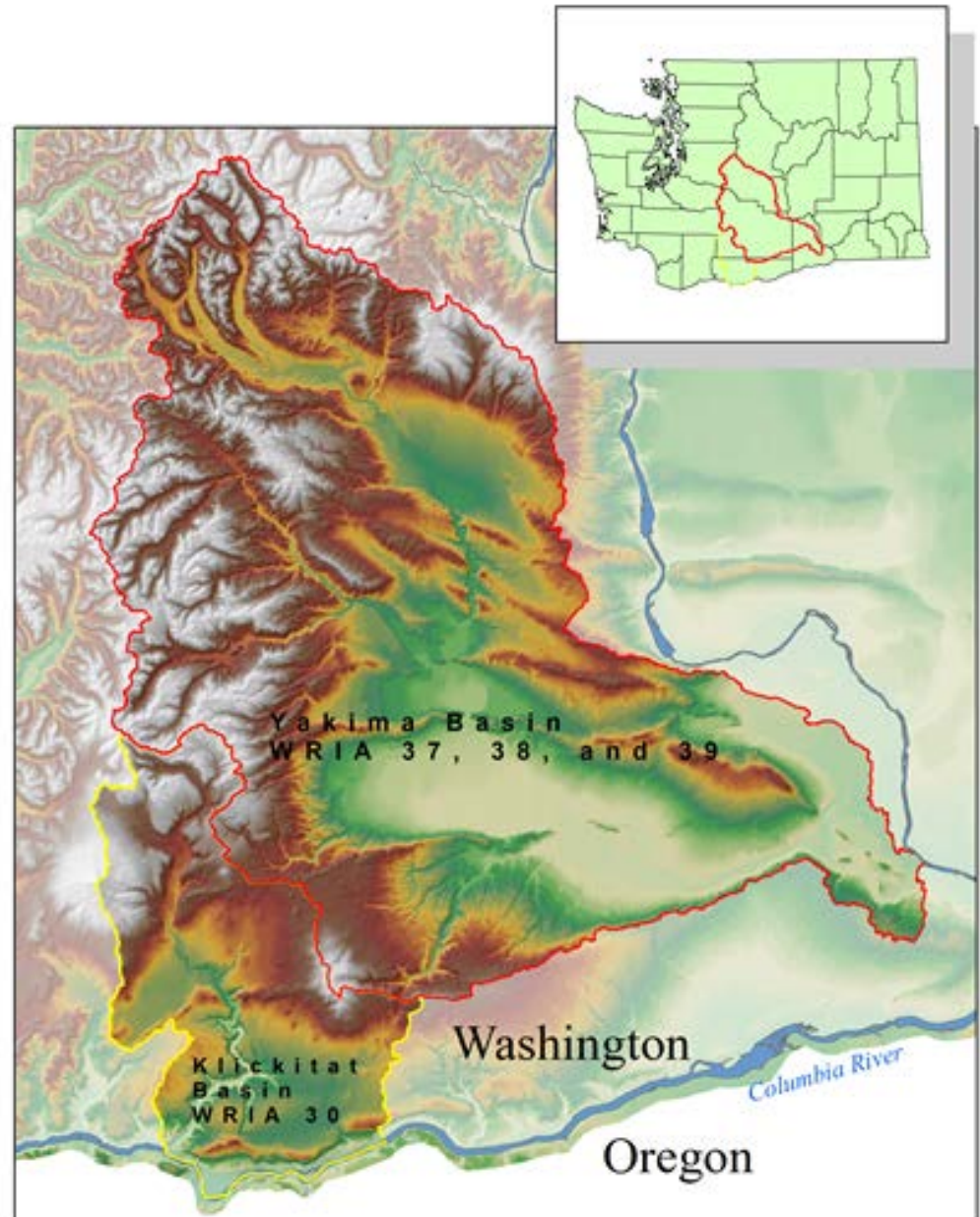


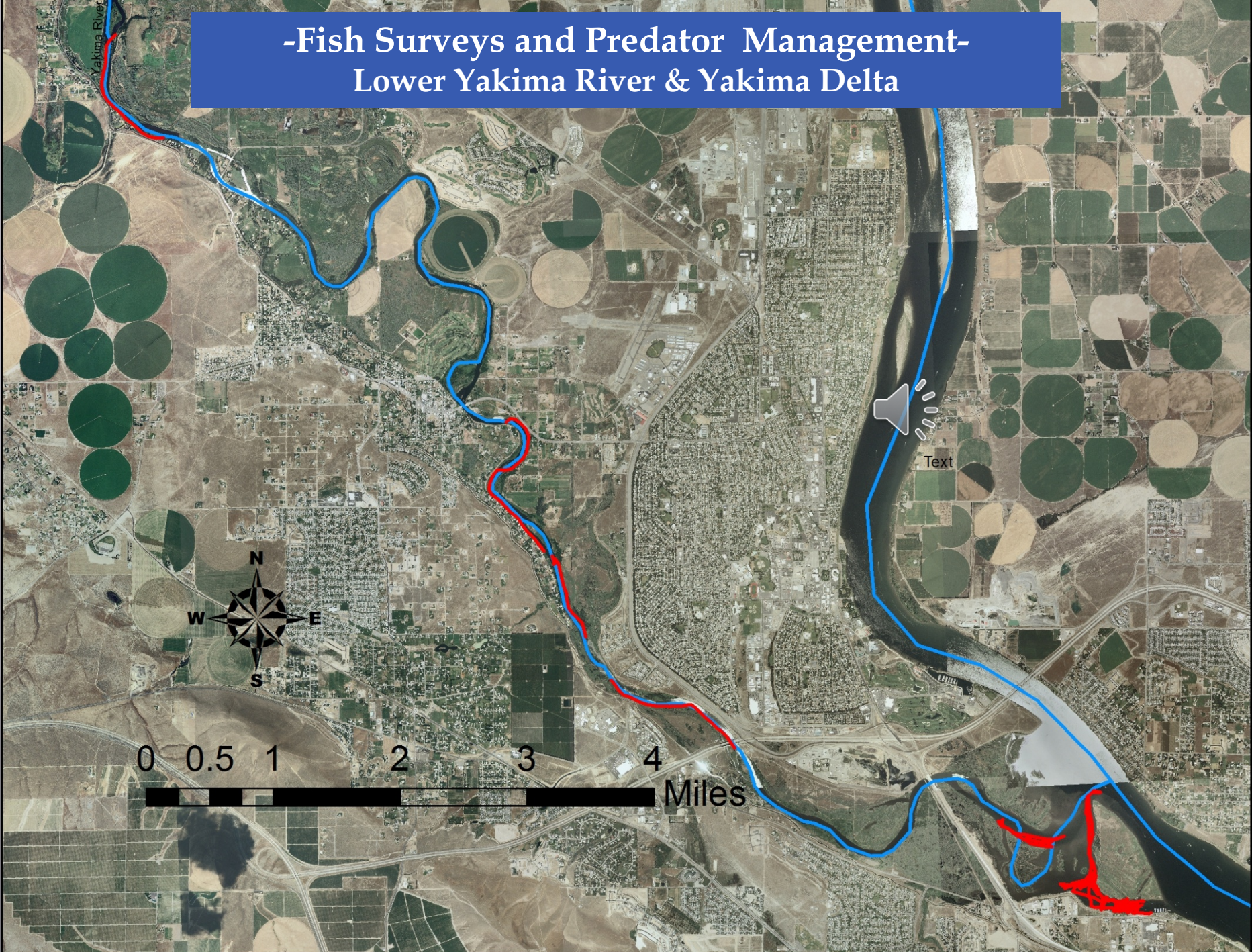
Yakima Klickitat Fisheries Project

Michael Porter
Fisheries Biologist

- Piscivorous Fish of Yakima River
- Background of Fish Species
- Historical Information of Predators
- Predator Management
- Fish Predation Studies



