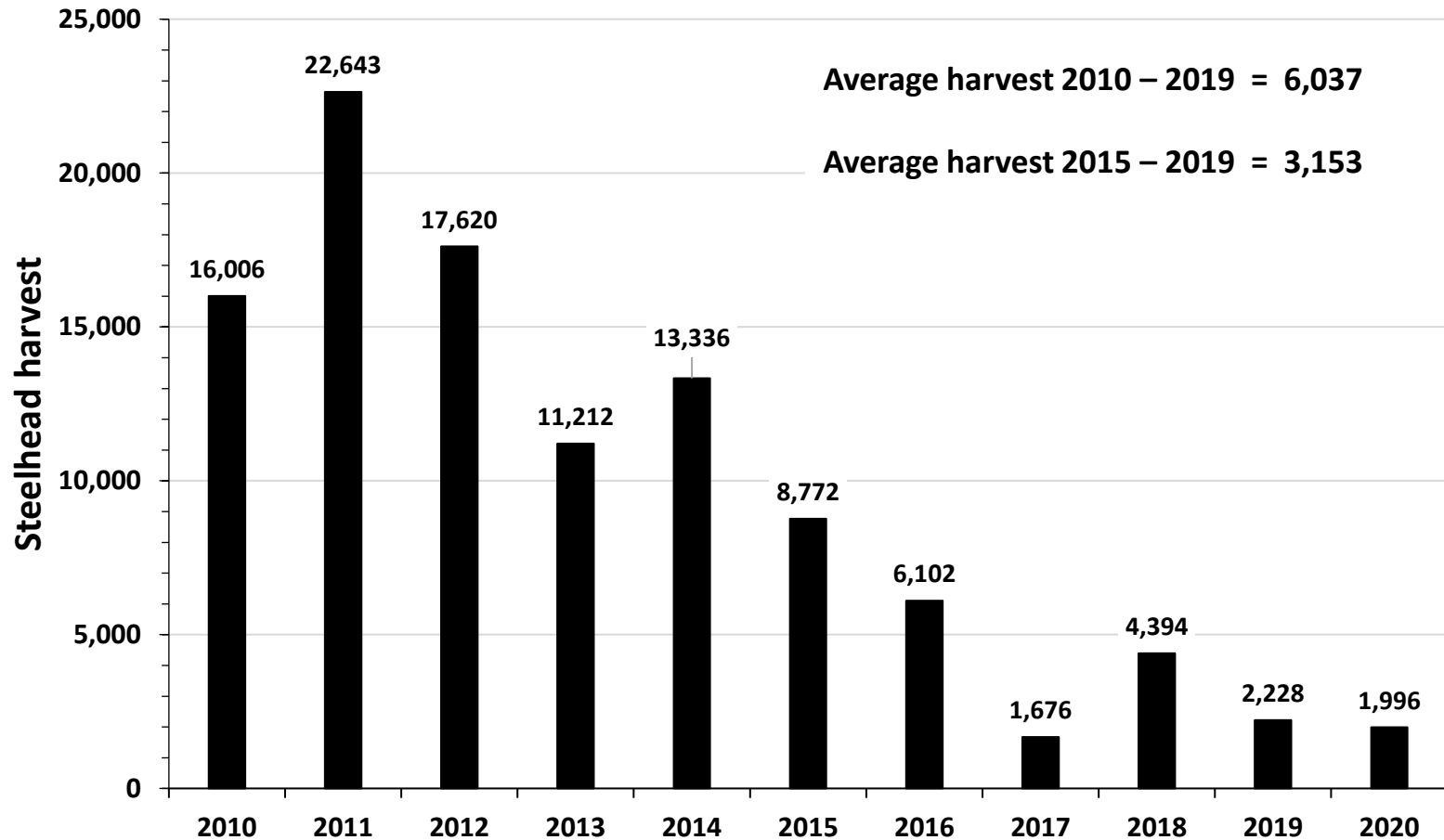
***SKAMAN and MGILCS GSI groups treated as a basin
as both include rivers in more than one of the basins shown***

Lower Columbia River Sport June 16 to October 31



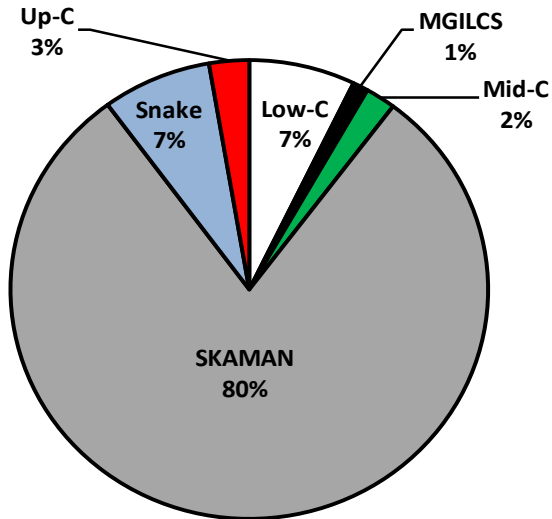
- Sampling from June 16 to October 31
- Review years 2015 to 2019, fishery sampled since 2011
- Most summer steelhead harvest occurs prior to September 1
- Anglers switch effort to fall chinook once they enter the river—usually by late August
- Only fish with a clipped Adipose fin may be kept
- Season closures and reduced daily bag limits each year since 2017 due to low steelhead returns

