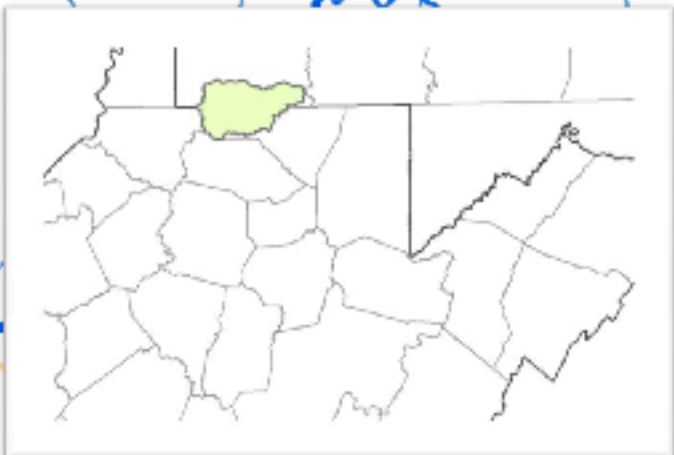# Dunkard Creek Fish Kill Assessment September 2009

Frank Jernejcic and David Wellman
Fisheries Biologists
West Virginia Division of Natural Resources
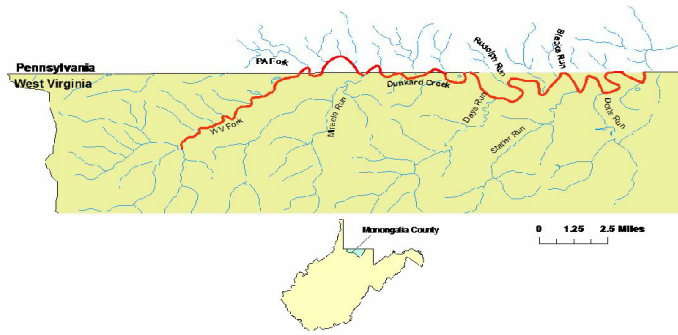Wildlife Resources Section

Extent and Time Frame of the Dunkard Creek Fish Kill

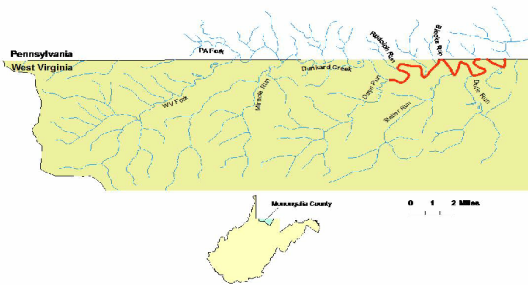**Final Extent of WV Kill**
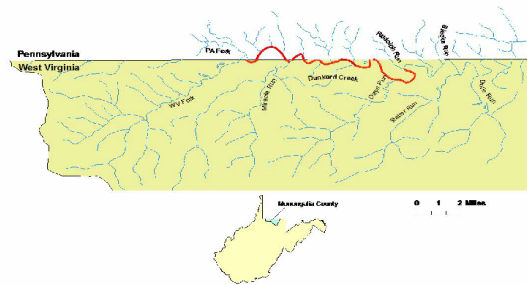24 miles
September 2 - 21, 2009

September 2, 2009
mp 0 (state line) - mp 11 (Pentress)

September 14, 2009
mp 11 (Pentress) - mp 19 (just downstream of forks)

September 21, 2009
mp 22 (Wana) - mp 27 (Wadestown)
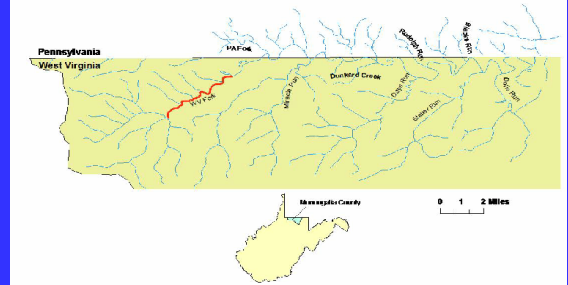
The kill moved upstream over a 3 week period.

