SOLUTIA

Applied Chemistry, Creative Solutions

Off-Site RCRA Facility Investigation (RFI) Report

Appendices

Volume 4 of 4

Solutia Inc.
Anniston, Alabama

June 2000

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Appendix E

1999 Choccolocco Creek, Lake Logan Martin, and Lake Neely Henry Fish Sampling Photo Log

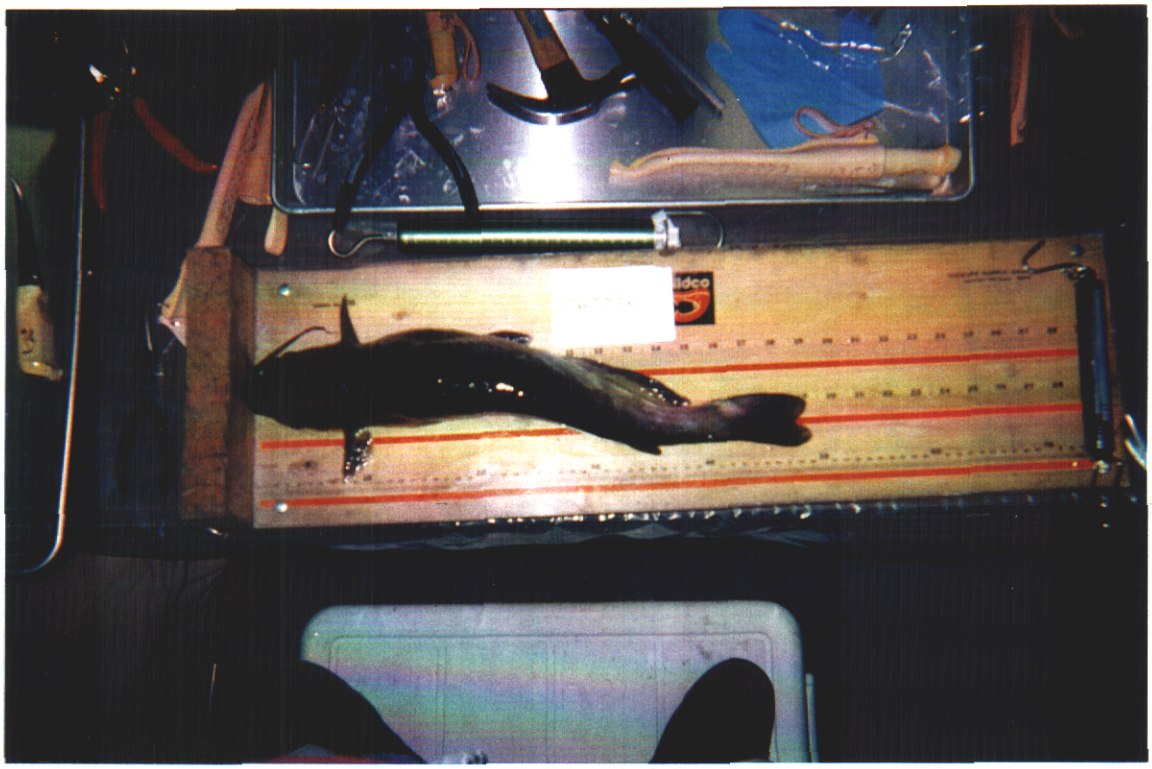


Photo 1: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60026

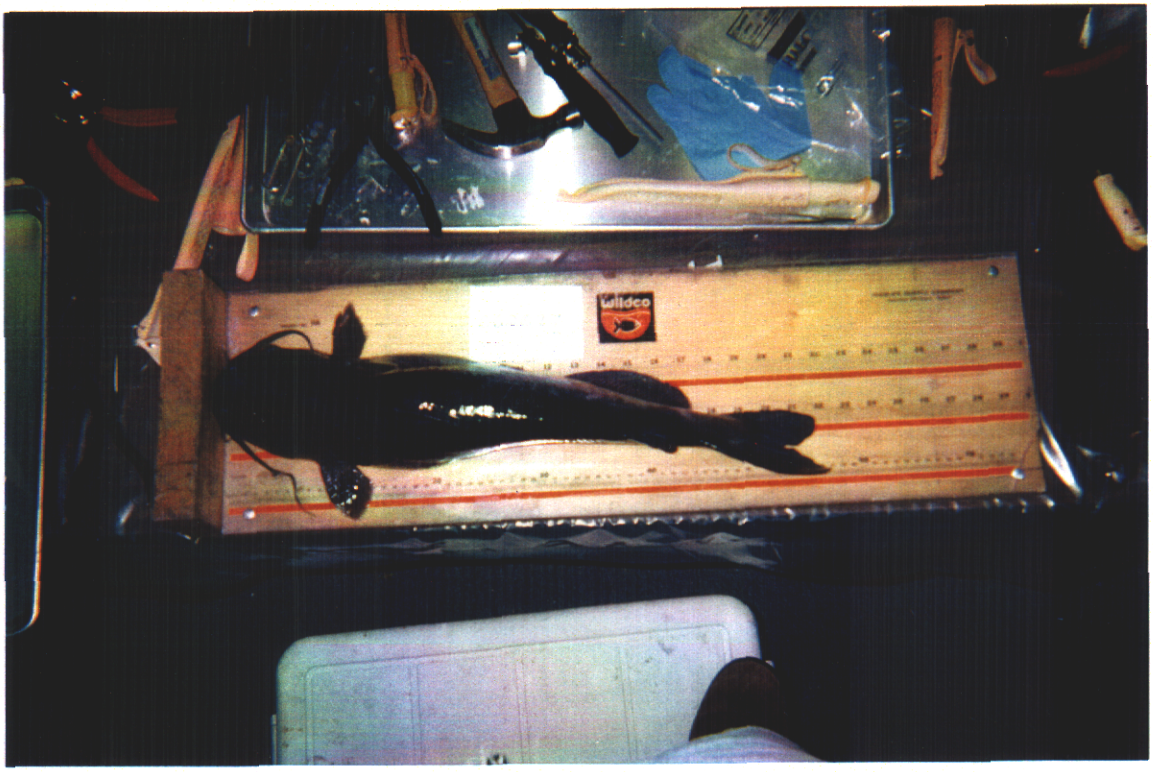


Photo 2: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60027



Photo 3: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60028



Photo 4: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60029

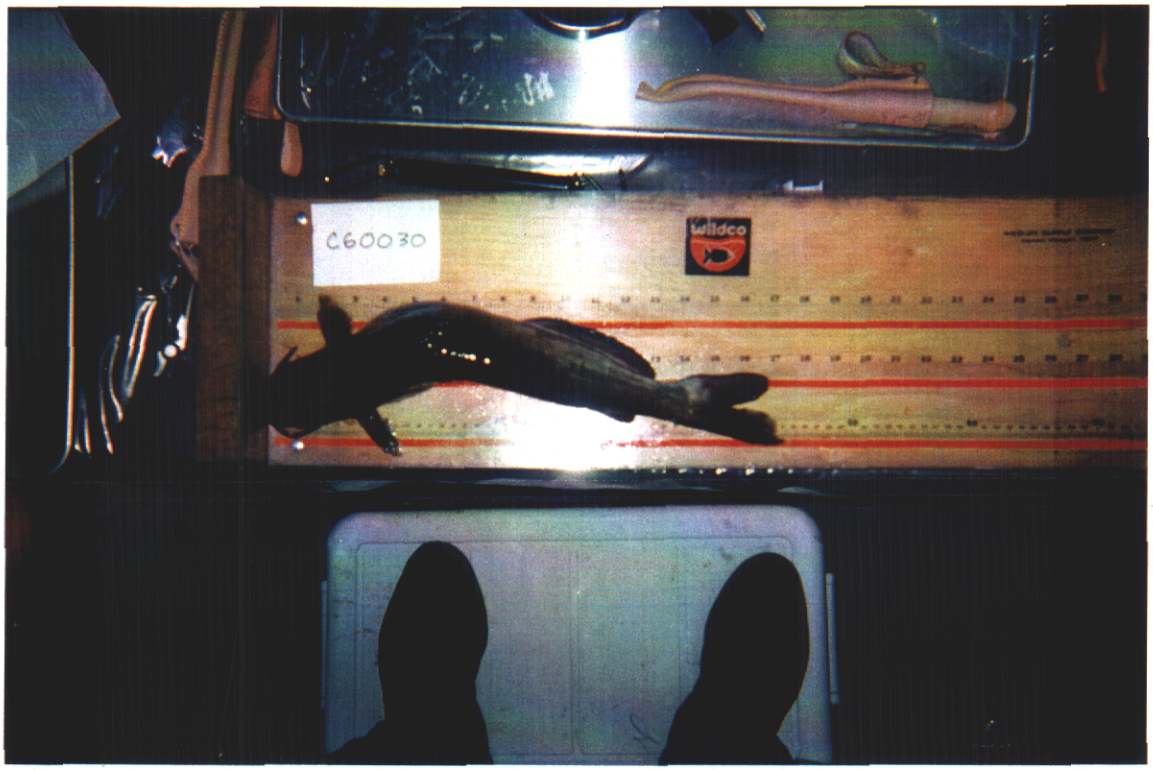


Photo 5: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60030



Photo 6: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60031



Photo 7: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60032

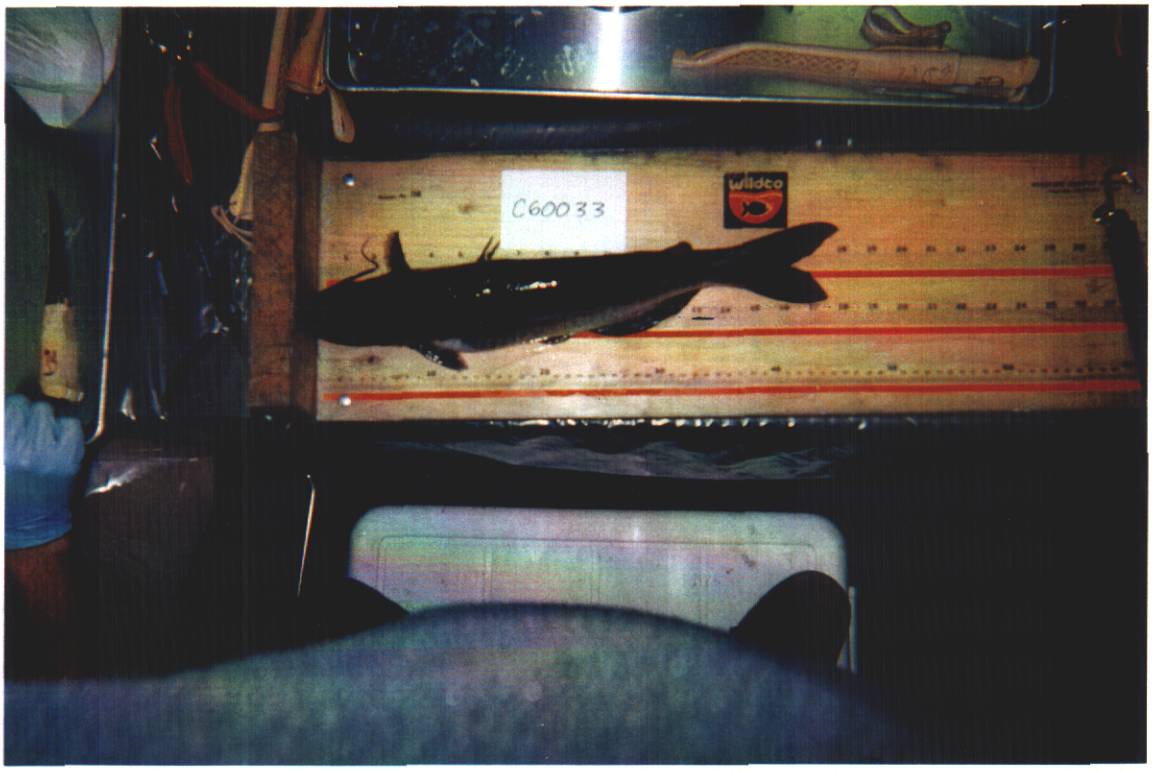


Photo 8: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60033

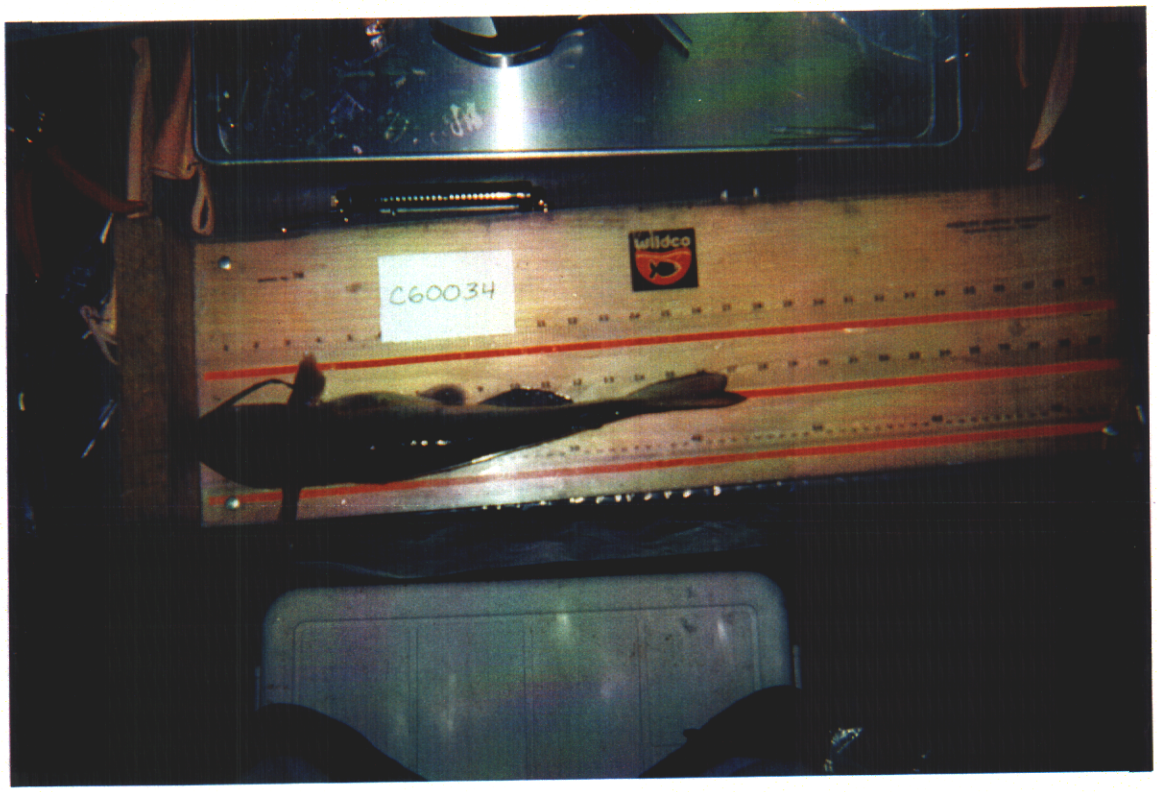


Photo 9: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60034

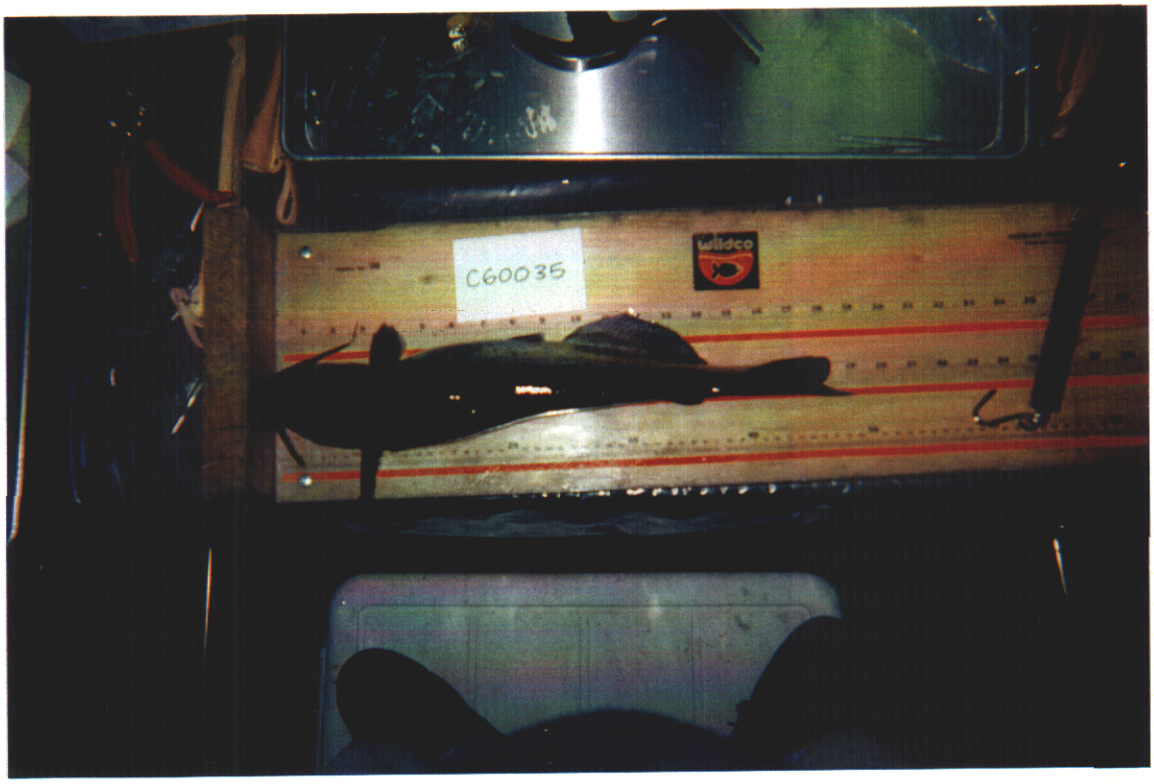


Photo 10: Choccolocco Creek ADEM 96 CHANNEL CATFISH C60035



Photo 11: Choccolocco Creek ADEM 96 SPOTTED BASS C60036

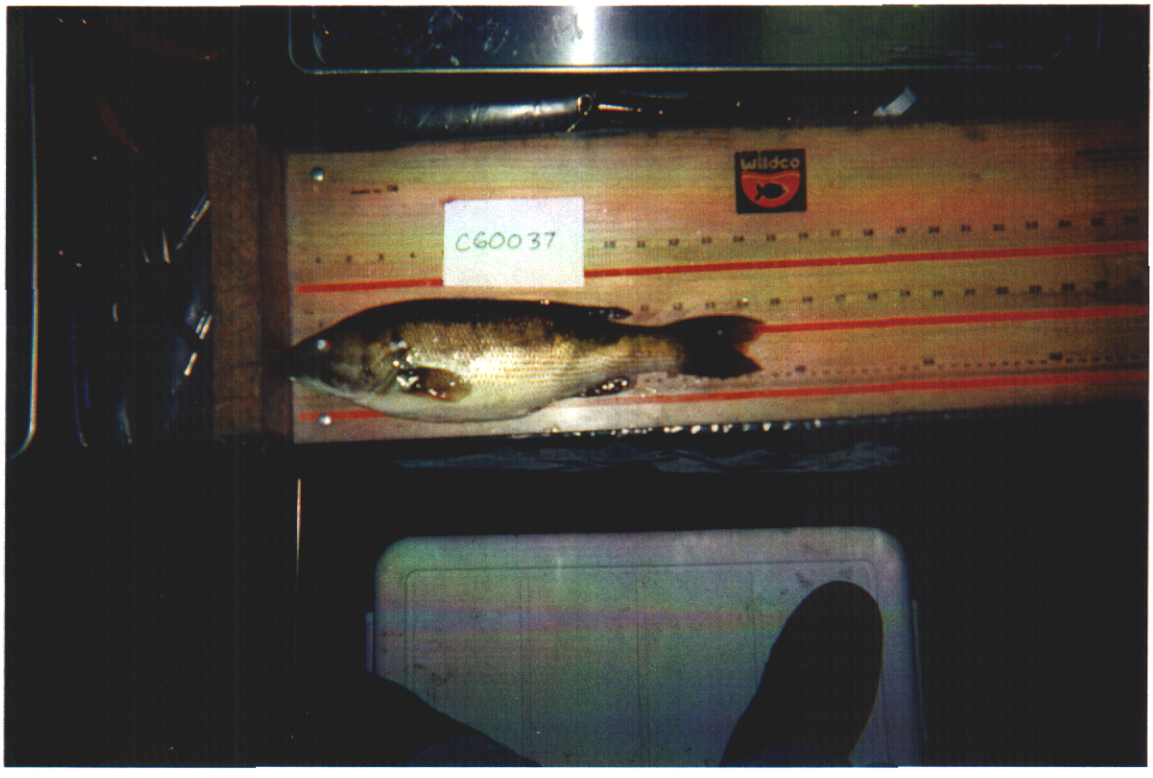


Photo 12: Choccolocco Creek ADEM 96 SPOTTED BASS C60037

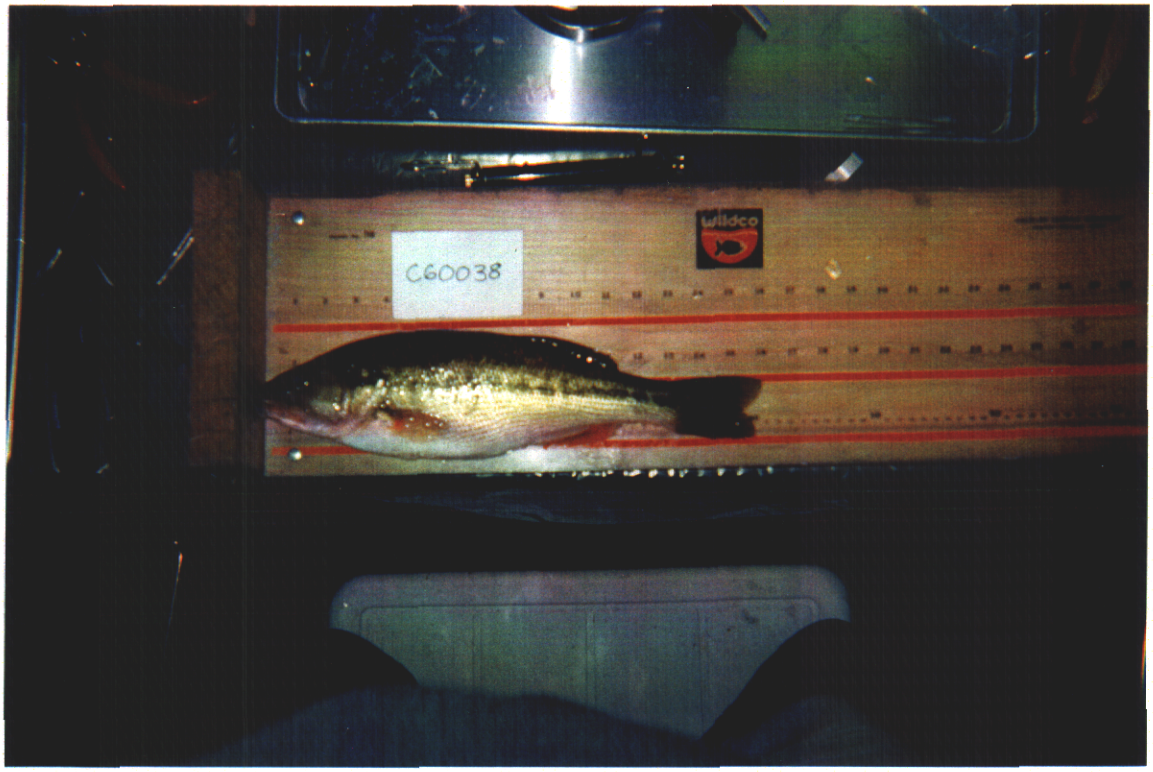


Photo 13: Choccolocco Creek ADEM 96 SPOTTED BASS C60038



Photo 14: Choccolocco Creek ADEM 96 SPOTTED BASS C60039



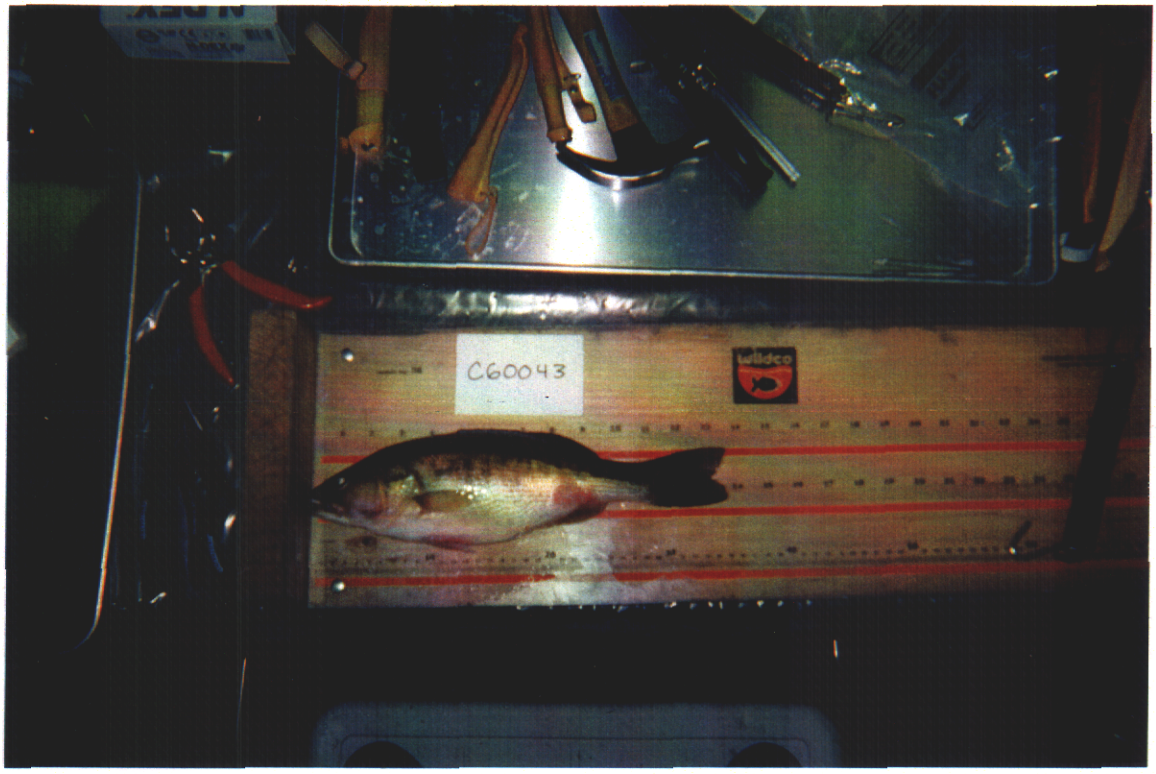
Photo 15: Choccolocco Creek ADEM 96 SPOTTED BASS C60040



Photo 16: Choccolocco Creek ADEM 96 SPOTTED BASS C60041



Photo 17: Choccolocco Creek ADEM 96 SPOTTED BASS C60042



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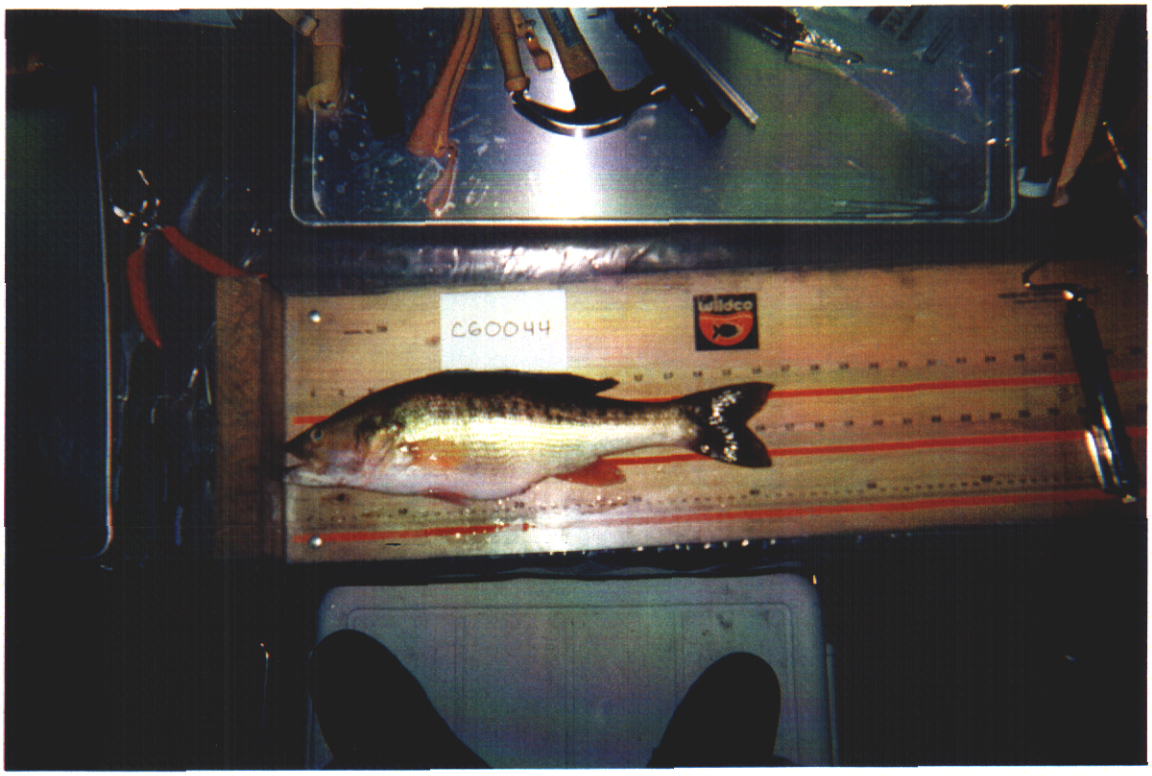

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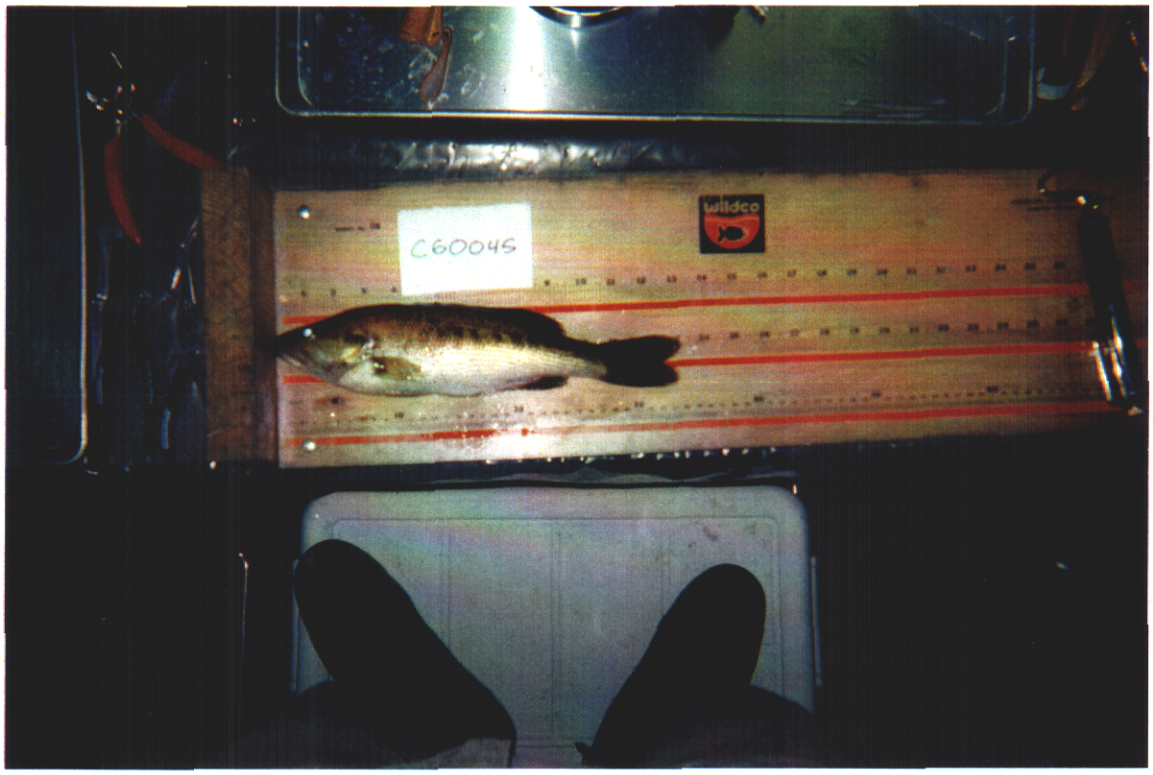

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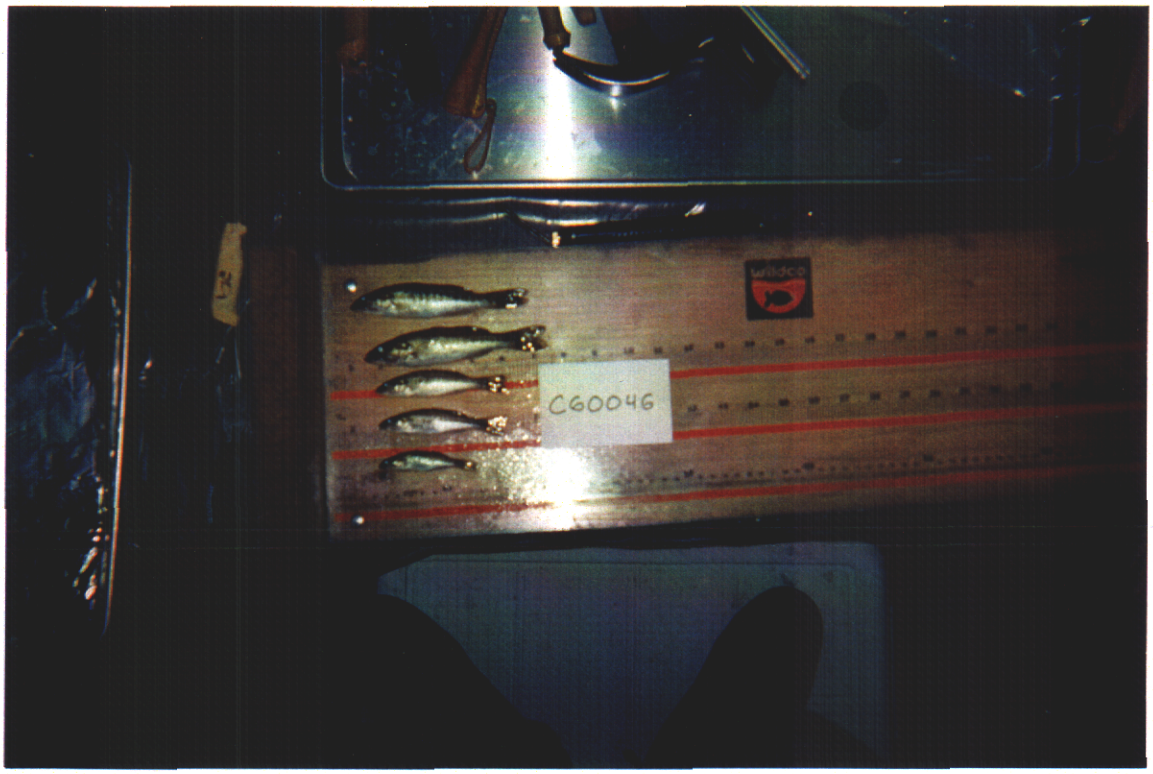

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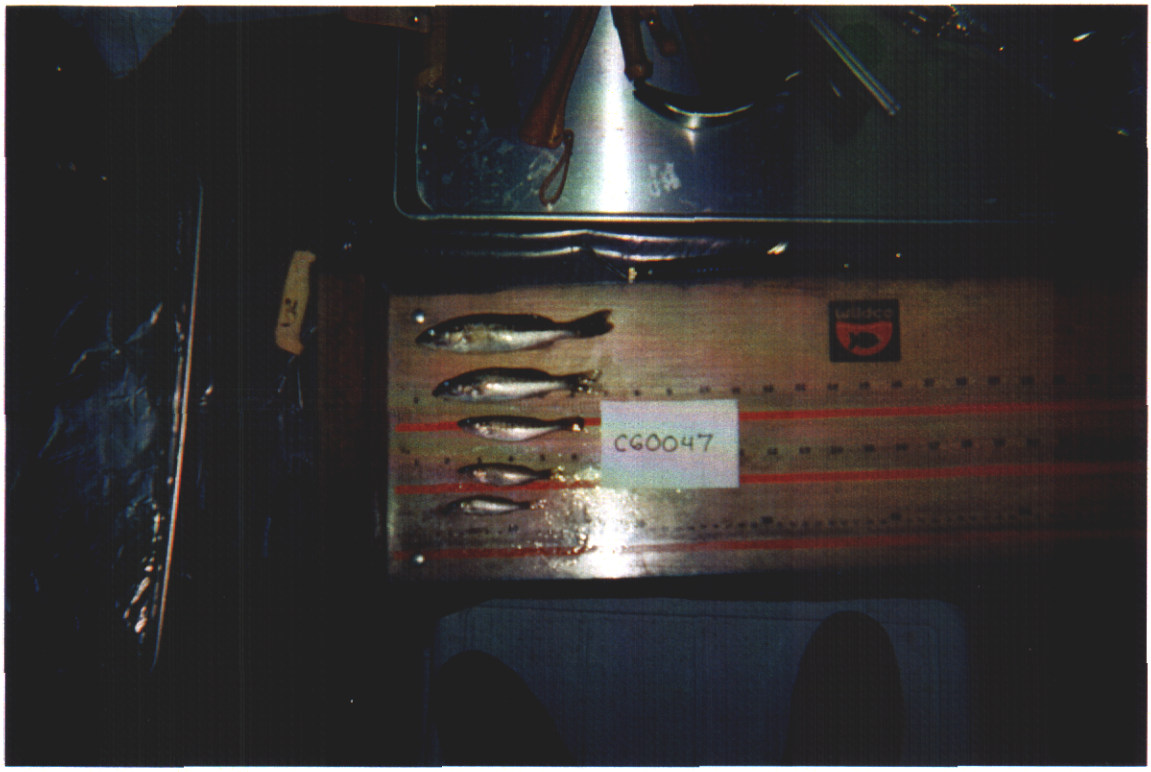
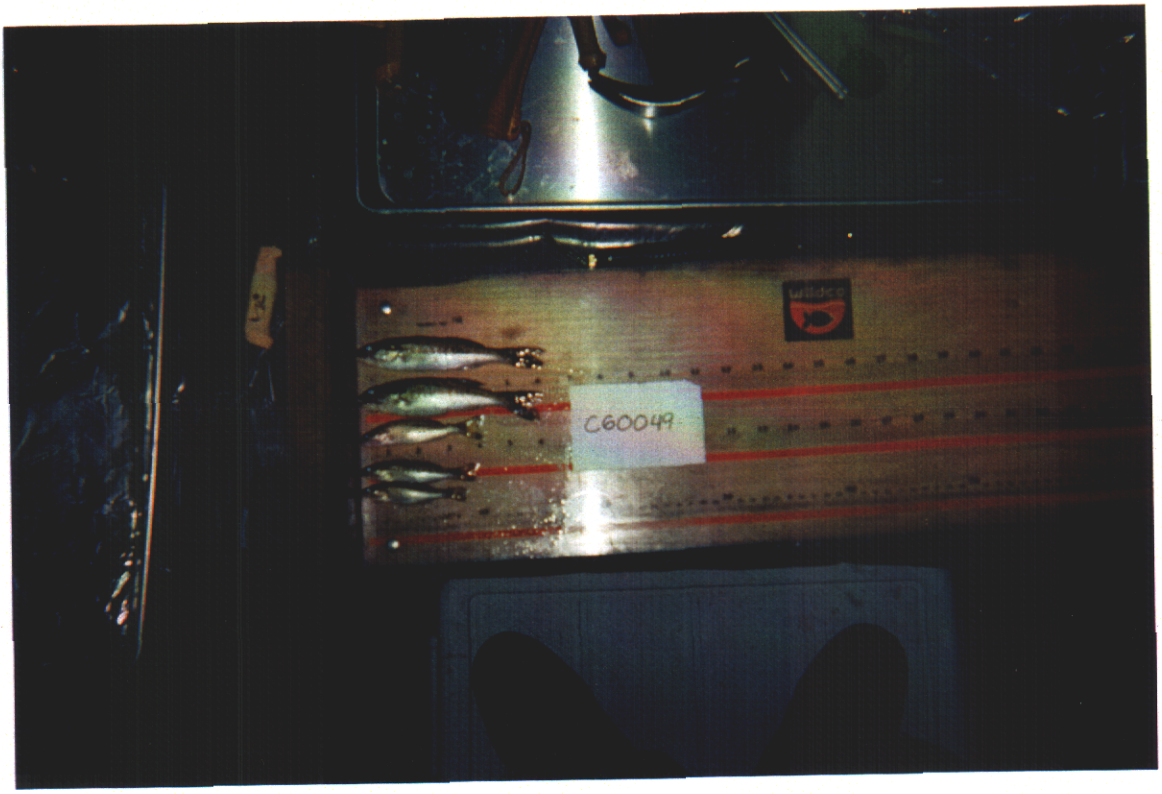