Lower Columbia River steelhead harvest, June 16 to October 31

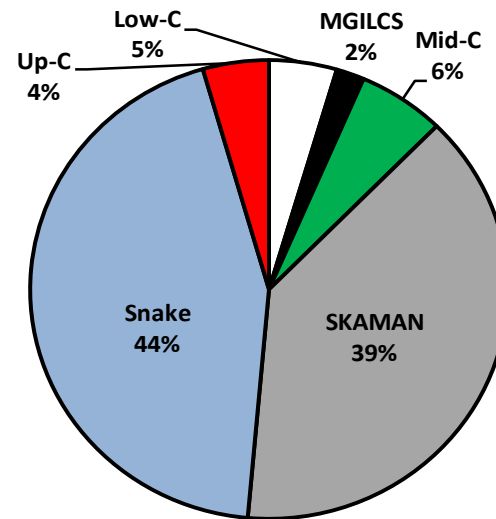


Monthly harvest contribution by basin, 2015 to 2019

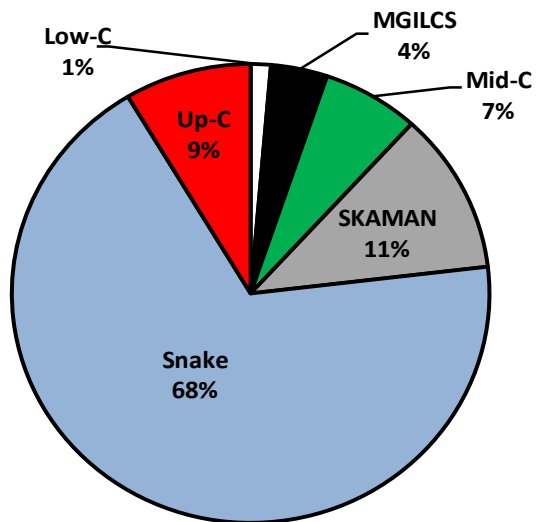
a) June



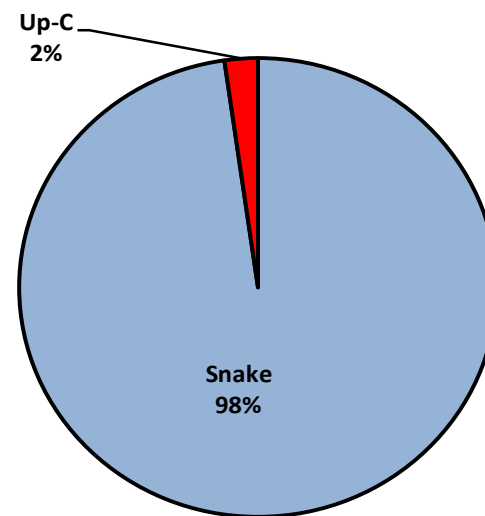
b) July



c) August (2015, 2016, 2018)

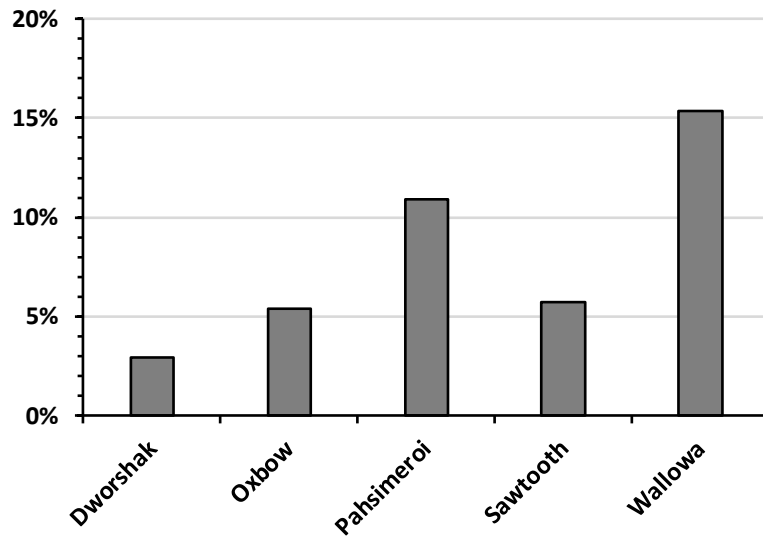


d) Sep/Oct (2016, 2017)

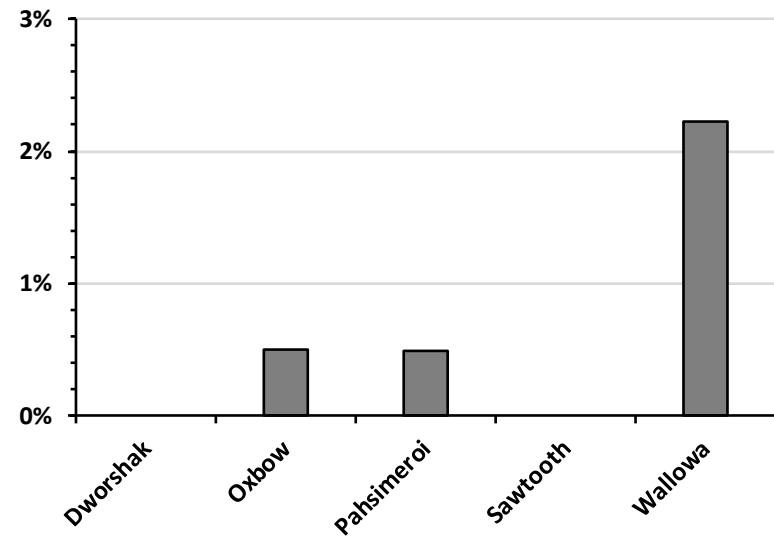


Snake basin hatchery stock contribution to Lower Columbia sport harvest. Average of 2015, 2016 ,and 2018