-Fish Surveys and Predator Management- Lower Yakima River & Yakima Delta

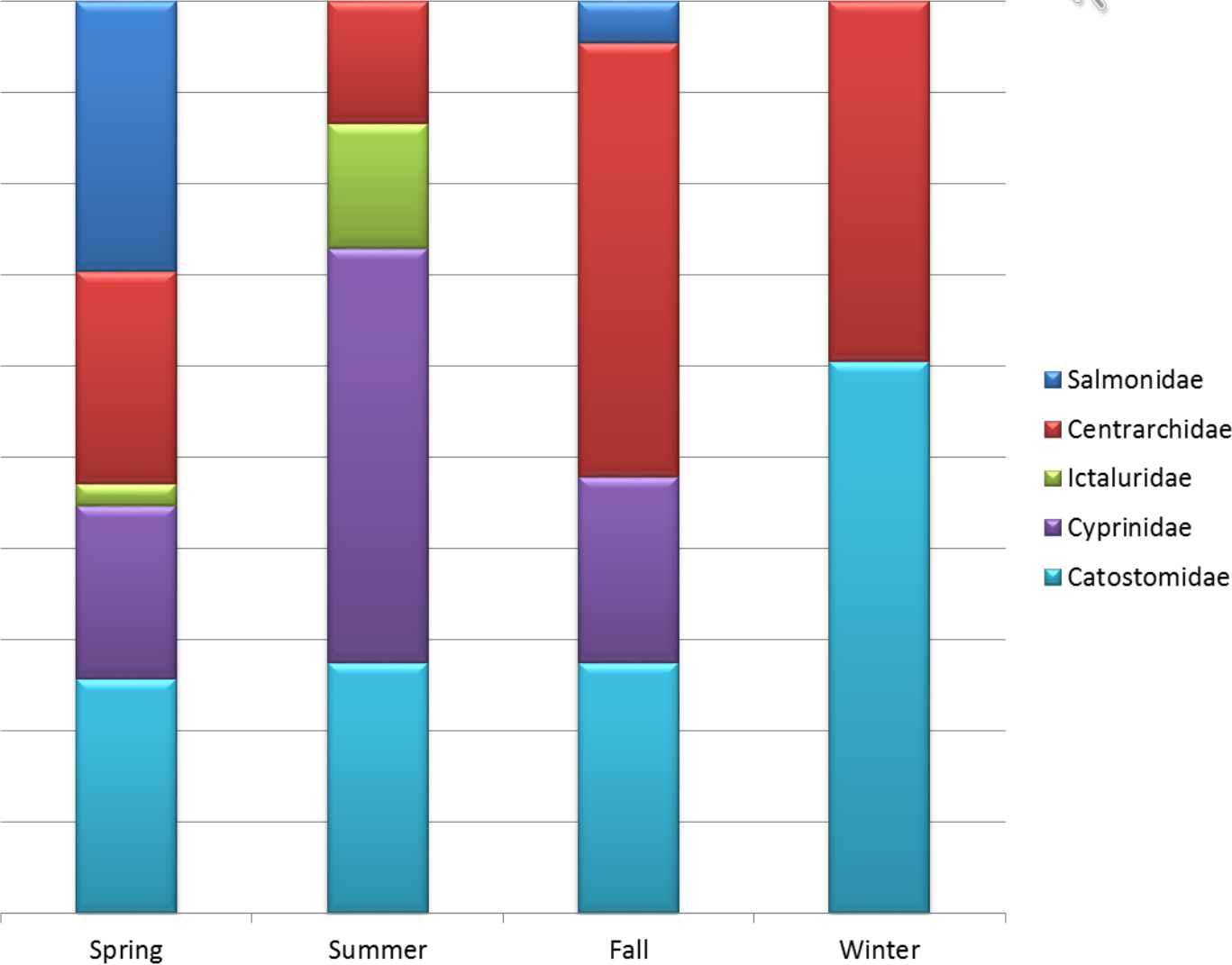


Lower Yakima River and Delta Fish 23 Species

Family	Common Name	Scientific Name
Salmonidae:		
	Steelhead/Rainbow trout	<i>Oncorhynchus mykiss</i>
	Coho Salmon	<i>Oncorhynchus kisutch</i>
	Chinook Salmon	<i>Oncorhynchus tshawytscha</i>
	Mountain Whitefish	<i>Prosopium williamsoni</i>
Cyprinidae:		
	Chiselmouth	<i>Acrocheilus alutaceus</i>
	Carp	<i>Cyprinus carpio</i>
	Peamouth	<i>Mylocheilus caurinus</i>
	Speckled Dace	<i>Rhinichthys osculus</i>
	Northern Pikeminnow	<i>Ptychocheilus oregonensis</i>
	Redside Shiner	<i>Richardsonius balteatus</i>
Catostomidae:		
	Sucker	<i>Catostomus columbianus</i> , <i>Catostomus catostomus</i>
Ictaluridae:		
	Brown Bullhead	<i>Ameiurus nebulosus</i>
	Channel Catfish	<i>Ictalurus punctatus</i>
Centrarchidae:		
	Pumpkin Seed	<i>Lepomis gibbosus</i>
	Blue Gill	<i>Lepomis macrochirus</i>
	Smallmouth Bass	<i>Micropterus dolomieu</i>
	Large Mouth Bass	<i>Micropterus salmoides</i>
	White Crappie	<i>Pomoxis annularis</i>
Percidae:		
	Walleye	<i>Stizostedion vitreum vitreum</i>
	Yellow Perch	<i>Perca flavescens</i>
Cottidae:		
	Sculpin	<i>Cottus bairdi</i>
Clupeidae:		
	Shad	<i>Alosa sapidissima</i>