Photo 22: Choccolocco Creek ADEM 96 SPOTTED BASS C60047



Photo 23: Choccolocco Creek ADEM 96 SPOTTED BASS C60048



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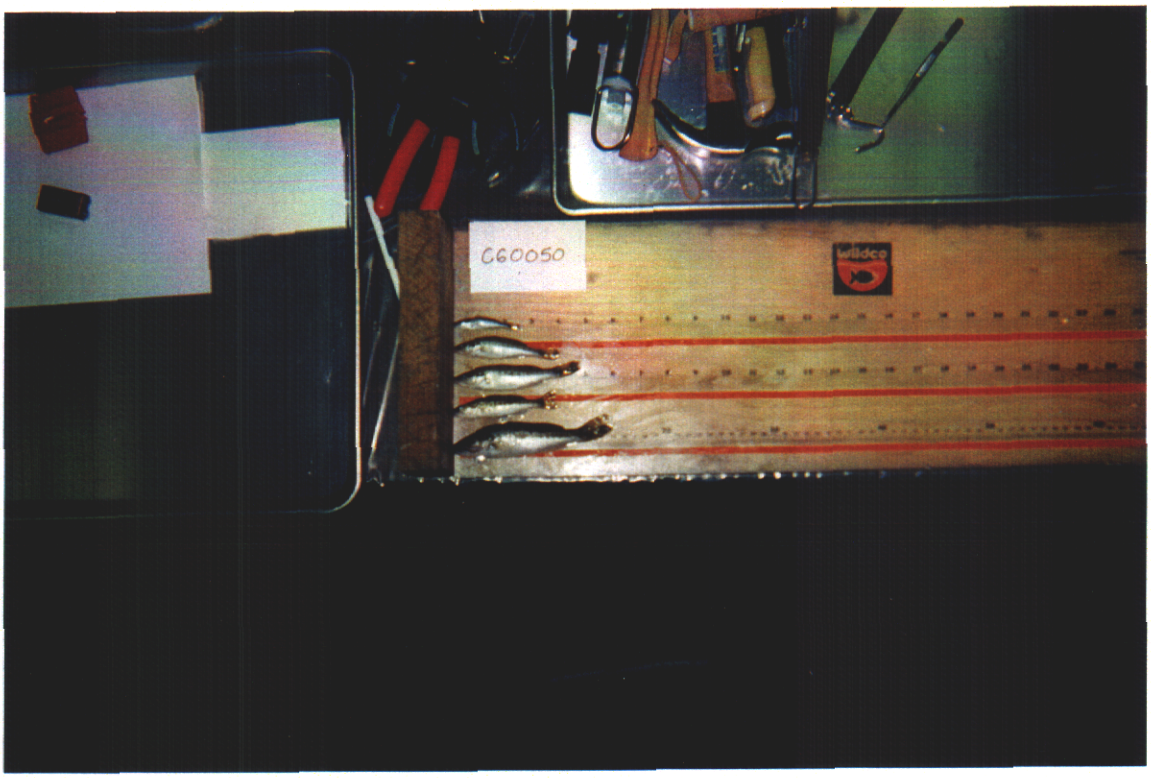

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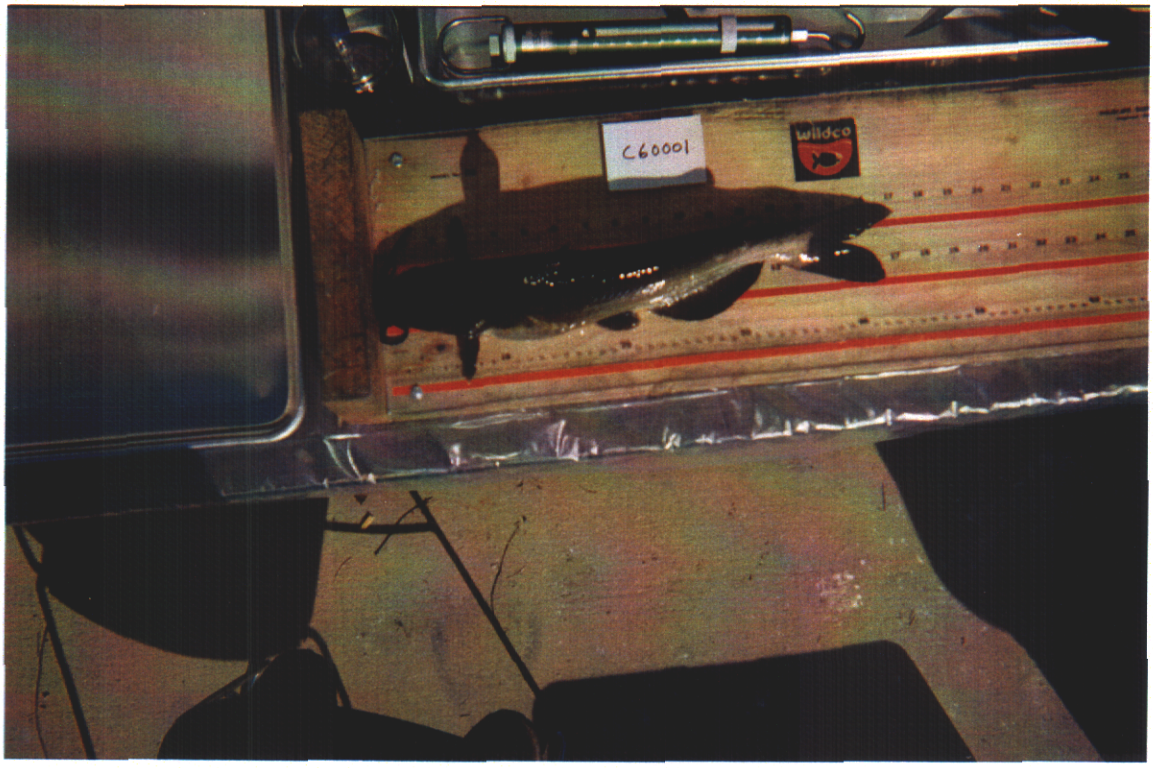


Photo 26: Choccolocco Creek NEW 99 CHANNEL CATFISH C60001

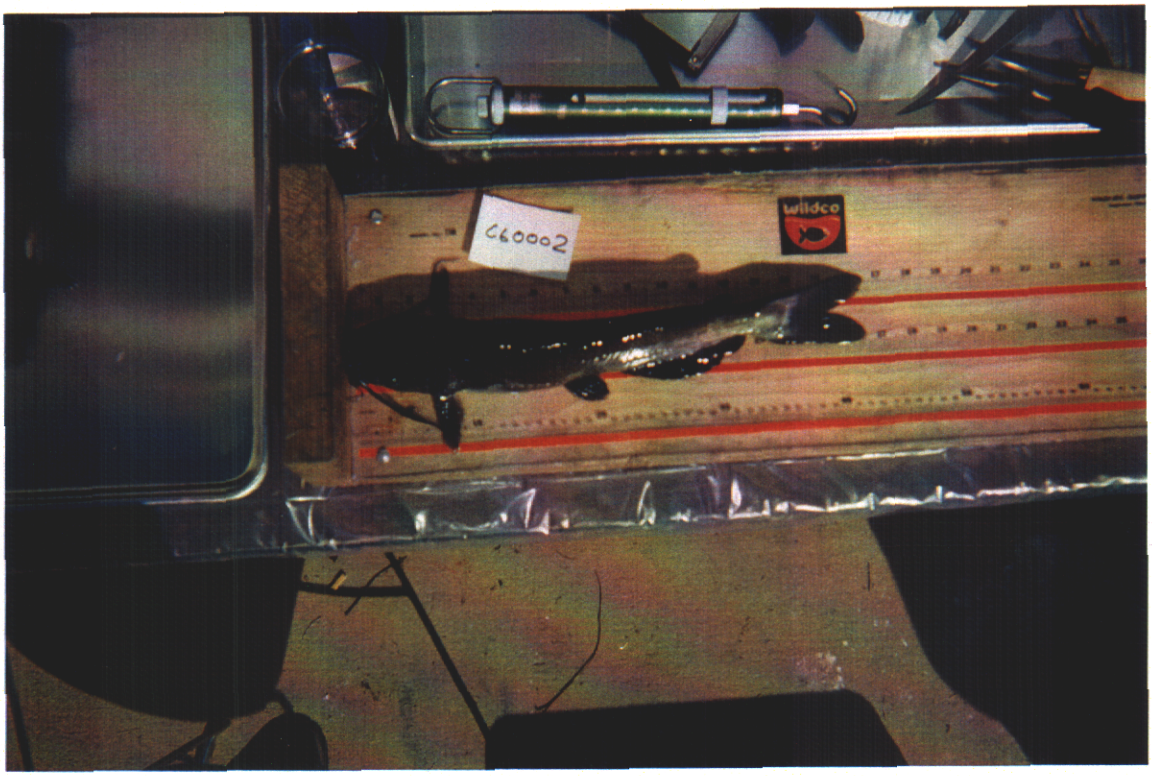


Photo 27: Choccolocco Creek NEW 99 CHANNEL CATFISH C60002

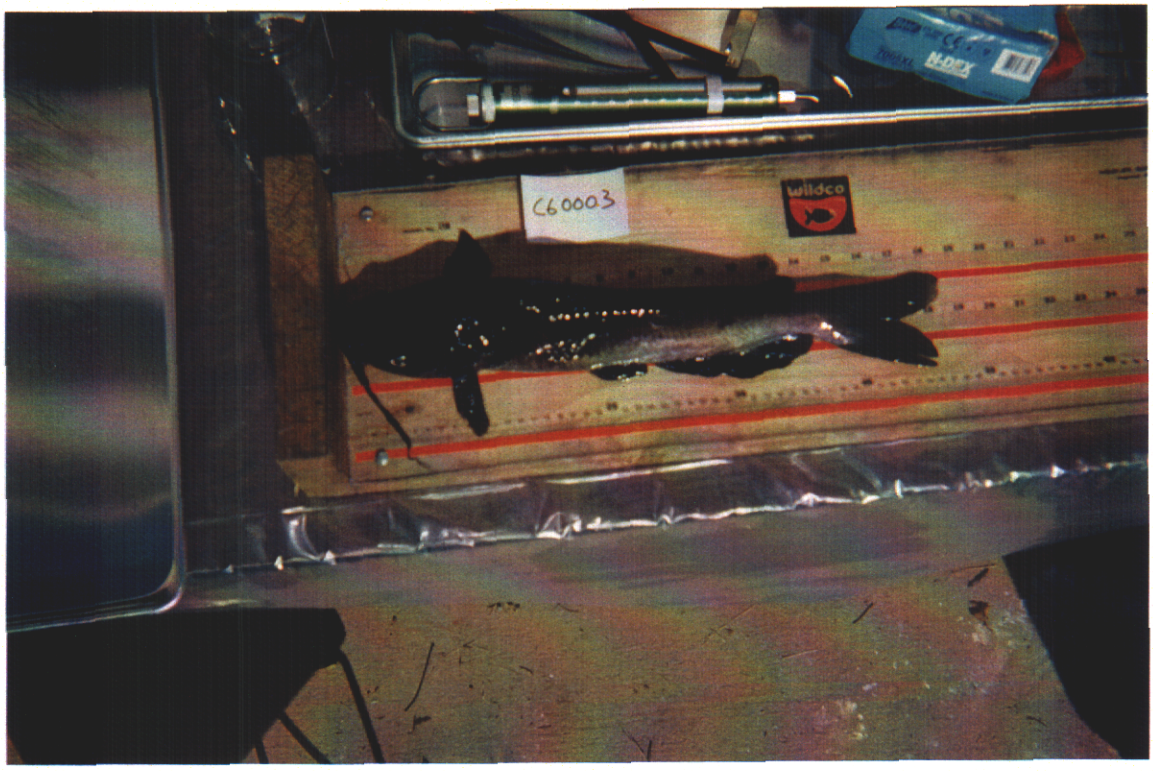
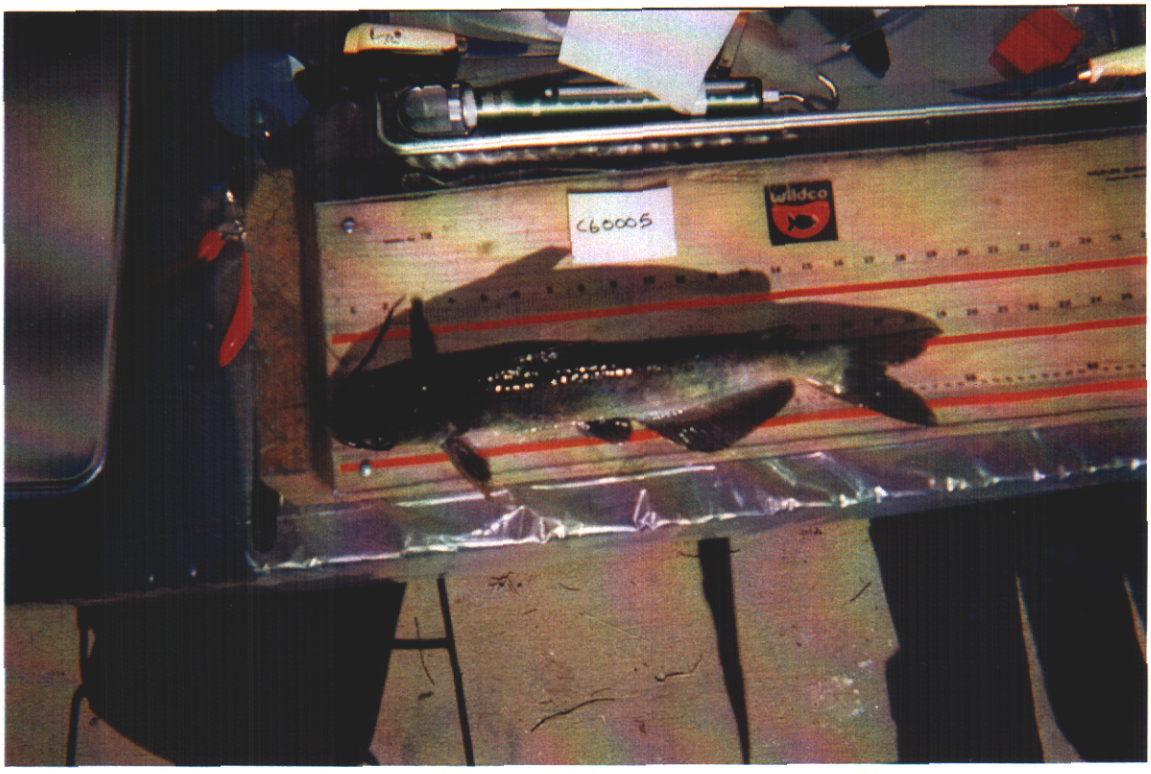


Photo 28: Choccolocco Creek NEW 99 CHANNEL CATFISH C60003



Photo 29: Choccolocco Creek NEW 99 CHANNEL CATFISH C60004



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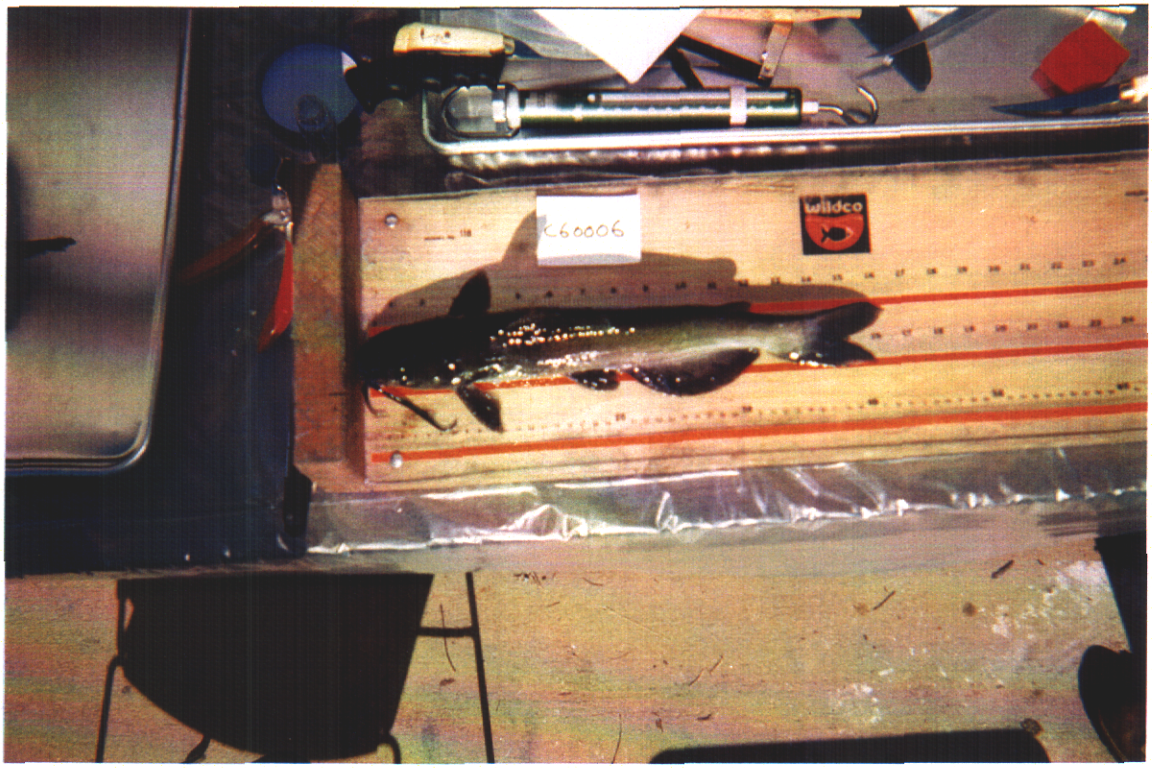

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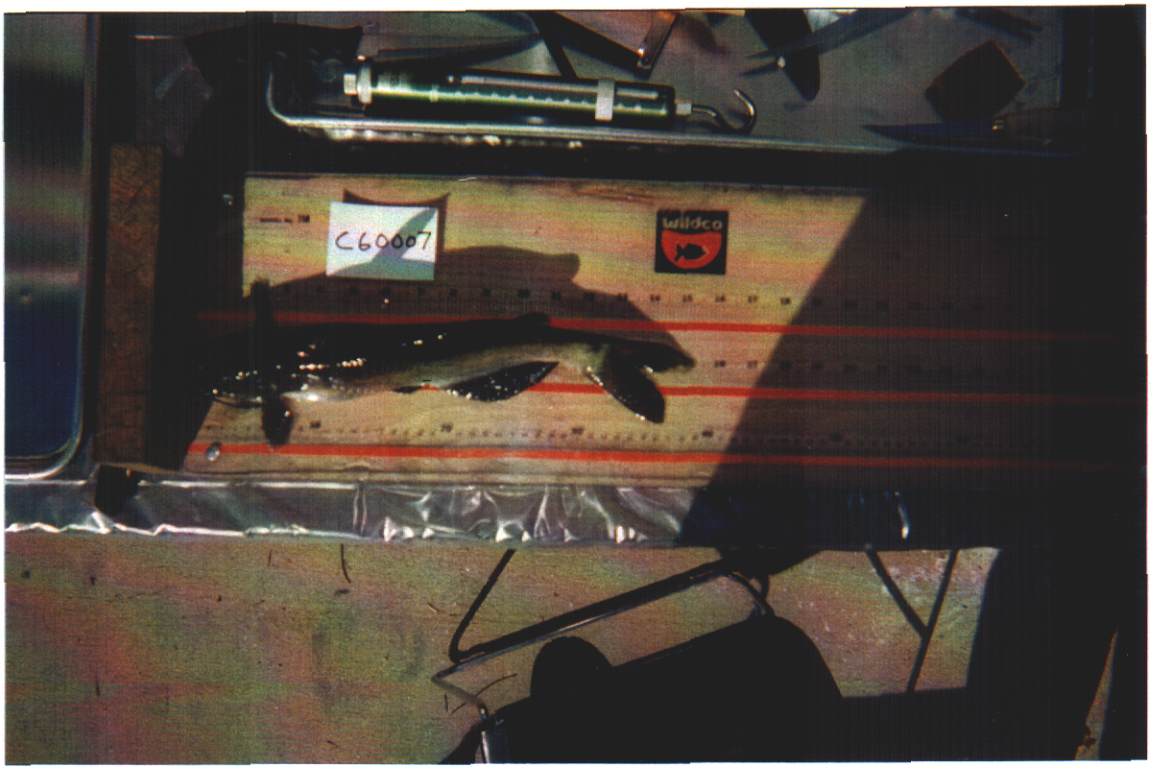

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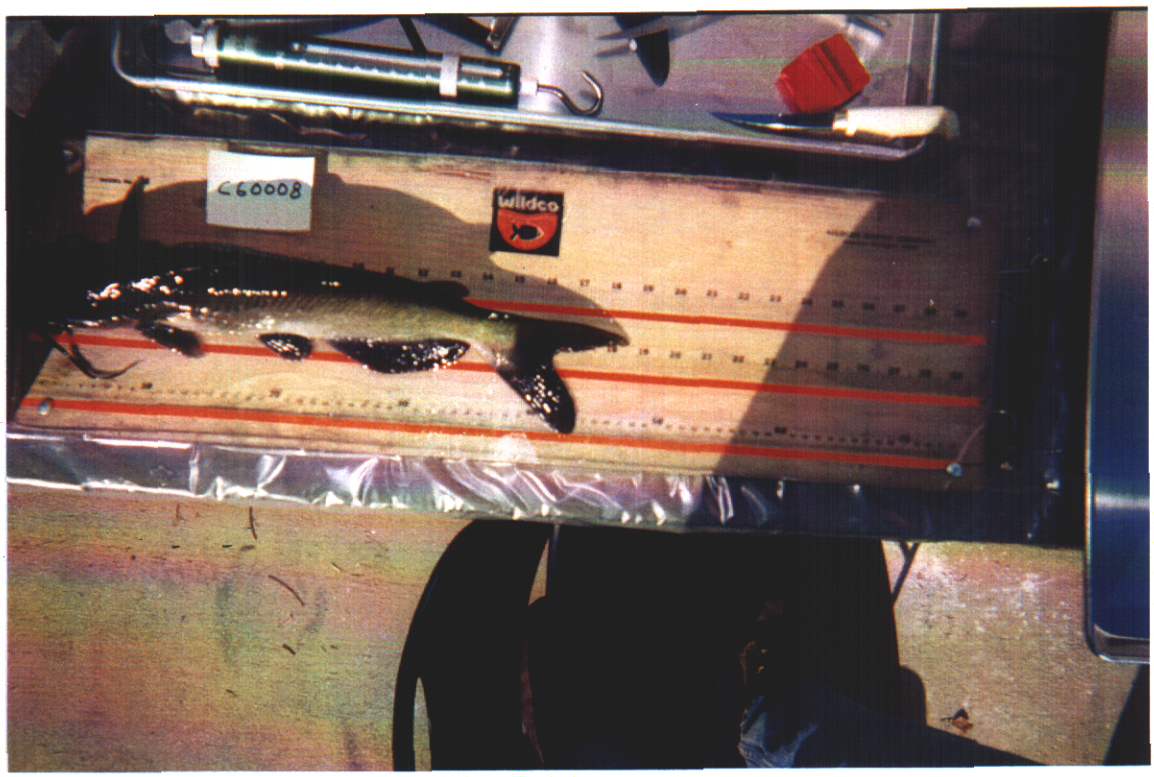

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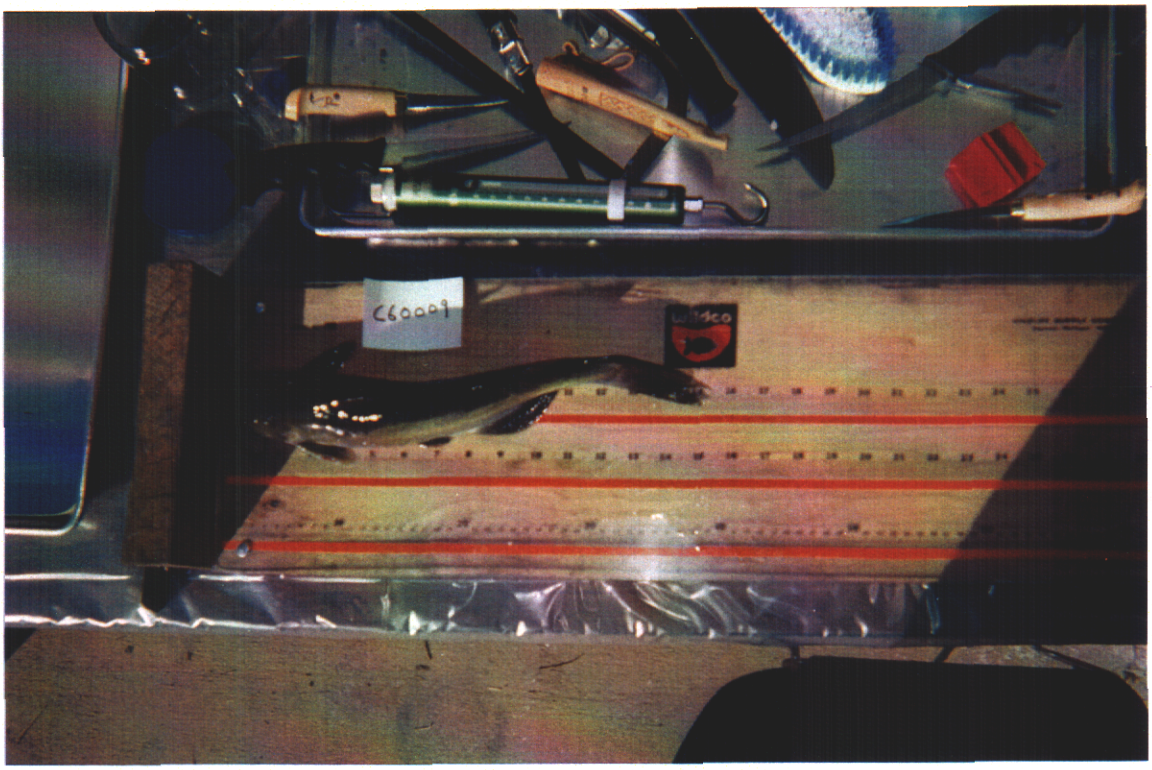

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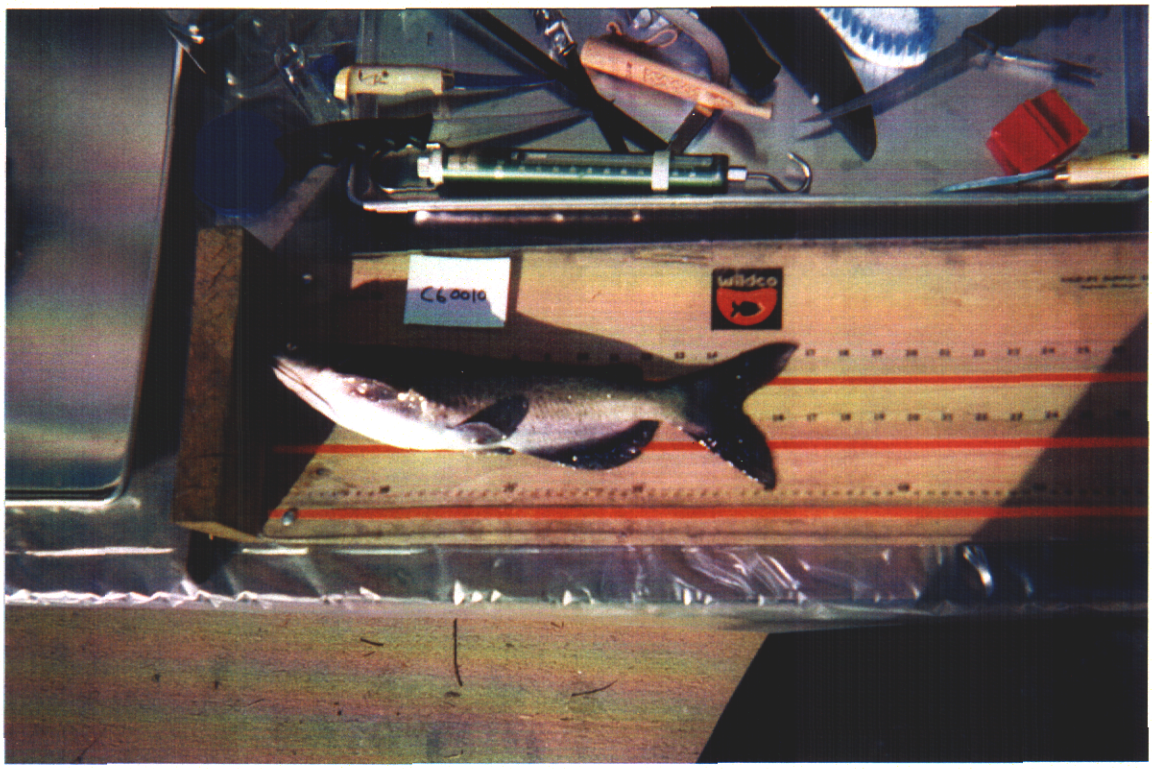

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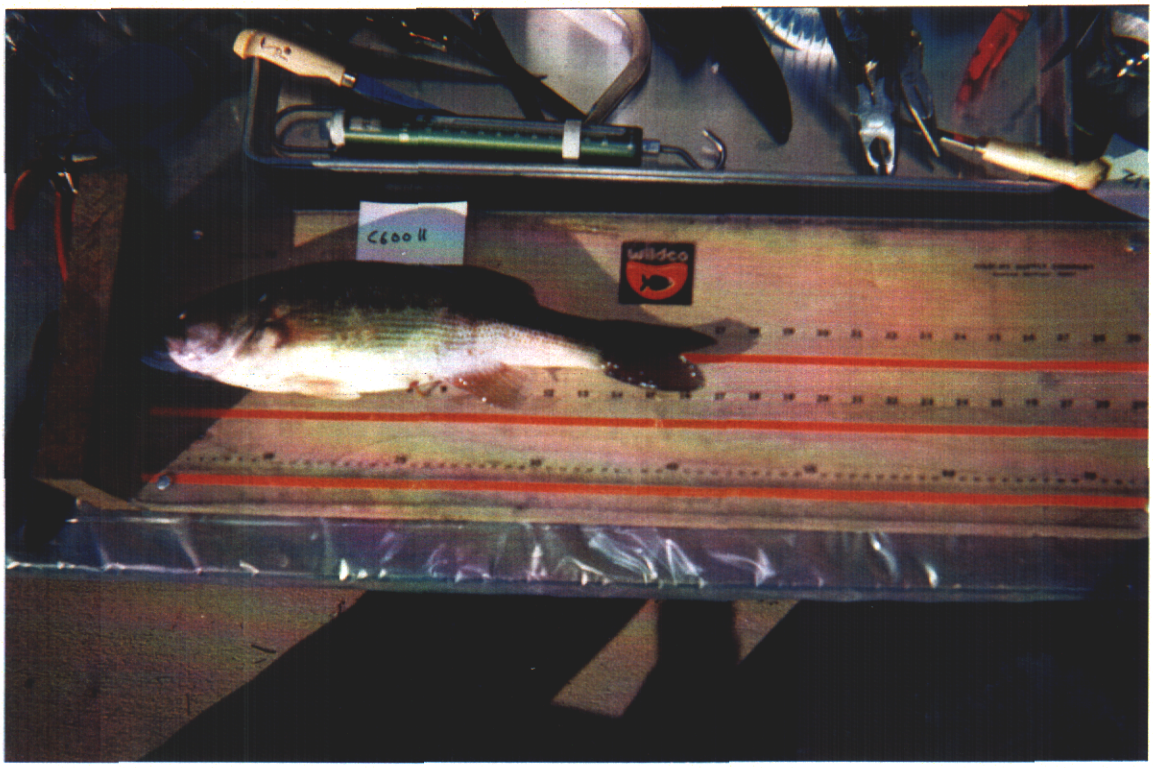
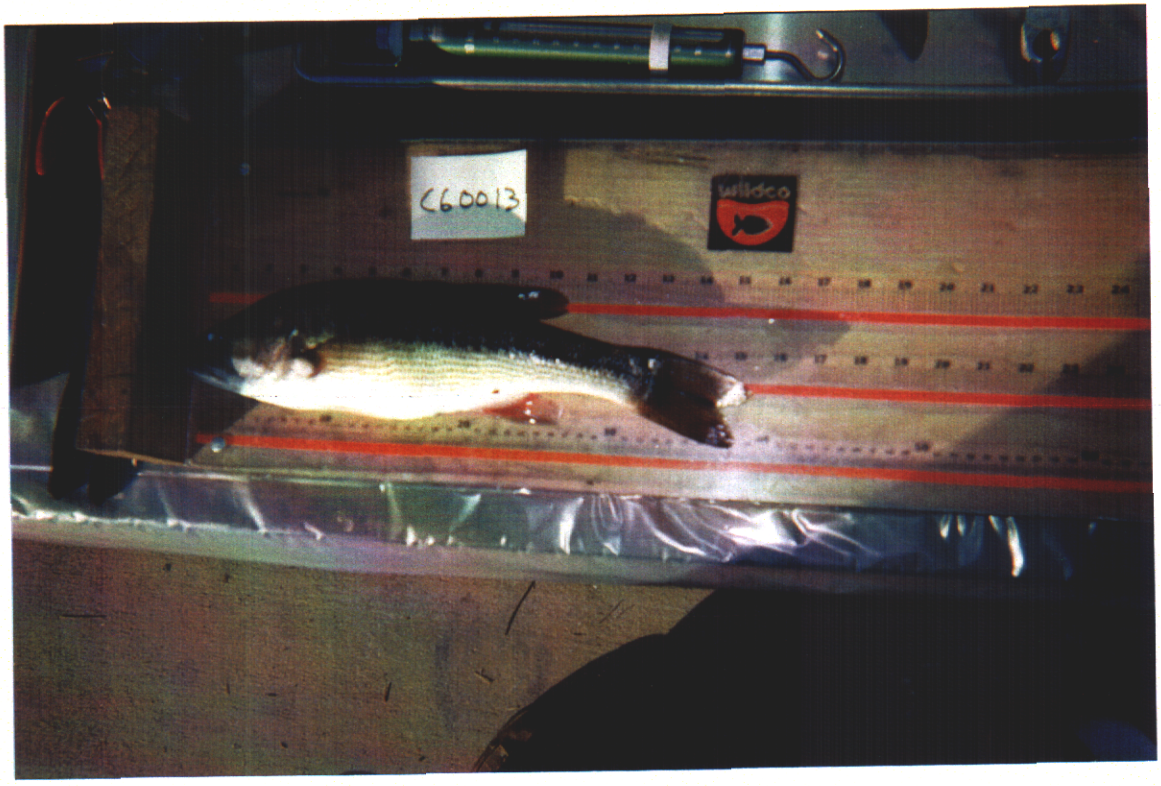


Photo 36: Choccolocco Creek NEW 99 SPOTTED BASS C60011



Photo 37: Choccolocco Creek NEW 99 SPOTTED BASS C60012



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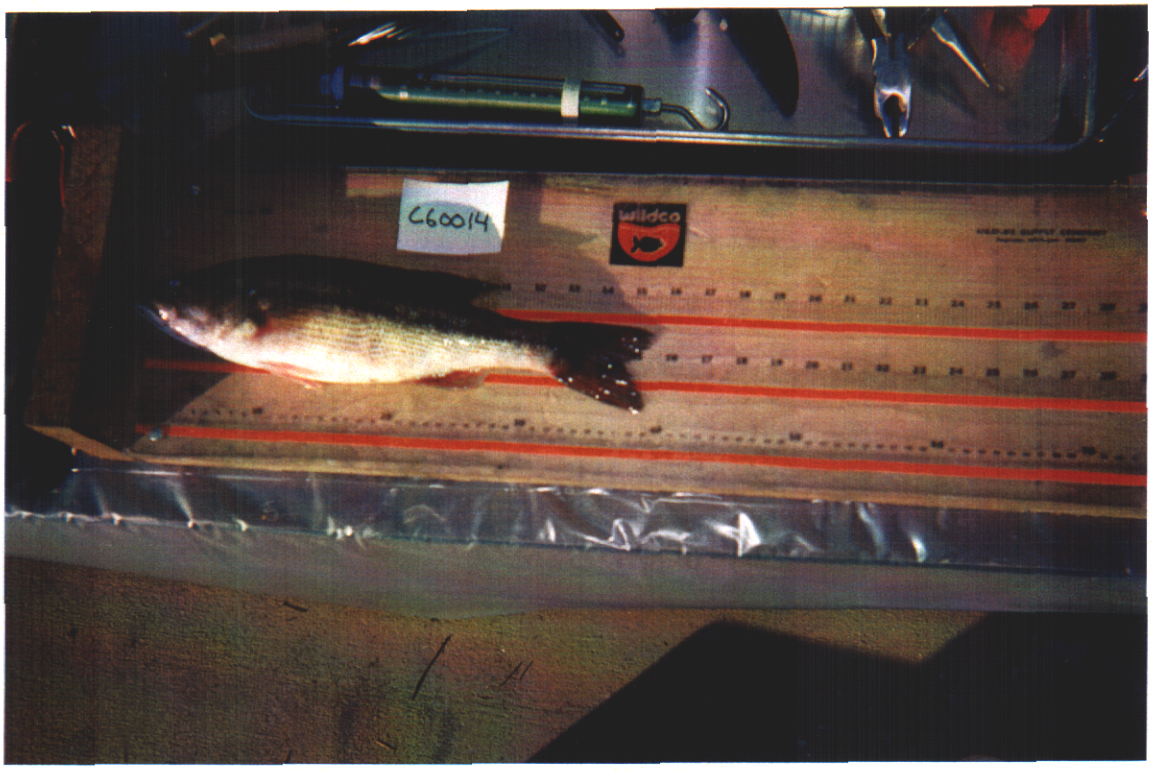