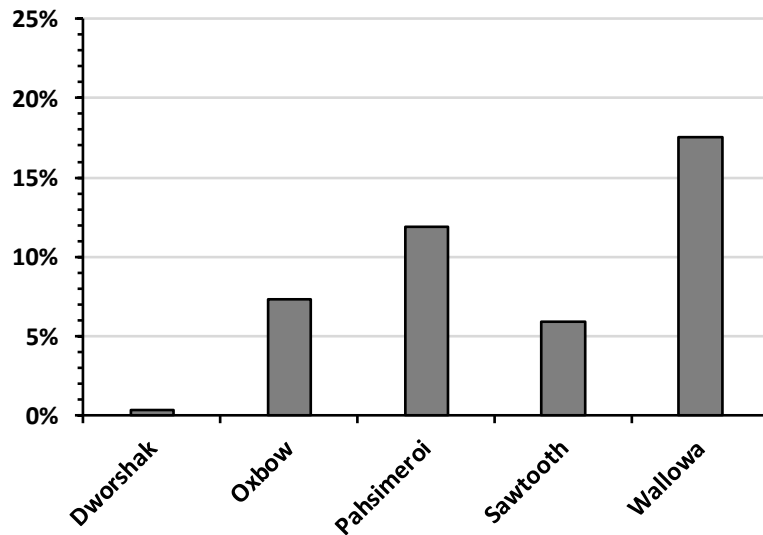
Full season



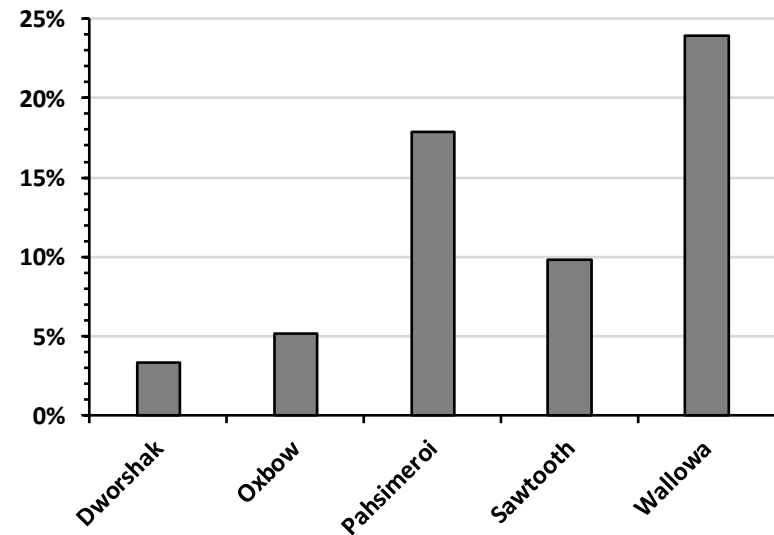
June



July



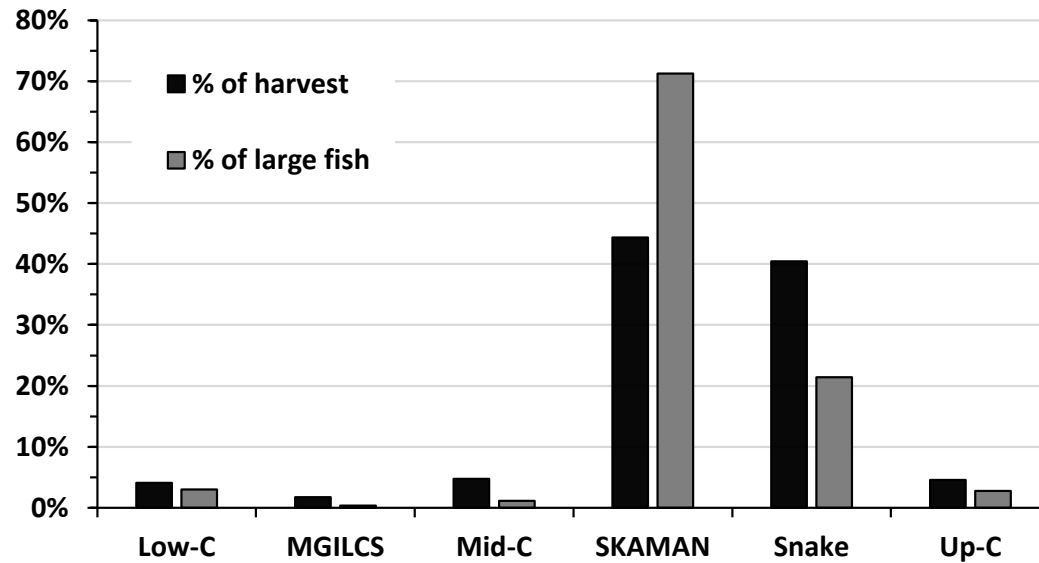
August



Lower Columbia River sport.

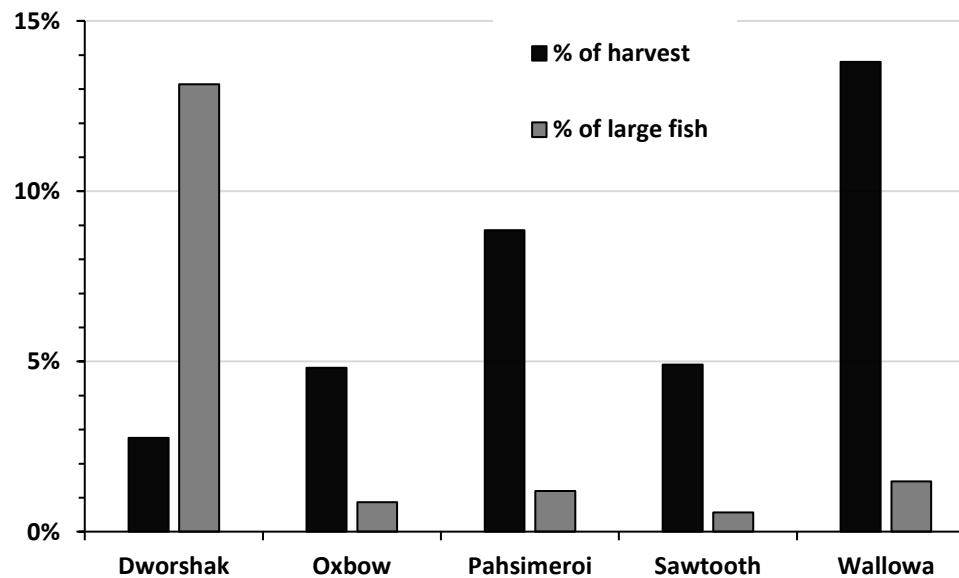
Percent of the harvest and large fish by basin.