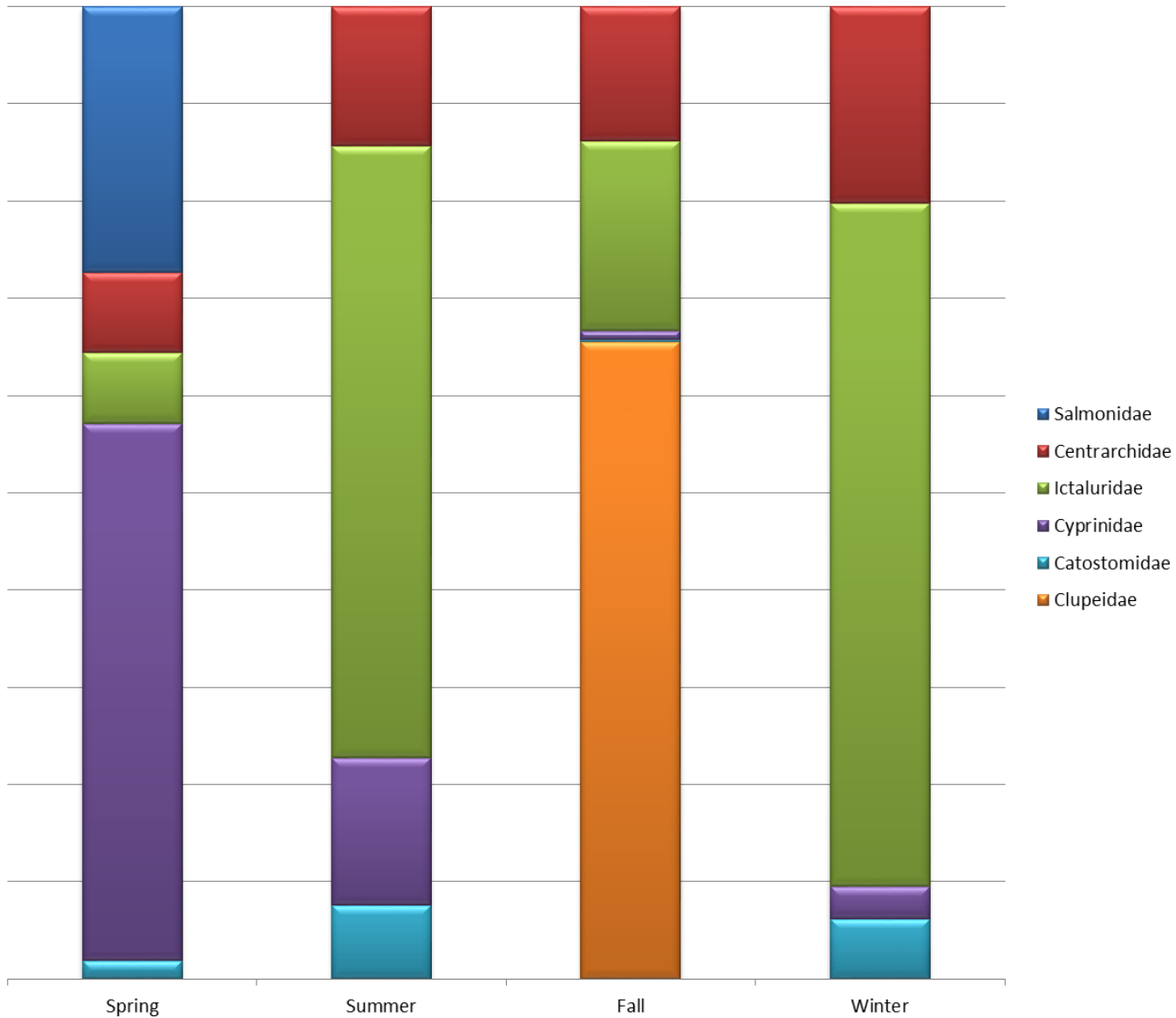
Relative Catch Per Unit Effort by Fish Family Lower Yakima River



Yakima Delta Fish Survey Areas



Relative Catch Per Unit Effort by Fish Family West of Causeway



SMALLMOUTH BASS - *Micropterus dolomieu*



By 1925, 5000 Smallmouth Bass had been introduced to the Yakima River, these fish established a resident population

The Yakima River also serves as a spawning area and rearing nursery for Smallmouth Bass of the Columbia River

YN Surveys have found that they are the most abundant predator in the Lower Yakima River and one of the top three in total abundance

LARGEMOUTH BASS - *Micropterus Salmoides*



Widely introduced into Washington by 1895 the Largemouth Bass has established large populations in much of the Columbia River and is frequently present in the Lower Yakima River and Yakima Delta

Yn Surveys in recent years have shown that this predator is using larger areas of the Yakima river and migrating further upstream

CHANNEL CATFISH - *Ictalurus Punctatus*



Introduced into Washington State in 1892 (Lampman 1946)
Channel Catfish naturally reproduce in only the Columbia , Snake, Walla Walla,
and Yakima Rivers