Photo 39: Choccolocco Creek NEW 99 SPOTTED BASS C60014

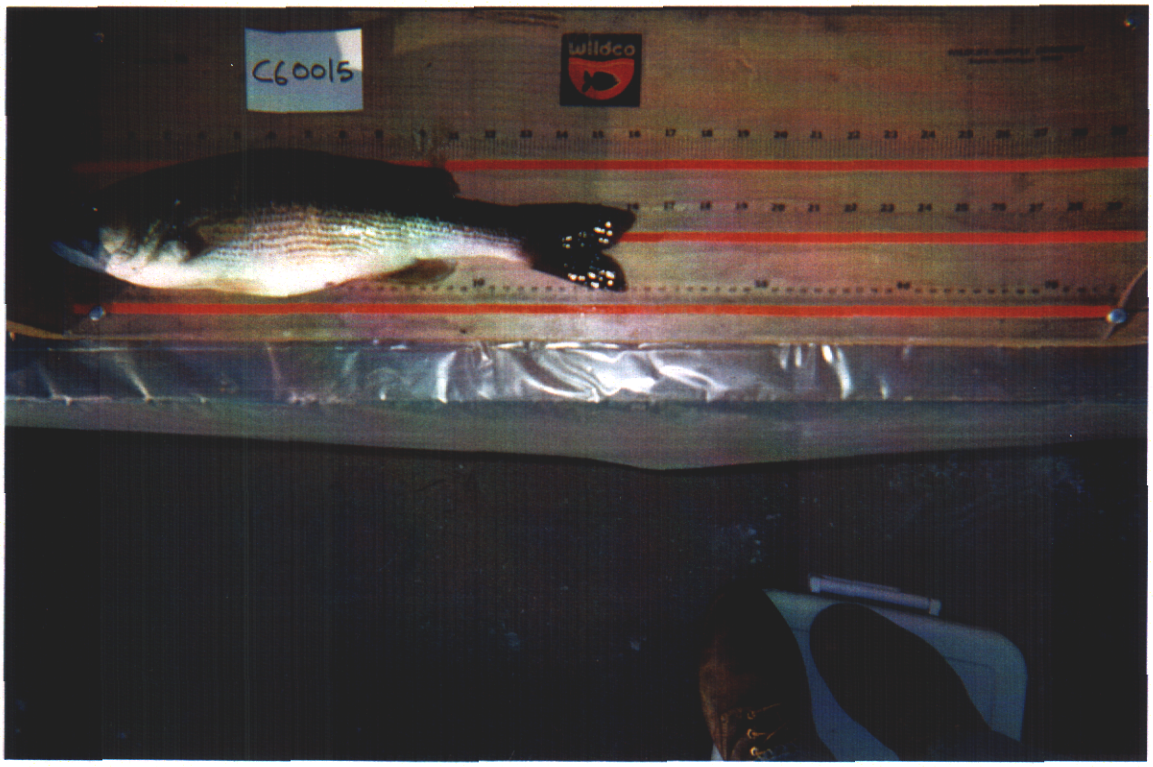


Photo 40: Choccolocco Creek NEW 99 SPOTTED BASS C60015

Photo missing

Photo 41: Choccolocco Creek NEW 99 SPOTTED BASS C60016



Photo 42: Choccolocco Creek NEW 99 SPOTTED BASS C60017



Photo 43: Choccolocco Creek NEW 99 SPOTTED BASS C60018



Photo 44: Choccolocco Creek NEW 99 SPOTTED BASS C60019

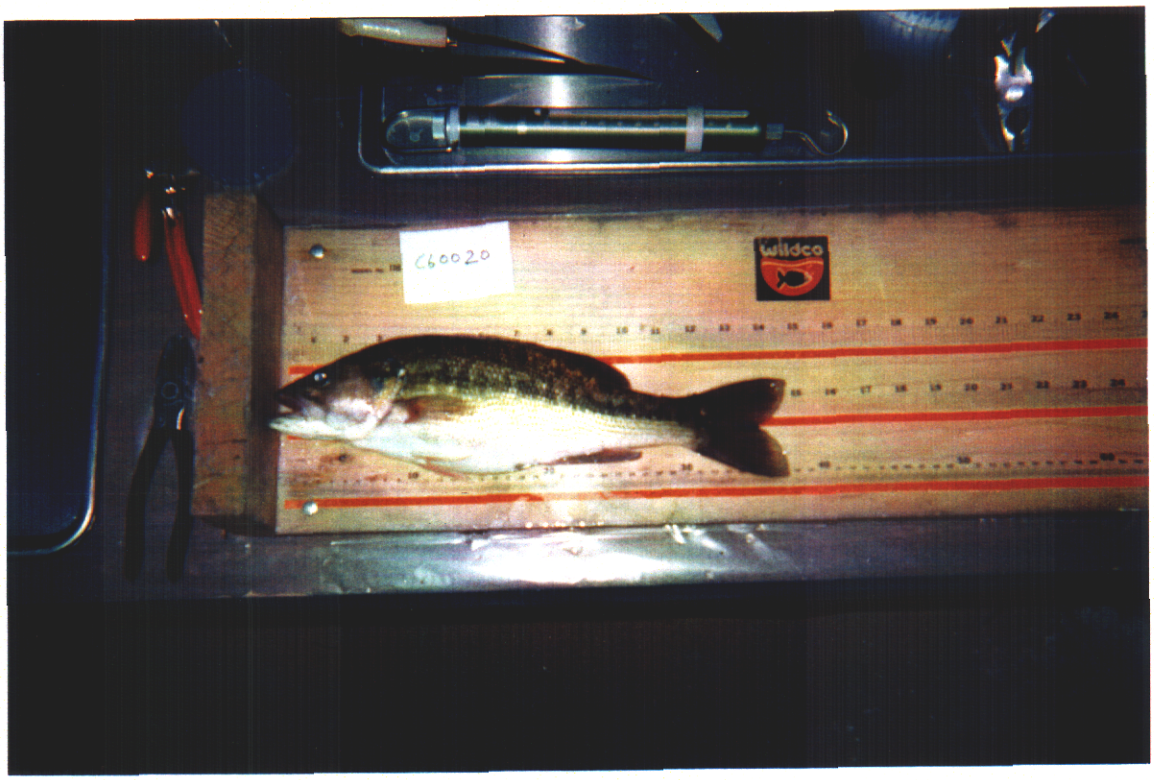


Photo 45: Choccolocco Creek NEW 99 SPOTTED BASS C60020



Photo 46: Choccolocco Creek NEW 99 SPOTTED BASS C60021



Photo 47: Choccolocco Creek NEW 99 SPOTTED BASS C60022



Photo 48: Choccolocco Creek NEW 99 SPOTTED BASS C60023

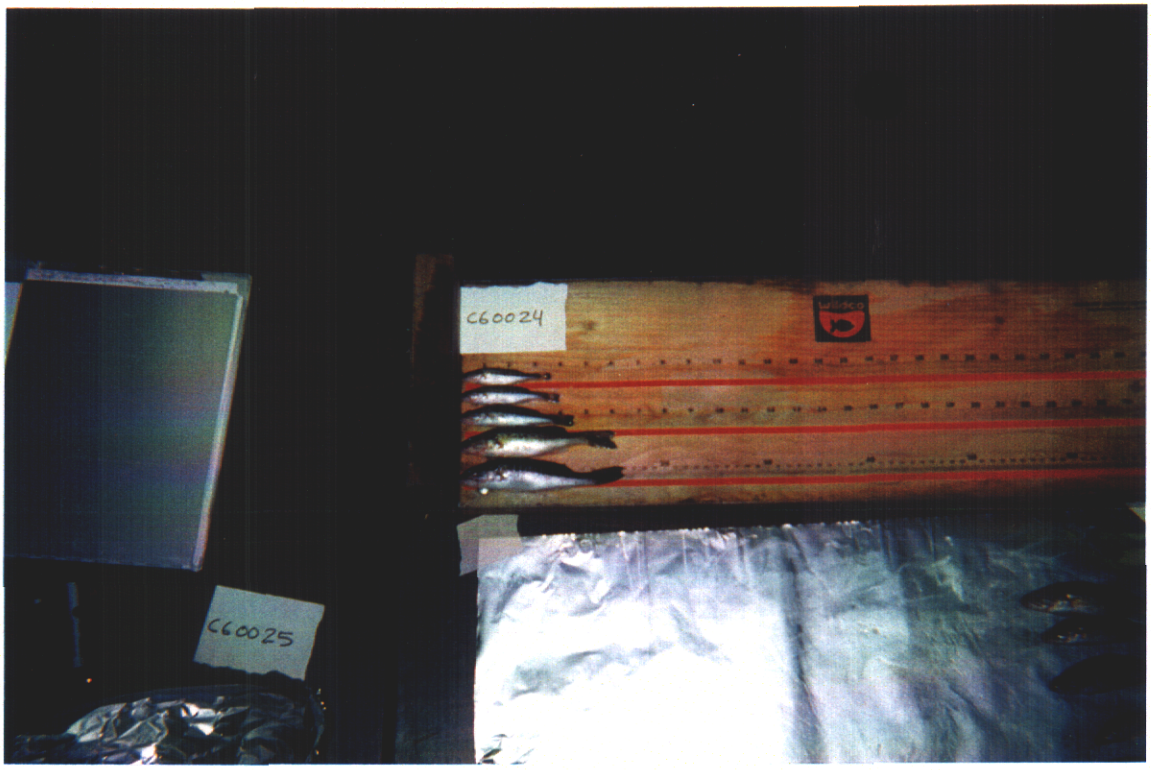


Photo 49: Choccolocco Creek NEW 99 SPOTTED BASS C60024



Photo 50: Choccolocco Creek NEW 99 SPOTTED BASS C60025

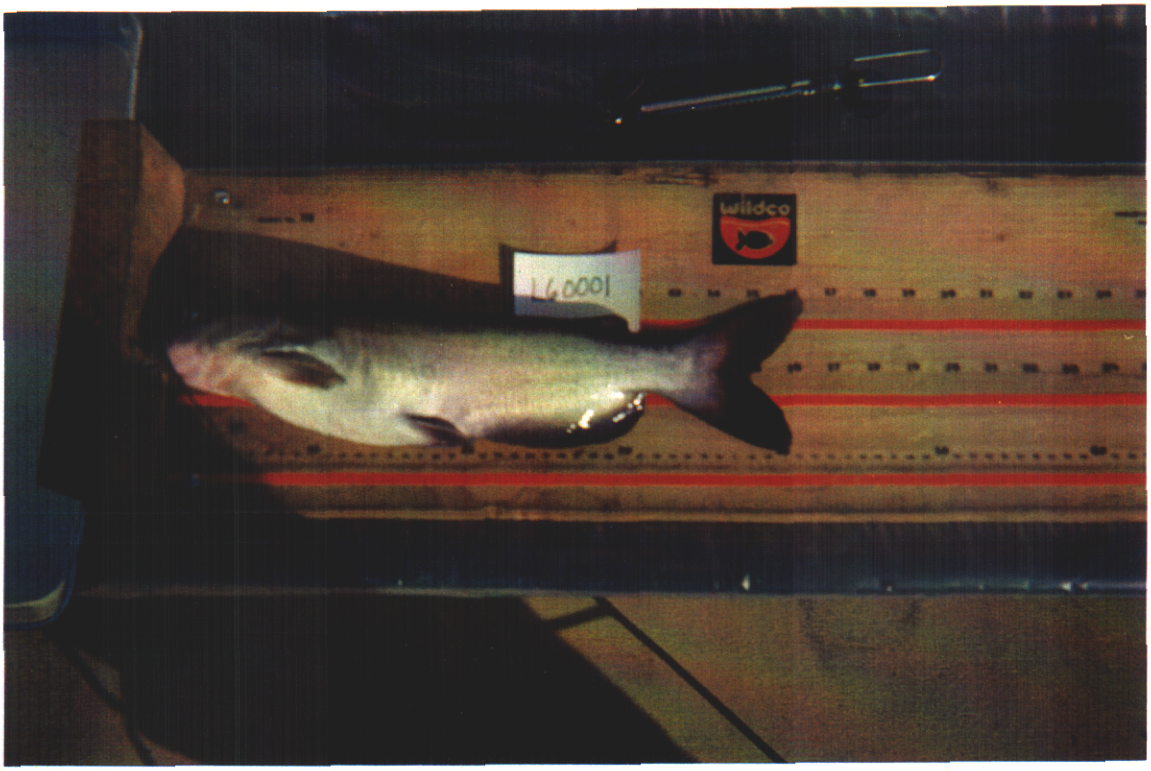


Photo 51: Choccolocco Creek Station 35 CHANNEL CATFISH L60001

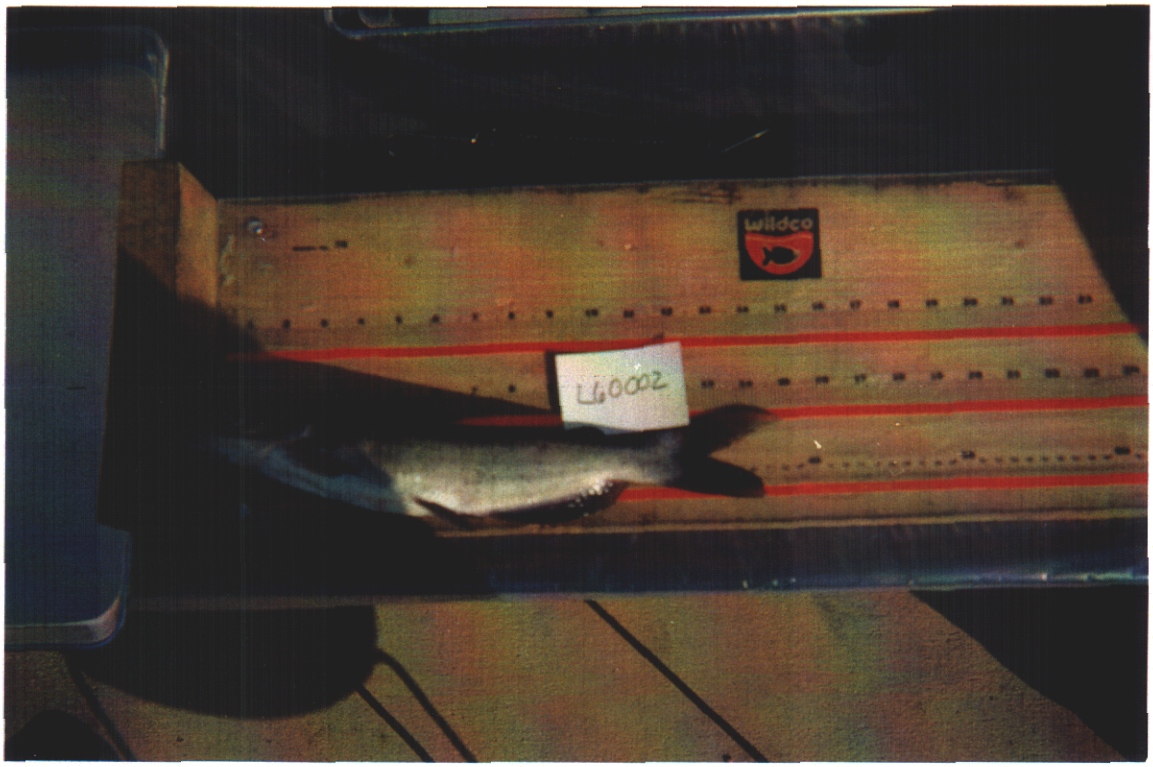


Photo 52: Choccolocco Creek Station 35 CHANNEL CATFISH L60002

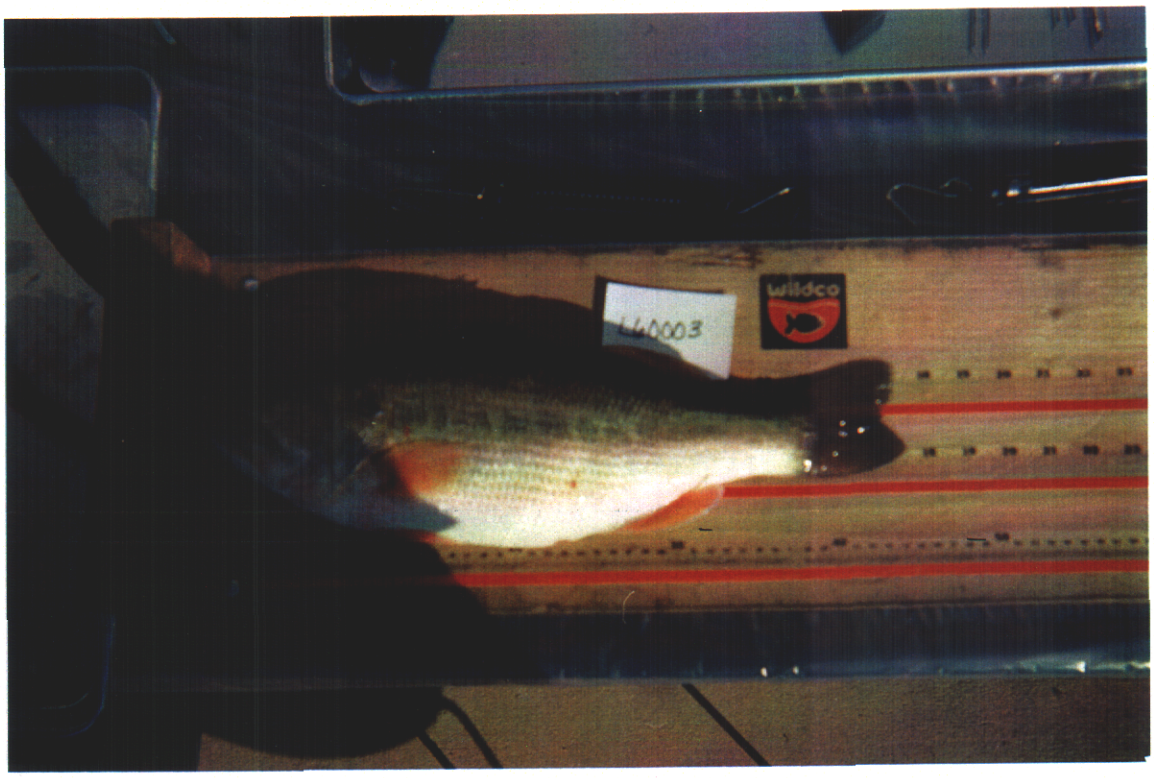


Photo 53: Choccolocco Creek Station 35 LARGEMOUTH BASS L60003

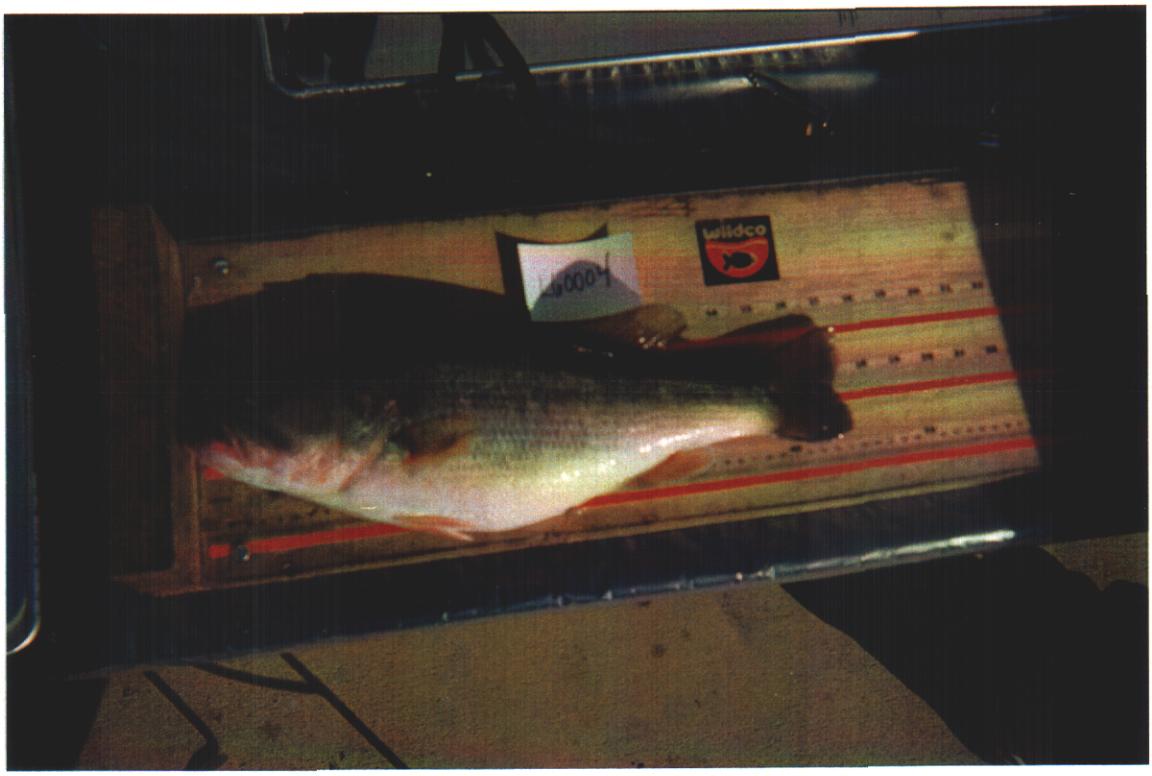


Photo 54: Choccolocco Creek Station 35 LARGEMOUTH BASS L60004

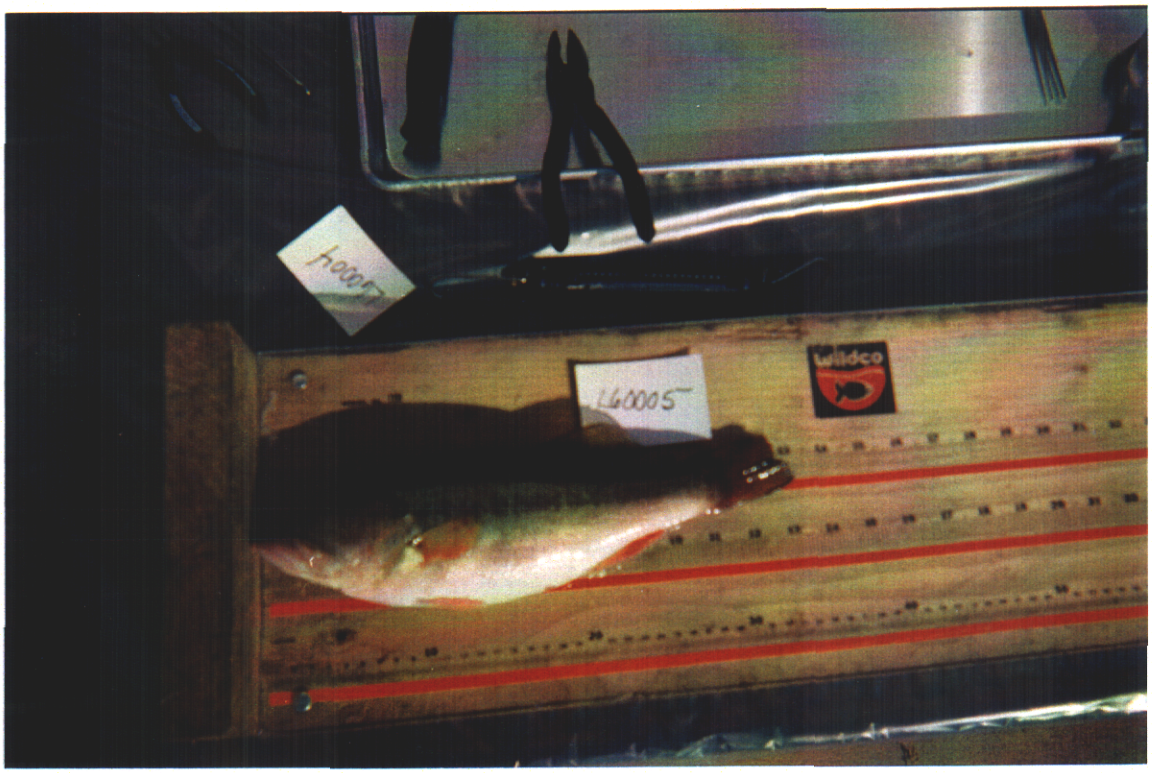


Photo 55: Choccolocco Creek Station 35 LARGEMOUTH BASS L60005



Photo 56: Choccolocco Creek Station 35 LARGEMOUTH BASS L60006



Photo 57: Choccolocco Creek Station 35 LARGEMOUTH BASS L60007



Photo 58: Choccolocco Creek Station 35 LARGEMOUTH BASS L60008

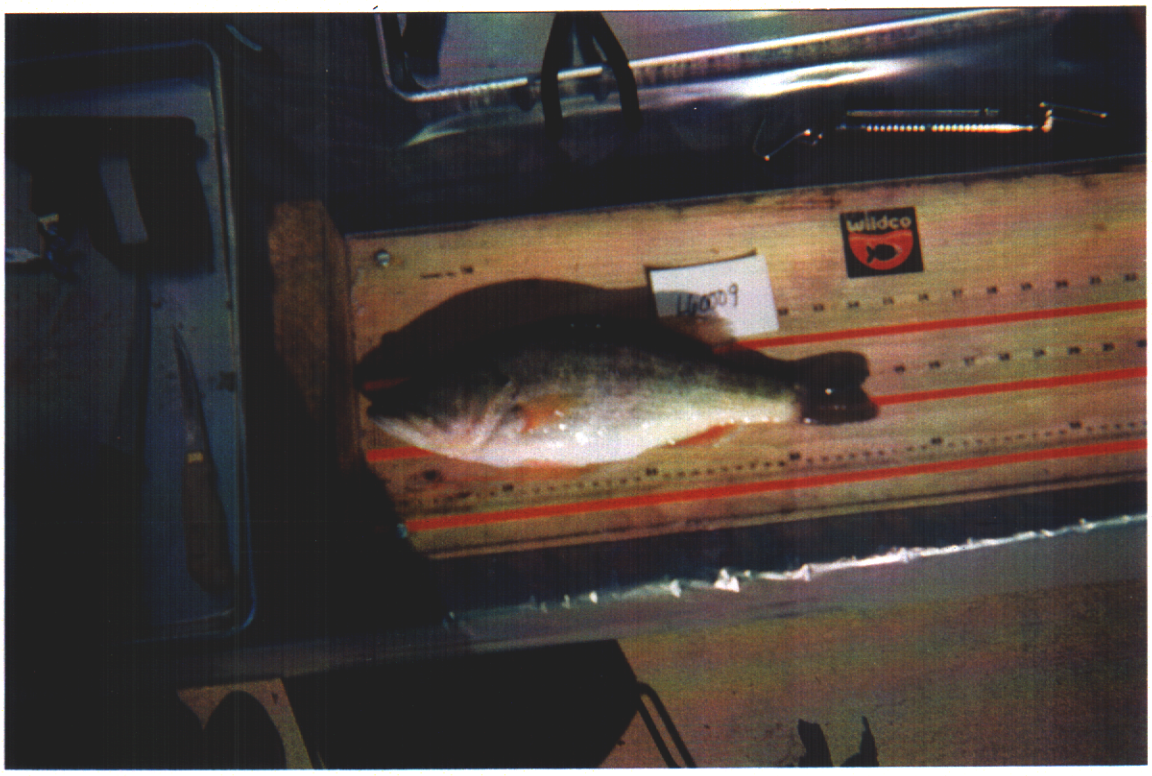


Photo 59: Choccolocco Creek Station 35 LARGEMOUTH BASS L60009



Photo 60: Choccolocco Creek Station 35 LARGEMOUTH BASS L60019

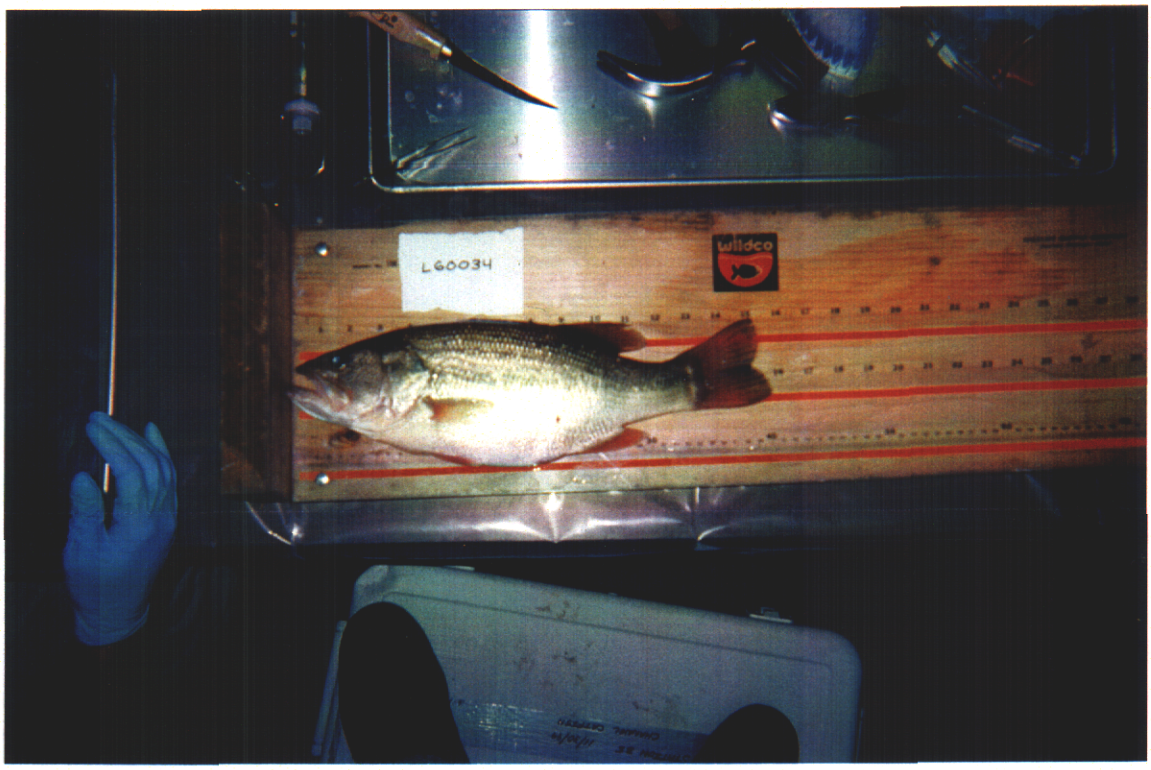


Photo 61: Choccolocco Creek Station 35 LARGEMOUTH BASS L60034



Photo 62: Choccolocco Creek Station 35 LARGEMOUTH BASS L60035