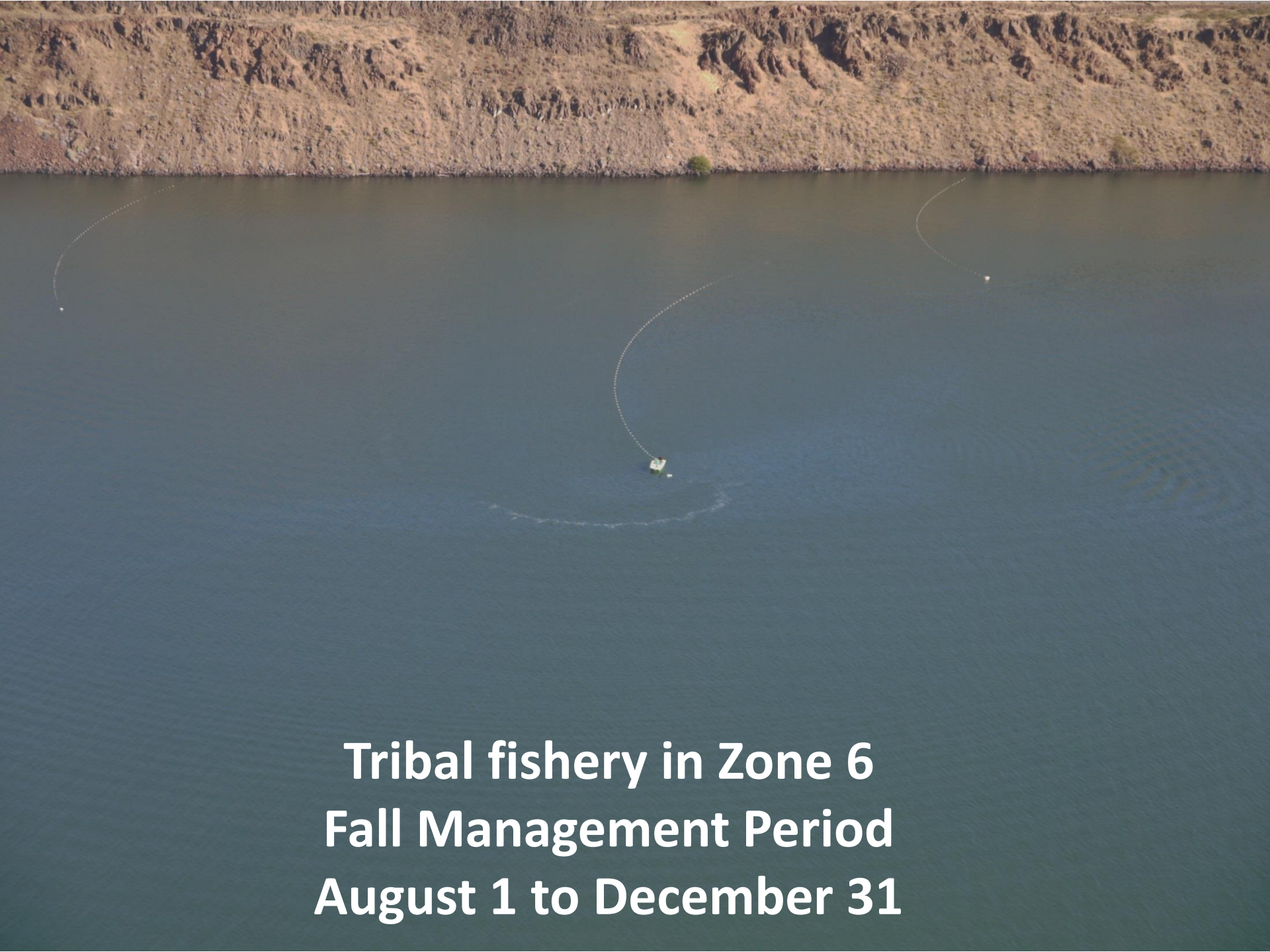
Average 2015 to 2019



Lower Columbia River sport.

Percent of the harvest and large fish from Snake basin hatchery stocks. Average 2015 to 2019