A single Channel Catfish can consume large numbers of salmon smolts daily

BROWN BULLHEAD - *Ameiurus Nebuloso*

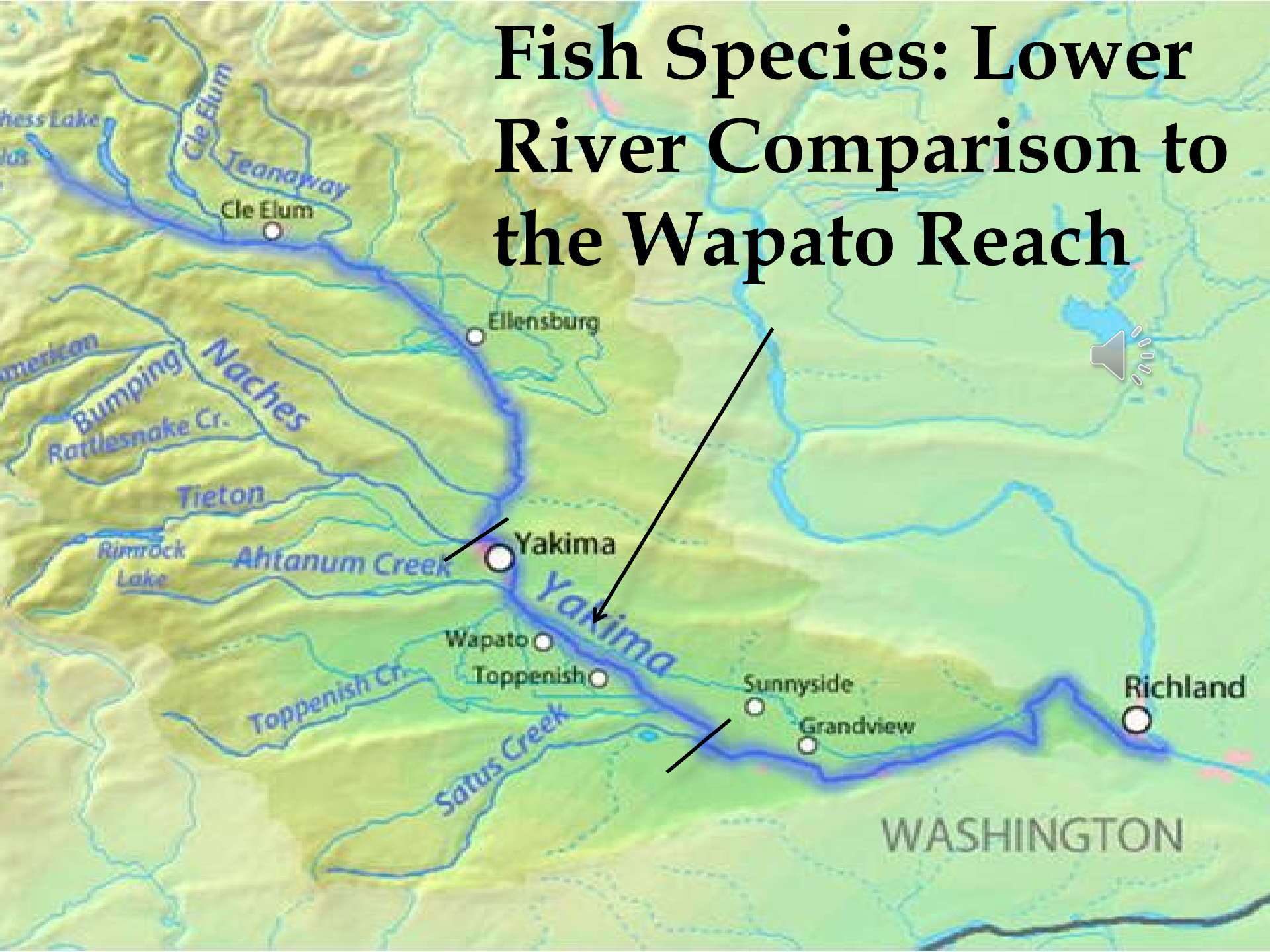


Introduced into Washington State in 1882 - 1883(Lampman 1946)
Brown Bullheads inhabit warm-water ponds, lakes, sloughs, and
Sluggish areas in streams (i.e.Yakima Delta)

Predator Management

- Suppression of Predators 
- Recent years Sub-yearling Chinook survival between Prosser and McNary Dam has been poor
– Predation and low flow may be the cause
- 2016 is showing an increased number of SMB
- Removal of limits by WDFW may be a step towards success of reintroduction efforts of Summer Chinook and Sockeye