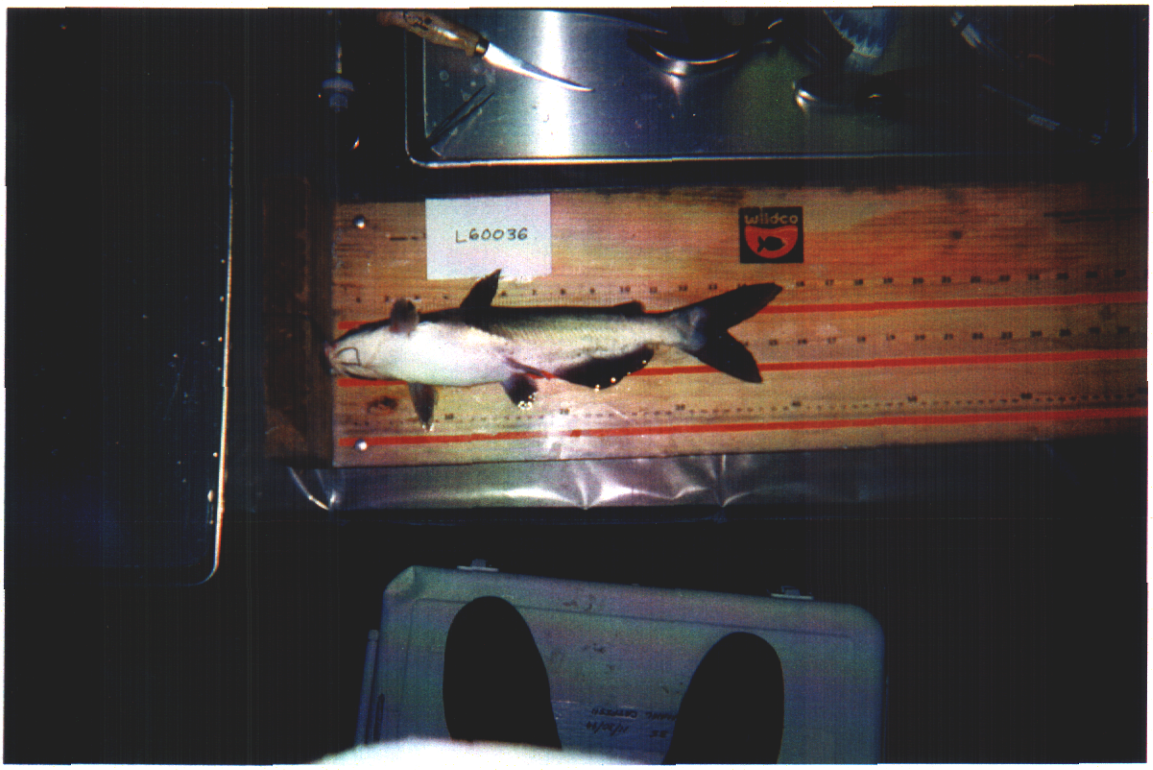


Photo 63: Choccolocco Creek Station 35 CHANNEL CATFISH L60036

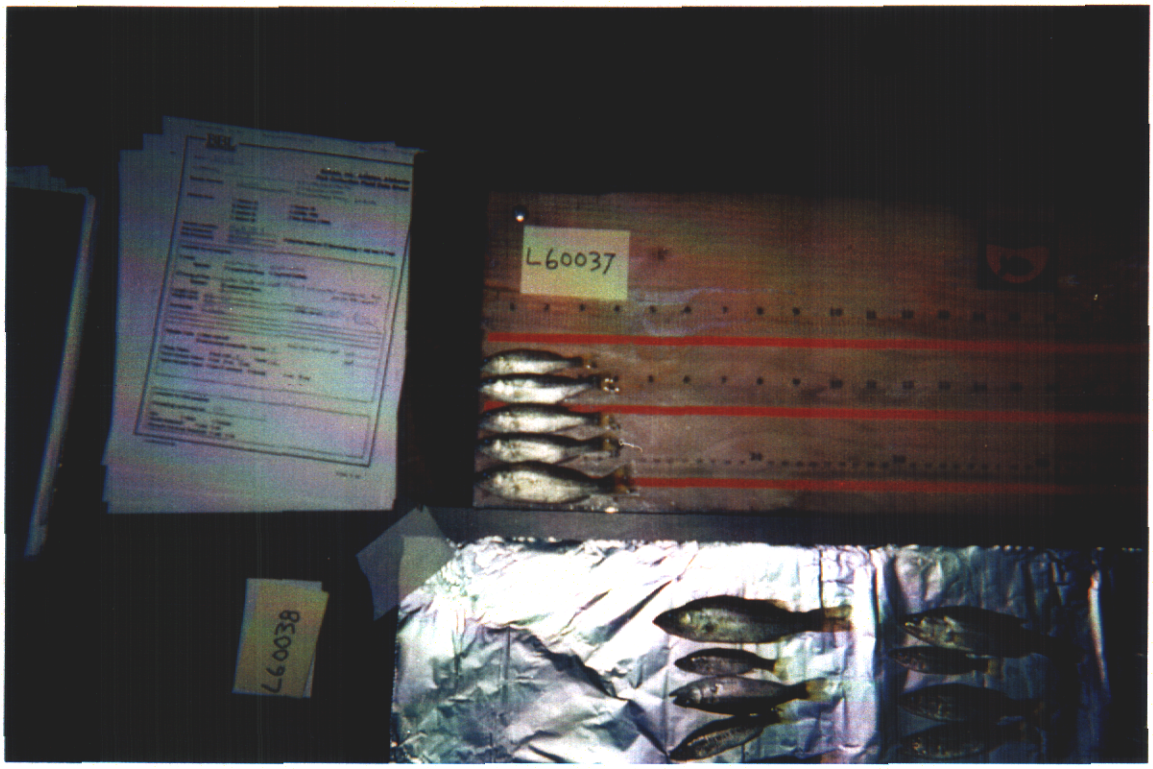


Photo 64: Choccolocco Creek Station 35 LARGEMOUTH BASS L60037

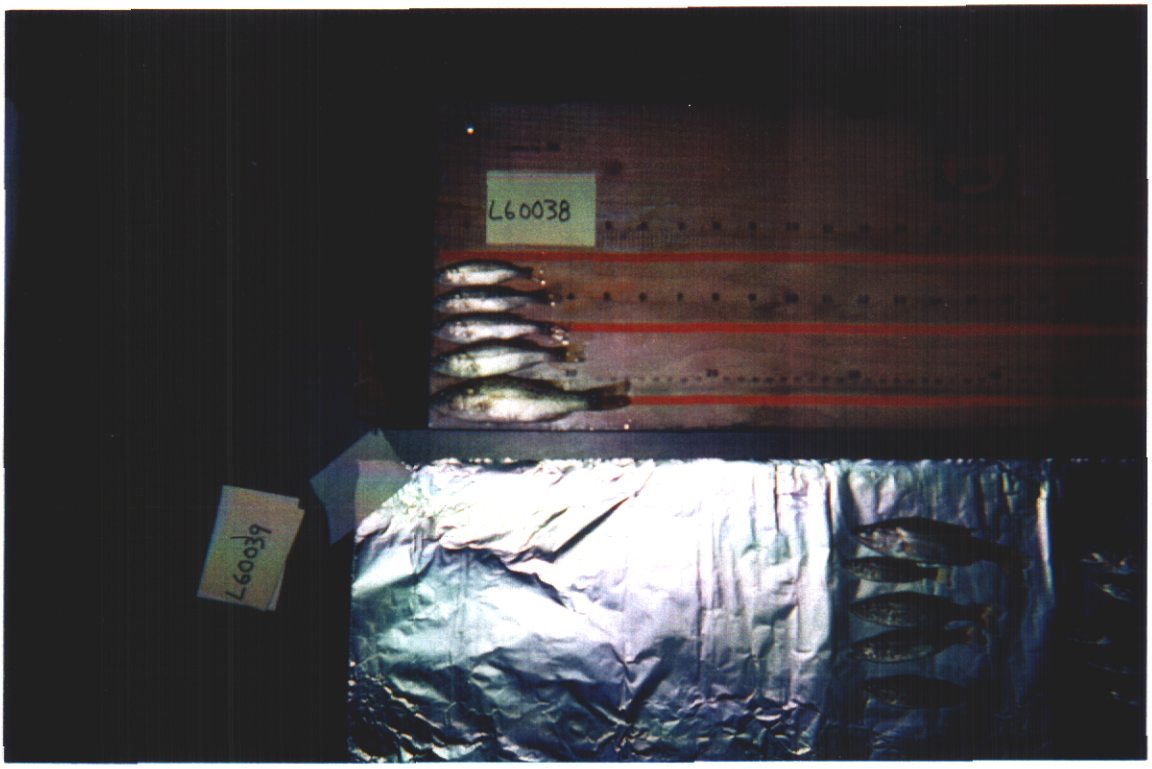


Photo 65: Choccolocco Creek Station 35 LARGEMOUTH BASS L60038

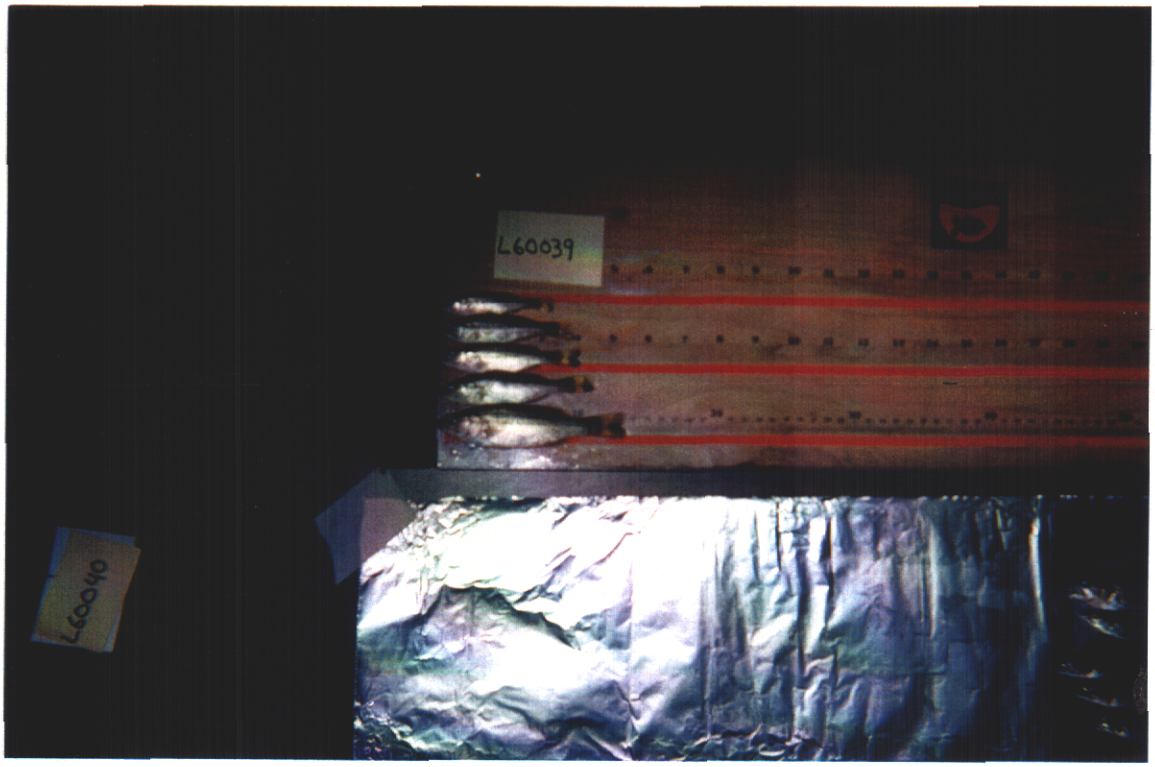


Photo 66: Choccolocco Creek Station 35 LARGEMOUTH BASS L60039

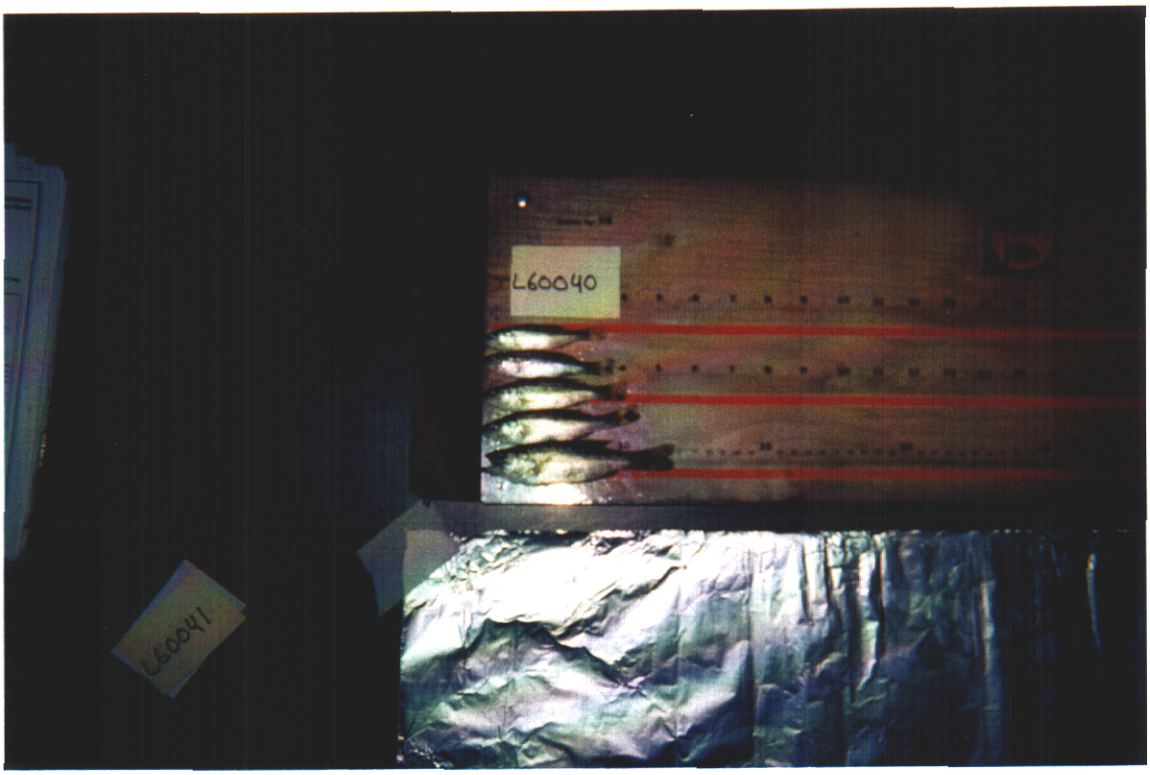


Photo 67: Choccolocco Creek Station 35 LARGEMOUTH BASS L60040



Photo 68: Choccolocco Creek Station 35 LARGEMOUTH BASS L60041



Photo 69: Choccolocco Creek Station 35 LARGEMOUTH BASS L60042

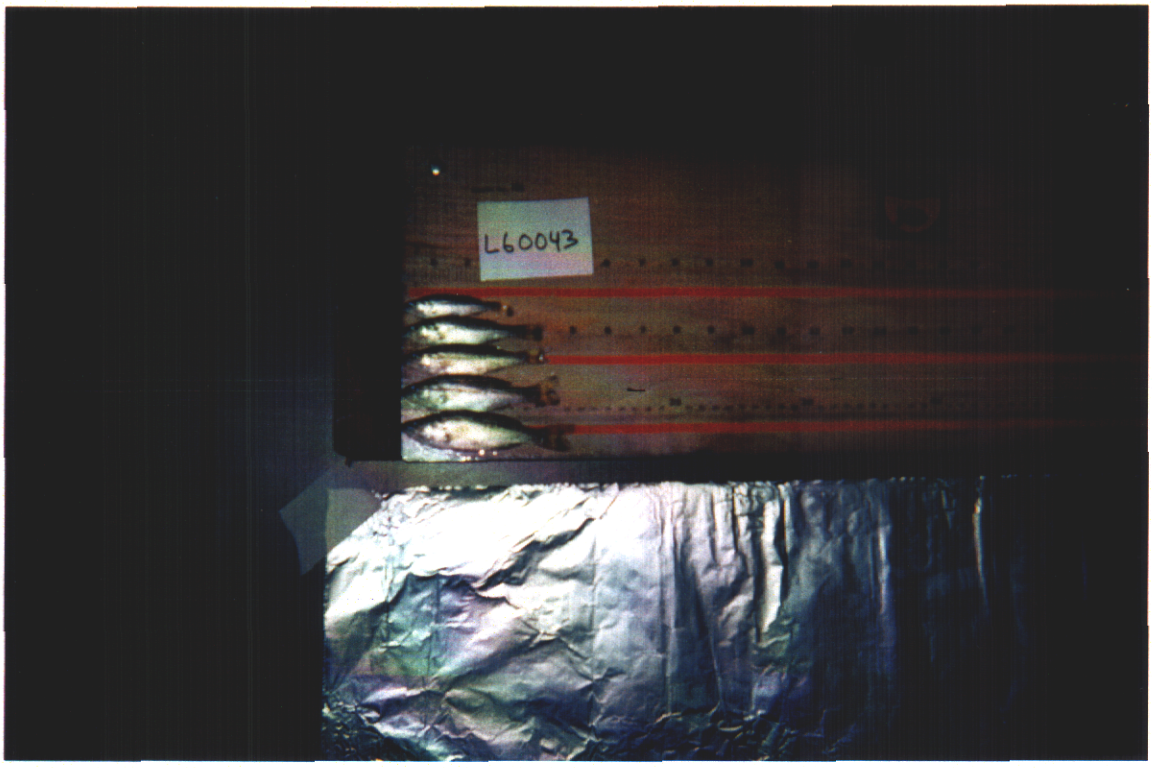


Photo 70: Choccolocco Creek Station 35 LARGEMOUTH BASS L60043

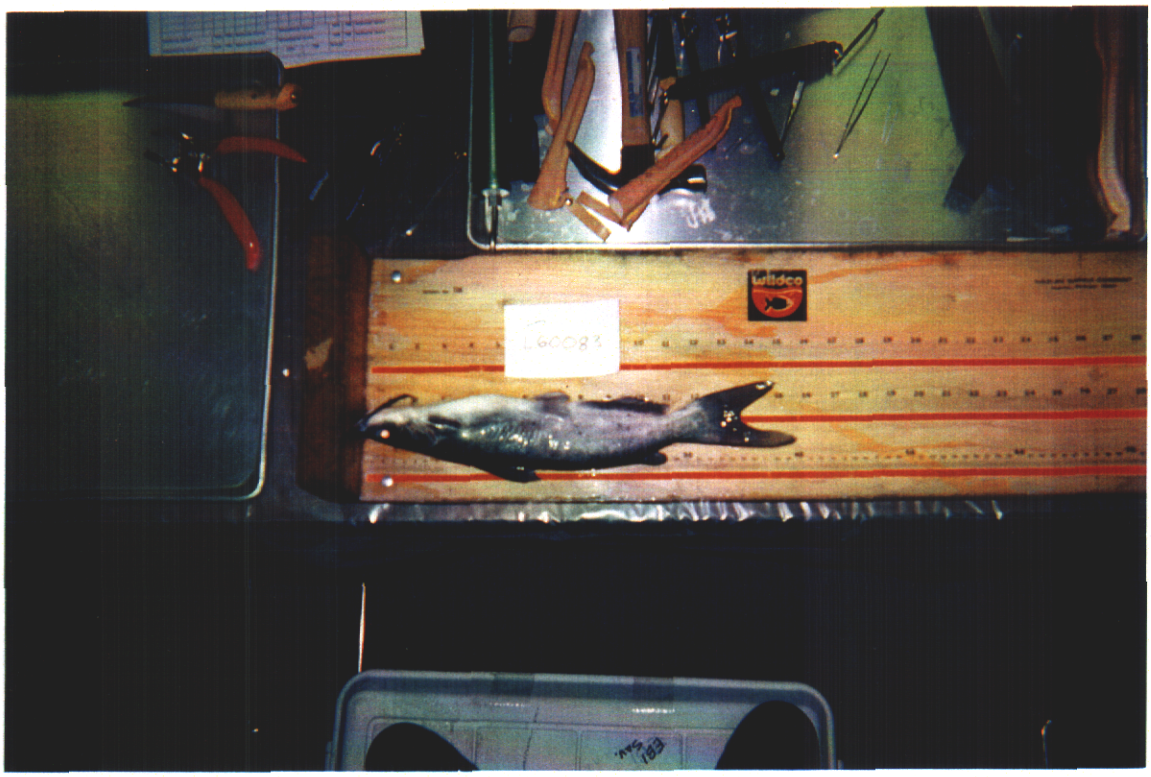


Photo 71: Choccolocco Creek Station 35 CHANNEL CATFISH L60083

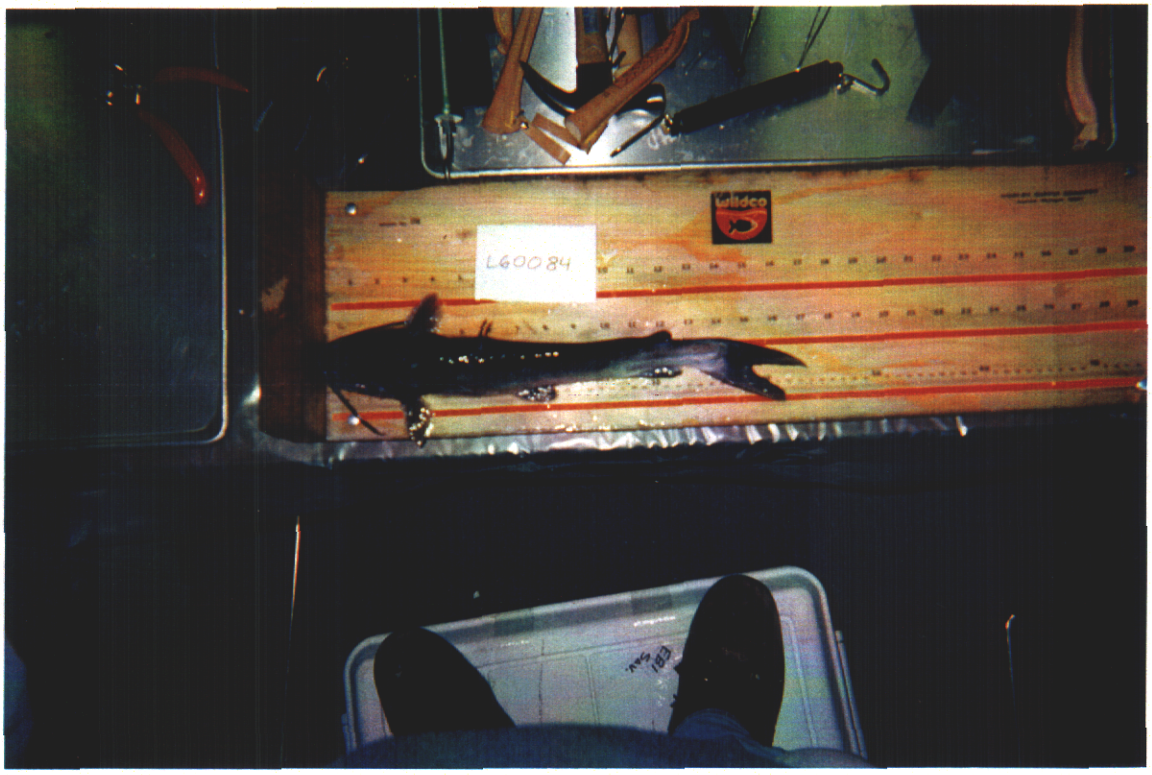


Photo 72: Choccolocco Creek Station 35 CHANNEL CATFISH L60084

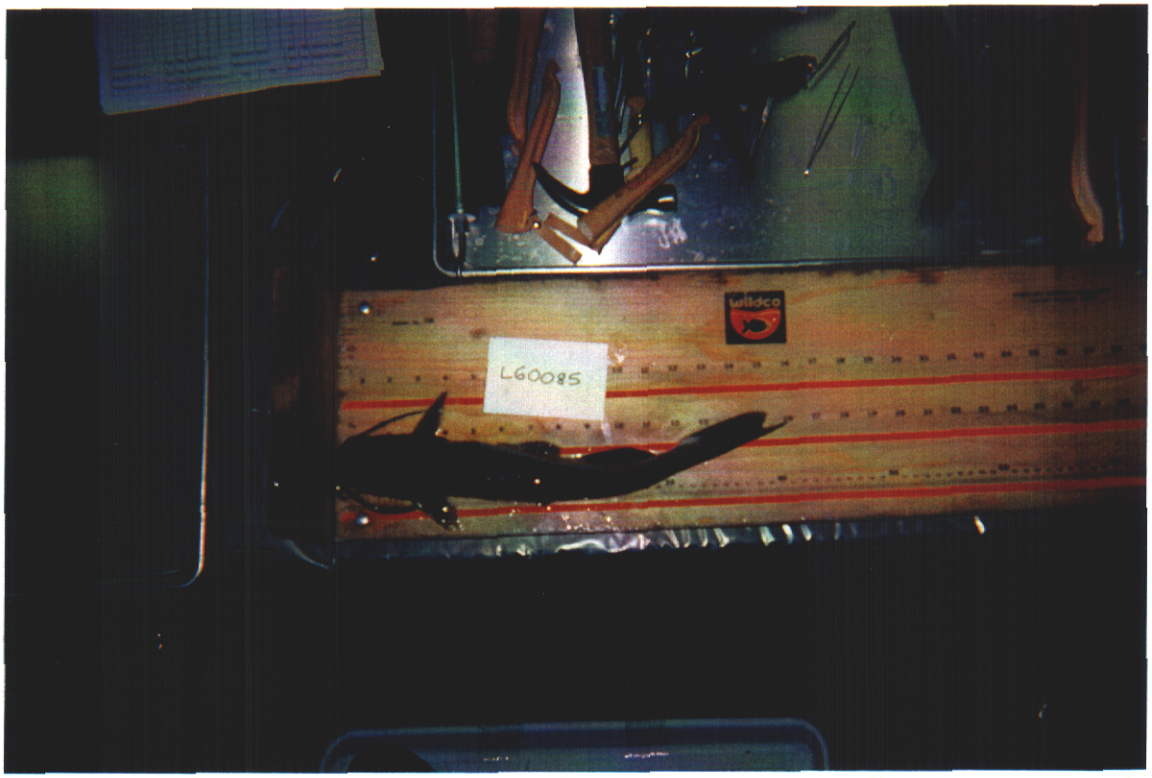


Photo 73: Choccolocco Creek Station 35 CHANNEL CATFISH L60085



Photo 74: Lake Logan Martin Station 33 CHANNEL CATFISH L60020

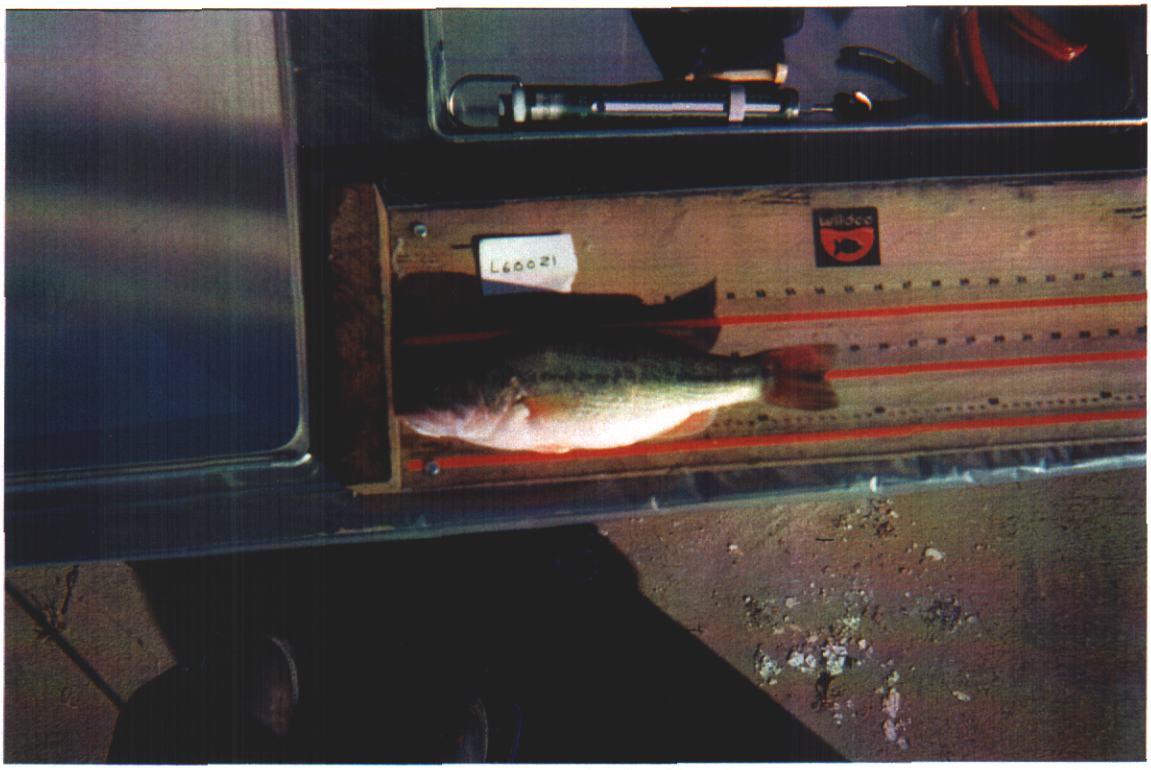


Photo 75: Lake Logan Martin Station 33 LARGEMOUTH BASS L60021

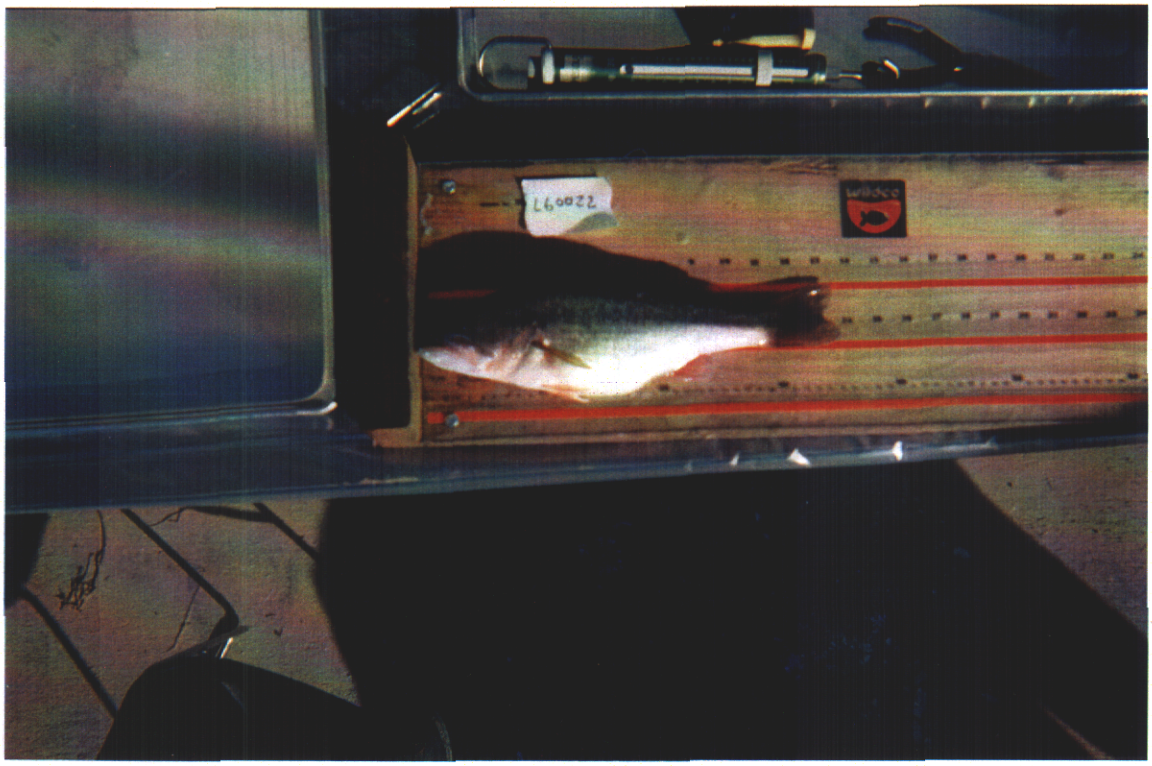


Photo 76: Lake Logan Martin Station 33 LARGEMOUTH BASS L60022



Photo 77: Lake Logan Martin Station 33 LARGEMOUTH BASS L60023



Photo 78: Lake Logan Martin Station 33 LARGEMOUTH BASS L60024

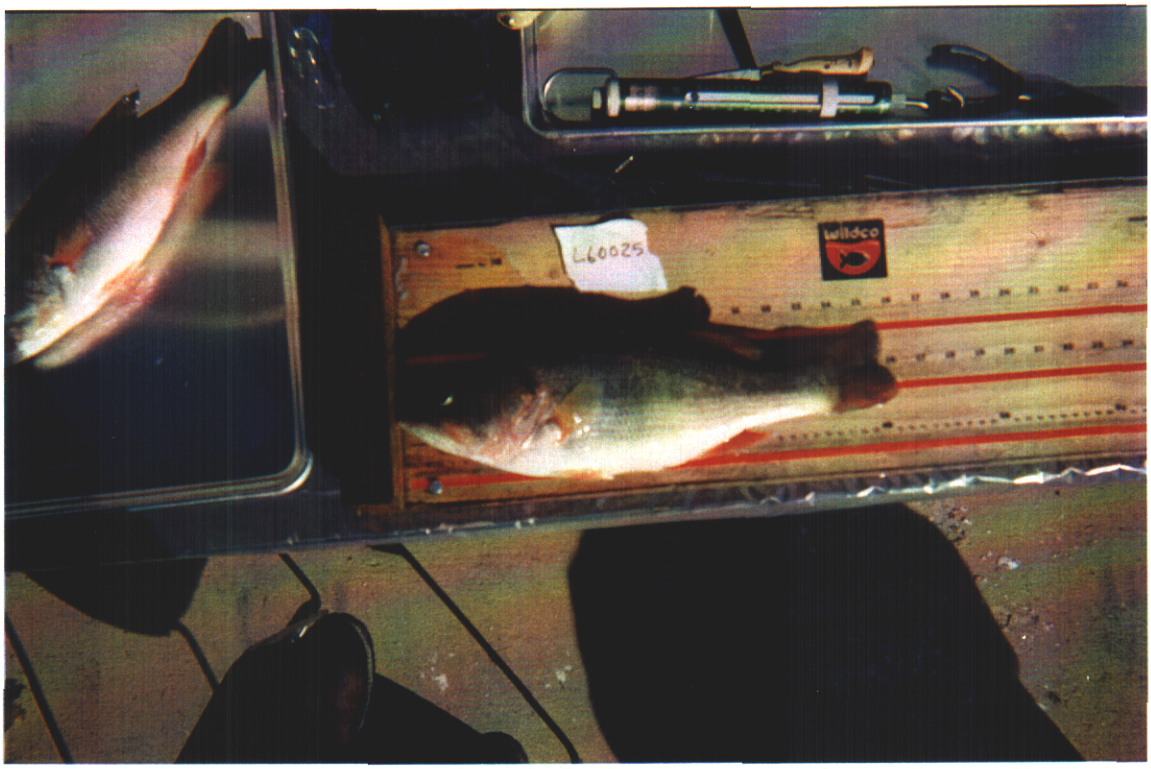


Photo 79: Lake Logan Martin Station 33 LARGEMOUTH BASS L60025



Photo 80: Lake Logan Martin Station 33 LARGEMOUTH BASS L60026

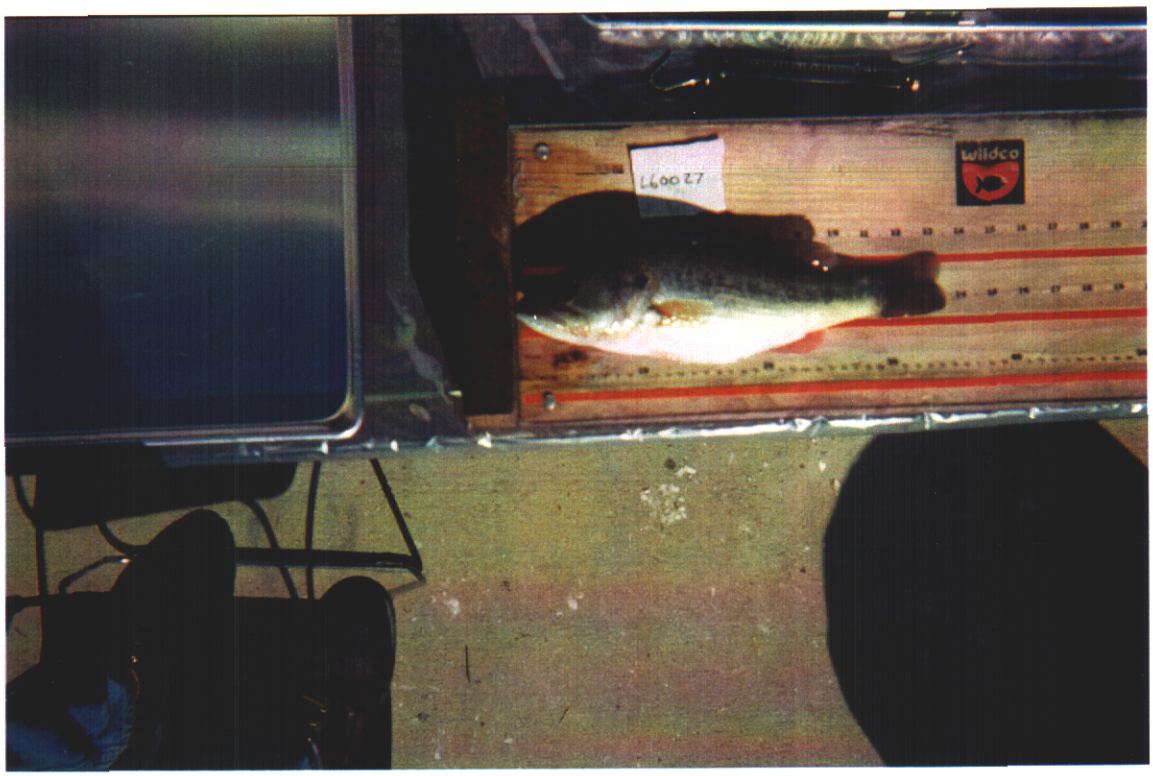


Photo 81: Lake Logan Martin Station 33 LARGEMOUTH BASS L60027

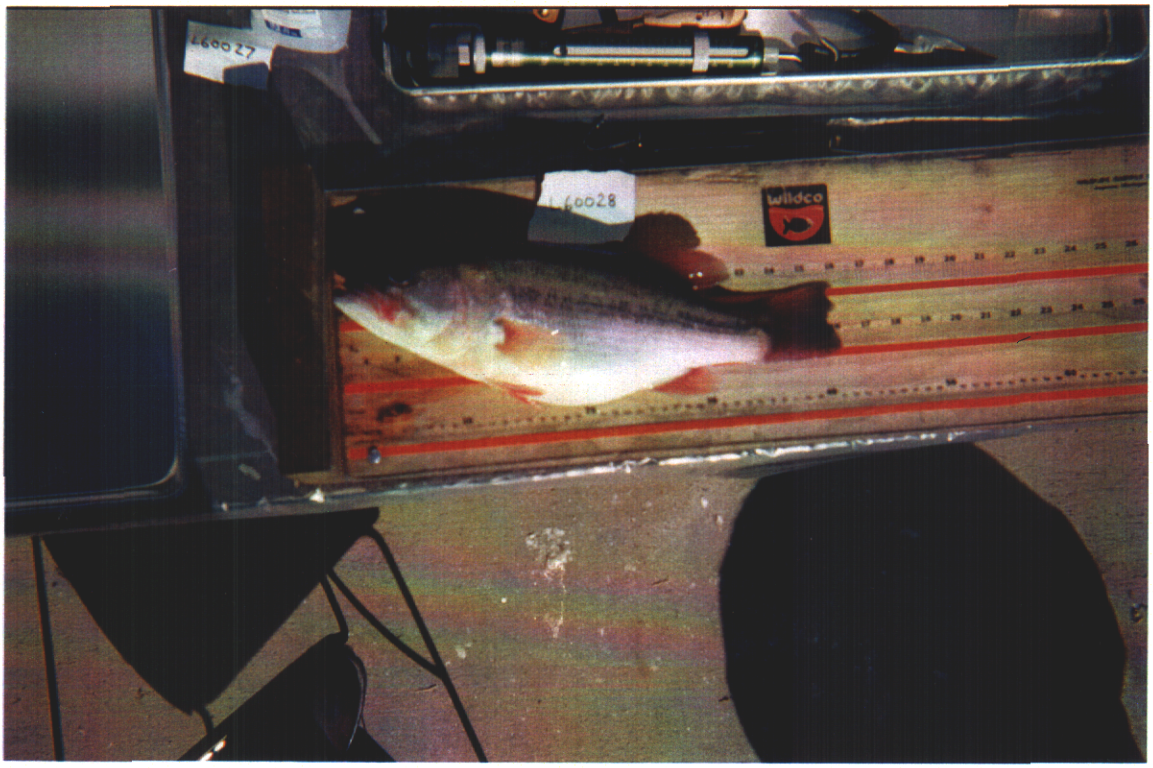


Photo 82: Lake Logan Martin Station 33 LARGEMOUTH BASS L60028

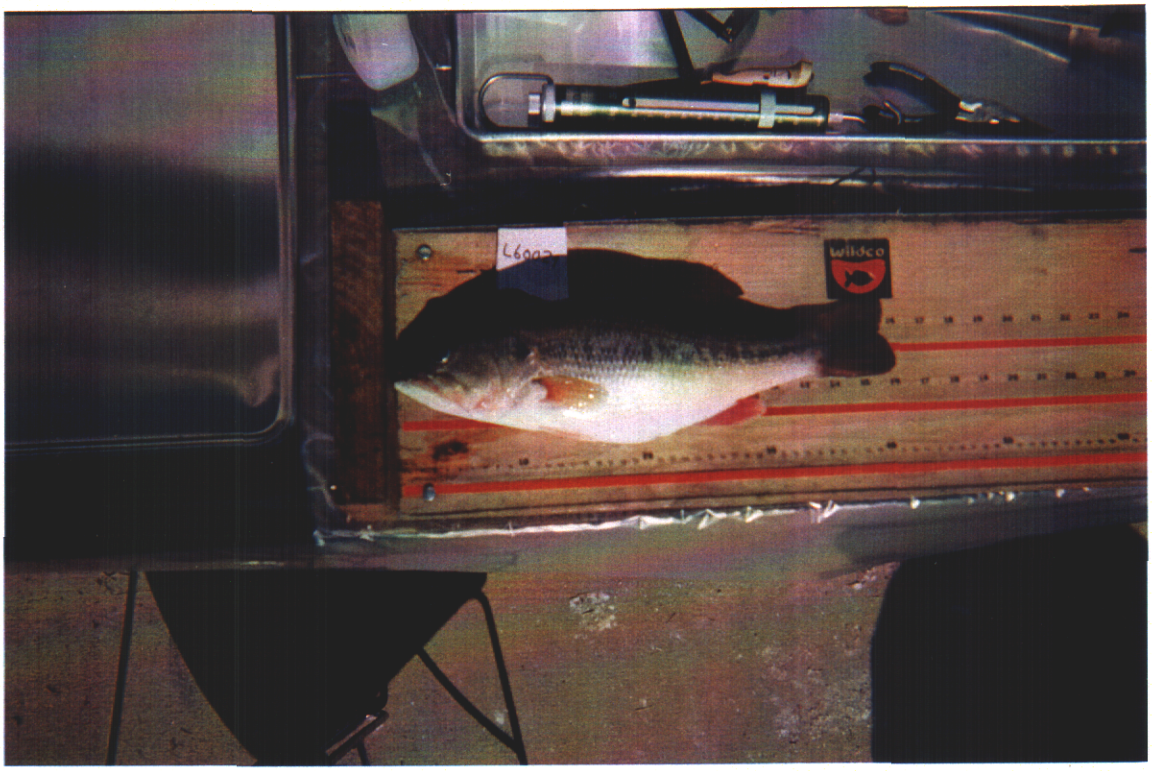