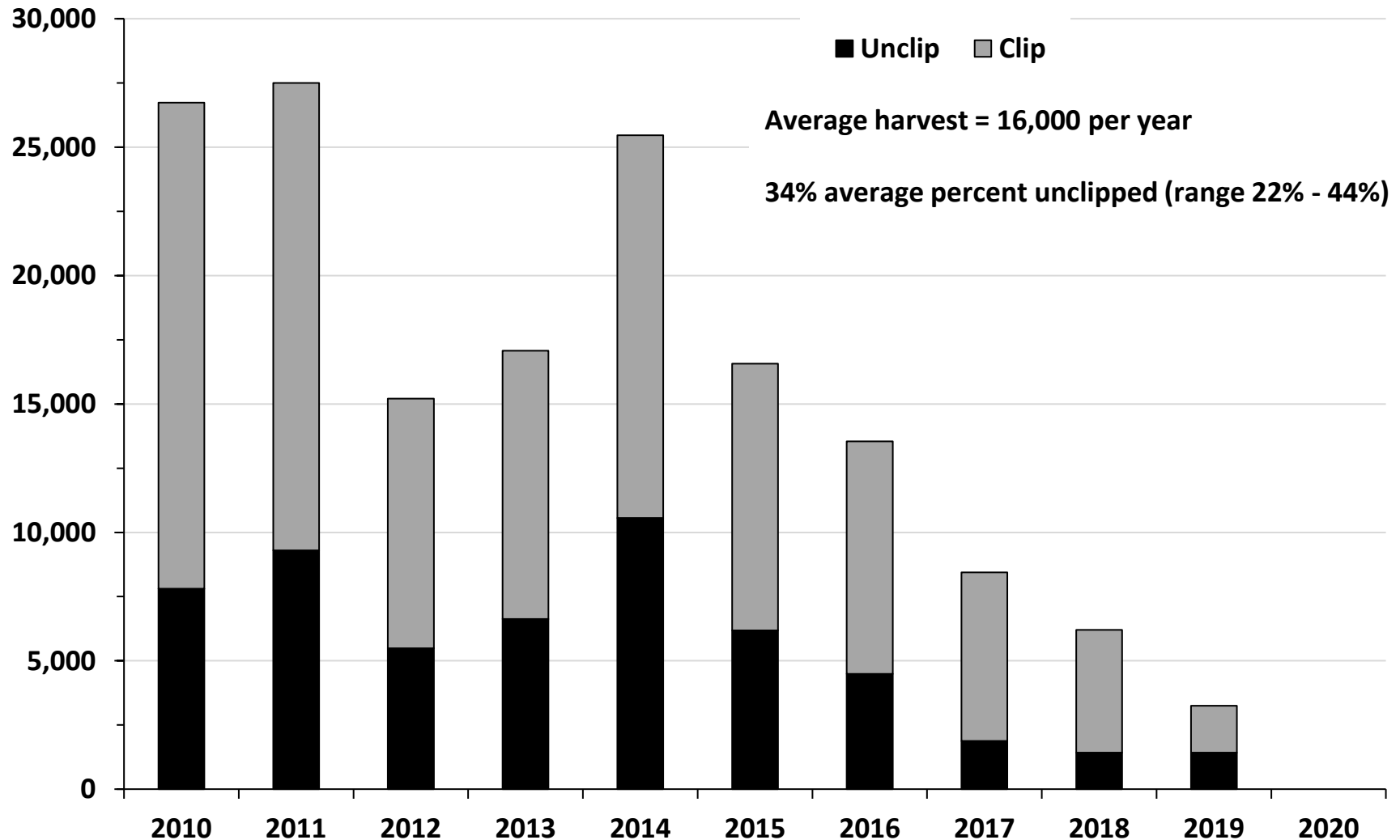


**Tribal fishery in Zone 6
Fall Management Period
August 1 to December 31**

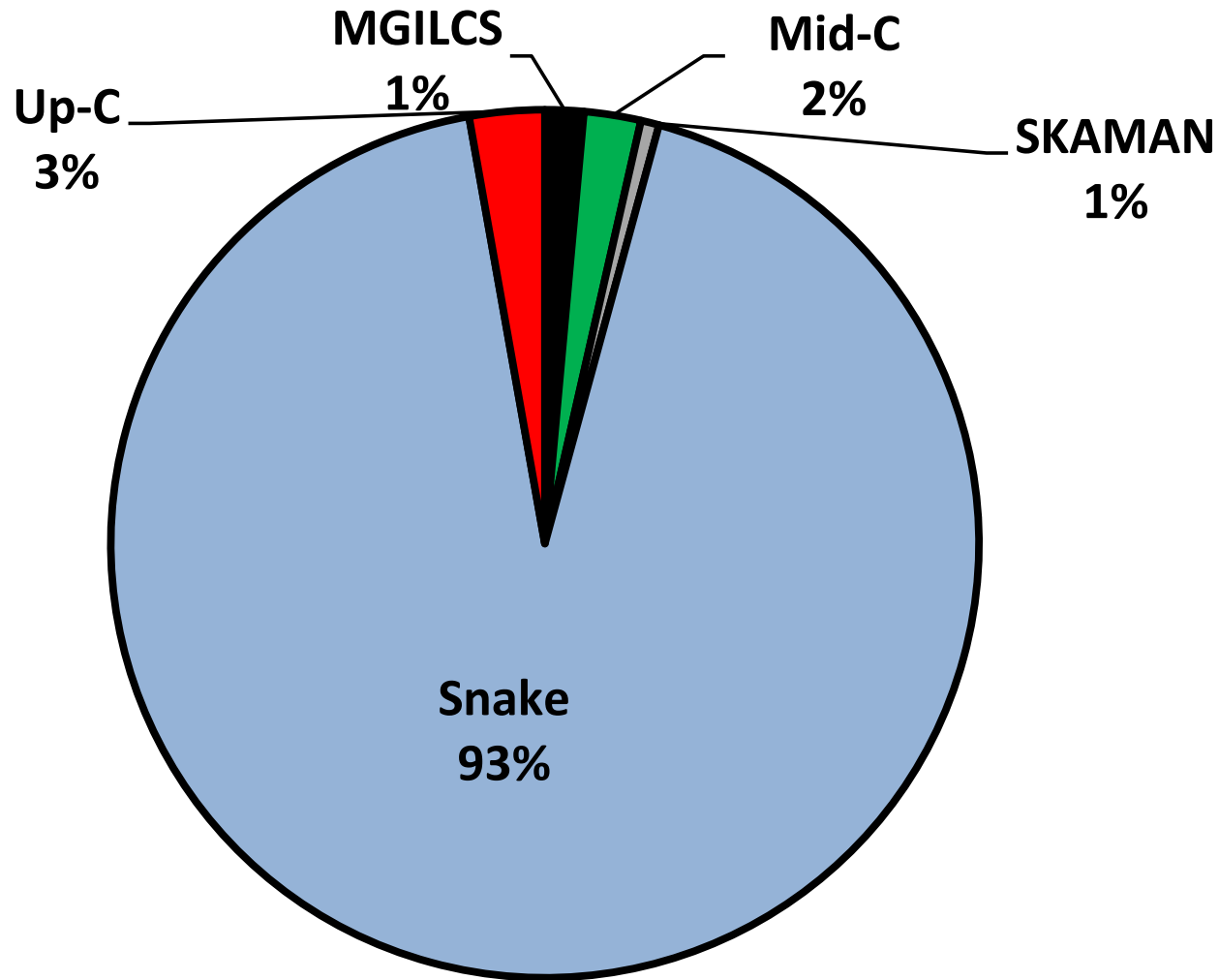
Tribal fisheries sampled

- **Columbia River Zone 6 : 2011 - 2019**
 - Bonneville Dam to McNary Dam
 - Platform, hoop net, hook and line, gill net, drift net
 - Fish are kept for personal use, over-the-bank sales, and commercial sales
 - Commercial fishing targets summer and fall chinook, sockeye, and coho but significant numbers of steelhead are caught especially in the fall chinook fishery.
 - **Clipped and unclipped steelhead may be harvested**
 - **Commercial retention and sale of steelhead is allowed**
 - Most of the steelhead harvest occurs in the fall commercial season (late August – early October)
 - Harvest is estimated for clipped and unclipped steelhead
 - catch has been sampled by Yakama Nation crews since 2012

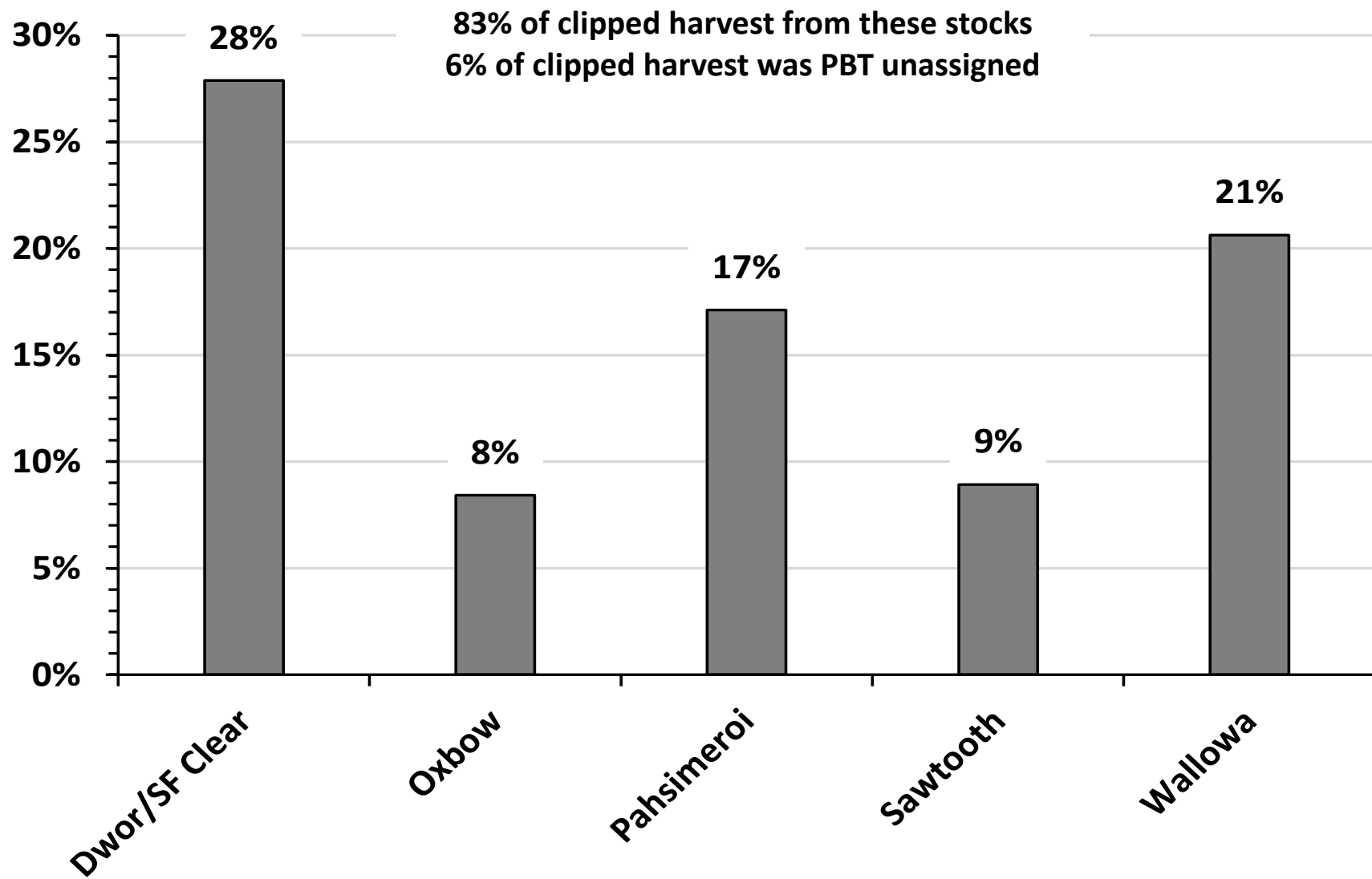
Tribal Zone 6 fall period steelhead harvest



Average percent of clipped steelhead harvest by basin from 2015 to 2019 in tribal Zone 6 fall period fishery