Fish Species: Lower River Comparison to the Wapato Reach



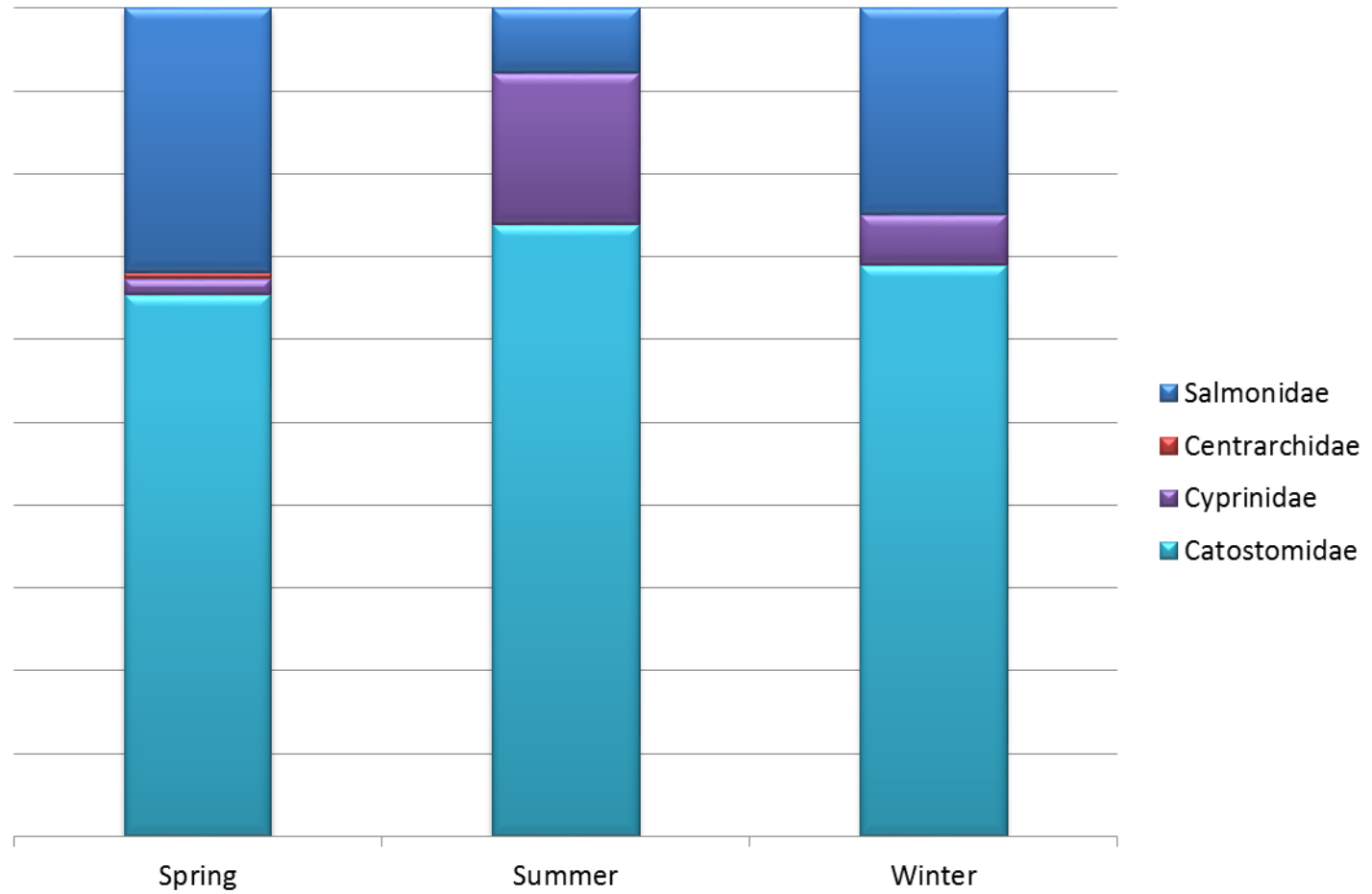
Yakima River – Wapato Reach – 10 Fish Species

Family	Common Name	Scientific Name
Salmonidae:		
	Steelhead/Rainbow trout	<i>Oncorhynchus mykiss</i>
	Coho Salmon	<i>Oncorhynchus kisutch</i>
	Chinook Salmon	<i>Oncorhynchus tshawytscha</i>
	Mountain Whitefish	<i>Prosopium williamsoni</i>
Cyprinidae:		
	Chiselmouth	<i>Acrocheilus alutaceus</i>
	Carp	<i>Cyprinus carpio</i>
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Catostomidae:		
	Sucker	<i>Catostomus columbianus</i> , <i>Catostomus catostomus</i>
Centrarchidae:		
	Smallmouth Bass	<i>Micropterus dolomieu</i>





Relative Catch Per Unit Effort by Fish Family Wapato Reach



New Studies: Smolt Survival and Fish Predators



- Acoustic tags for tracking survival of sub-yearling Chinook through “mini” reaches of the lower Yakima
- Surveys Walleye larvae with possible implications for Columbia river levels to lowered and eliminate rearing areas
- Radio telemetry of adult Smallmouth Bass and spawning areas