Photo 83: Lake Logan Martin Station 33 LARGEMOUTH BASS L60029

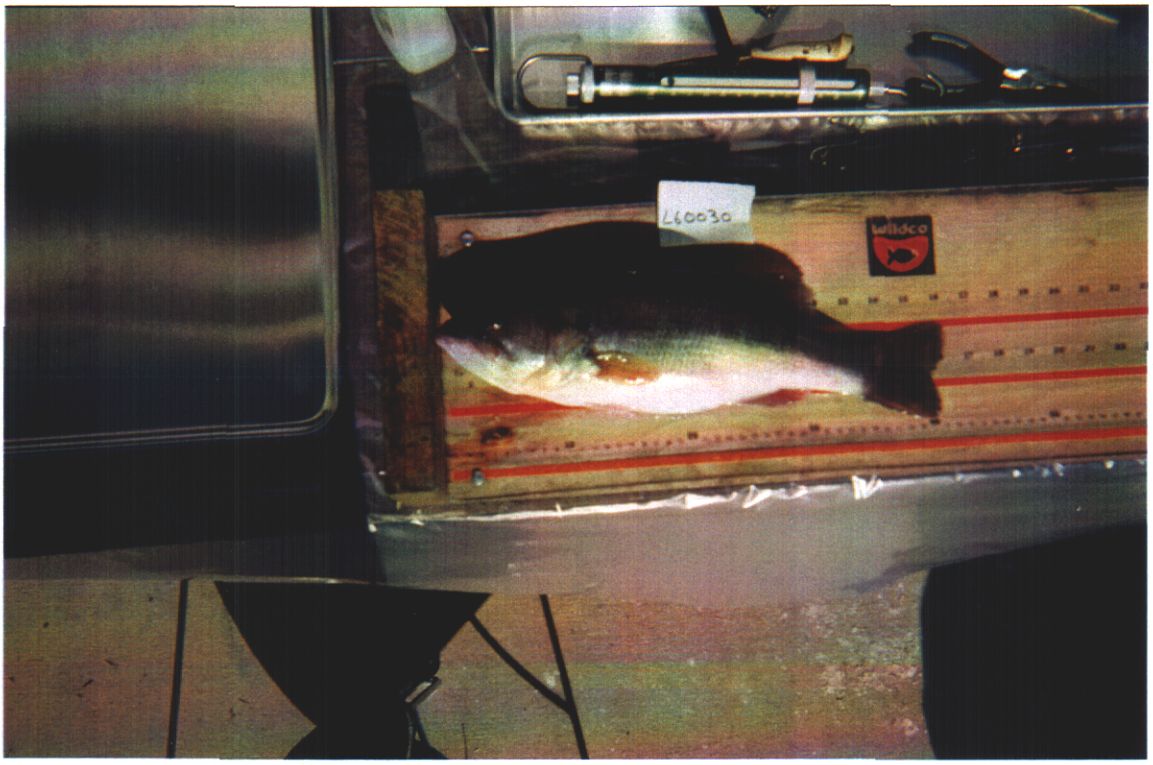


Photo 84: Lake Logan Martin Station 33 LARGEMOUTH BASS L60030

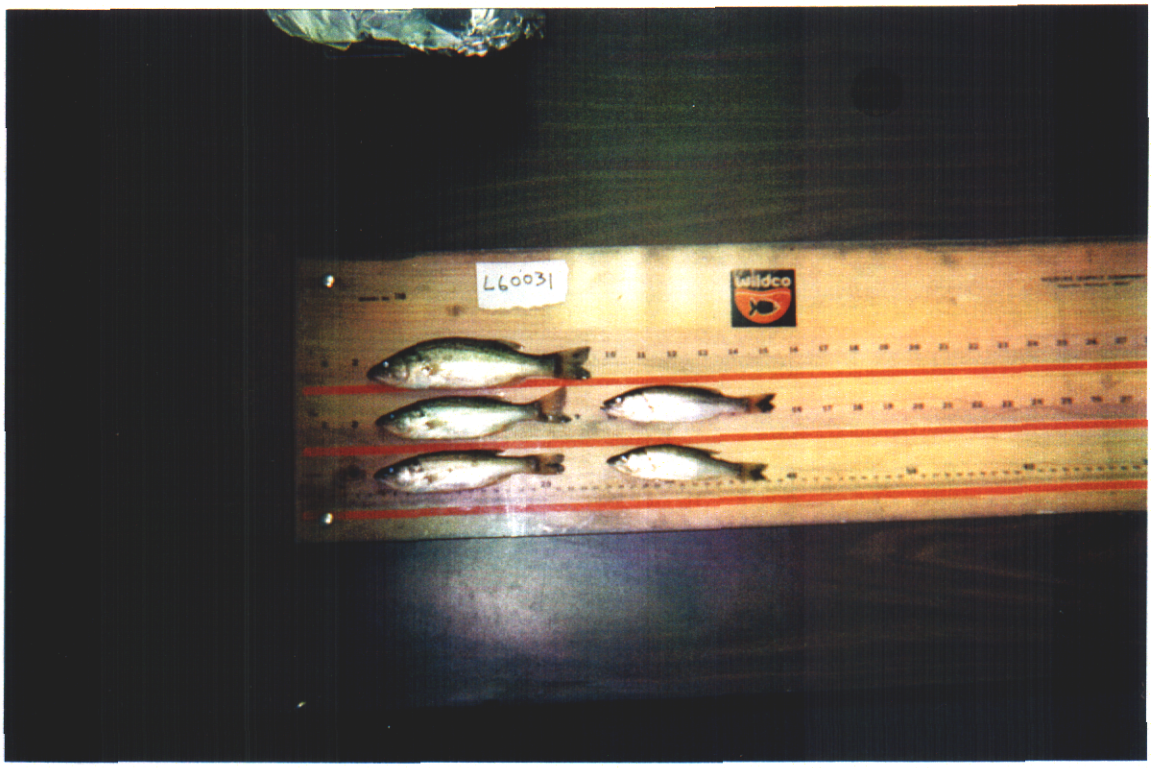


Photo 85: Lake Logan Martin Station 33 LARGEMOUTH BASS L60031

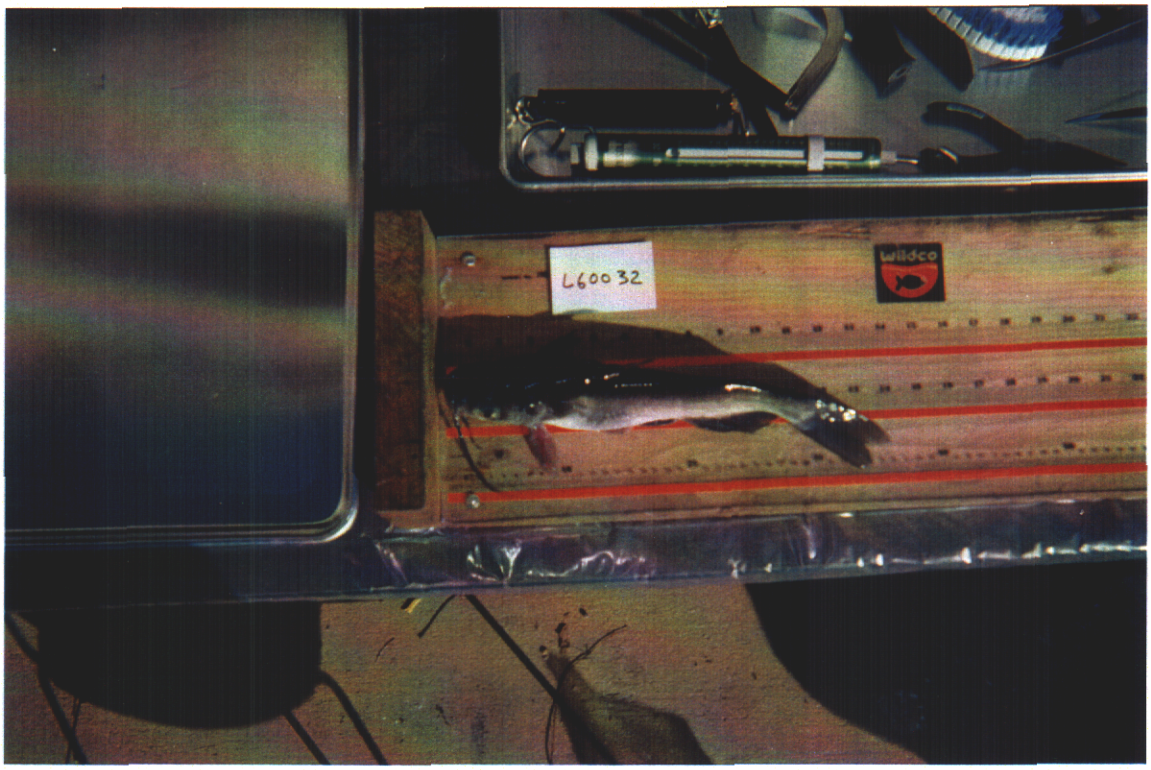


Photo 86: Lake Logan Martin Station 33 CHANNEL CATFISH L60032

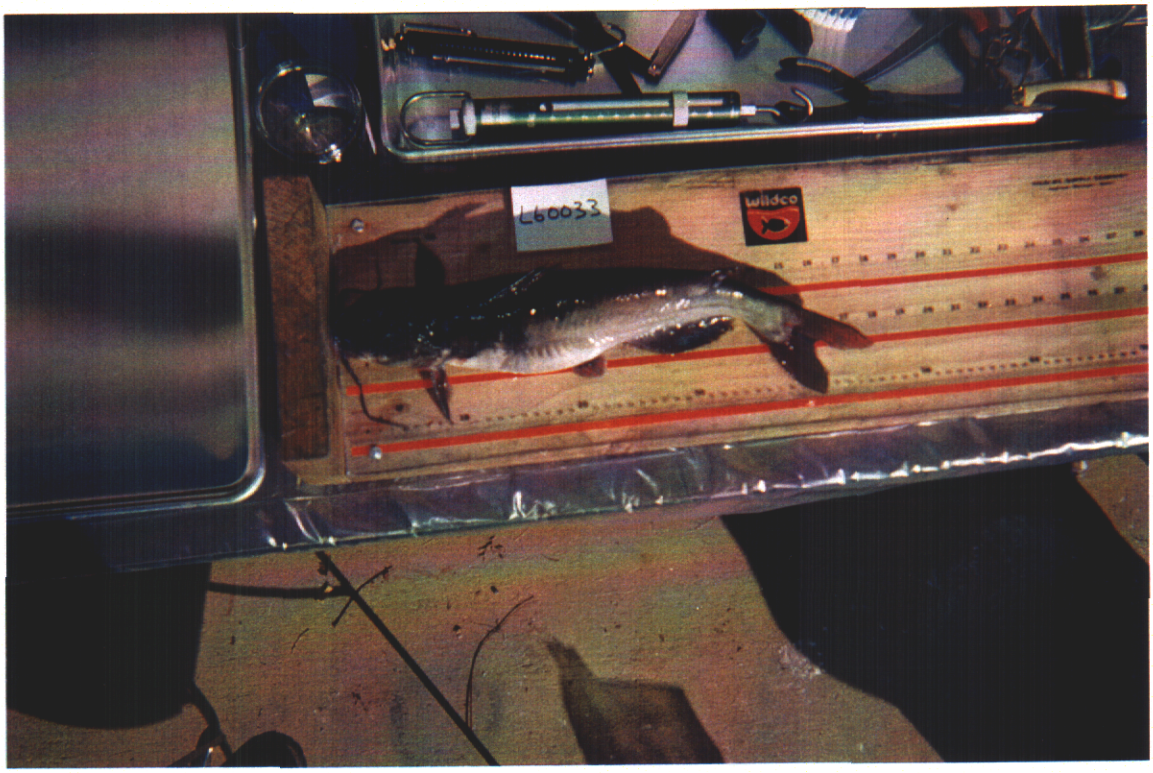


Photo 87: Lake Logan Martin Station 33 CHANNEL CATFISH L60033

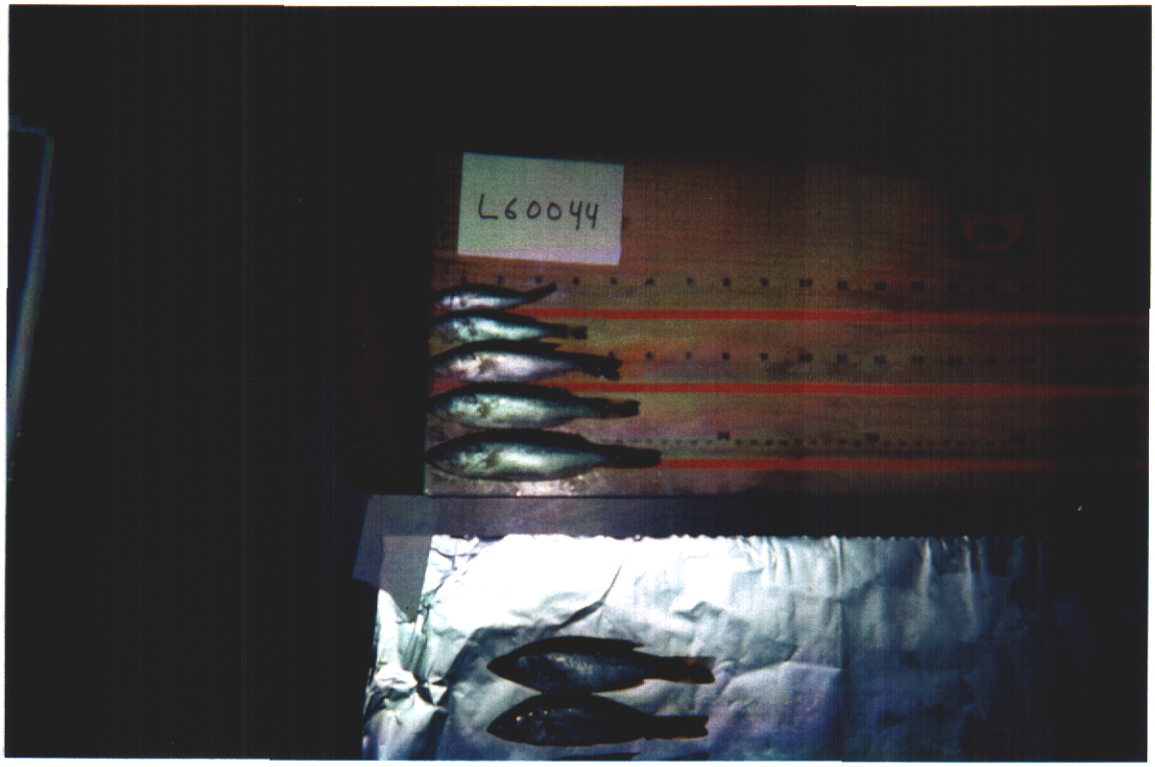


Photo 88: Lake Logan Martin Station 33 LARGEMOUTH BASS L60044



Photo 89: Lake Logan Martin Station 33 LARGEMOUTH BASS L60045

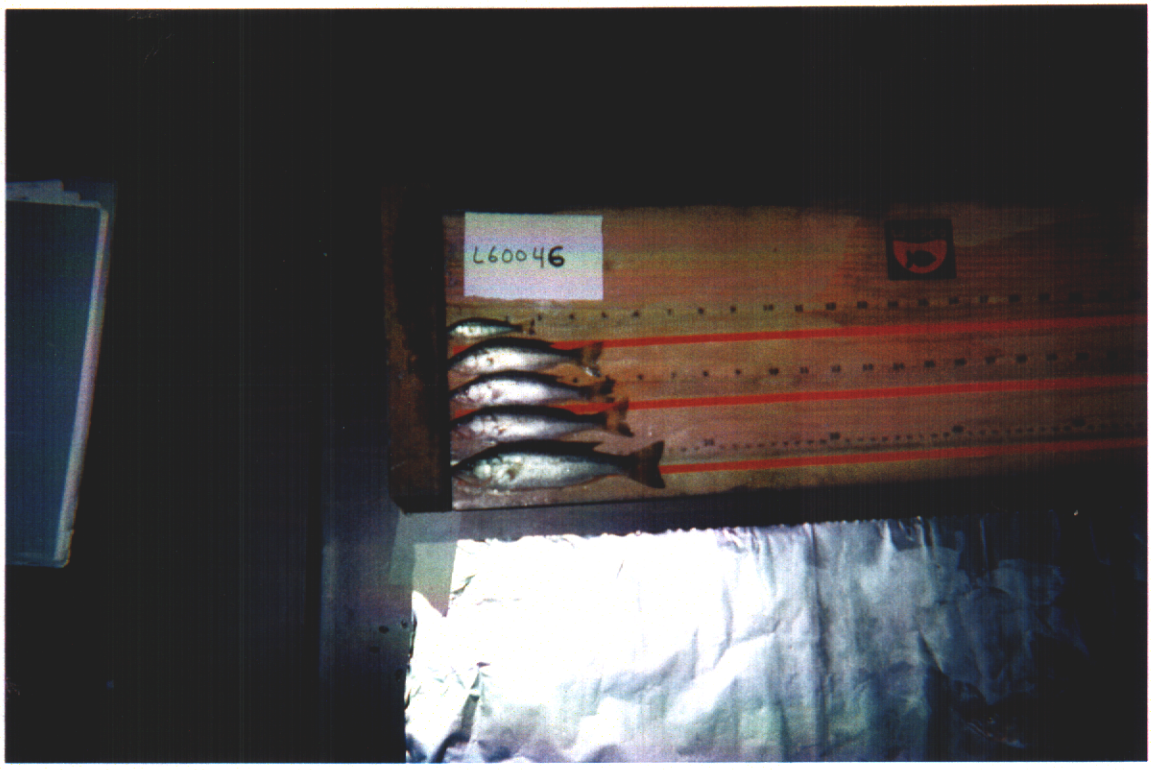


Photo 90: Lake Logan Martin Station 33 LARGEMOUTH BASS L60046

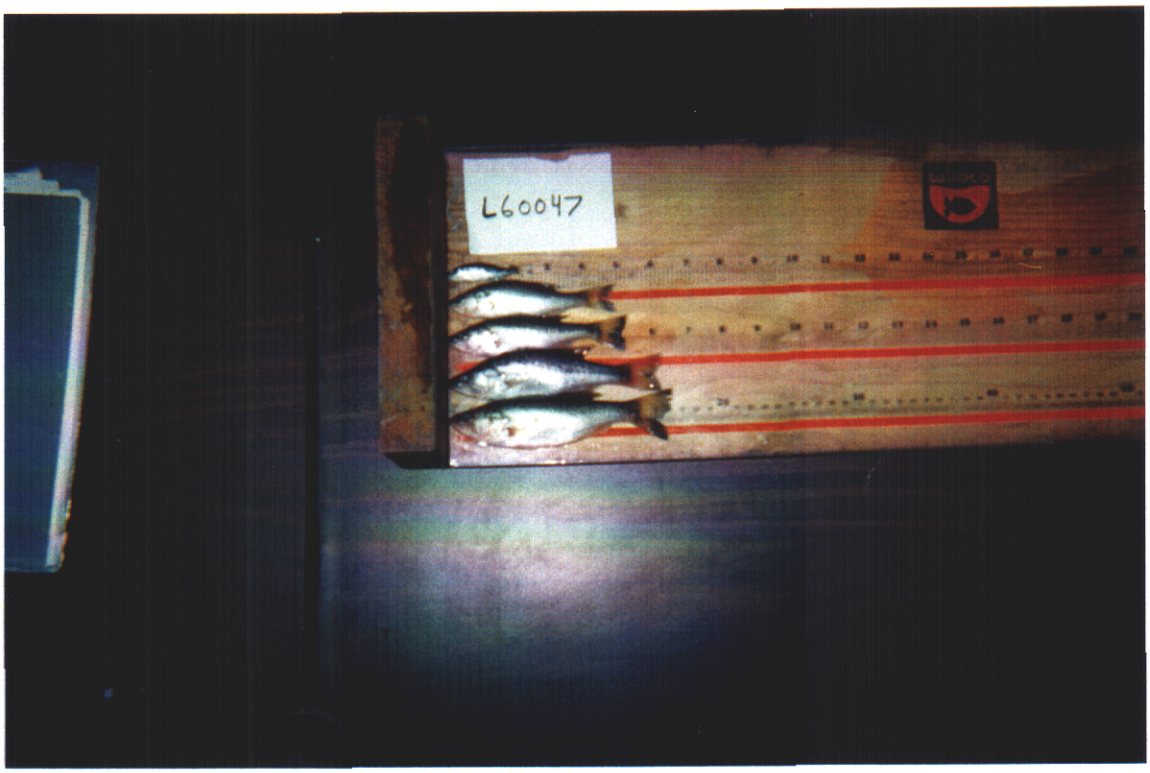


Photo 91: Lake Logan Martin Station 33 LARGEMOUTH BASS L60047

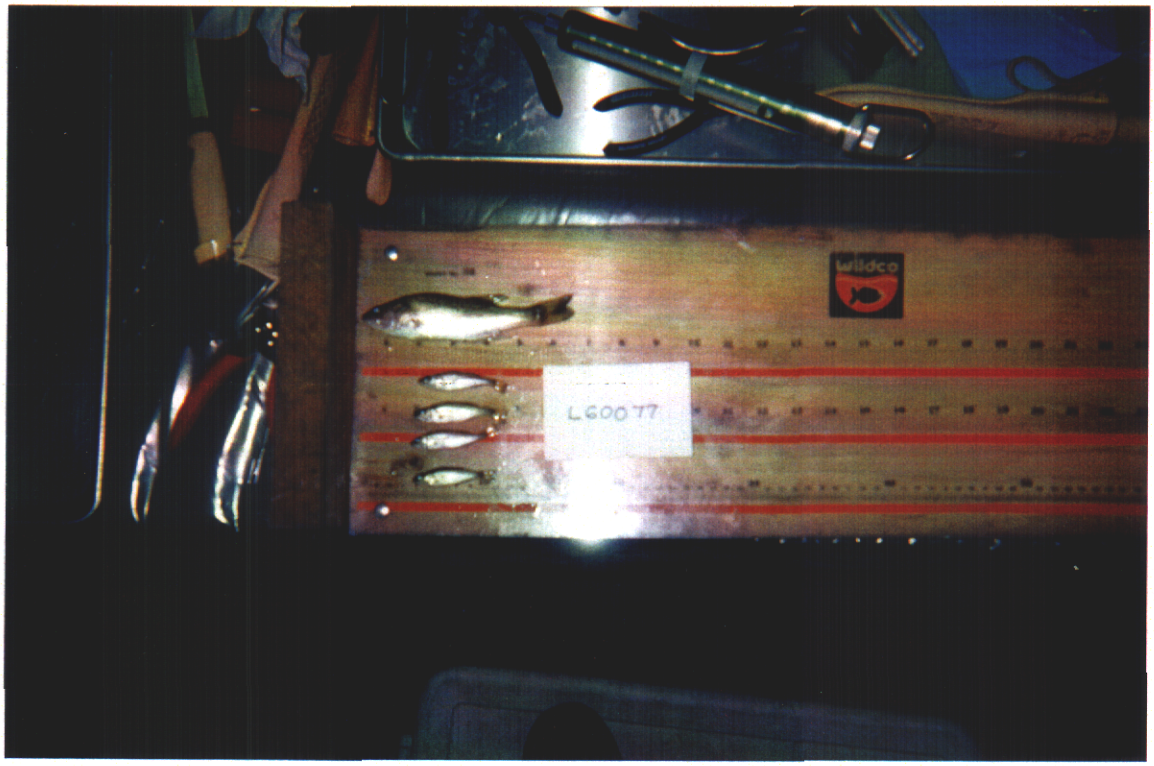


Photo 92: Lake Logan Martin Station 33 LARGEMOUTH BASS L60077

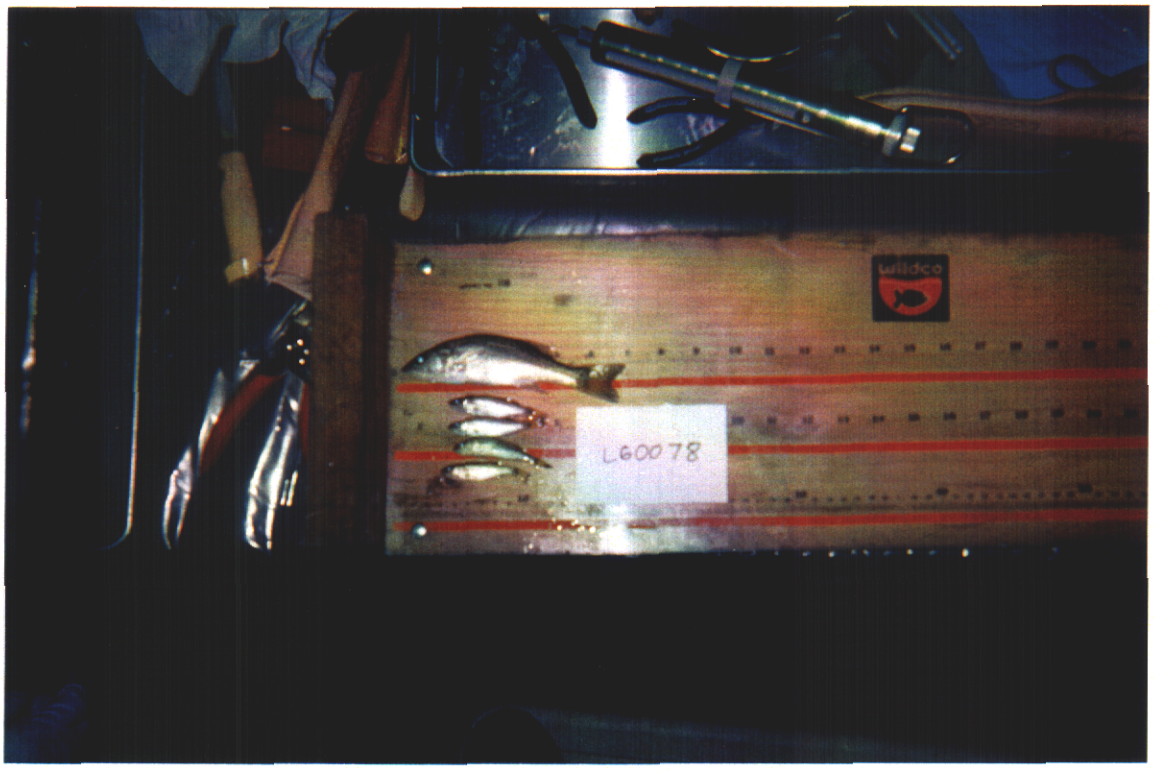


Photo 93: Lake Logan Martin Station 33 LARGEMOUTH BASS L60078

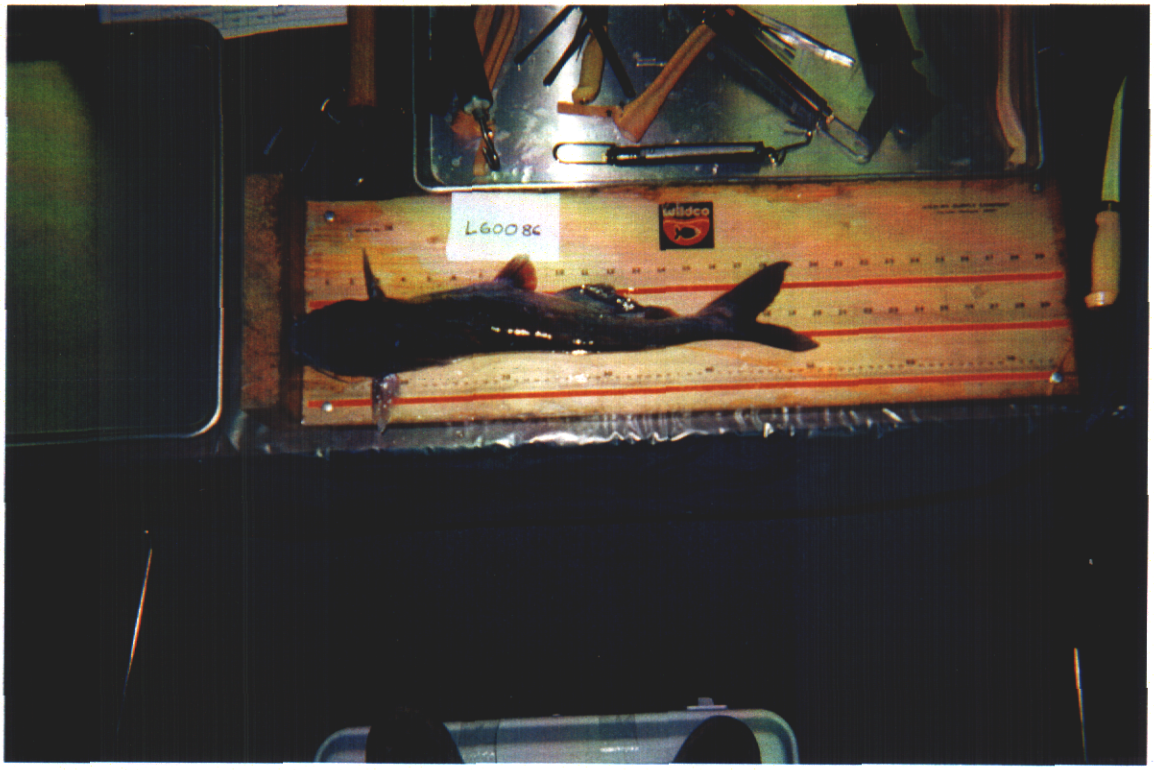


Photo 94: Lake Logan Martin Station 33 BLUE CATFISH L60086

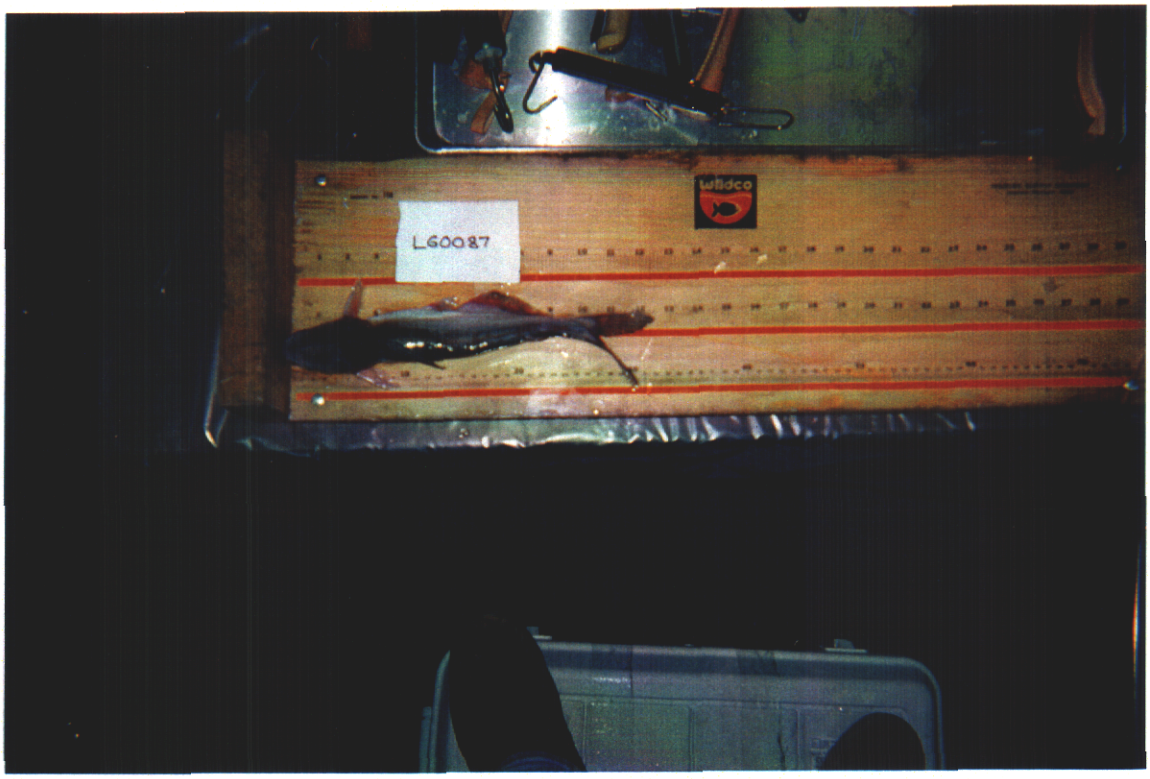


Photo 95: Lake Logan Martin Station 33 BLUE CATFISH L60087



Photo 96: Lake Logan Martin Station 33 BLUE CATFISH L60088

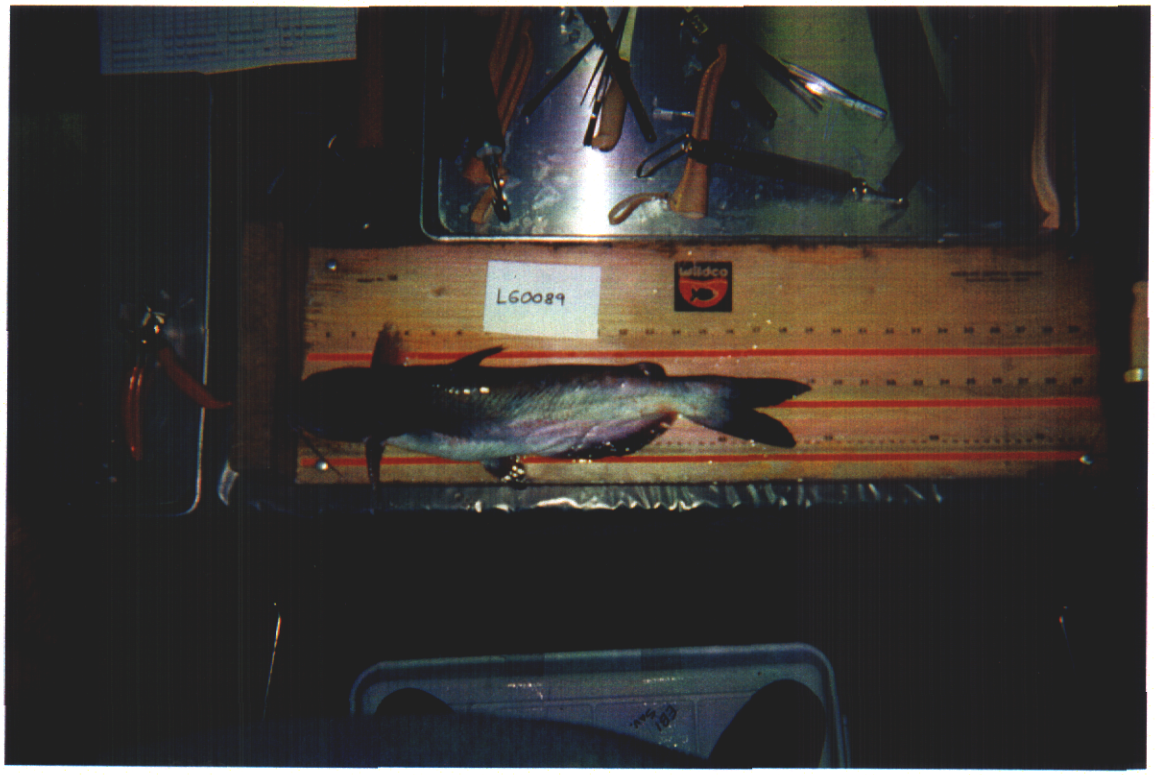


Photo 97: Lake Logan Martin Station 33 BLUE CATFISH L60089



Photo 98: Lake Logan Martin Station 33 BLUE CATFISH L60090

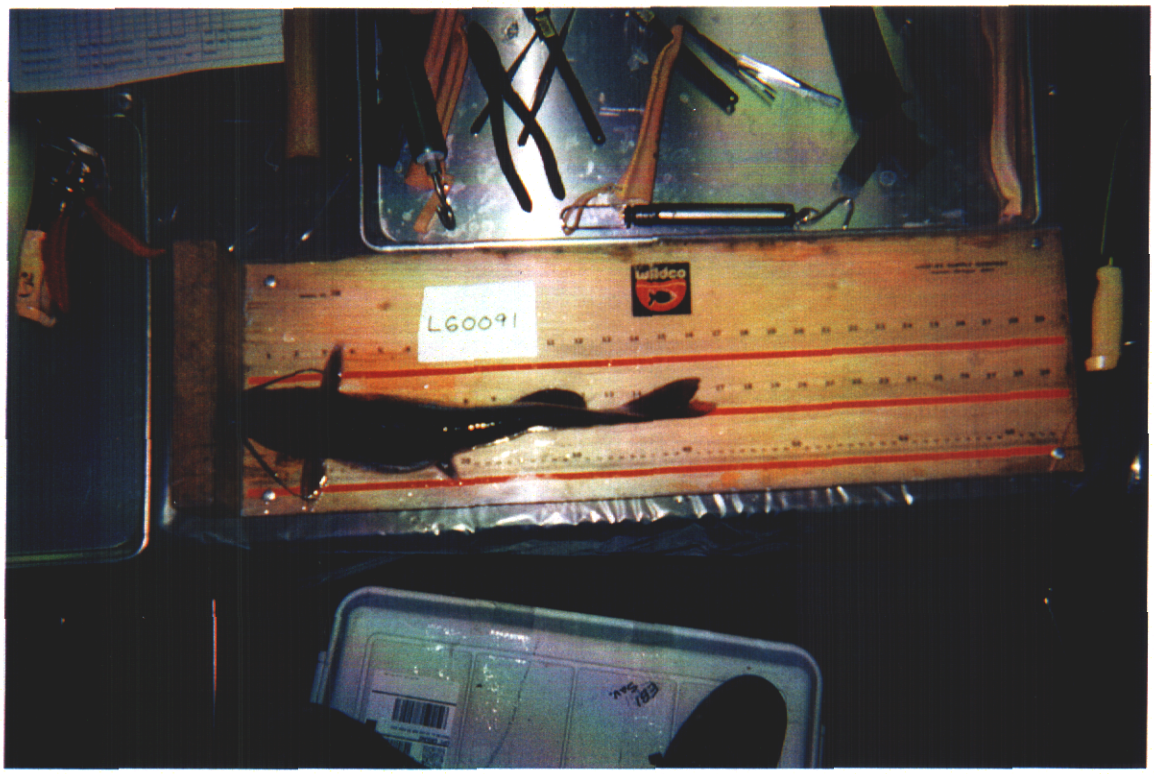


Photo 99: Lake Logan Martin Station 33 CHANNEL CATFISH L60091

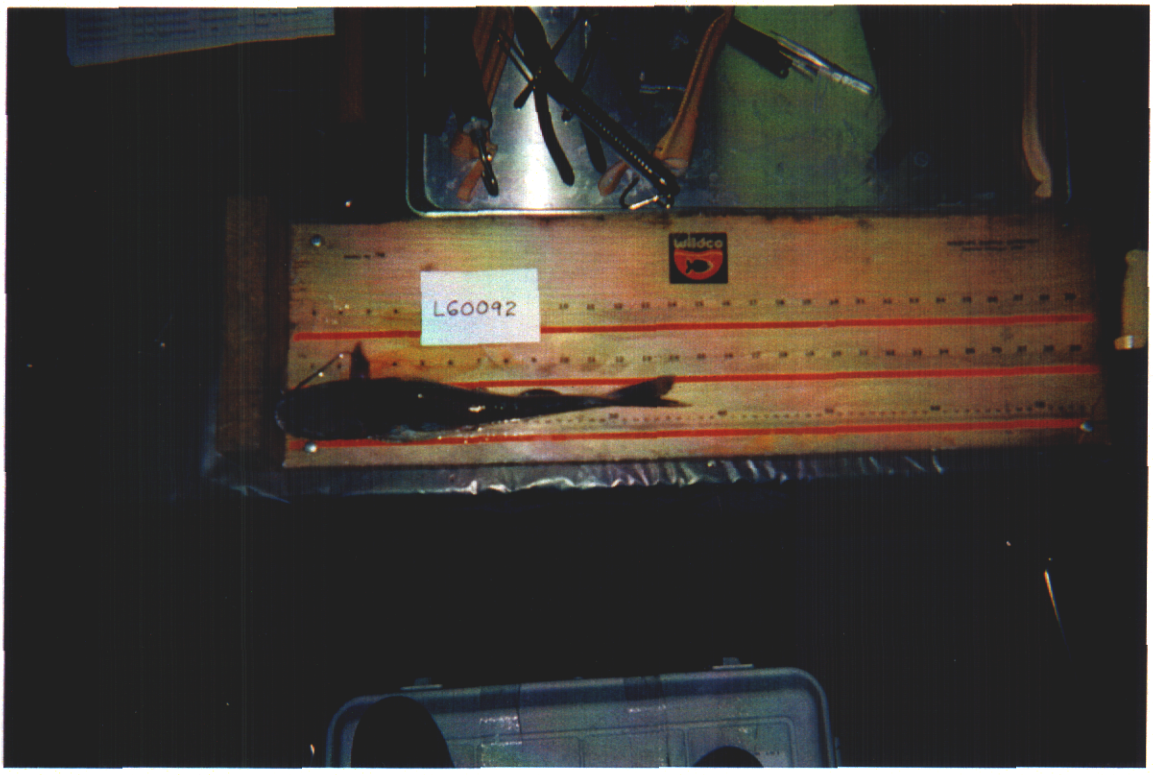


Photo 100: Lake Logan Martin Station 33 CHANNEL CATFISH L60092

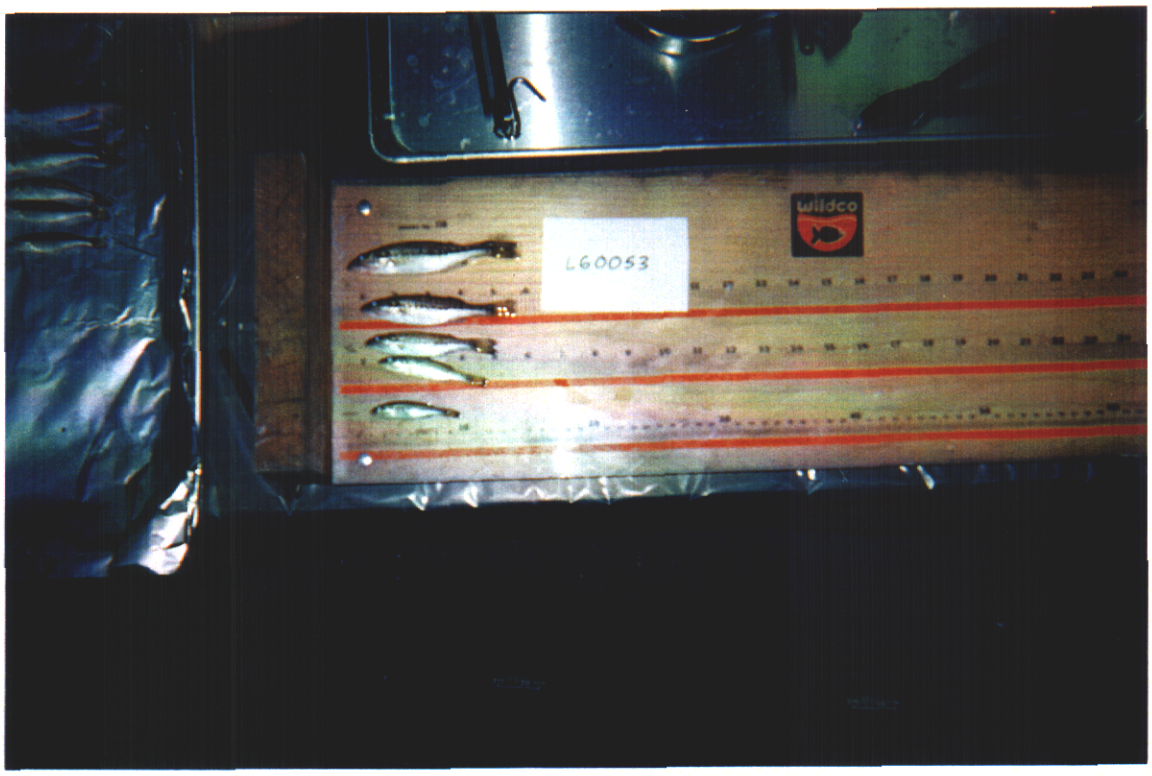


Photo 101: Lake Logan Martin Station 38 SPOTTED BASS L60053



Photo 102: Lake Logan Martin Station 38 SPOTTED BASS L60054

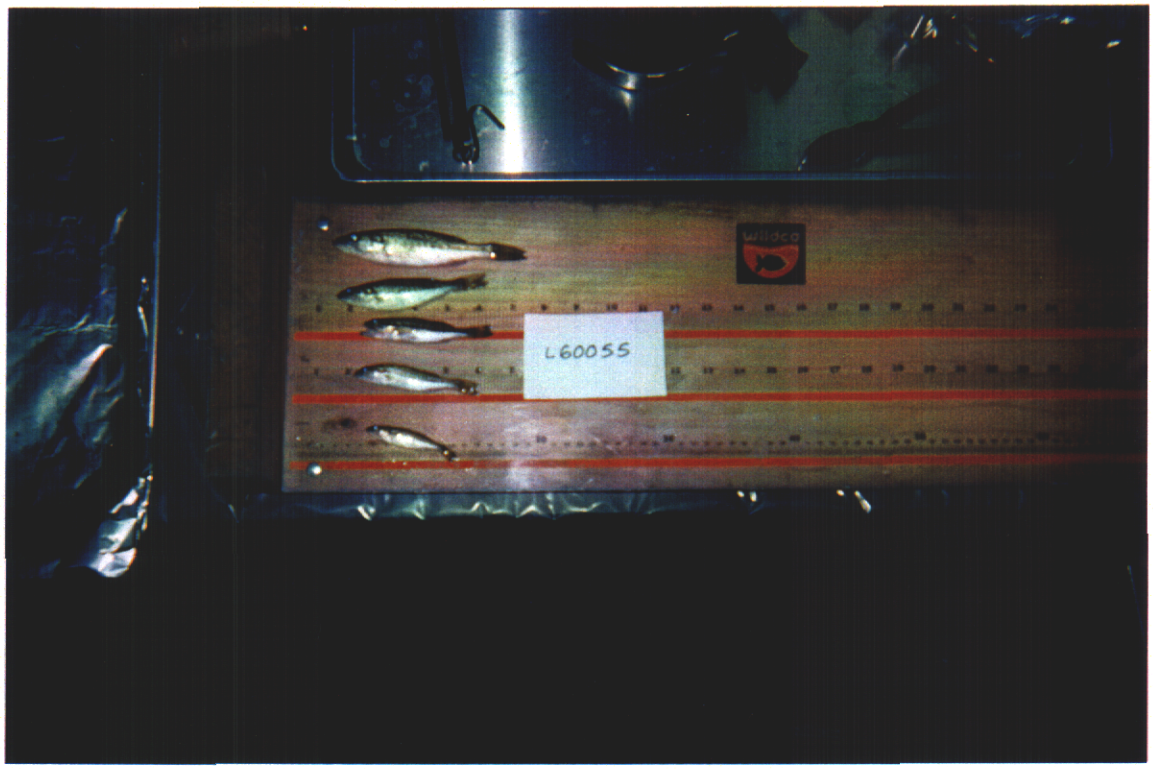