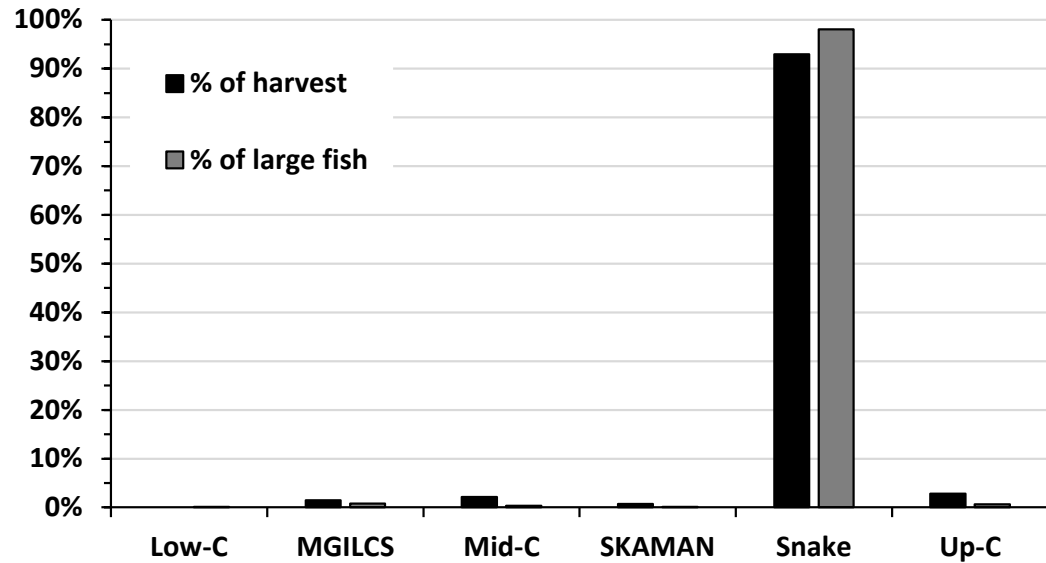
Average percentage of the clipped tribal Zone 6 harvest from Snake basin hatchery stocks, 2015 - 2019



Tribal Zone 6.

Percent of the
clipped harvest and
large fish by basin.

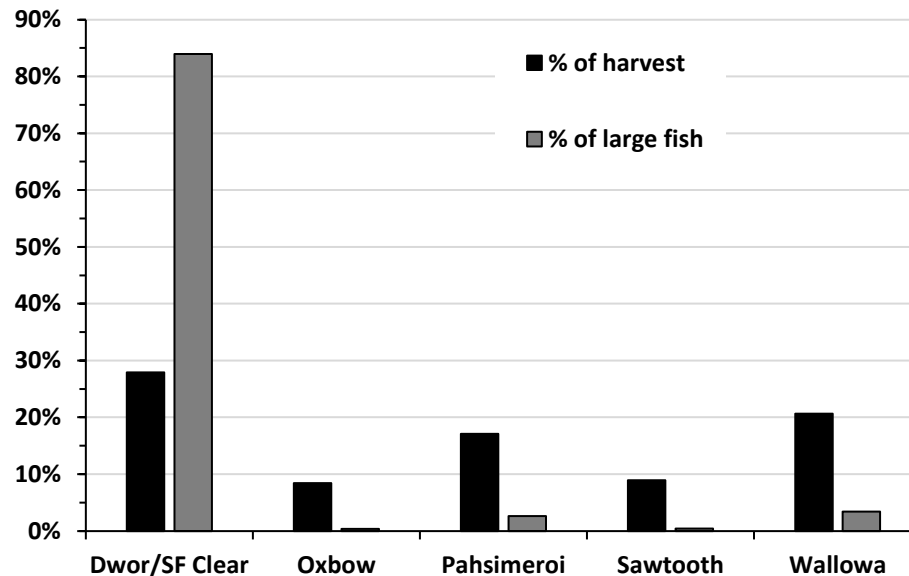
Average 2015 to
2019



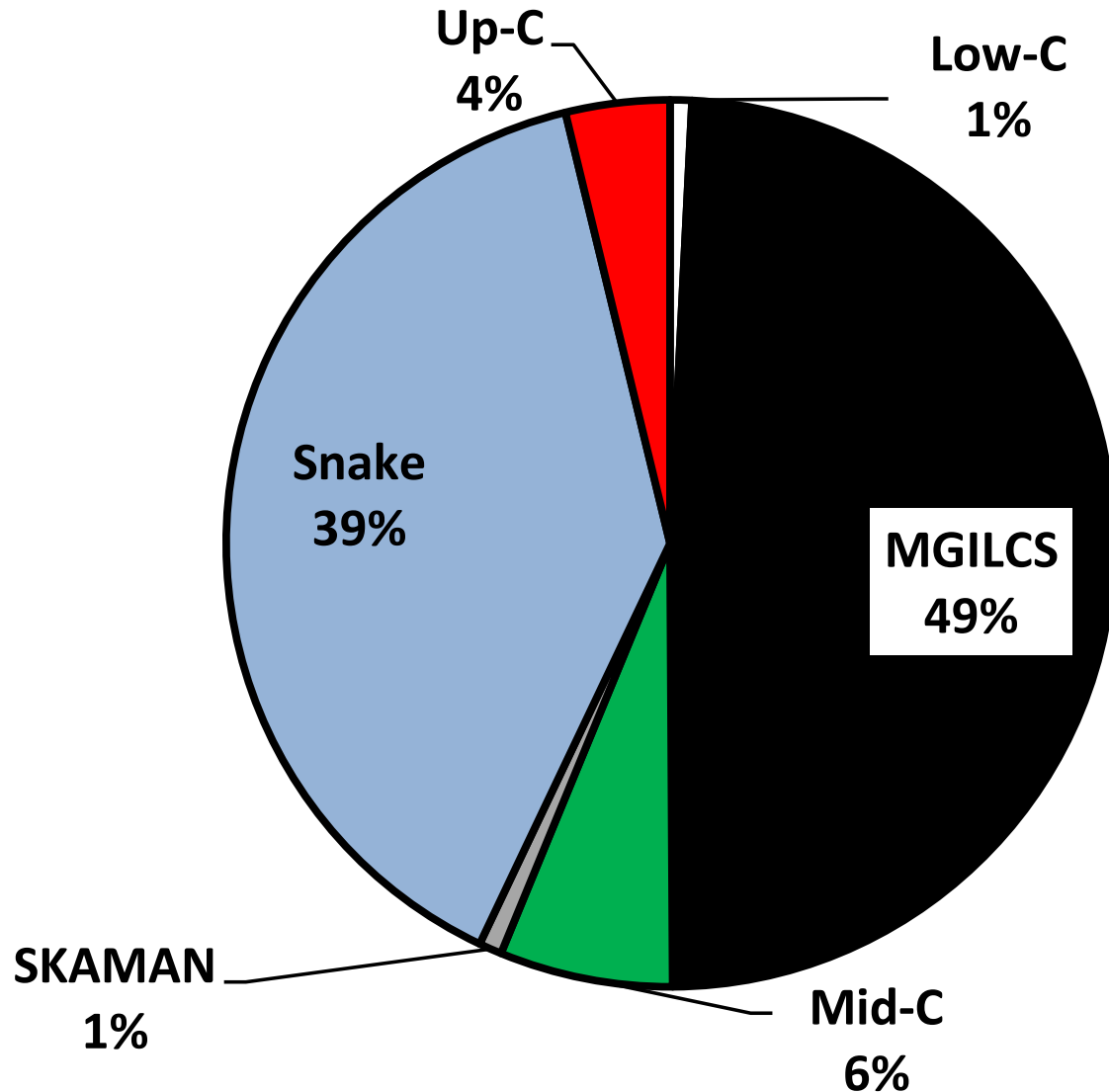
Tribal Zone 6.