Sub-Yearling Acoustic Tag Survival Study



- YN – Mainstem Fish Research - PNNL
- Survival through reaches of the Lower Yakima River
- 13 acoustic receivers strategically placed in Yakima and Columbia Rivers to measure survival



- A - ATS acoustic tag side view
- B - ATS acoustic tag top view
- C - PIT tag

Wanawish Dam (rkm 28)

Wanawish TR (rkm 26)

Lower BC (rkm 37)

Golf Course (rkm 14)



Benton City release location (rkm 46)

240 Bridge (rkm 3)

Delta Channel (rkm 1)

Mud Hole

Mouth 1

CR537_3

CR537_1

CR537_2



- June 2nd, 2016 release date
- In river near Benton City
- Combined with a release of 2000 PIT tagged only sub-yearling Chinook





- Larval walleye surveys 🗣️
- Towed bongo nets
- Determine if walleye are spawning and rearing in the lower Yakima river




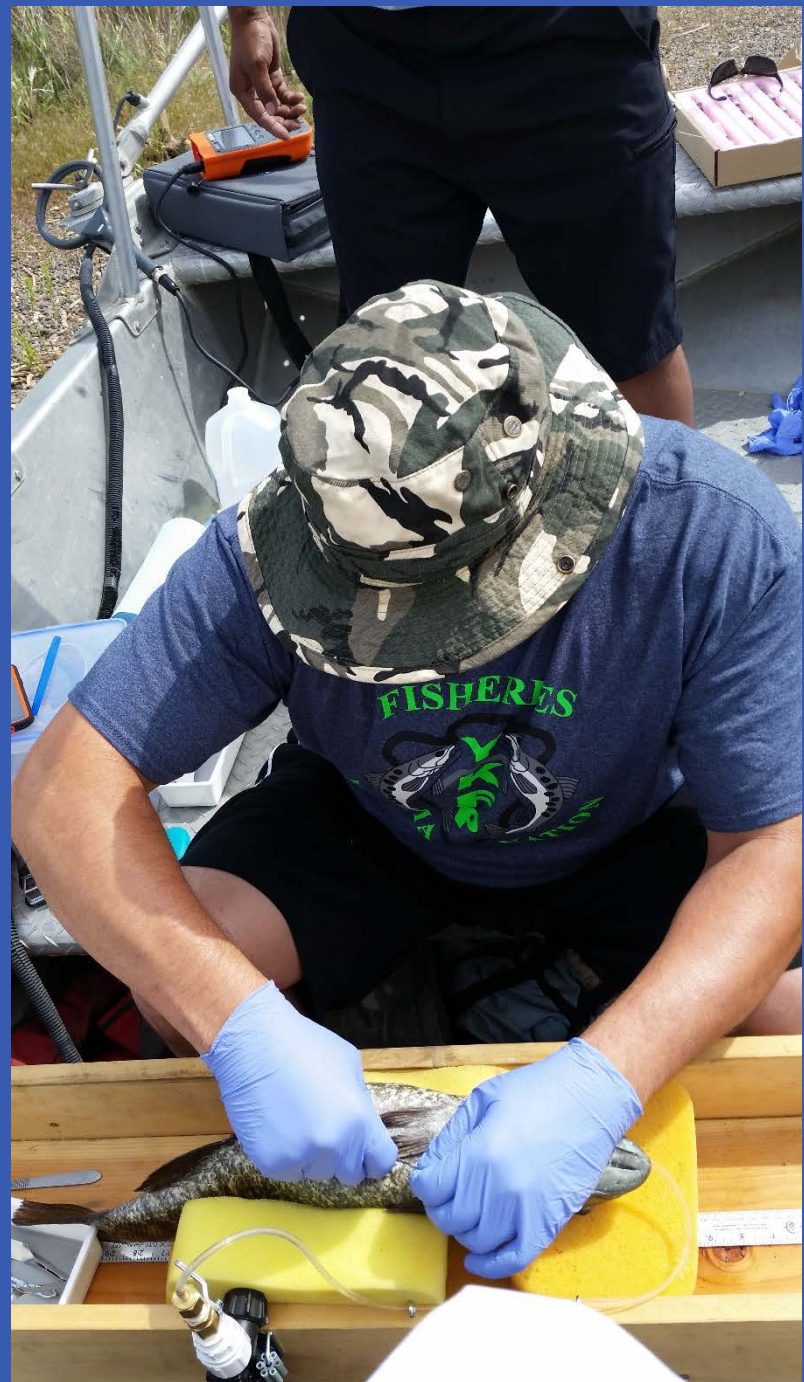