Photo 103: Lake Logan Martin Station 38 SPOTTED BASS L60055



Photo 104: Lake Logan Martin Station 38 SPOTTED BASS L60056

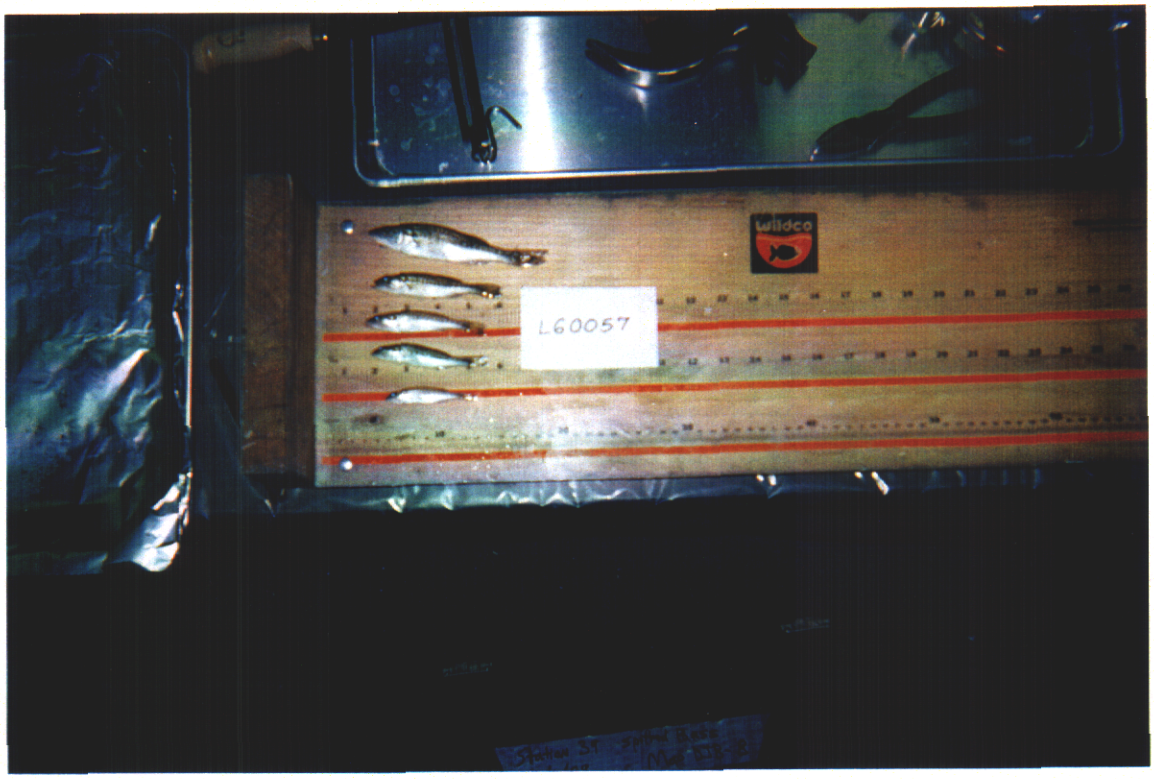


Photo 105: Lake Logan Martin Station 38 SPOTTED BASS L60057

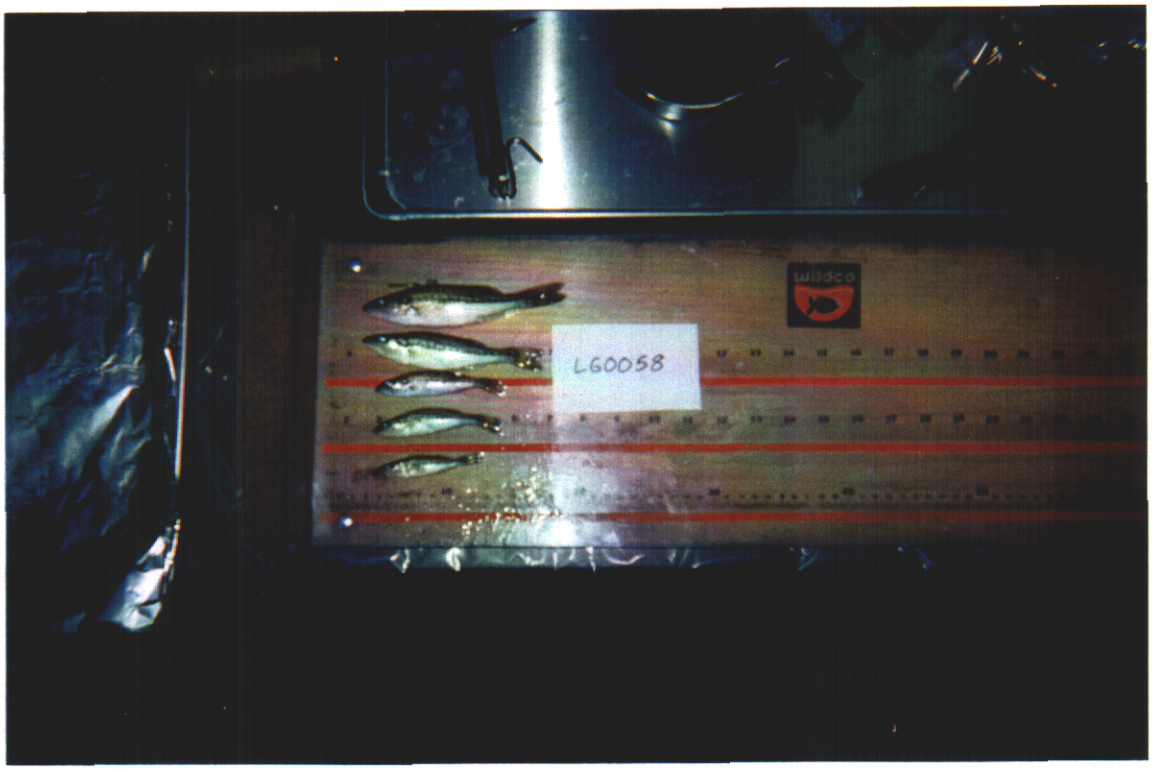


Photo 106: Lake Logan Martin Station 38 SPOTTED BASS L60058

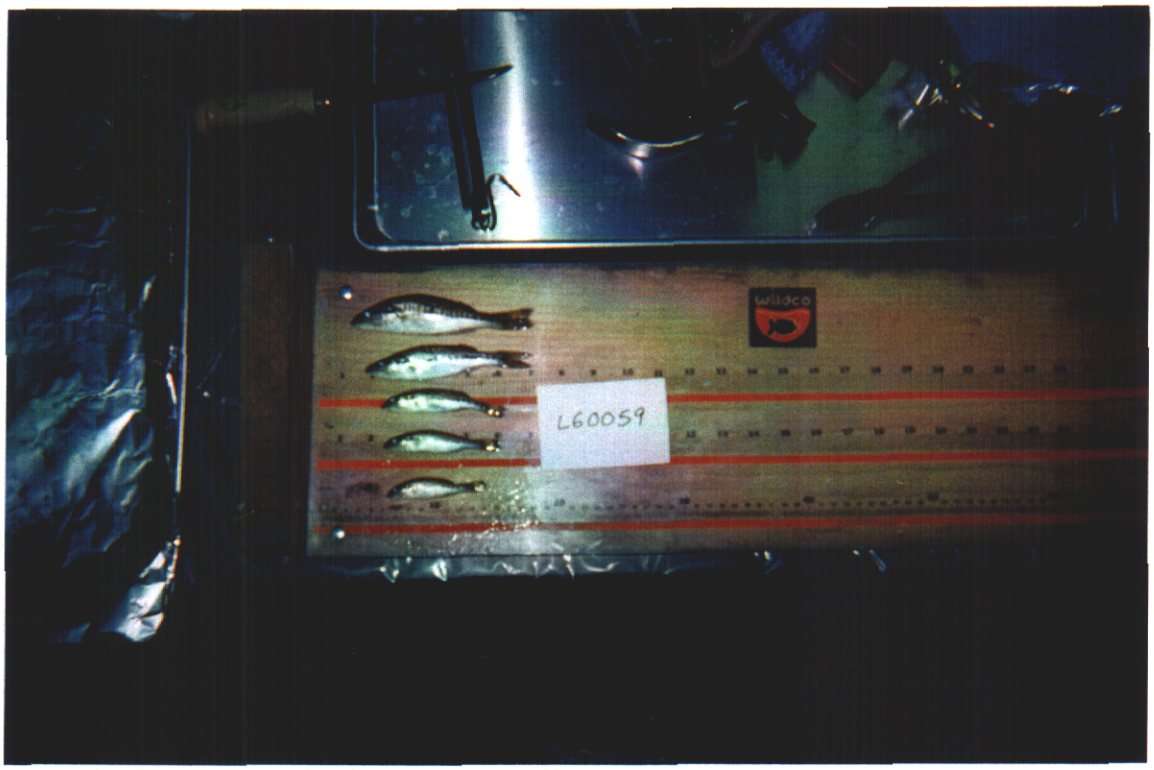


Photo 107: Lake Logan Martin Station 38 SPOTTED BASS L60059



Photo 108: Lake Logan Martin Station 38 SPOTTED BASS L60063



Photo 109: Lake Logan Martin Station 38 SPOTTED BASS L60064

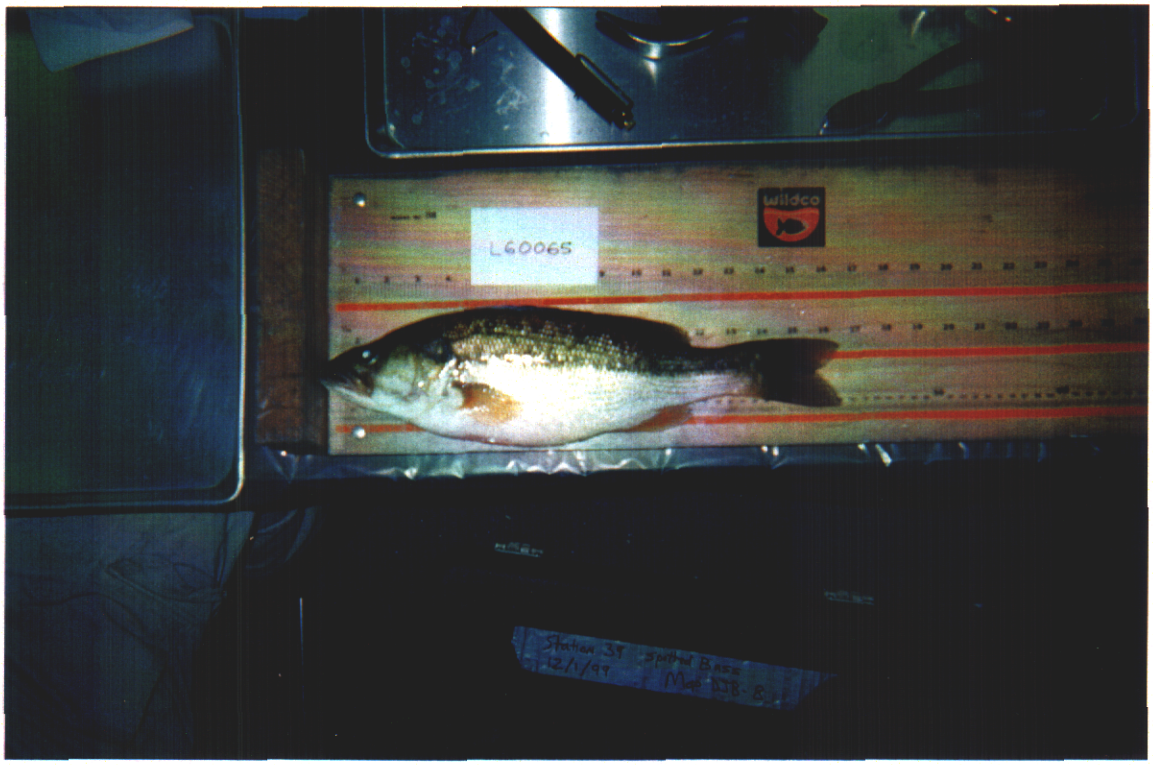


Photo 110: Lake Logan Martin Station 38 SPOTTED BASS L60065



Photo 111: Lake Logan Martin Station 38 SPOTTED BASS L60066

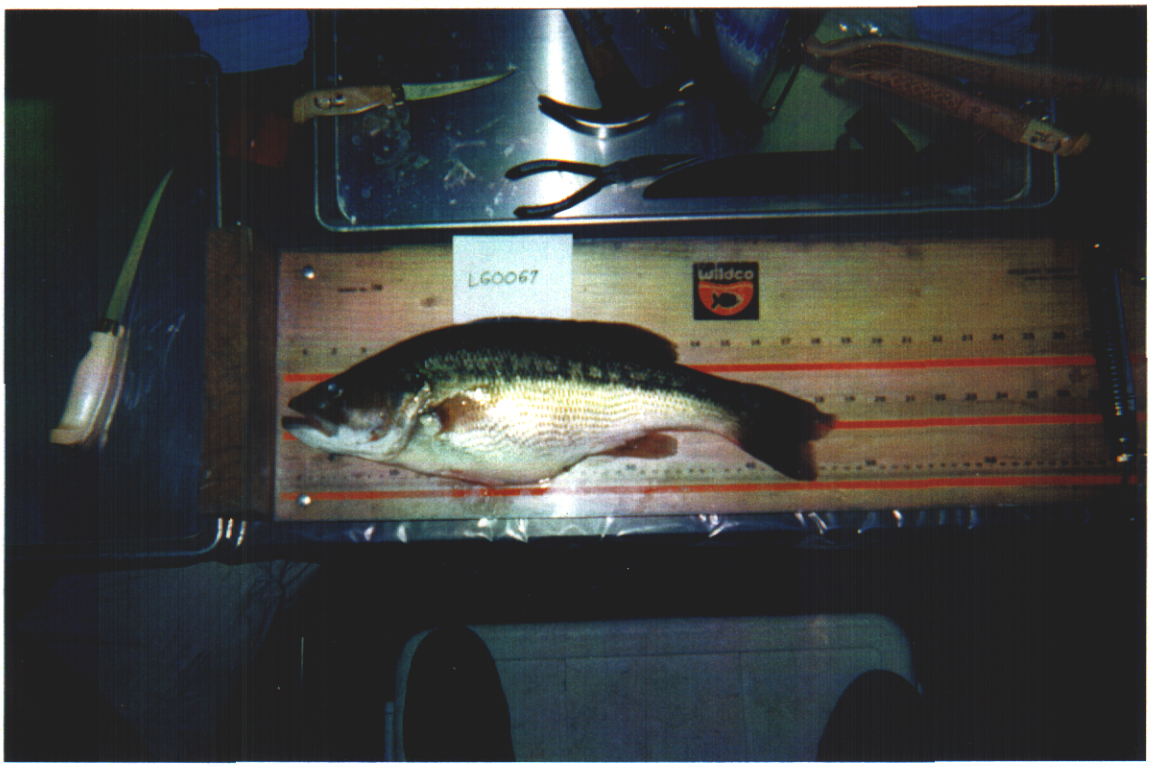


Photo 112: Lake Logan Martin Station 38 SPOTTED BASS L60067

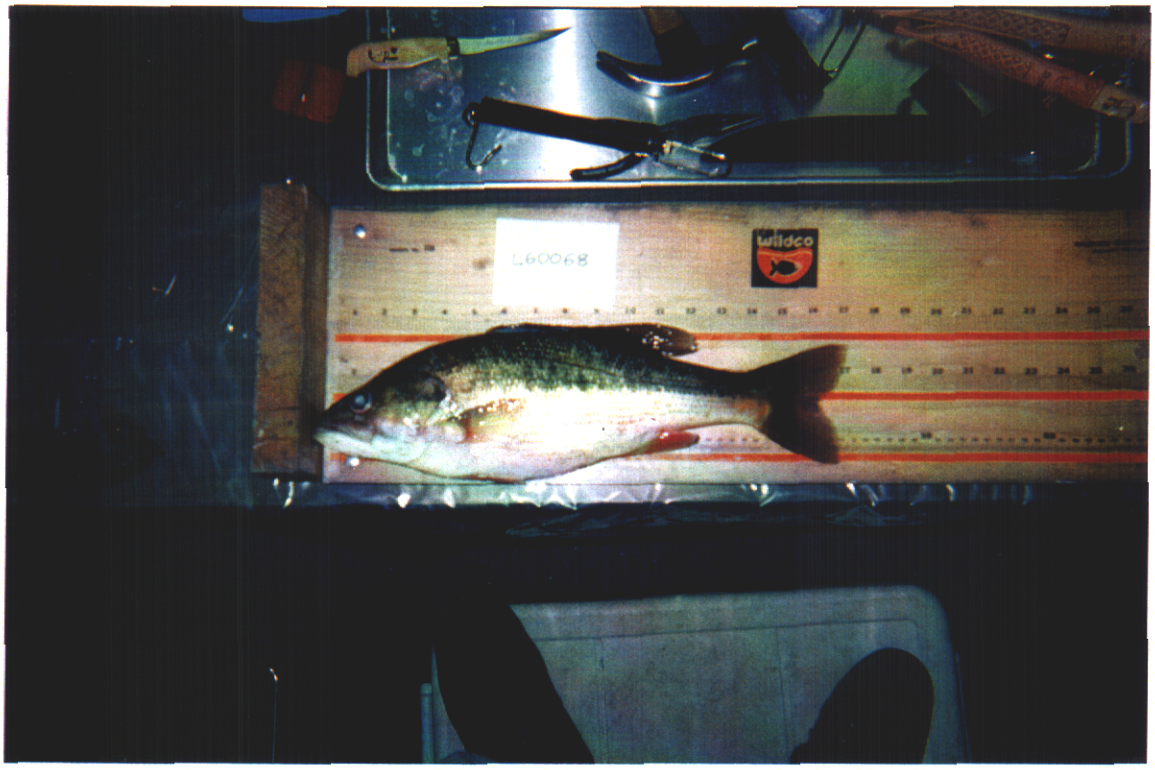


Photo 113: Lake Logan Martin Station 38 SPOTTED BASS L60068

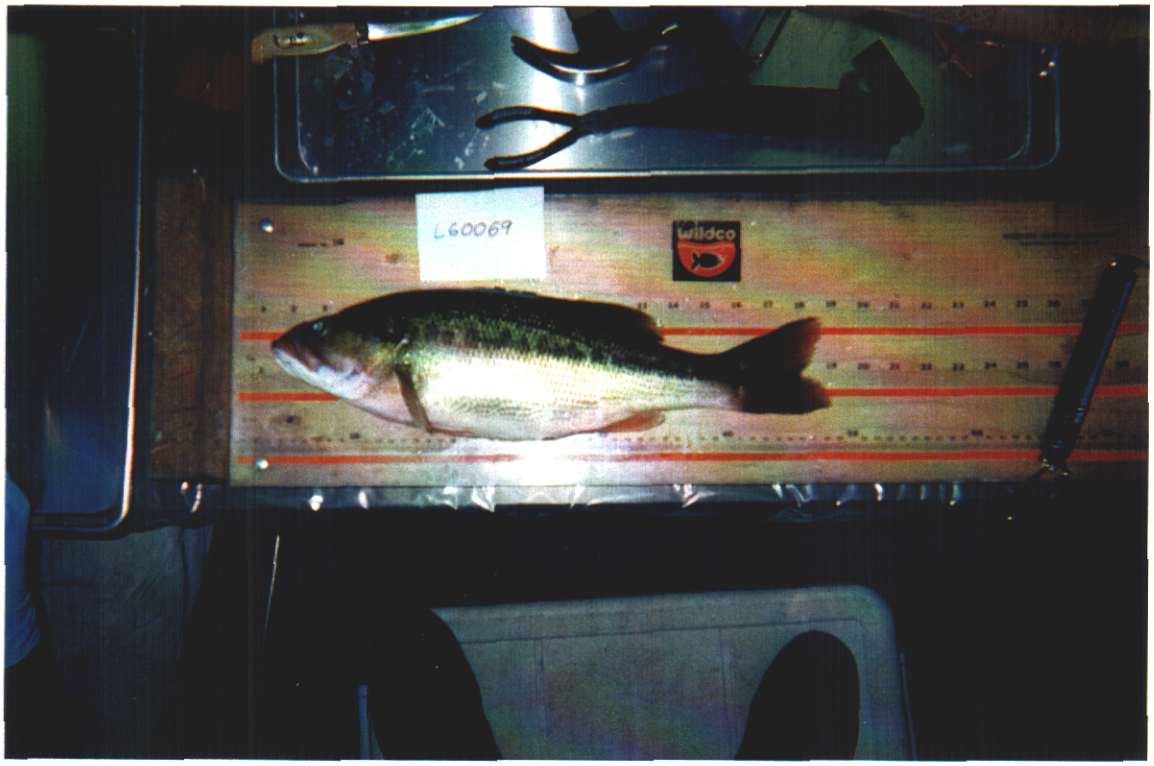


Photo 114: Lake Logan Martin Station 38 SPOTTED BASS L60069



Photo 115: Lake Logan Martin Station 38 SPOTTED BASS L60070

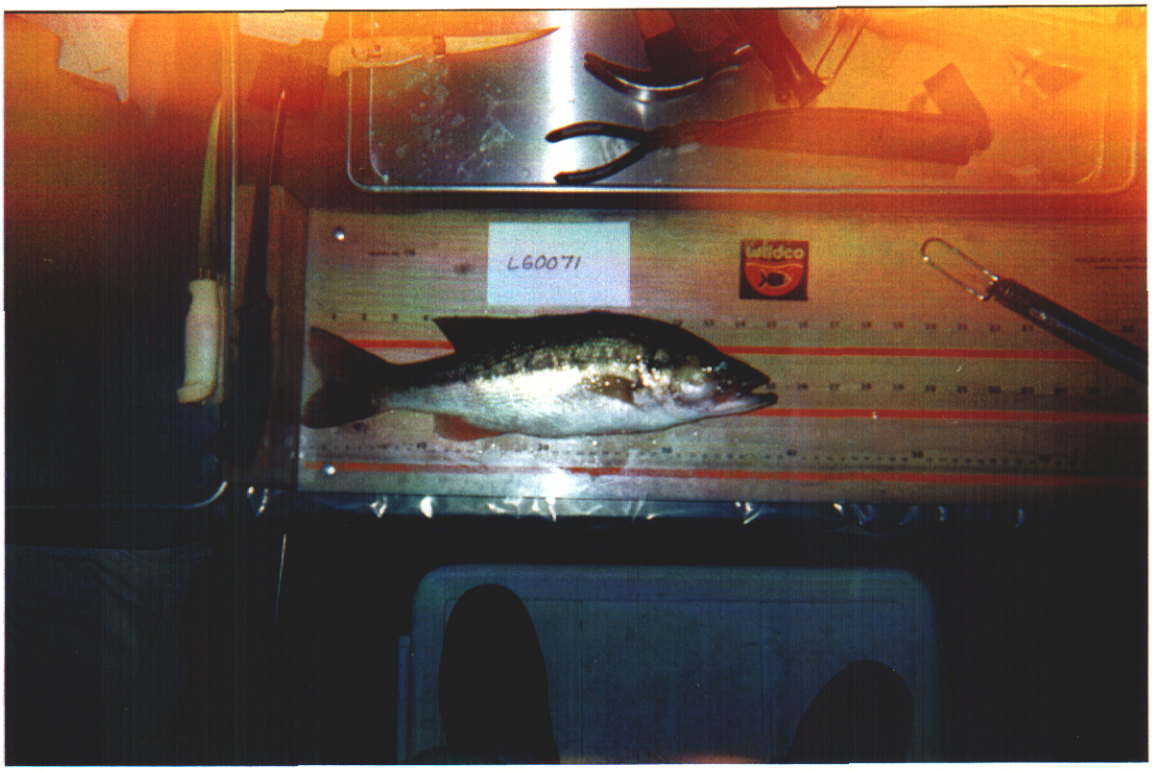


Photo 116: Lake Logan Martin Station 38 SPOTTED BASS L60071

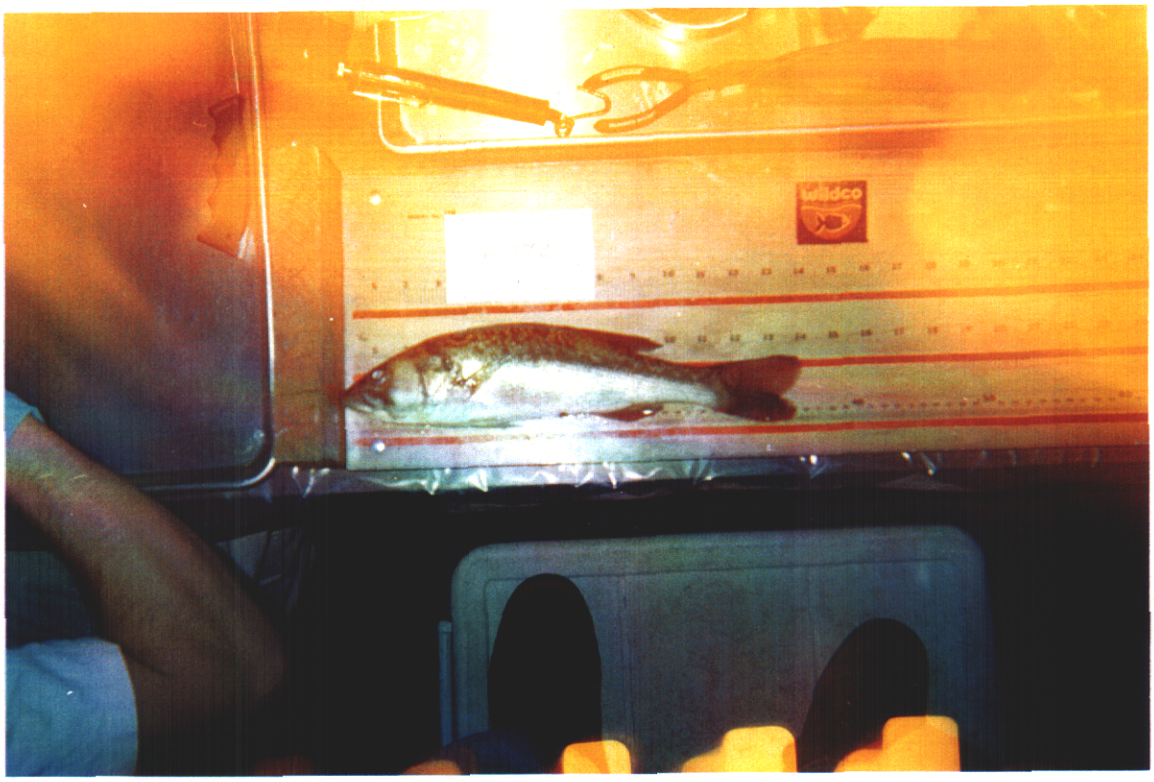


Photo 117: Lake Logan Martin Station 38 SPOTTED BASS L60072

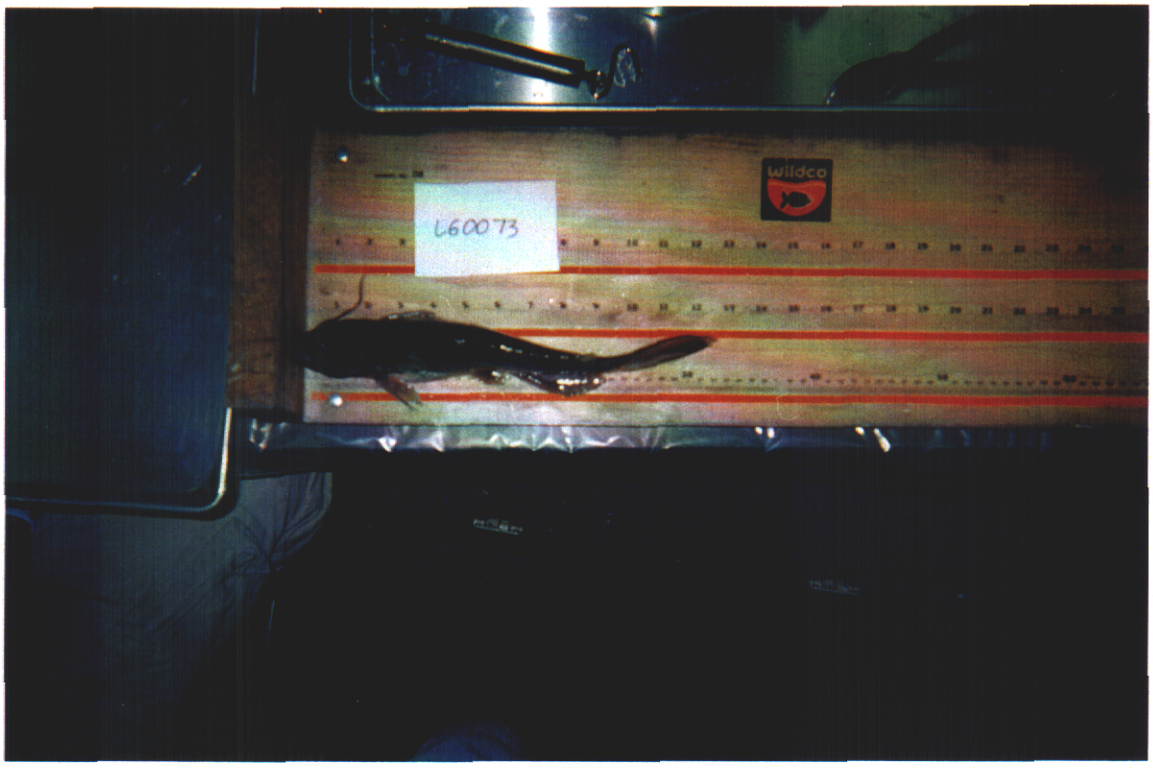


Photo 118: Lake Logan Martin Station 38 CHANNEL CATFISH L60073

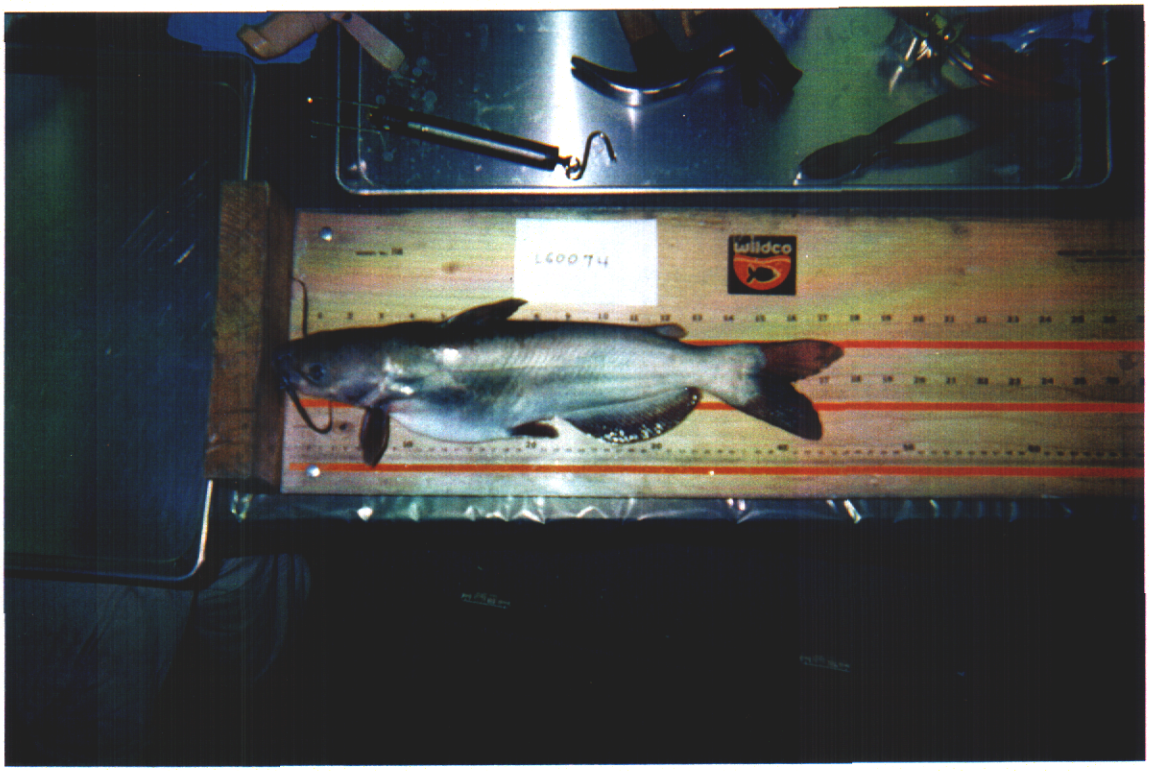


Photo 119: Lake Logan Martin Station 38 CHANNEL CATFISH L60074



Photo 120: Lake Logan Martin Station 38 CHANNEL CATFISH L60075

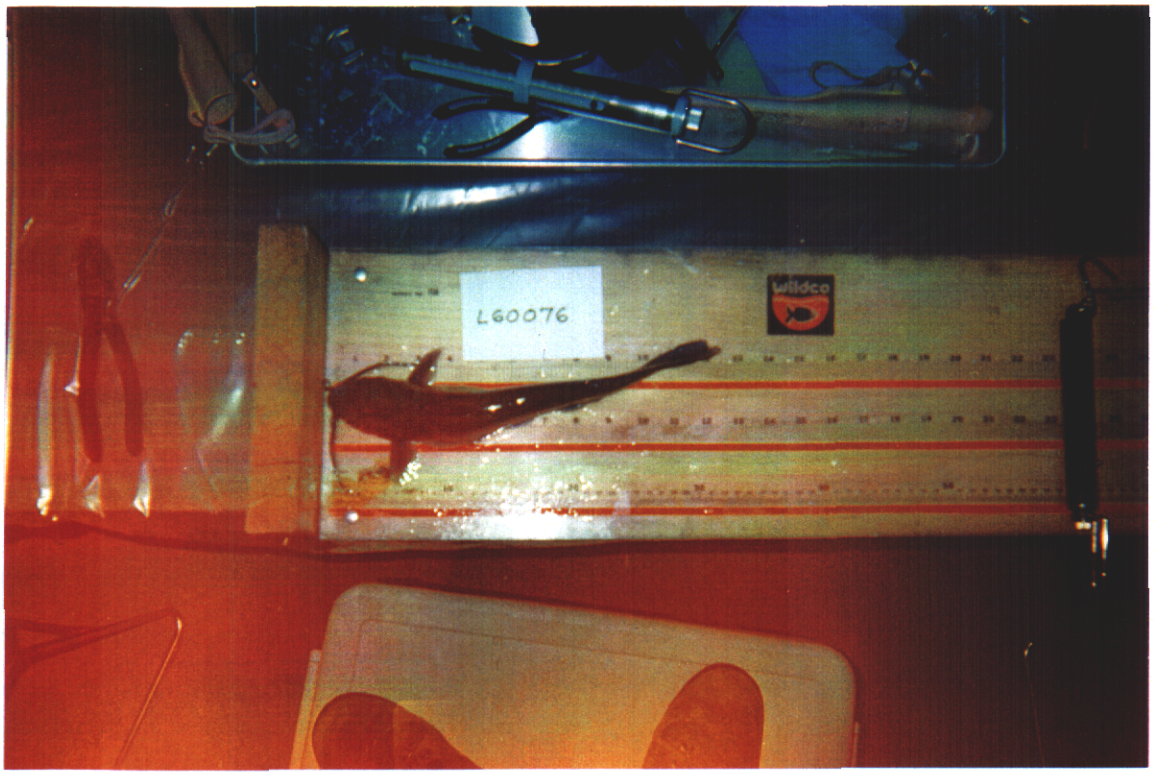


Photo 121: Lake Logan Martin Station 38 CHANNEL CATFISH L60076



Photo 122: Lake Logan Martin Station 38 BLUE CATFISH L60096

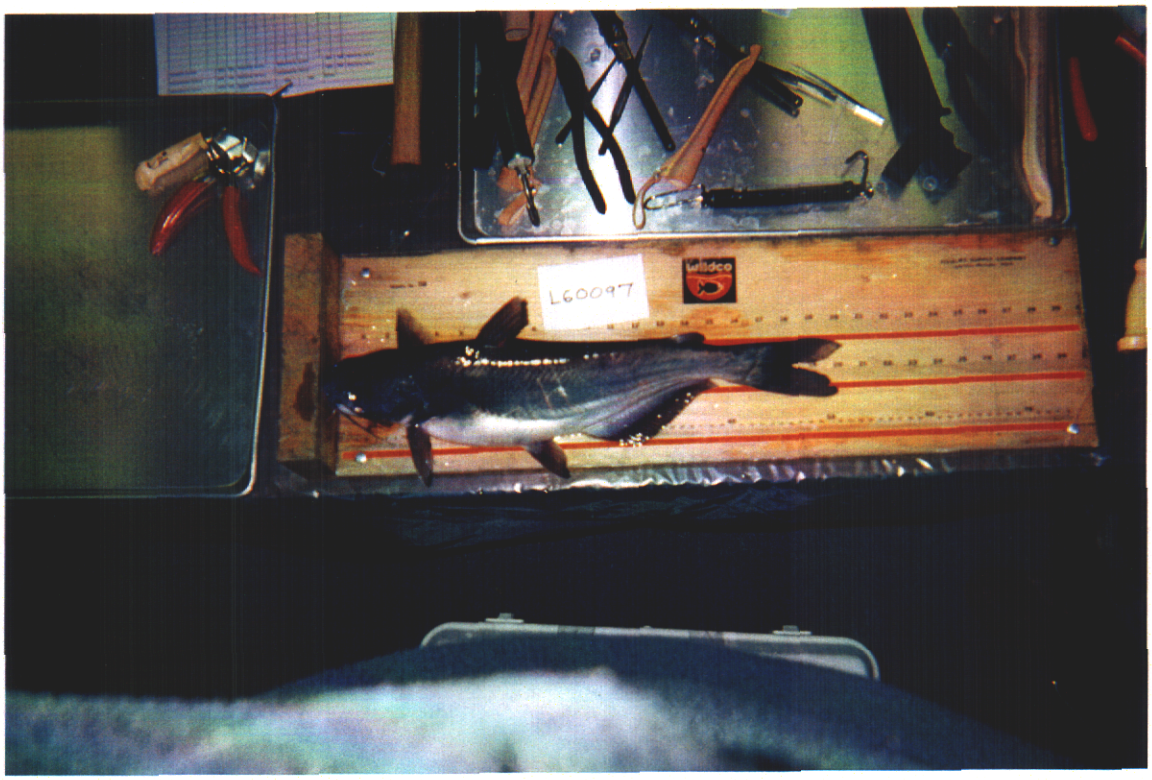


Photo 123: Lake Logan Martin Station 38 BLUE CATFISH L60097



Photo 124: Lake Logan Martin Station 38 BLUE CATFISH L60098