Percent of the
clipped harvest and
large fish from
Snake basin
hatchery stocks.

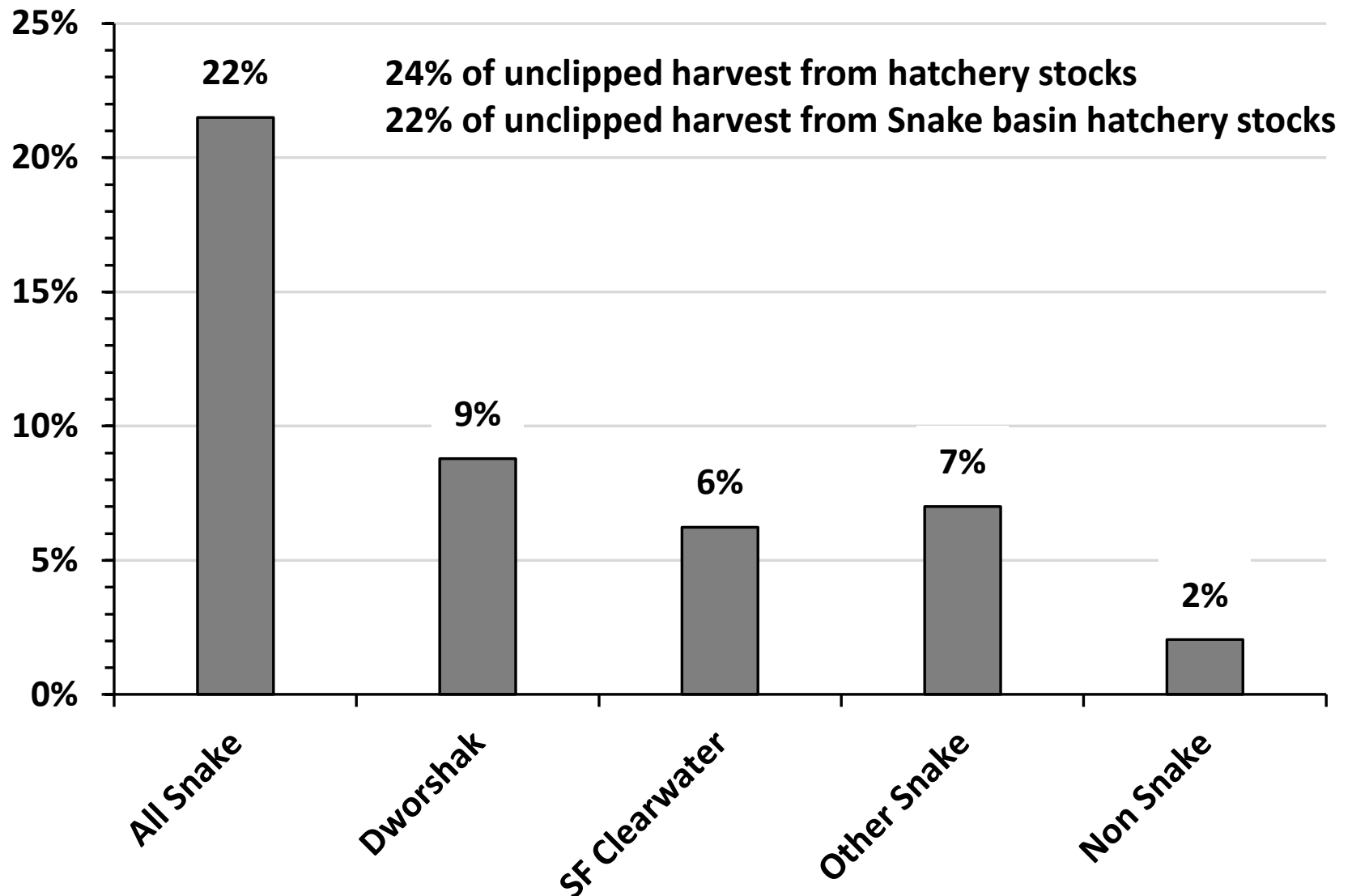
Average 2015 to
2019



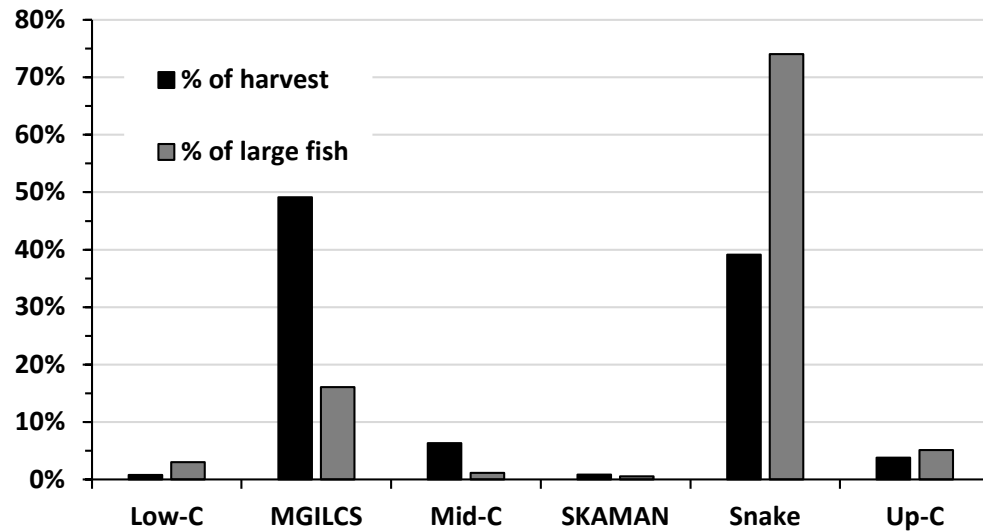
Average percent of unclipped steelhead harvest by basin from 2015 to 2019 in tribal Zone 6 fall period fishery



