Baker Sockeye Workshop

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Aaron Dufault
Pink, Chum, Sockeye Salmon Specialist
Fish Program

Outline

- Baker Sockeye History
- Baker Sockeye Management
- Chronology of 2014 Season
- Discussion/Questions

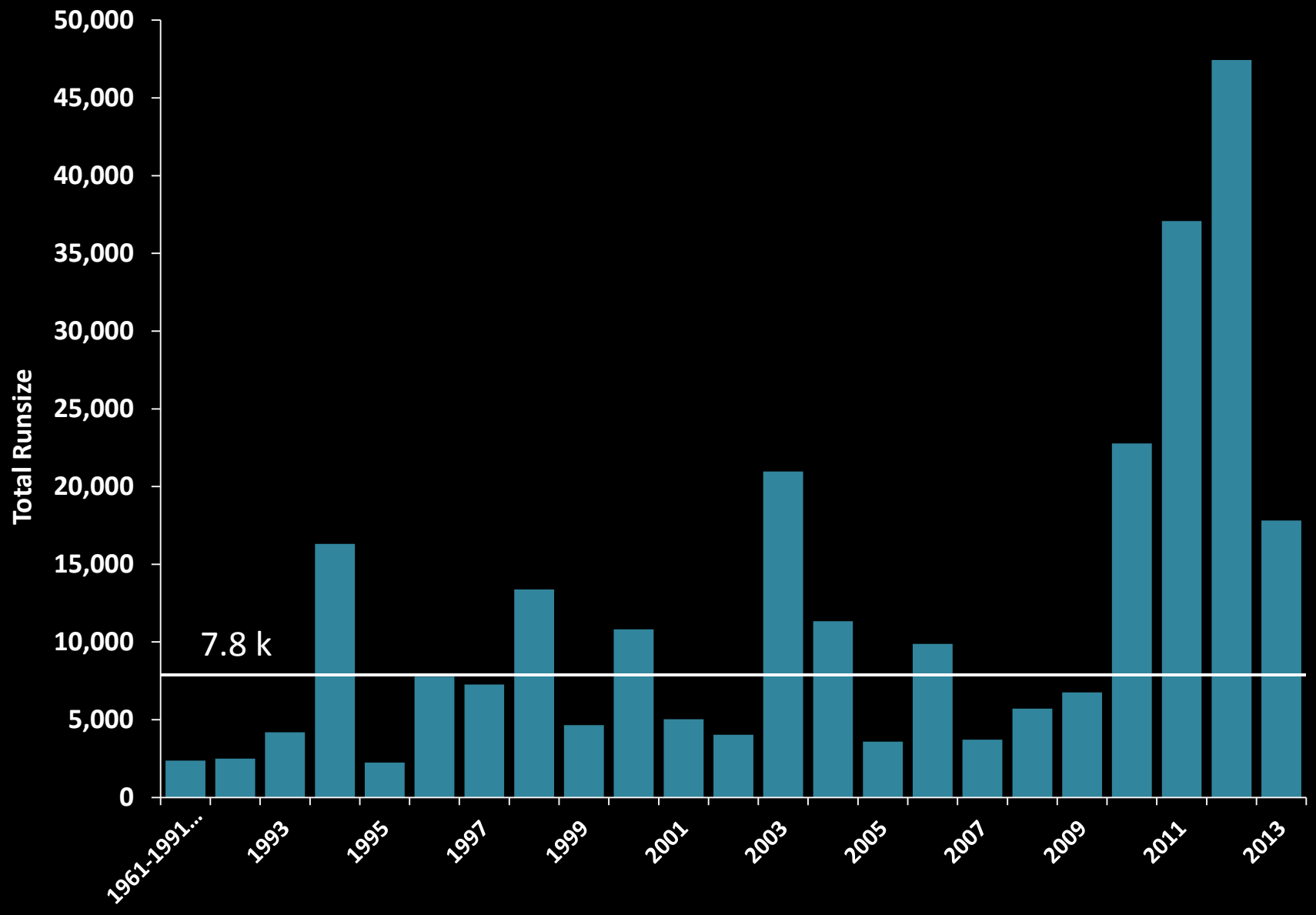
Baker Lake History

- Native Baker River sockeye run blocked by Lower Baker Dam in 1925 – ladder for fish passage
  - Lake Shannon
- Upper Baker Dam (1959) – enlarging Baker lake
  - Blocked upstream fish passage
- Human transport of adults/smolts from lake to Baker river
- Hatchery dependent run –low levels of natural spawning in Baker Lake/River