Photo 125: Lake Logan Martin Station 38 CHANNEL CATFISH L60099



Photo 126: Lake Logan Martin Station 38 CHANNEL CATFISH L60100



Photo 127: Lake Logan Martin Station 39 SPOTTED BASS L60010



Photo 128: Lake Logan Martin Station 39 SPOTTED BASS L60011

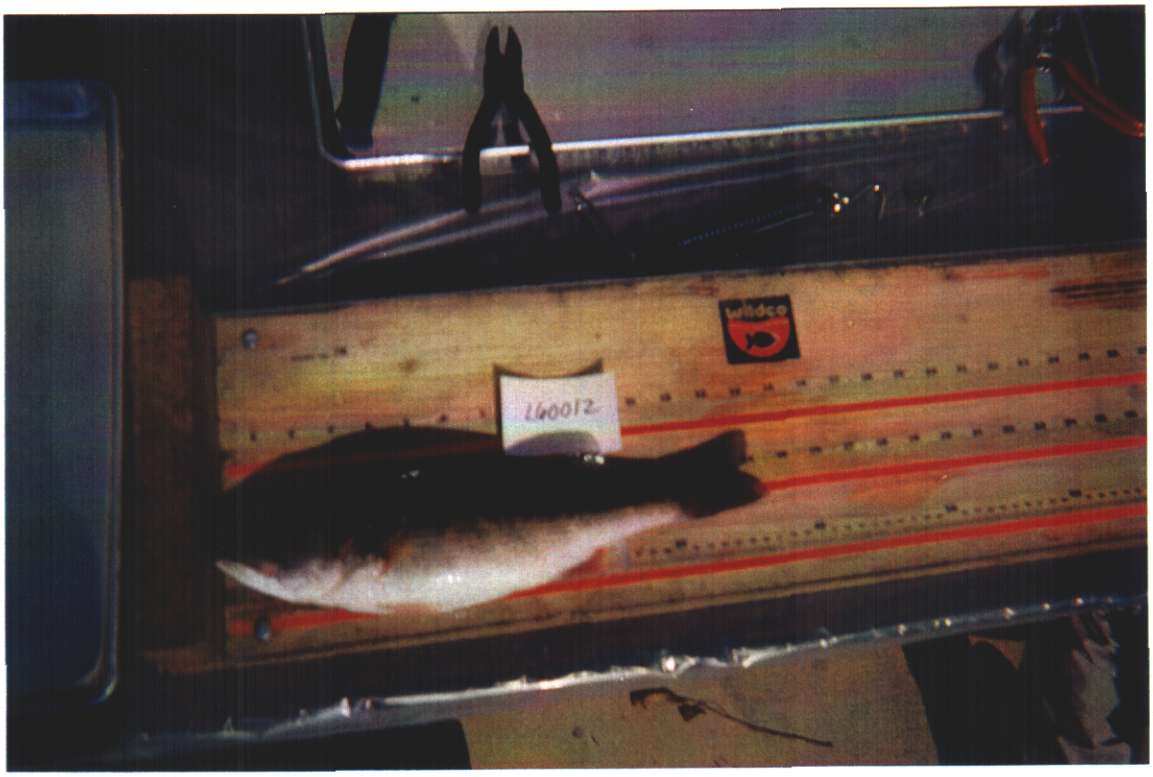


Photo 129: Lake Logan Martin Station 39 SPOTTED BASS L60012

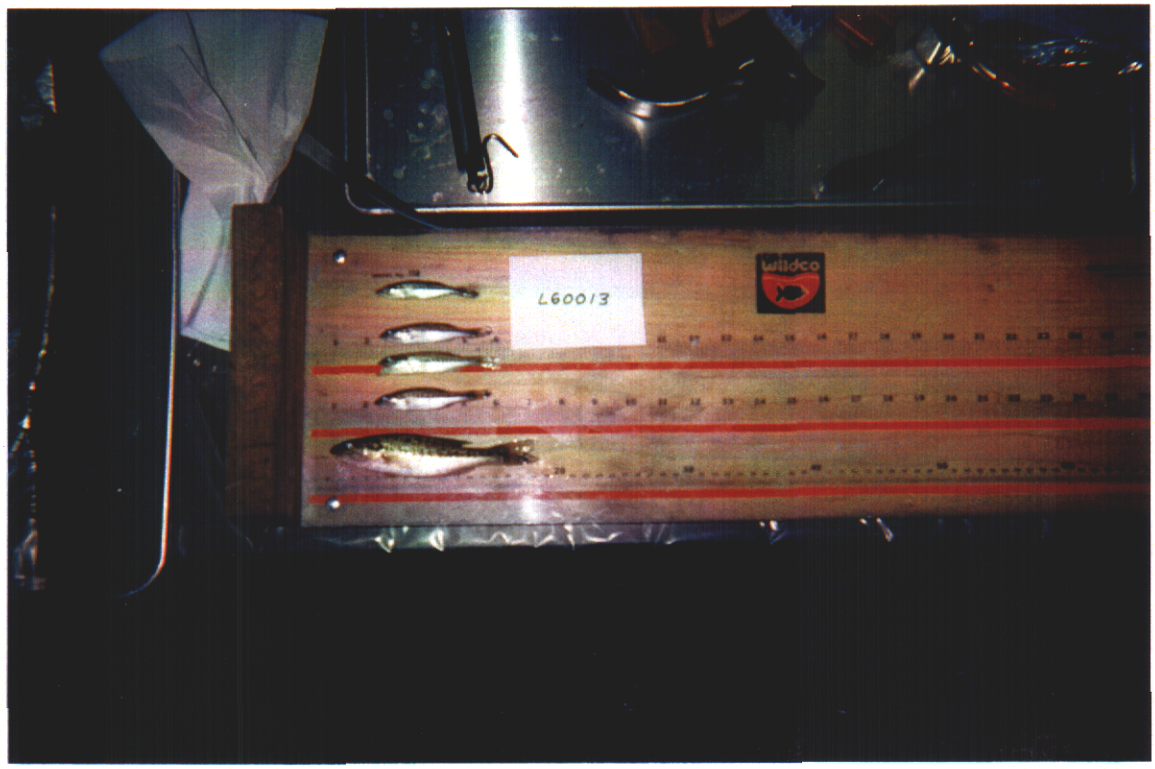


Photo 130: Lake Logan Martin Station 39 SPOTTED BASS L60013

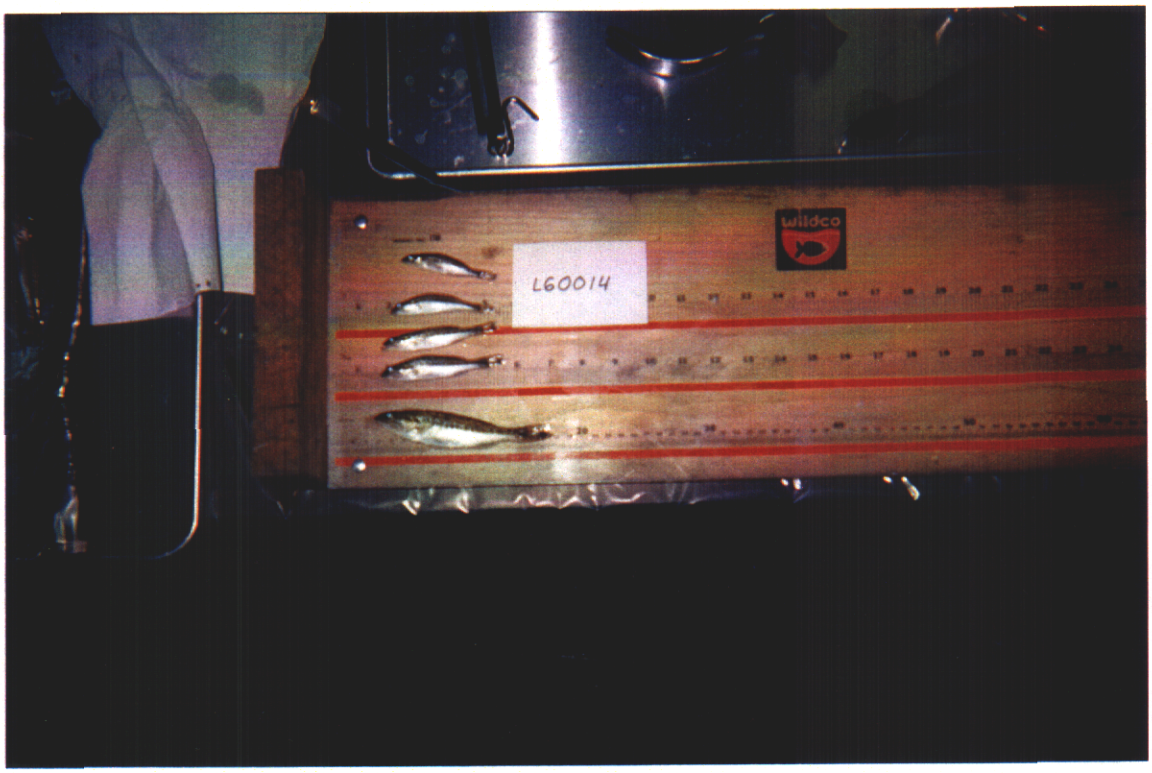


Photo 131: Lake Logan Martin Station 39 SPOTTED BASS L60014



Photo 132: Lake Logan Martin Station 39 SPOTTED BASS L60015

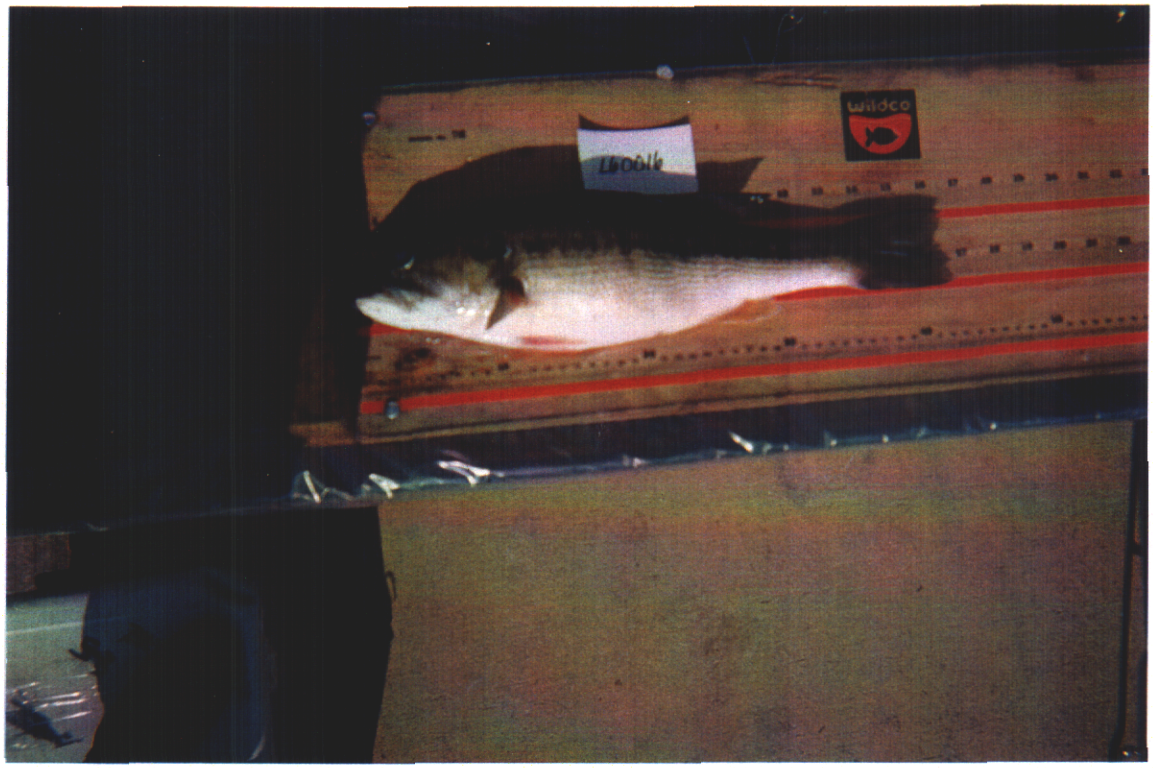


Photo 133: Lake Logan Martin Station 39 SPOTTED BASS L60016

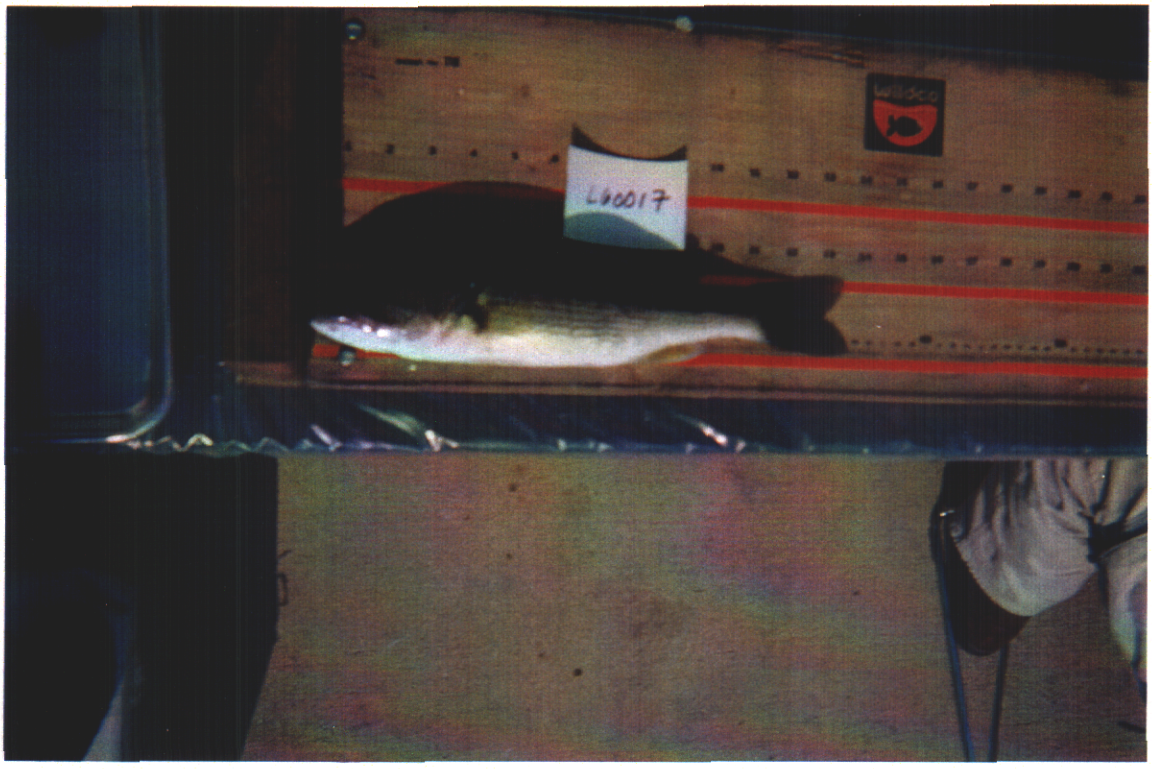


Photo 134: Lake Logan Martin Station 39 SPOTTED BASS L60017



Photo 135: Lake Logan Martin Station 39 SPOTTED BASS L60018

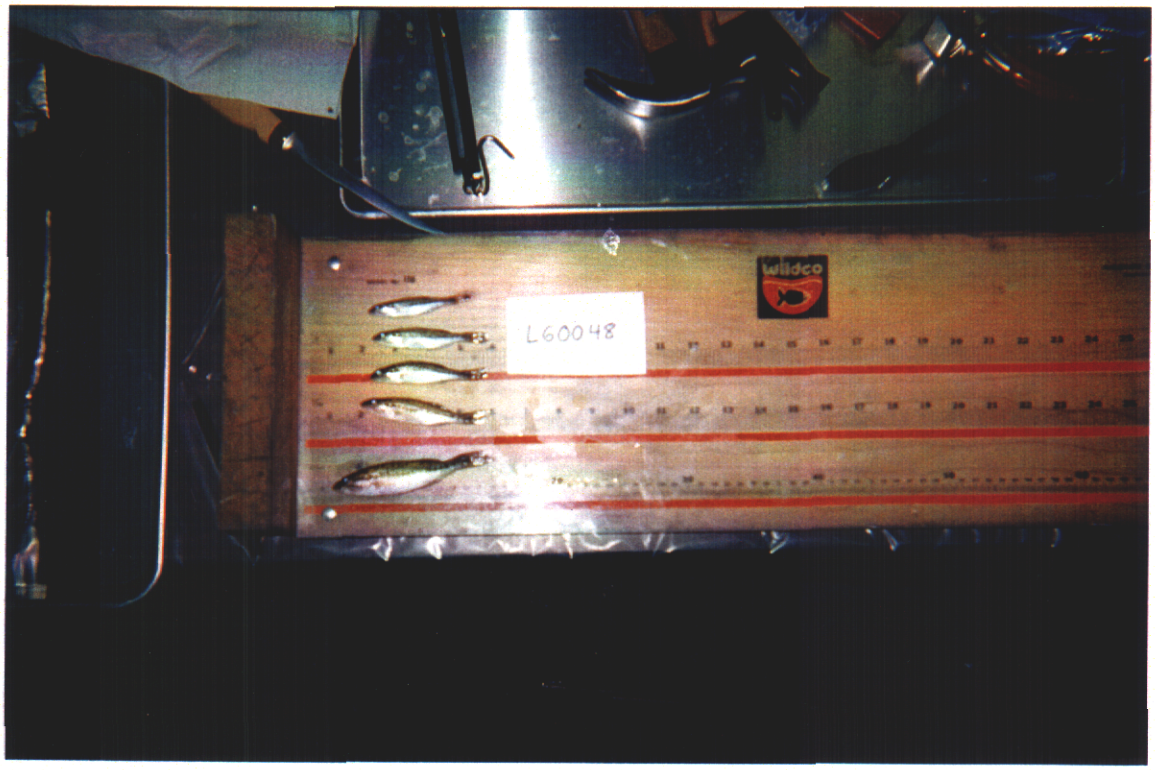


Photo 136: Lake Logan Martin Station 39 SPOTTED BASS L60048

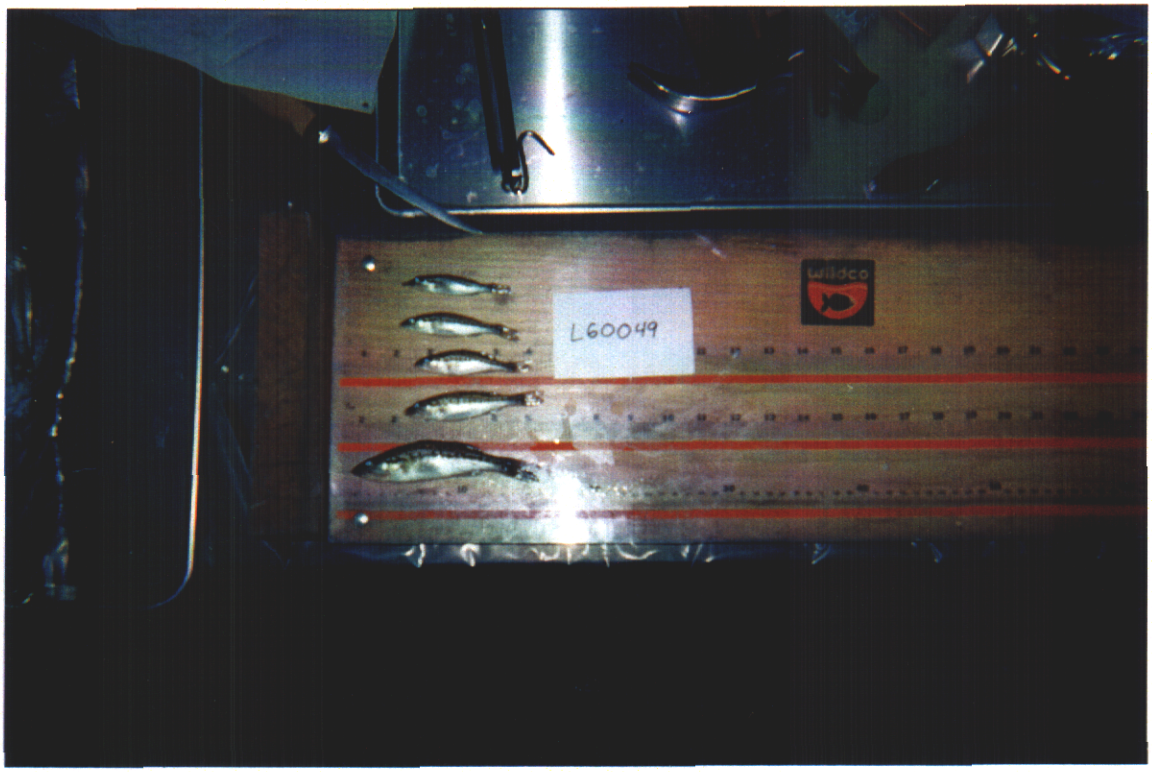


Photo 137: Lake Logan Martin Station 39 SPOTTED BASS L60049

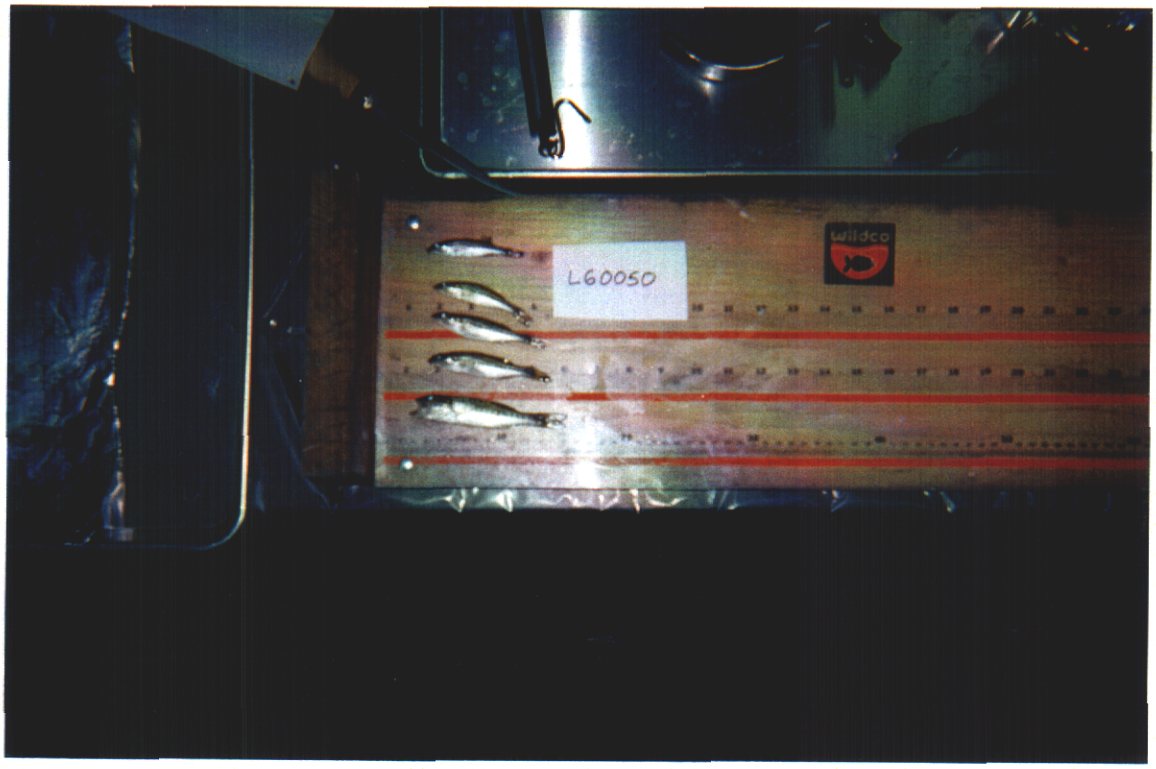


Photo 138: Lake Logan Martin Station 39 SPOTTED BASS L60050

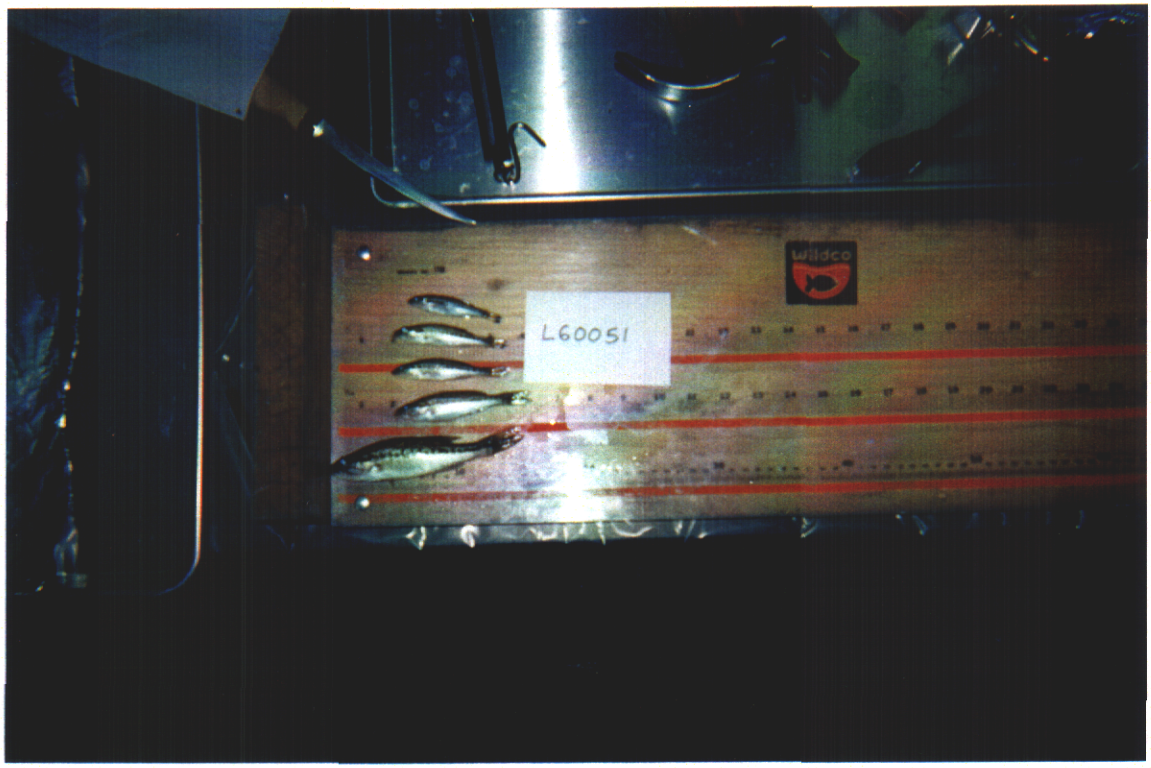


Photo 139: Lake Logan Martin Station 39 SPOTTED BASS L60051

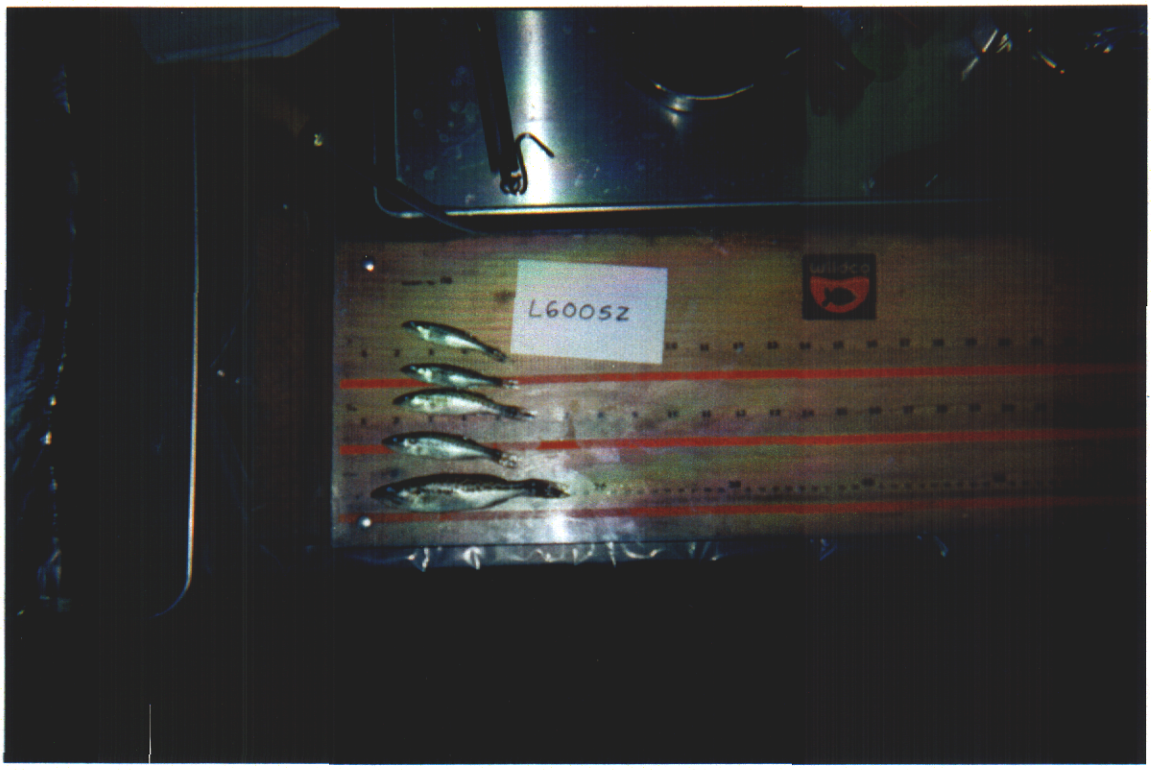


Photo 140: Lake Logan Martin Station 39 SPOTTED BASS L60052

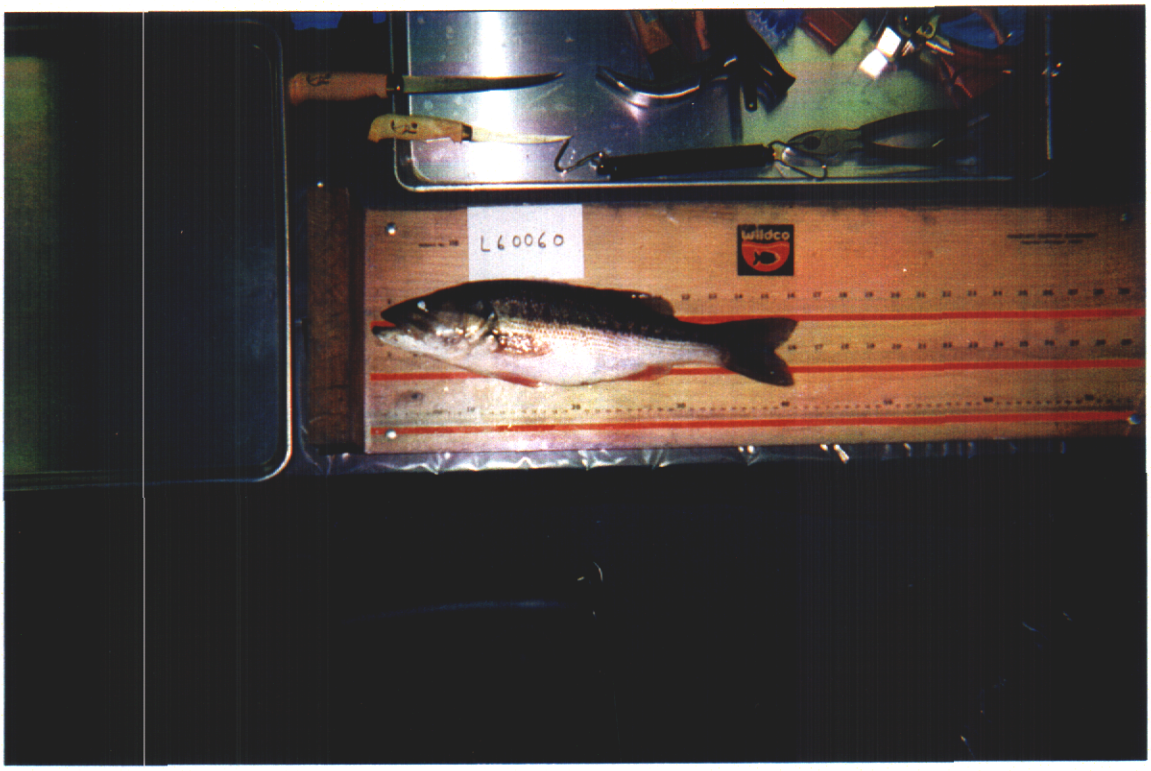


Photo 141: Lake Logan Martin Station 39 SPOTTED BASS L60060

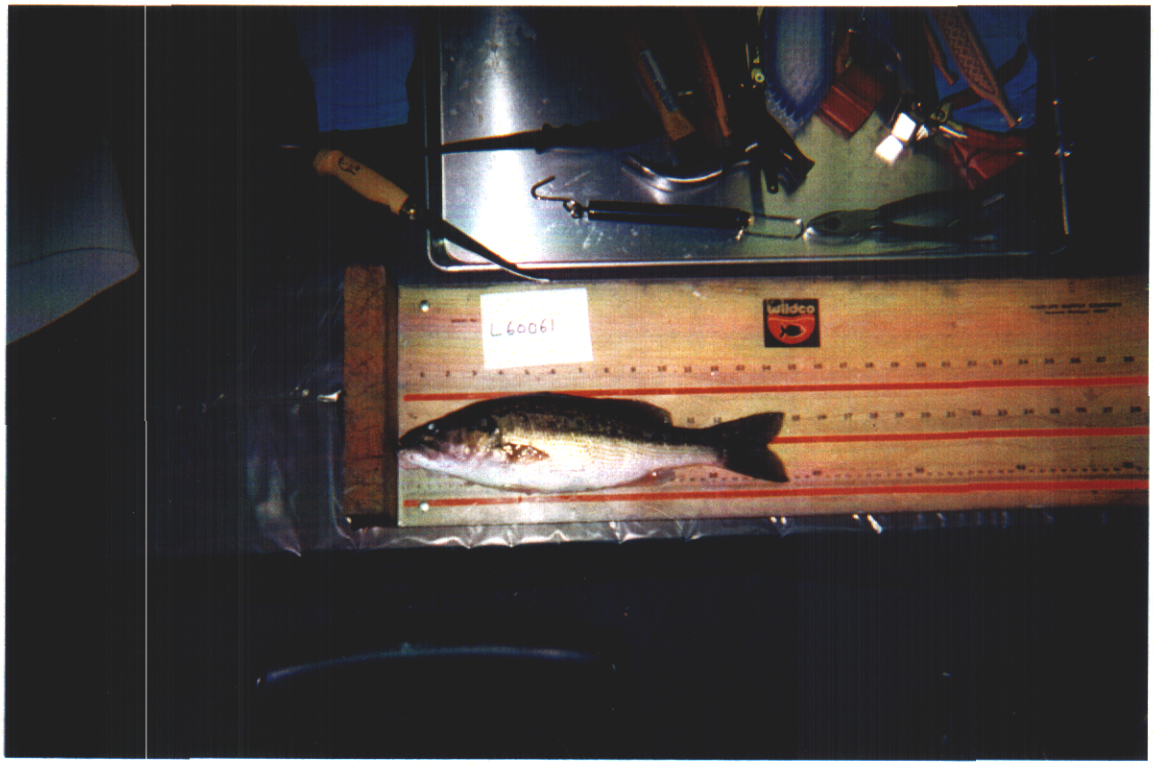


Photo 142: Lake Logan Martin Station 39 SPOTTED BASS L60061

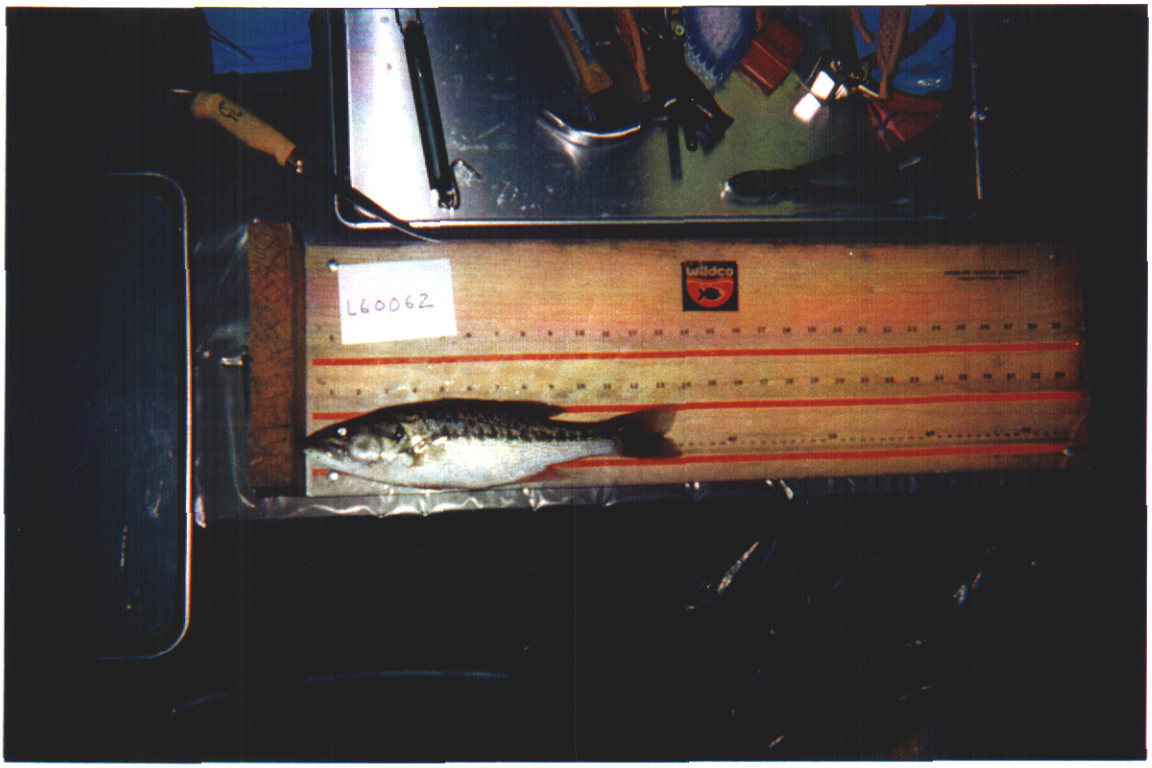


Photo 143: Lake Logan Martin Station 39 SPOTTED BASS L60062

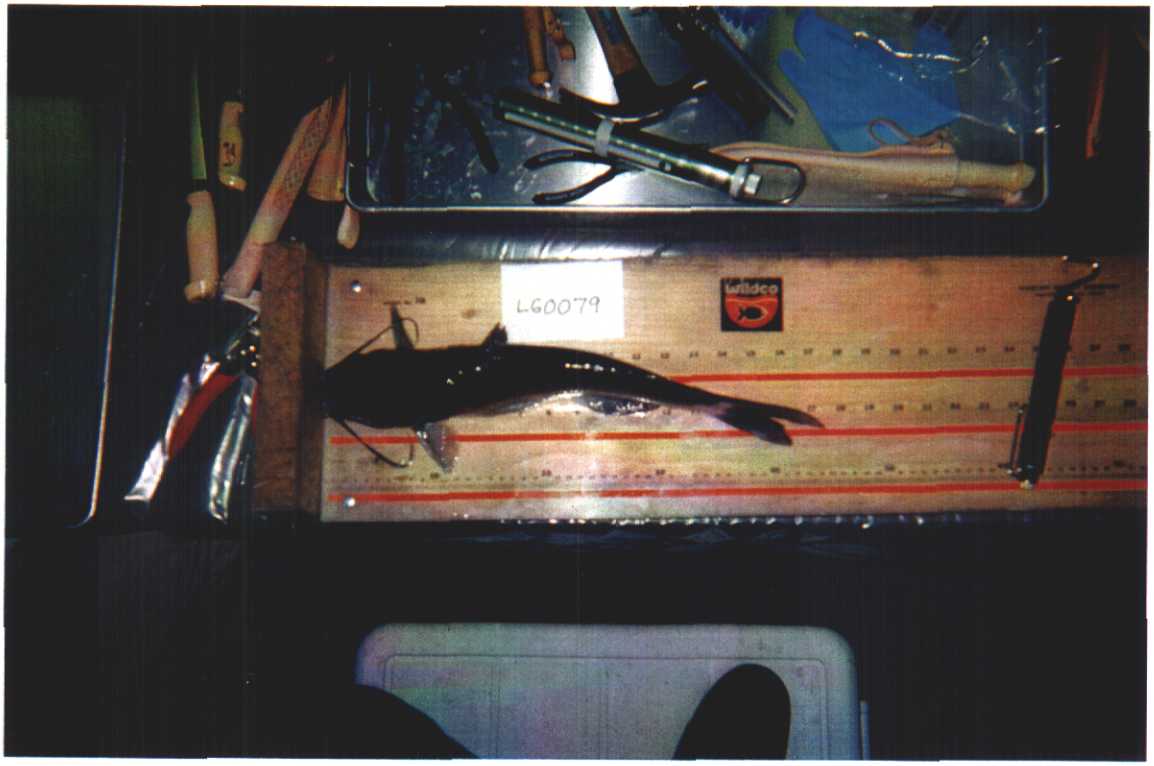


Photo 144: Lake Logan Martin Station 39 CHANNEL CATFISH L60079

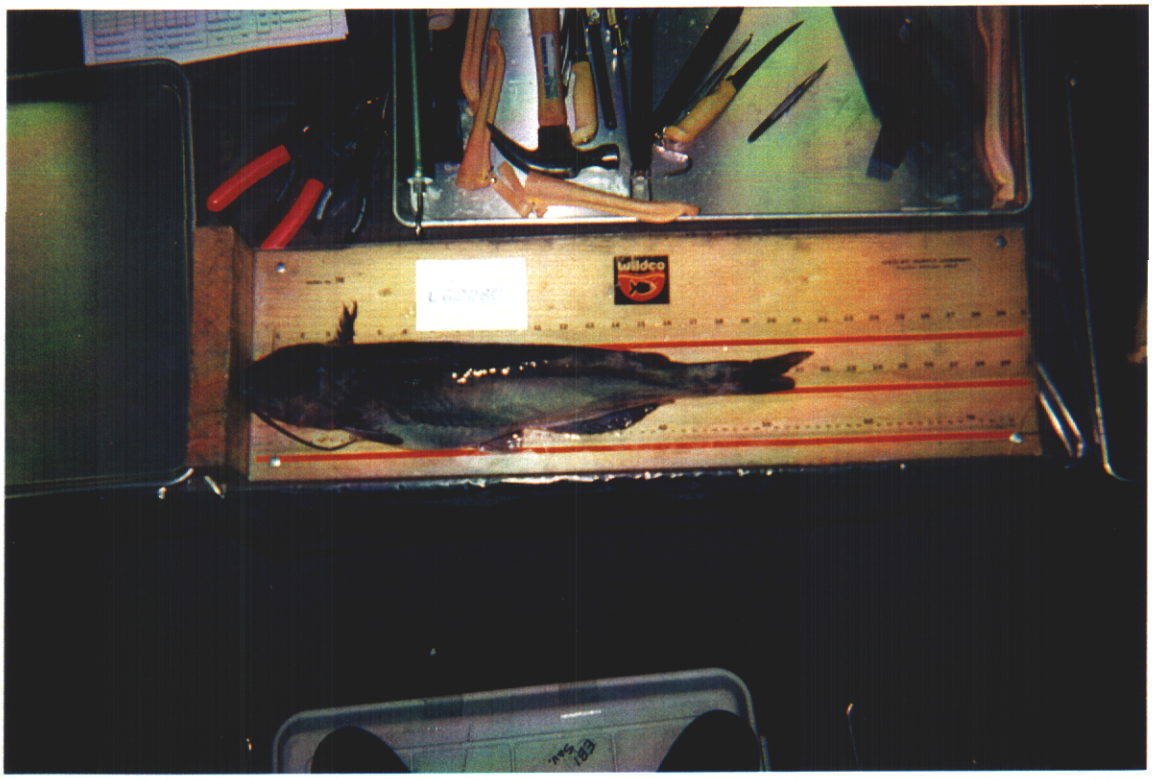