WVDNR role is to:

- Determine the number of fish killed

- Size groups of fish killed

- Determine value of fish killed

- Restoration of fishery

WVDEP Determines Cause

Golden Algae

9.1 μm

Photo by: Greg Southard

Water Quality

- **TDS** **(conductivity)**
- **Sulfates**
- **Chlorides**

- Golden Algae

WV Fish Kill Estimate

- 20+ fish species
- Kill estimate: 21,000 in WV

Dunkard Creek Fish Kill, 2009

% Total Abundanc

Category	Value label
Other	3
Gamefish	11
Sucker	3
Darters	
Minnows	
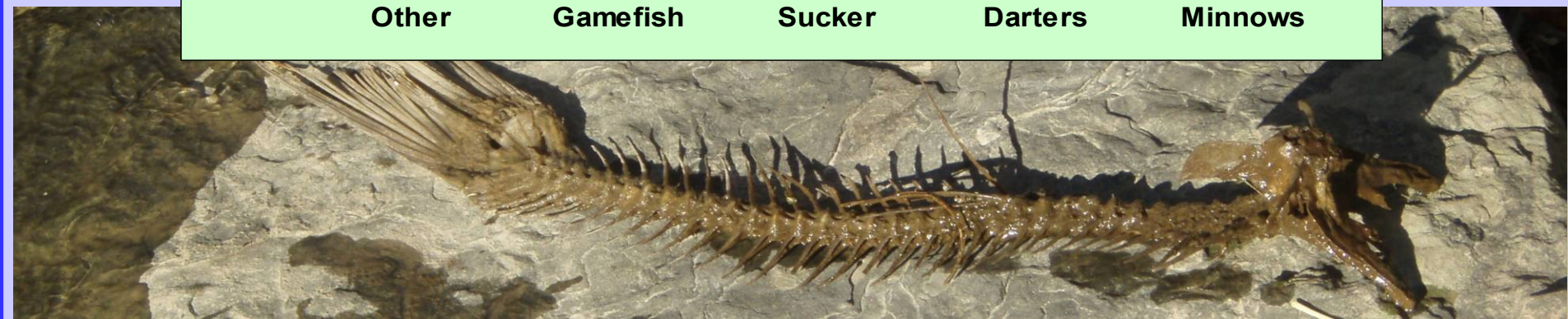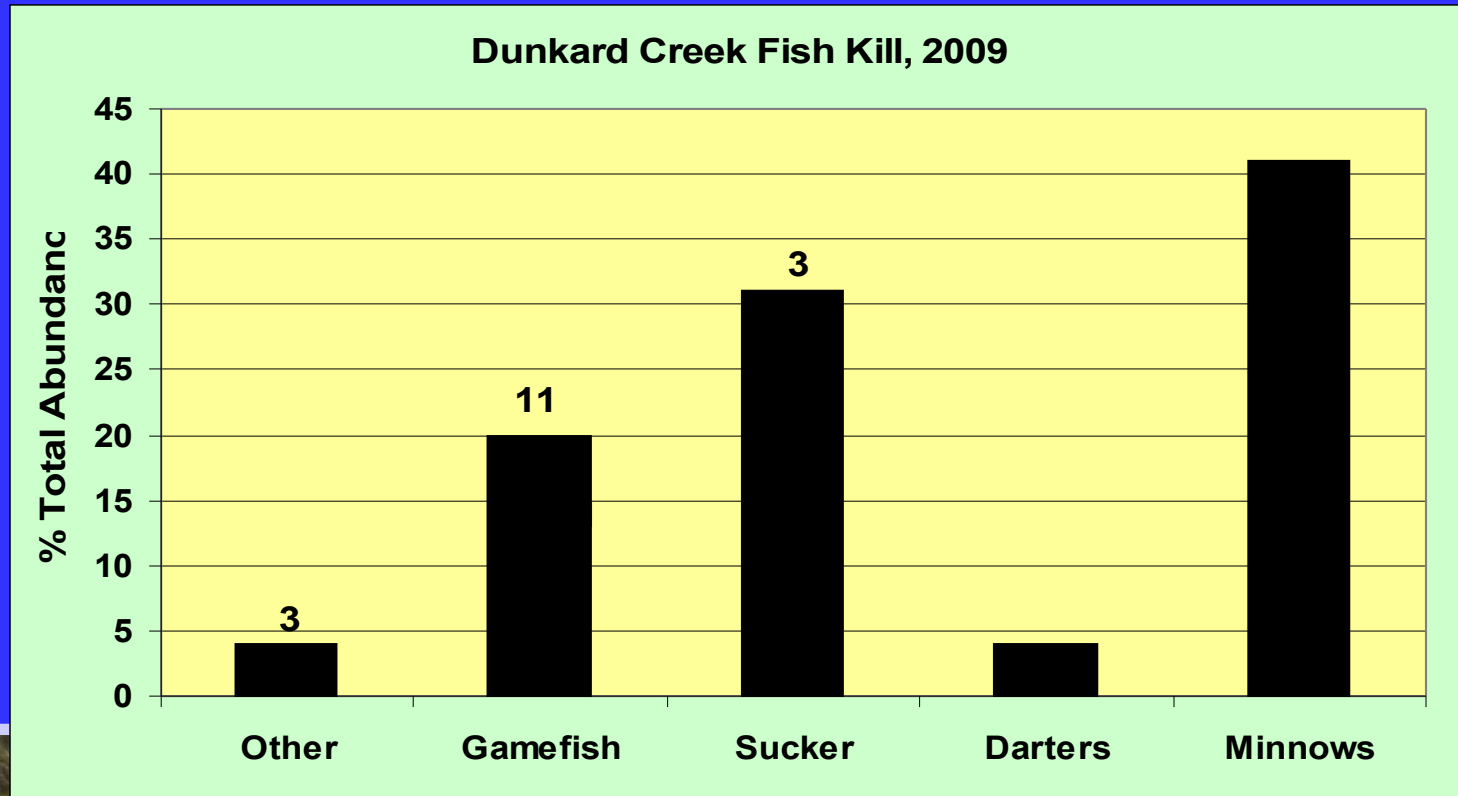
Historical Fish Data