Baker Lake Facility Improvements

- 2008 floating surface collector increased smolt capture efficiency in Baker Lake
- Updated fish hatchery in 2010 – capacity 11 million fry (1.7 million 1970's to 2009) – Spawning beaches
  - Producing ~ 6 million sockeye
- Updated Baker trap – better fish handling

Baker Lake Sockeye Runsize



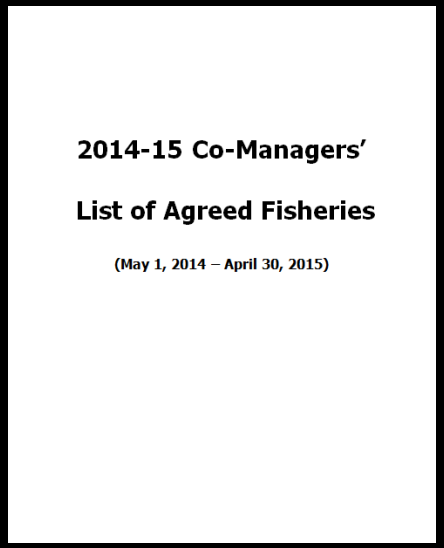
Baker Sockeye Fisheries

- Managed as a predominately hatchery stock
- WDFW prioritizes Baker Sockeye for recreational fisheries
- Baker Lake fishery opened in 2010
- 2012 first Skagit River fishery
- Avg. harvest ~7,286/yr (2010-2013)
- ~$746k avg. economic value (2010-11)

Fishing Locations – Skagit R.

Preseason Management

- Preseason Forecast
- NOF Public Comment
  - Lake vs. River fisheries - impacts
- Comanager agreement on fisheries (LOAF)
  - In-river fishing schedules – minimize conflict

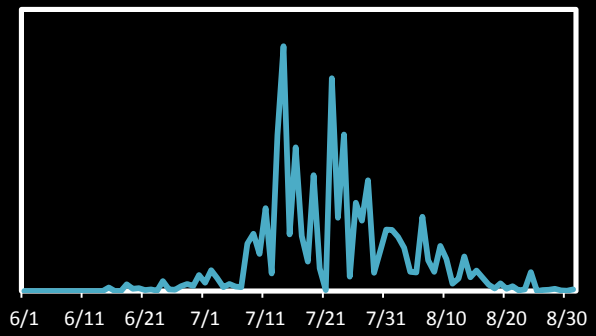

2014-15 Co-Managers'

List of Agreed Fisheries

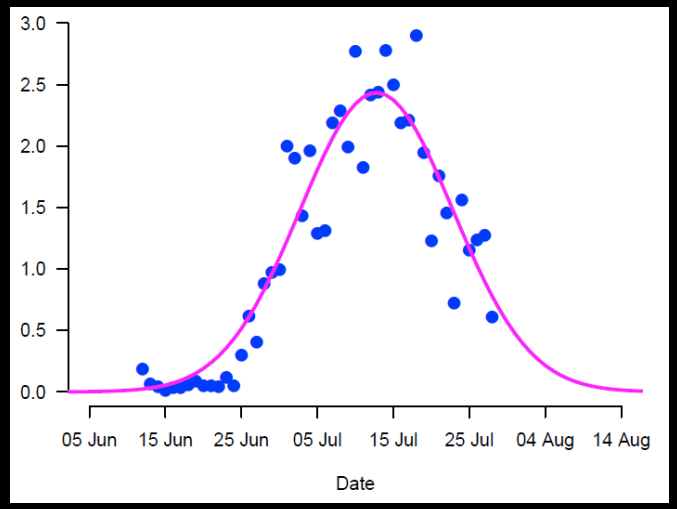
(May 1, 2014 – April 30, 2015)

In-Season Management

- Baker Trap Counts
  - Flow Dependent – can be variable



- Treaty Test Fishery
  - Started in 2012 at Skagit R. mouth - longer term dataset needed for in-season utility
  - 20 day migration to trap
- In-Season Update (ISU) Models– utilize trap counts to predict total runsize
  - Reliability of models greatly increases after 50% migration
- Treaty catches distributed to trap on later date