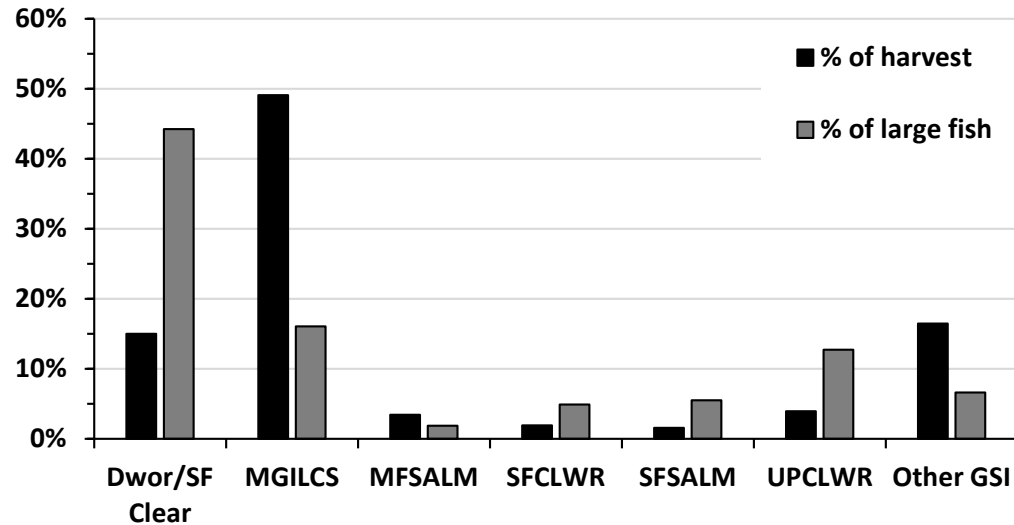
Average percentage of the unclipped tribal Zone 6 harvest from hatchery stocks, 2015 - 2019



Tribal Zone 6.
Percent of the
unclipped harvest
and large fish by
basin. Average
2015 to 2019

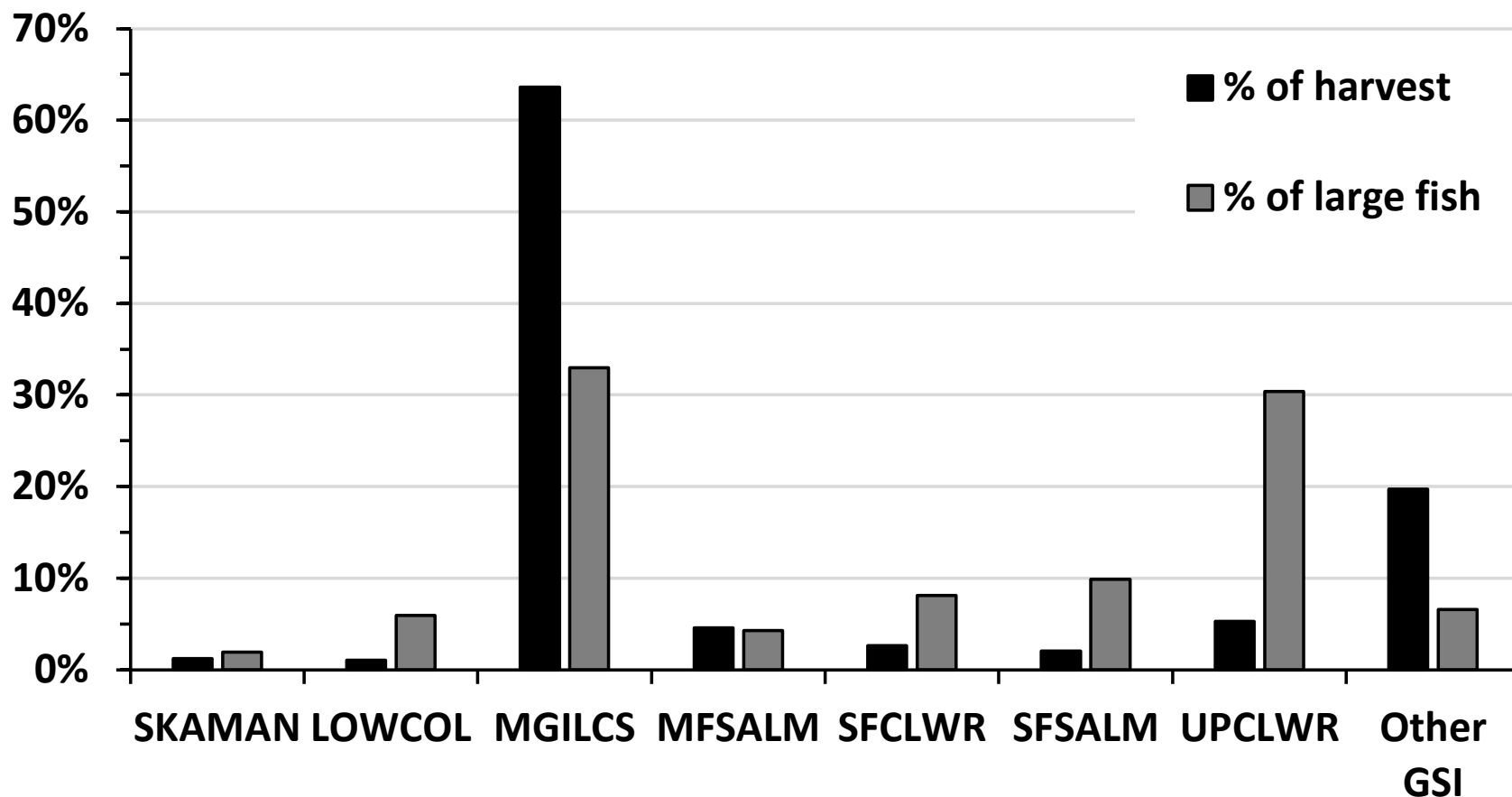


Tribal Zone 6.
Percent of the
unclipped harvest
and large fish by
stock. Average
2015 to 2019



GSI stocks – wild fish

Percent of tribal wild harvest and large fish by GSI stock



GSI stocks within Idaho contribute about 24% of the total wild harvest and 53% of the large wild steelhead harvested

Final thoughts

- The Snake basin contribution to Lower Columbia sport harvest increases as the season progresses. Early closures of the steelhead fishery will skew the proportion of harvest to Low-C and SKAMAN stocks
- The Snake basin stocks contribute over 90% of the clipped harvest and nearly 40% of the unclipped harvest in the tribal Zone 6 fall fishery
- In the fall tribal fishery most large clipped hatchery (B-Index) fish are Dworshak or SF Clearwater stocks. These 2 stocks make up 83% of the large clipped fish.
- In the fall tribal fishery most large unclipped (B-Index) fish are SF Clearwater or Dworshak hatchery stocks and MGILCS and UPCLWR wild stocks. These 4 stocks make up 71% of the large unclipped fish.
- In the fall tribal fishery most of the large wild fish are MGILCS, UPCLWR, SFSALM, and SFCLWR stocks. These 4 stocks make up 81% of the large wild fish.