Dunkard Creek Fish Species Composition

- 11 surveys from 1959 - 2009

- 44 fish species

- 13 species of game fish, but most notably smallmouth bass and muskellunge.
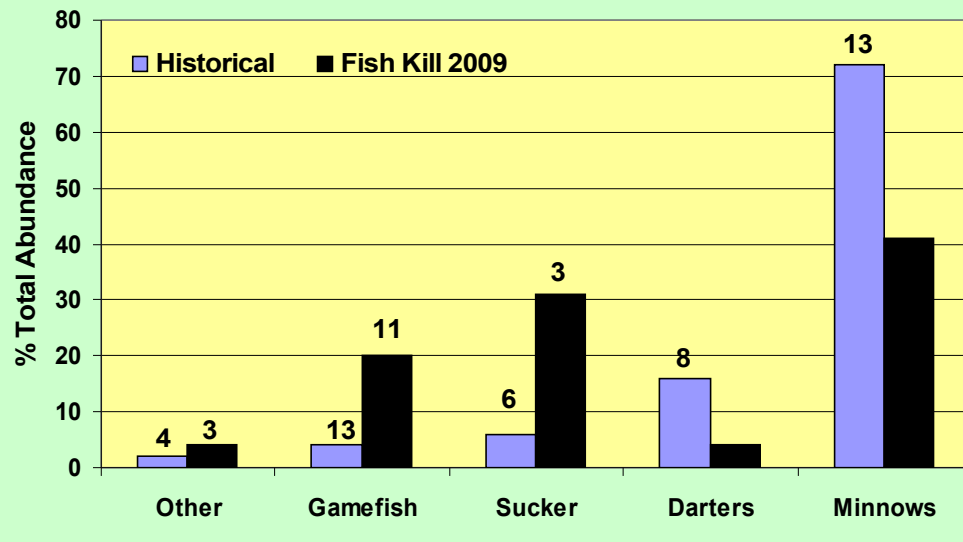
Mussels

- 14 mussel species dead

- 100% mortality

- Last major stronghold for mussels in the Mon River drainage.

- May take generations to restore mussel population.

Mudpuppy salamander

Tributary mouths served as refugia. However, flows were too low to allow large fish to move upstream and escape toxicity of Dunkard Creek.