Management Action – Run Updates

- Once fish start show up at trap, WDFW and comanagers exchange data
  - Trap counts
  - Treaty net catches in river
  - Sport creel estimates
- *Other* regional fishery information (run strength, timing, etc)
    - Lake Washington
    - Fraser River, BC
- Formally update run when sufficient data available – generally around 50% date

Preseason Forecasts

- Forecasts – # of Smolts X Smolt/Adult return rates
- Marine survival is primary contributing factor to forecast uncertainty – can be extremely variable (eg Fraser sockeye 2009 vs 2010)
- Forecast accuracy improved since 2010

Year	Preseason Forecast	Final Runsize	Runsize/ Forecast
2010	4,485	22,776	508%
2011	23,954	37,075	154%
2012	35,366	48,846	138%
2013	21,557	17,815	83%
2014	35,377	27,739	76%

>100% under-forecast
<100% over-forecast

Preseason Summary

- Preseason Forecast – 35,377
- Run Timing (last 5 even years) – July 18
- Harvestable Surplus – 27,081
- Non-Treaty Share – 13,540

	Goal
Artificial Incubation	2,200
Spawning Beaches	4,100
Natural Spawning	1,500
Trap Mortality	*
Test Fishery	496
Total	**8,296**

Season Chronology – Week 25 (6/15)

- Early in season, fish just starting to show up at mouth and lower river
- No sockeye caught in Test fishery at mouth of Skagit R.
  - Past 2 years fish caught in Weeks 24 (6/8) & 25
- Tribal catches in lower river below expectations
- Skagit R. recreational fishery started (6/14) – catches below 2012

Week 26 (6/22)

- Trap counts are remain low
  - Comanagers start to discuss run strength – late vs below forecast, or both?
- Tribal catches well below preseason expectations (majority of fishing in lower river)
- Good proportions of Baker fish identified in Genetic Stock Identification (GSI) samples in Canadian Area 20 (Strait of Juan de Fuca).
  - Qualitative indicator – good amount of fish en-route

Week 27 (6/29)

- Trap counts lagging behind preseason expectations for runsize and timing
  - Late/below forecast/both?
- Tribal catches beginning to increase but are still behind preseason expectations for Wk 27
  - Indicator fish migration picking up
- In-season Update (ISU) Models – too early for put any confidence in model output
- Skagit R. Recreational fishery ends (6/30) – 369 fish harvested; fish just beginning to show up when season ended

Week 28 (7/6)

- Trap counts low (1,263) but daily migration building
- Baker Lake opens (7/10) – 456 fish in lake
- Test Catches in Skagit bay exceeded in-river until this week (expected only through wk 25)
- Tribal catches increased and exceeded preseason expectations for peak catch in prior week
- Good proportions of Baker sockeye in GSI data in Strait of Juan de Fuca
- In-season model runs (7/7) – 17,799 on time (7/18), 37,409 if 6 days late (7/24)

Week 29 (7/13)