Radio Telemetry of Smallmouth Bass

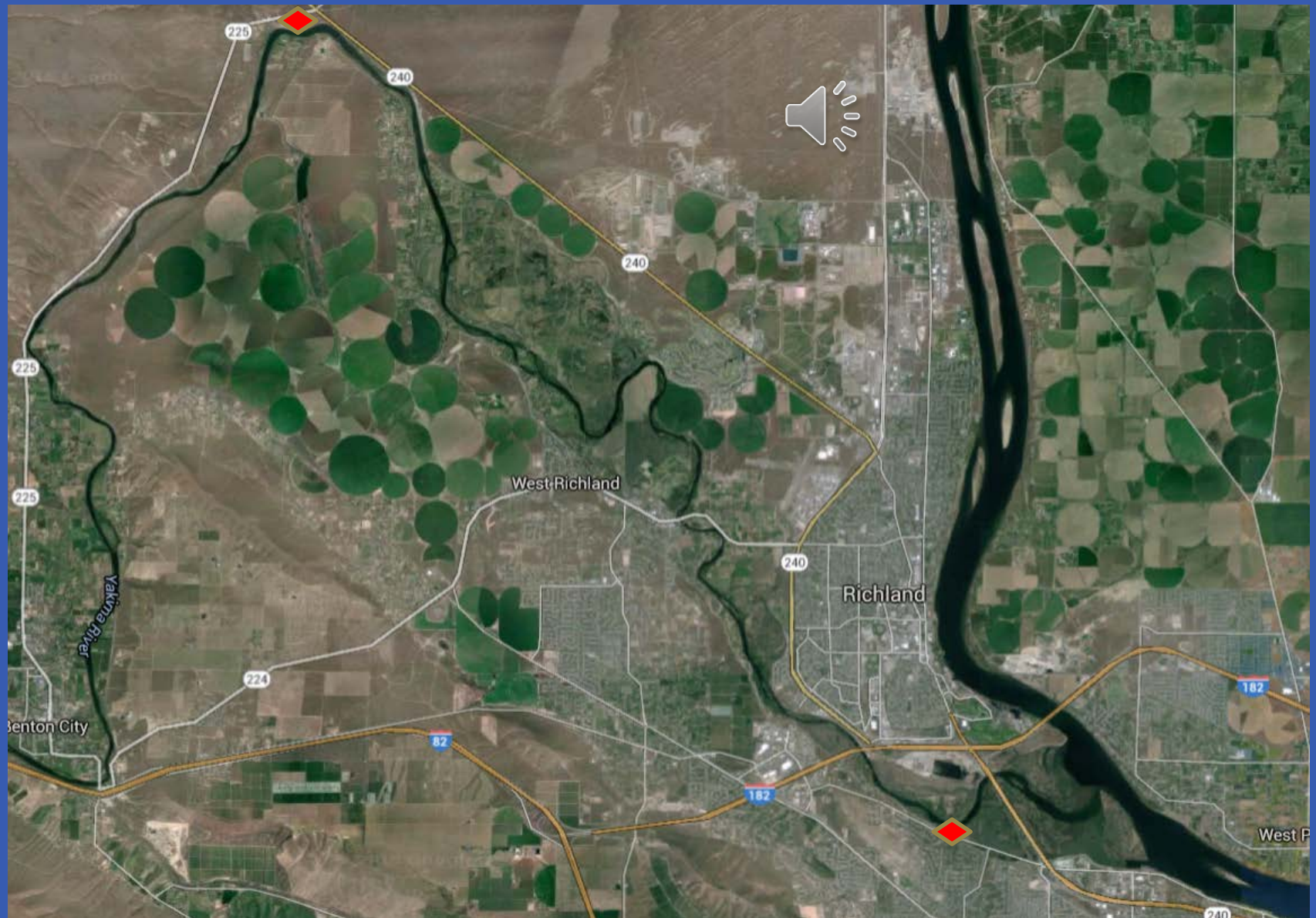


- Smallmouth Bass collected in Yakima River mouth during spring for radio tagging
- Track spatial and temporal movements pre and post spawn
- Fixed sites and mobile radio tracking


- Capture via Electrofishing 
- Spring collection prior to spawning
- Size based selection for 300mm and above in length
- Surgical Insertion
- Double tagged PIT tag and Radio tag



Fixed Telemetry Sites



Radio Telemetry of Smallmouth Bass

- Timing of spawning movement up the Yakima and how it correlates with Flow & Temperature
- Identify Nesting areas 
- Determine amount of passage above Wanawish Dam (Horn Rapids)
- Initial study results show variation in movement with individual near Prosser Dam and localization in the Columbia River

Acknowledgments

Questions?