Rudolph Run near Pentress

Fish and Mussel Restoration

- Many years
- Very difficult
- Complex
- Expensive

→

Relatively easy
(Faster than expected)

STATION	mile pt	27th	28fr	29sa	30su	31mo	1tu	2we	3th	4fr	5sa	6su	7mo	8tu	9we	10th	11fr	12sa	13su	14mo	15tu	16we	17th	18fr	19sa	20su	21mo	22tu	23we	24th	25fr	1th	8th	18su	19mo	20tu	21we	STATION
st. leo>amd	30																																			dc		st. leo>amd
loveridge22 amd	29																																					loveridge22 amd
>beaver pond	28.9																							dep											dc		>beaver pond
<beaver pond	28.5																							dep											dc		<beaver pond
north fk	26.1																																				north fk
wv 26.2 south fk	26.2																						C														wv 26.2 south fk
wadestown vfd	25.3																																		dc		wadestown vfd
wv 25.2	25.2																						C				O										wv 25.2
wv 24.2	24.2																						C														wv 24.2
wv 23.2	23.2																						C														wv 23.2
wv 22.2	22.2																						C												dc		wv 22.2
wana bridge	22							O							O							MDL											O				wana bridge
wv fork > #2	21							MDL							dep																						wv fork > #2
wv fork < #2	19							O							O					O															dc!!		wv fork < #2
pa fork -toms run	1													ML																						pa fork -toms run
wv 16 >brave	18.2														CO																						wv 16 >brave
brave bridge	17.5							fj													OL																brave bridge
pa 5 <brave-dam	17.2							p	p					MD						C							O	O									pa 5 <brave-dam
pa 4	16.2																		C								O										pa 4
miracle mouth	15.8							fj																							O		OL				miracle mouth
miracle bridge	15.9							fj	MDL																						O		dcOL				miracle bridge
wv 15 >bville	15.2																		C							O											wv 15 >bville
wv 14	14.2																		C																		wv 14
blacksville br	13.6								MDL																	O	O										blacksville br
pa 3 <bville	13.2																		C																		pa 3 <bville
trinity church	12.5							MDL						X																							trinity church
wv 13 <trinity ch	12.2																		O	C																	wv 13 <trinity ch
wv 12 >doh	11.2																			C	C	C														wv 12 >doh
end of doh road	10.7												O								O										O						end of doh road
wv 11 <doh	10.2							C															C	CO					O								wv 11 <doh
days mouth	10.1																																				days mouth
wv 10 pentress	9.2		res	res	res	dep		C												O	O	C									O	O					wv 10 pentress
Rt7- Rudolph	8.7							C						O			O			O	O	O										O					Rt7- Rudolph
rudolph mouth	8.5		res											O							O	O	O			O				O	O	O	O	O			rudolph mouth
wv 9 <rudolph	8.2								MD					O							O	O	O			O			O	O	O				dcOL		wv 9 <rudolph
wv 8 >worley	7.2							C																							O						wv 8 >worley
wv 7	6.2							CDmd																													wv 7
wv 6 >statlers	5.2																																				wv 6 >statlers
wv 5 <statlers	4.2							CDmd																													wv 5 <statlers
wv 4 <buckeye br	3.2																			O		O	O	CO			O			O	O	O					wv 4 <buckeye br
wv 3 md ramp	2.2							Cmd																			L				O	OL	O		dcOL		wv 3 md ramp
wv 2 >buckeye ch	1.2																										CO										wv 2 >buckeye ch
buckeye church	0.5							C																			O			O		O	O	O			buckeye church
wv 1 state line	0.2																				C																wv 1 state line
pa 2 <bridge	-0.8																										O										pa 2 <bridge
pa 1	-1.8																																				pa 1
mt. morris pa																																	L	O			mt. morris pa

9/25 1600

10/8 1700

1/10/2010

ML = live mussels   MD = fresh dead mussels   M = no live or fresh dead mussels; weathered dead may or may not be present (all JC counts)

1/11/2010   L= live fish   X = dead fish   res=resident report   dep=dep report   dc=DNR electrofish   0 = no live or dead fish; if cell preceded by an X for date or location, then 0 may = X   few live fish   delinieates kill segments

2/6/2010   C = DNR fish count; fj = live fish observed, no dead fish; p = presley report 1 week later;   9/9 JC reports;   9/11 FJ & PC report; 9/16 mp22-22.2, JC report; 10/8 mt morris, school large carp; 10/20 mp19, !! Many live fish.

2/14/2010   Dmd = DW report dead mussels; Cmd = FJ report dead mussels;

2/18

Dunkard Creek Fish Kill Values

Species	Number	$ Value
Minnows	7,998	879
Suckers	6,398	27,621
Smallmouth	1,932	10,840
Darters	1,766	1,975
Sunfish	1,535	3,130
Carp	698	1,416
Drum	536	2,744
Musky	218	29,915
Channel/Flathead	96	651
Largemouth	84	522
Sauger	52	982
Walleye	30	509
Bullhead	18	101
Total	**21,361**	**$81,285**