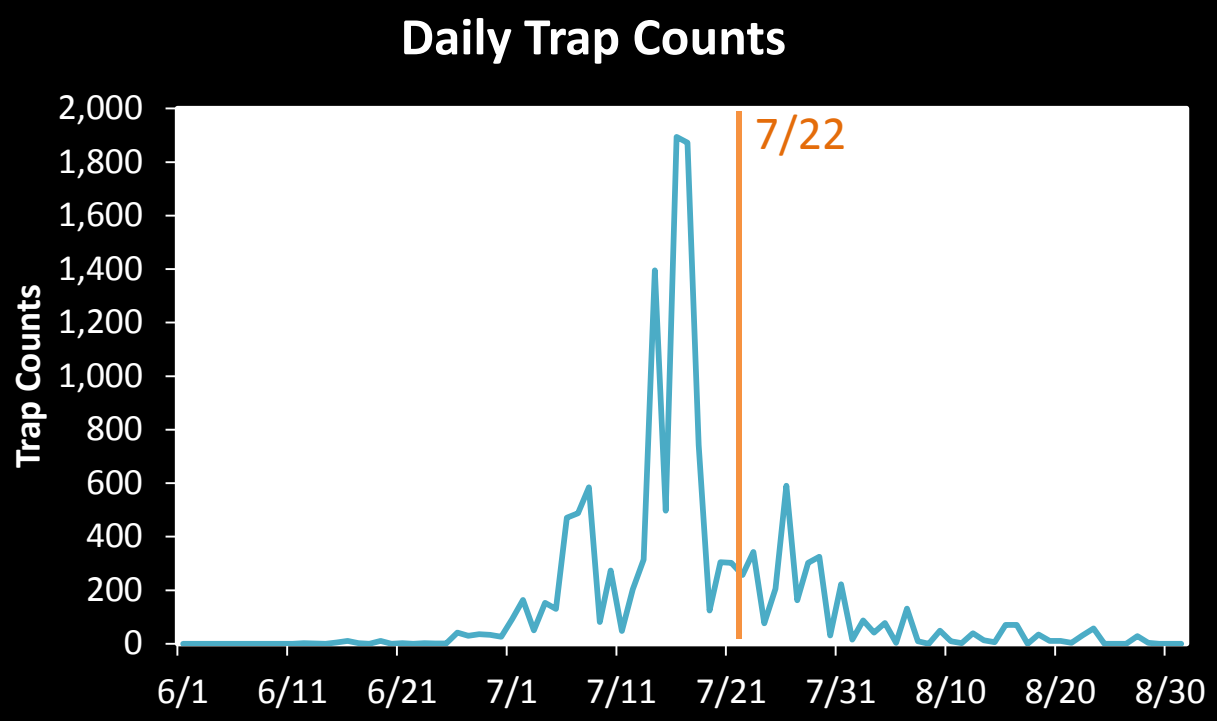
- Daily trap counts increased drastically this week but remain variable -
- ISU's continue to predict late run timing – increased runsizes – haven't seen peak of migration
  - Model 1 - 14,968 on time (7/18) – 39,276 (7/24)
  - Model 2 - 30,200 (7/25)
- Large transfer of fish to lake – 5,060
- Baker fish drop off in GSI samples – expected at this time in season – proportion of WA sockeye small compared to Fraser

Week 30 (7/20)

- Comanagers met on 7/22 to discuss ISU models, runsizes and treaty fishing schedules
- ISU models (35,377 preseason)
  - Model 1 – 30,404 (7/21)
  - Model 2 – 36,644 (7/20)
  - Expecting 50% date to move a day or two later based on remaining tribal catch to be distributed to trap – later date = increased runsize
- Comanager agreement – strong likelihood of achieving preseason forecast

Week 31 (7/27)

- Counts have not picked back up since 7/20
- Unlikely to achieve preseason forecast
- No further tribal fisheries planned
- As of 8/1 – 6,381 fish transported to Lake



Season Summary

- Total Runsize – 27,739 (fish still showing up at trap)
  - 50% Date – 7/20
- Broodstocking goals met for season
- Treaty Catch – 12,935 (13,500 share)
- NT River Catch – 369
- To Lake - 7,199
  - 6,381 by Aug 1

Other 2014 Sockeye Returns

- Lake Washington – 7 days late – 61% below forecast (~65,000)
- Columbia R – 5 days late, 77% above forecast (614,175)
- Fraser sockeye – 13% below preseason (19.8 million runsize)
  - Early Stuart – 5 days late - 22% below forecast
  - Early Summer – 3 days late – 55% below forecast
  - Summer – 9 days late – 43% above forecast

Tribal vs. Non-Tribal Catches

Year	Total Runsize	Treaty Catch	Rec Catch (lake)	Rec Catch (River)	Total to Lake	Catch Disparity
2010	22,776	3,551	2,933	154	10,414	-5,517
2011	37,075	9,585	8,341		16,305	-5,220
2012	48,846	15,554	9,855	3,064	17,509	-3,519
2013	17,815	4,876	4,795*		6,039	337
2014	27,739	12,935	NA	369	7,199	6,867

- 2010-2014 Total Catches (treaty catch, NT river+(to lake-1500 Esc. Goal))
  - 46,501 Treaty vs 53,553 NT Rec
  - Average 9,300/yr Treaty vs 10,711/yr NT Rec

Questions/Discussion