Photo 145: Lake Logan Martin Station 39 BLUE CATFISH L60080

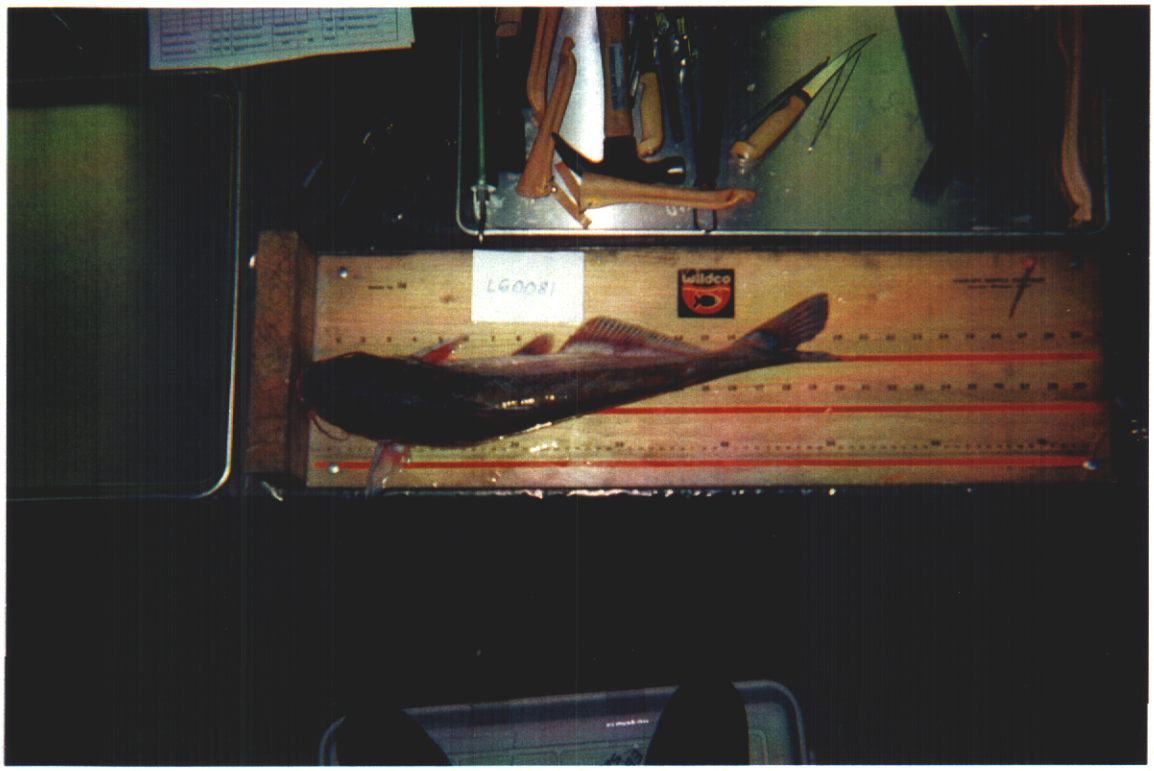


Photo 146: Lake Logan Martin Station 39 BLUE CATFISH L60081

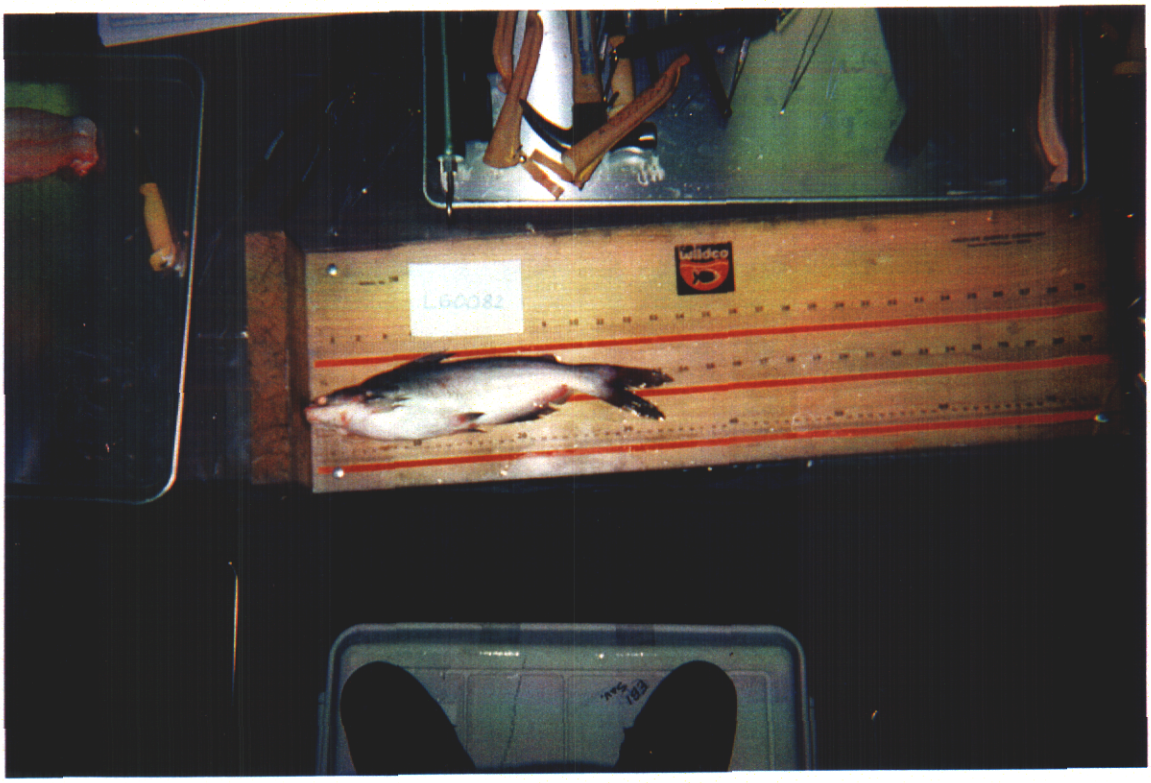


Photo 147: Lake Logan Martin Station 39 BLUE CATFISH L60082



Photo 148: Lake Logan Martin Station 39 CHANNEL CATFISH L60093

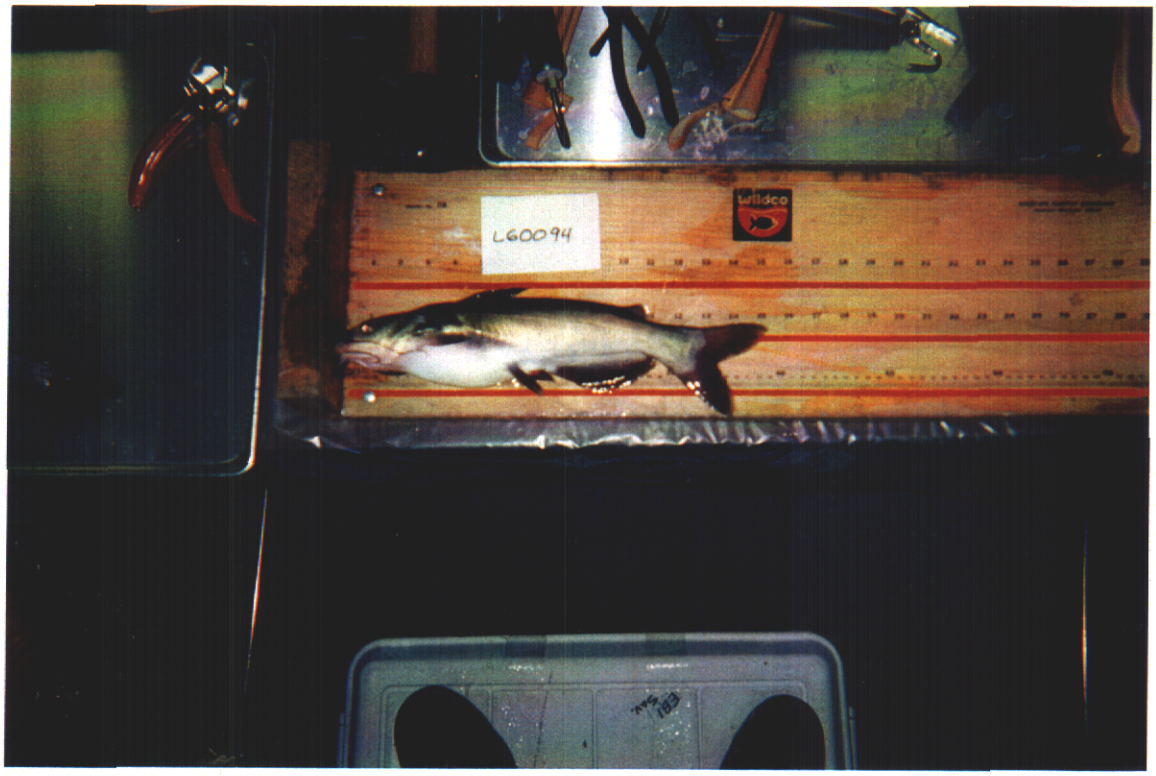


Photo 149: Lake Logan Martin Station 39 CHANNEL CATFISH L60094

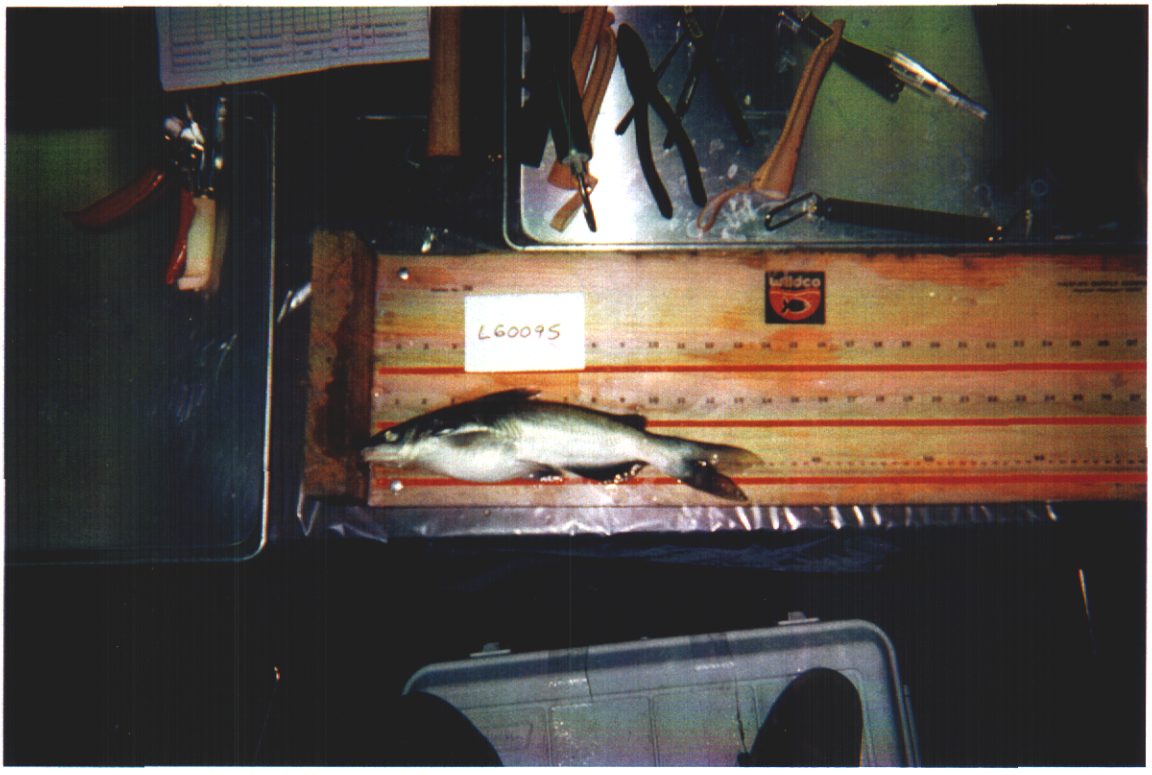


Photo 150: Lake Logan Martin Station 39 CHANNEL CATFISH L60095

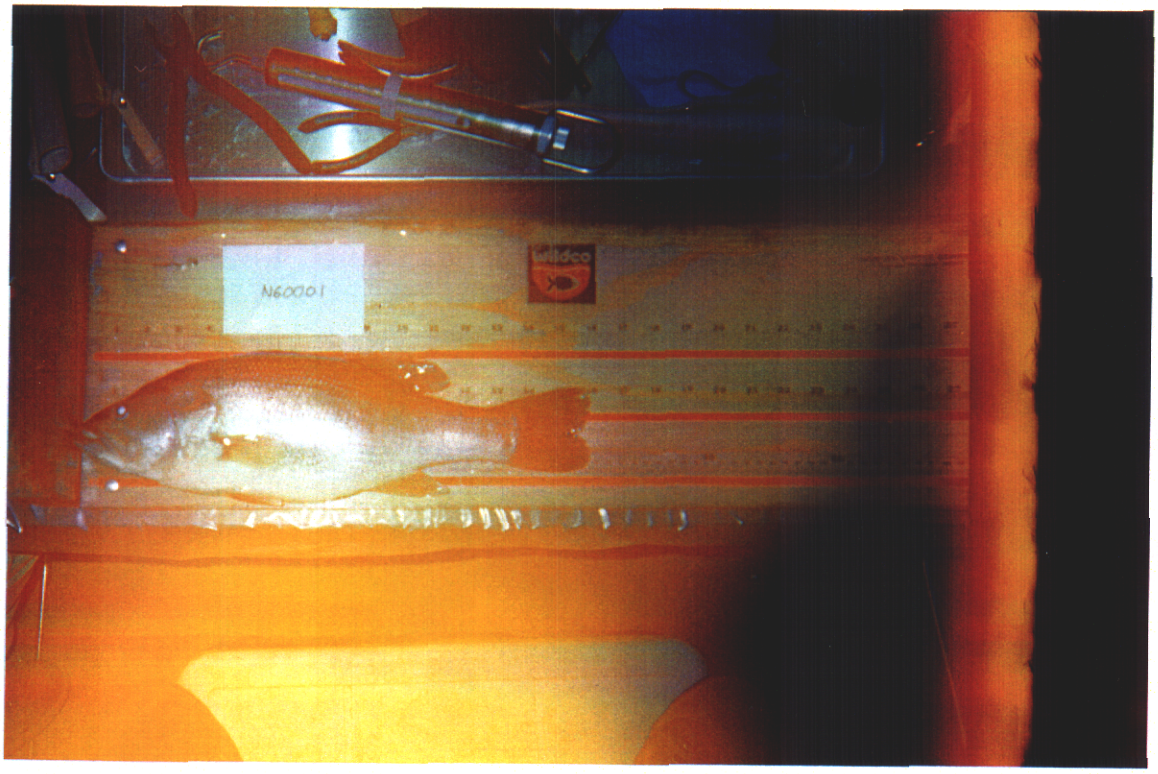


Photo 151: Lake Neely Henry Station 30 LARGEMOUTH BASS N60001

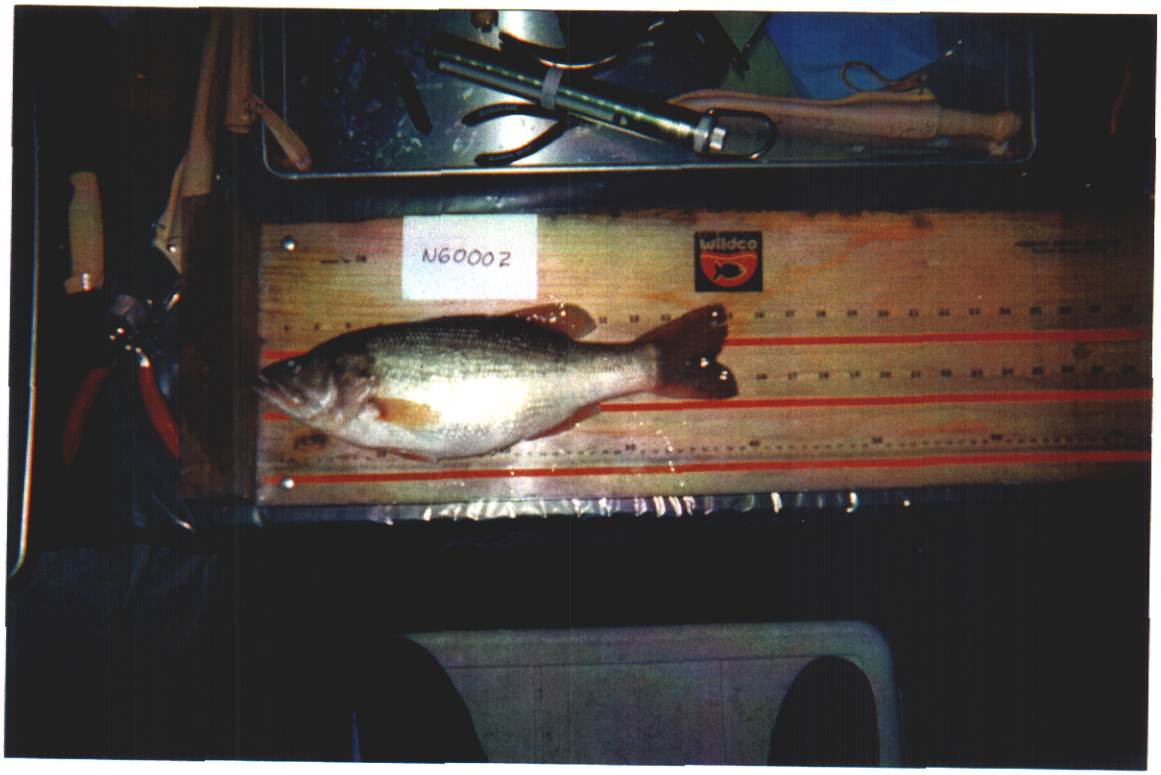


Photo 152: Lake Neely Henry Station 30 LARGEMOUTH BASS N60002



Photo 153: Lake Neely Henry Station 30 LARGEMOUTH BASS N60003



Photo 154: Lake Neely Henry Station 30 LARGEMOUTH BASS N60004

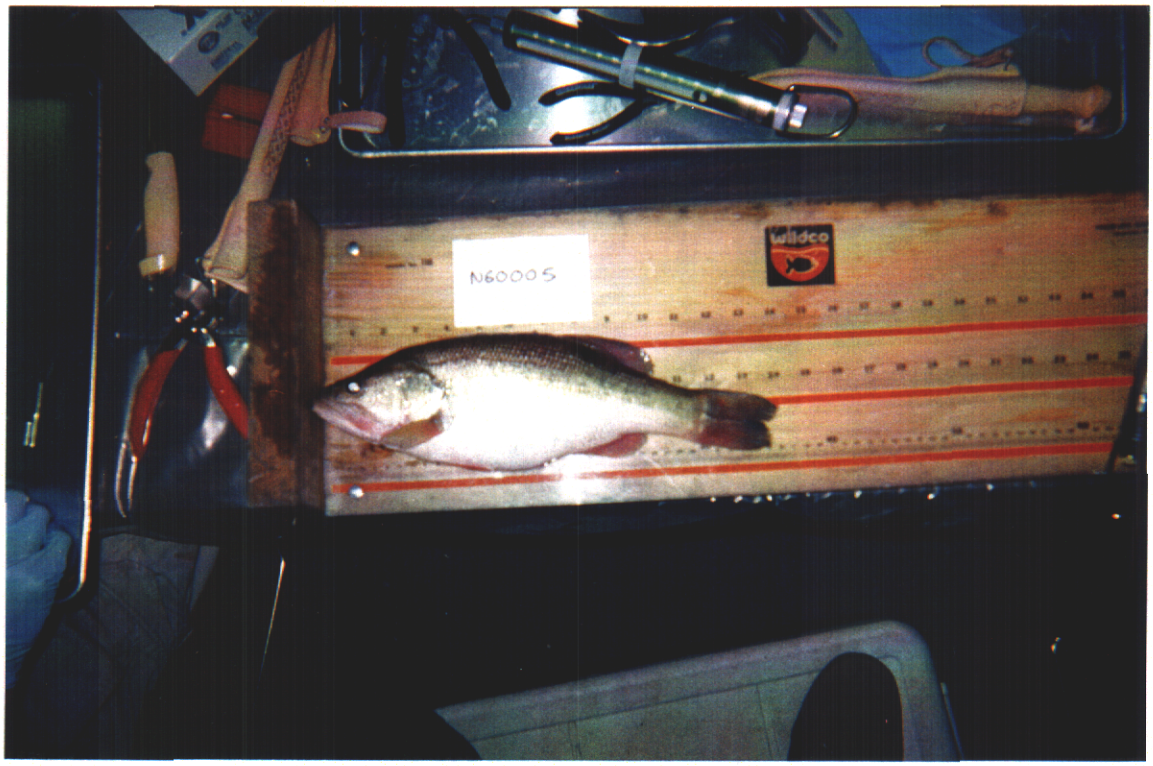


Photo 155: Lake Neely Henry Station 30 LARGEMOUTH BASS N60005

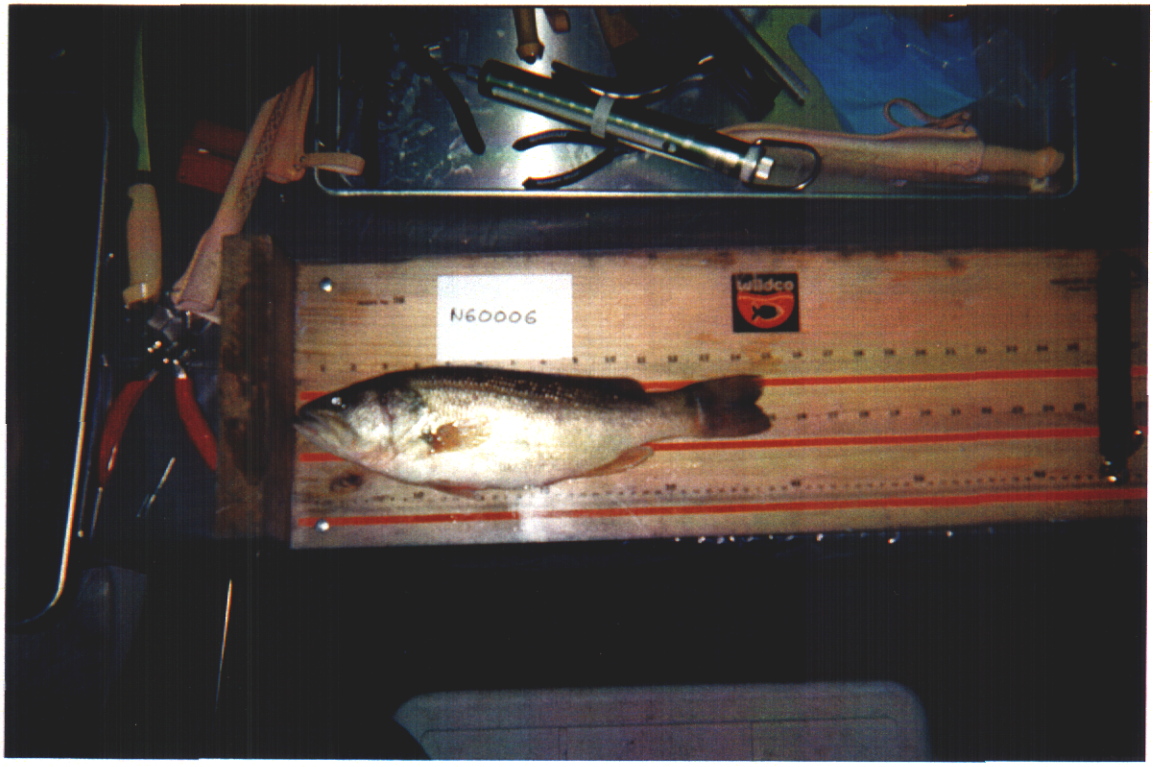


Photo 156: Lake Neely Henry Station 30 LARGEMOUTH BASS N60006



Photo 157: Lake Neely Henry Station 30 LARGEMOUTH BASS N60007



Photo 158: Lake Neely Henry Station 30 LARGEMOUTH BASS N60008

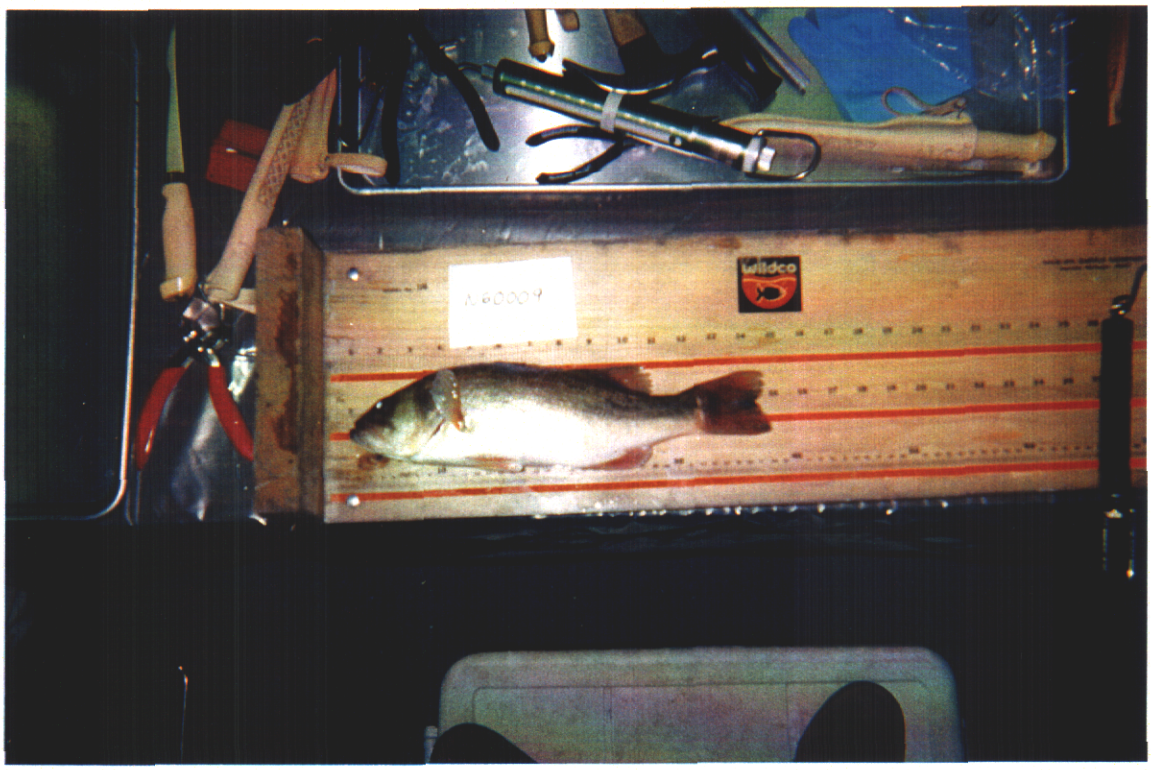


Photo 159: Lake Neely Henry Station 30 LARGEMOUTH BASS N60009

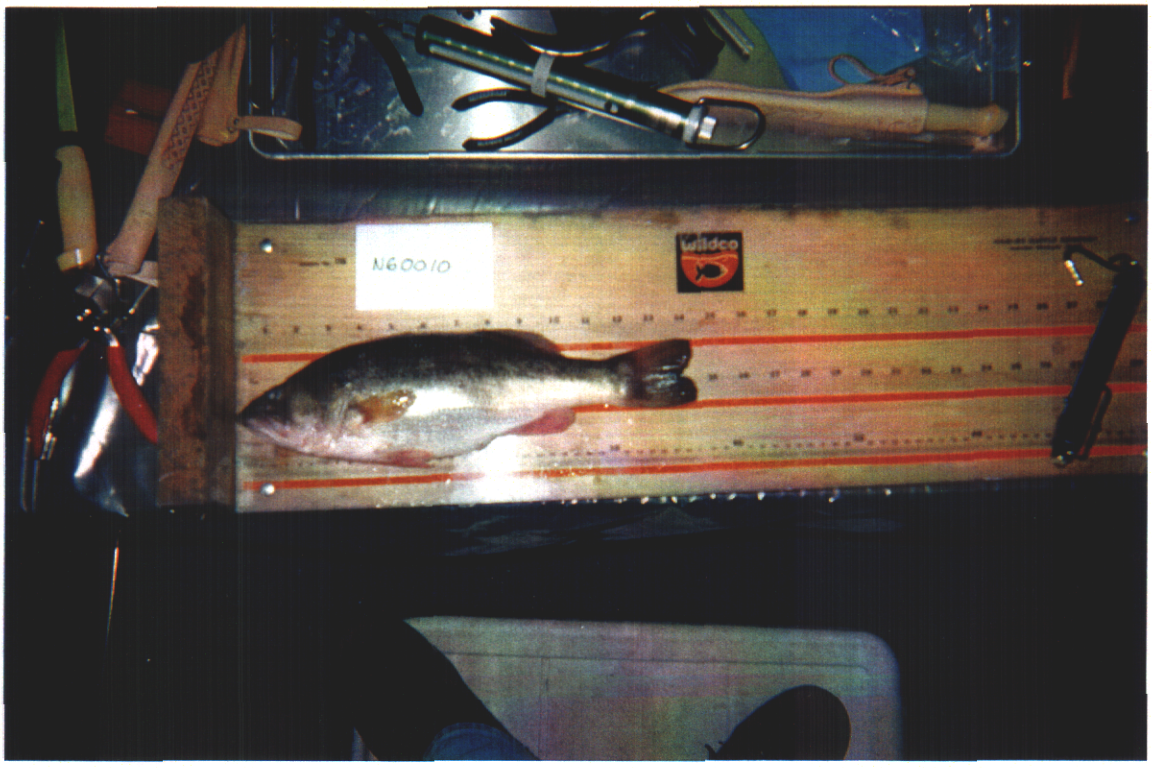


Photo 160: Lake Neely Henry Station 30 LARGEMOUTH BASS N60010

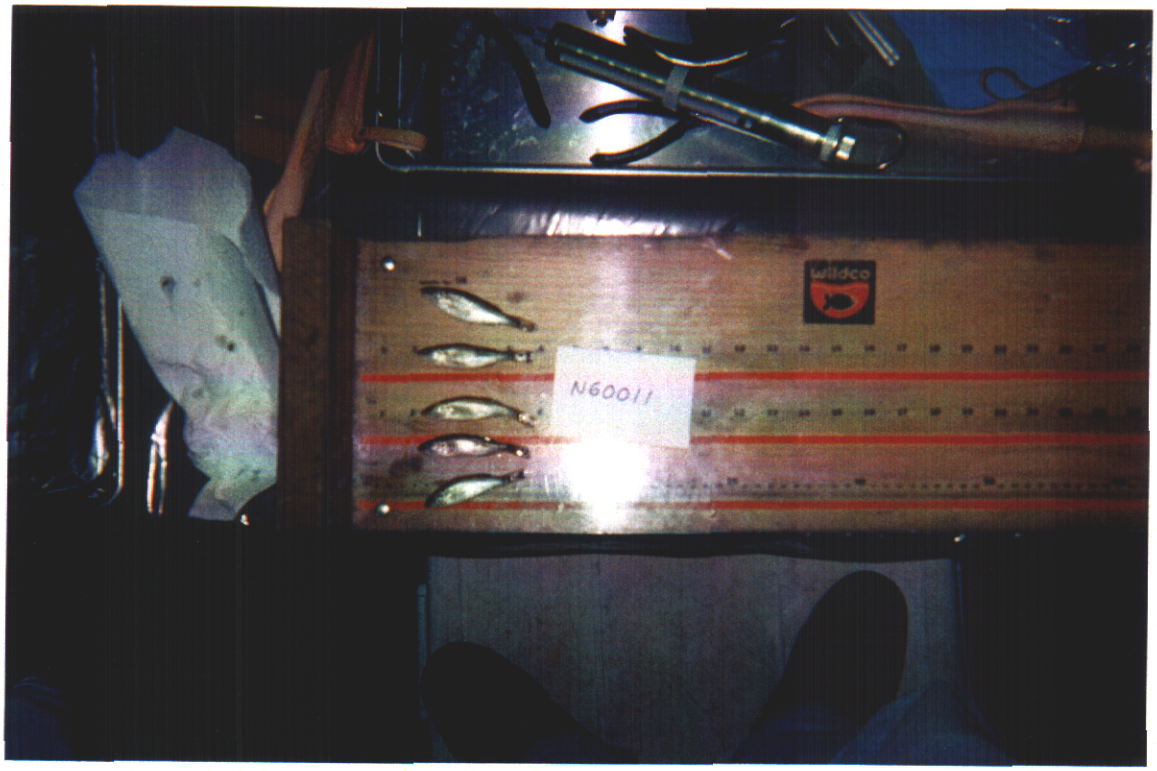


Photo 161: Lake Neely Henry Station 30 LARGEMOUTH BASS N60011



Photo 162: Lake Neely Henry Station 30 LARGEMOUTH BASS N60012

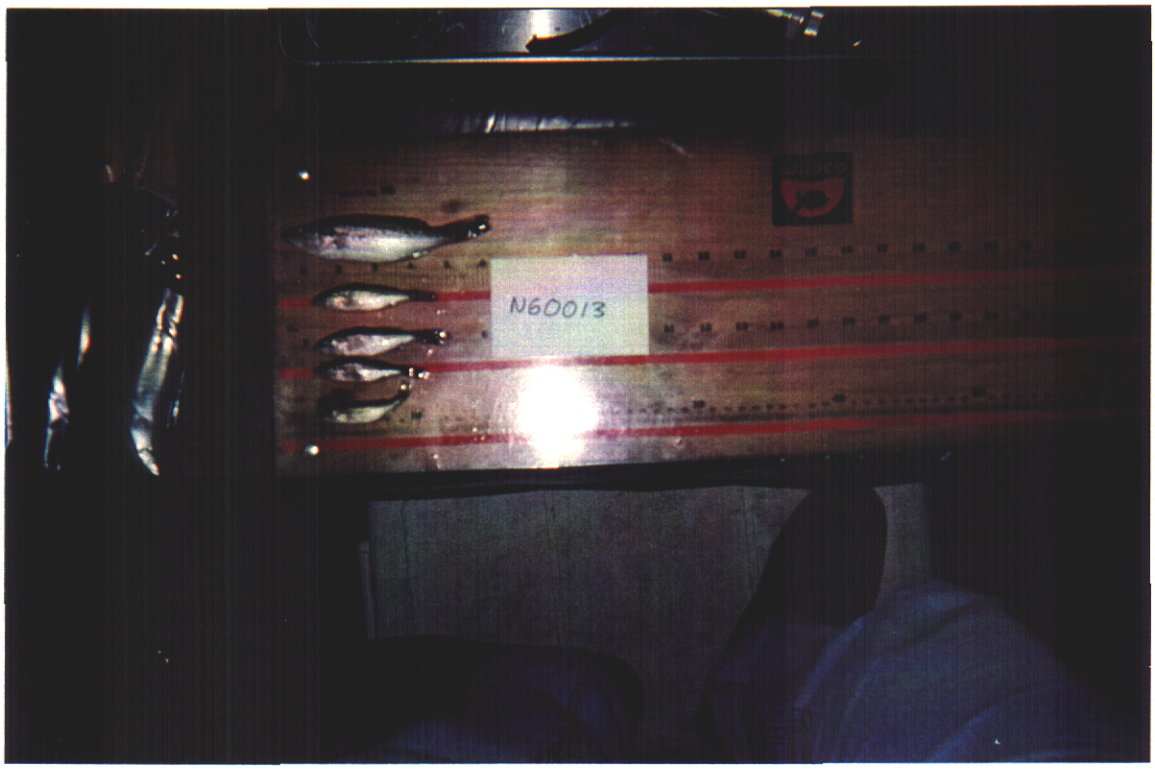


Photo 163: Lake Neely Henry Station 30 LARGEMOUTH BASS N60013

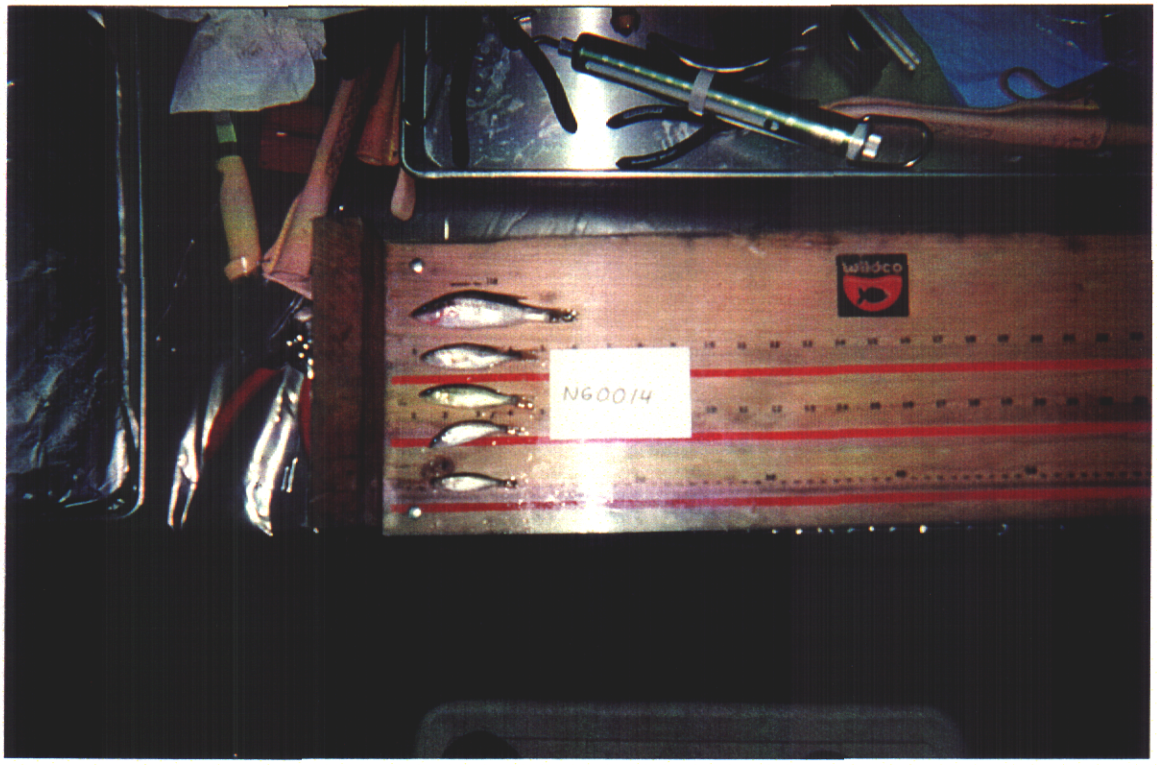


Photo 164: Lake Neely Henry Station 30 LARGEMOUTH BASS N60014

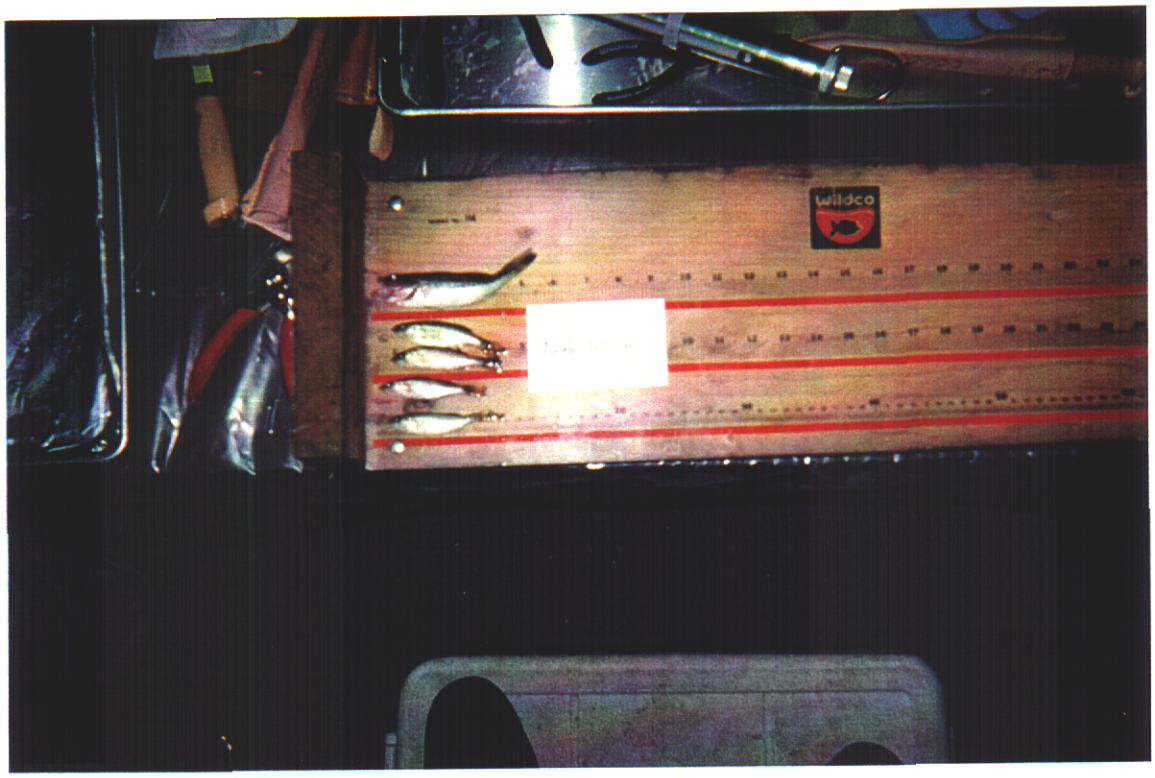


Photo 165: Lake Neely Henry Station 30 LARGEMOUTH BASS N60015

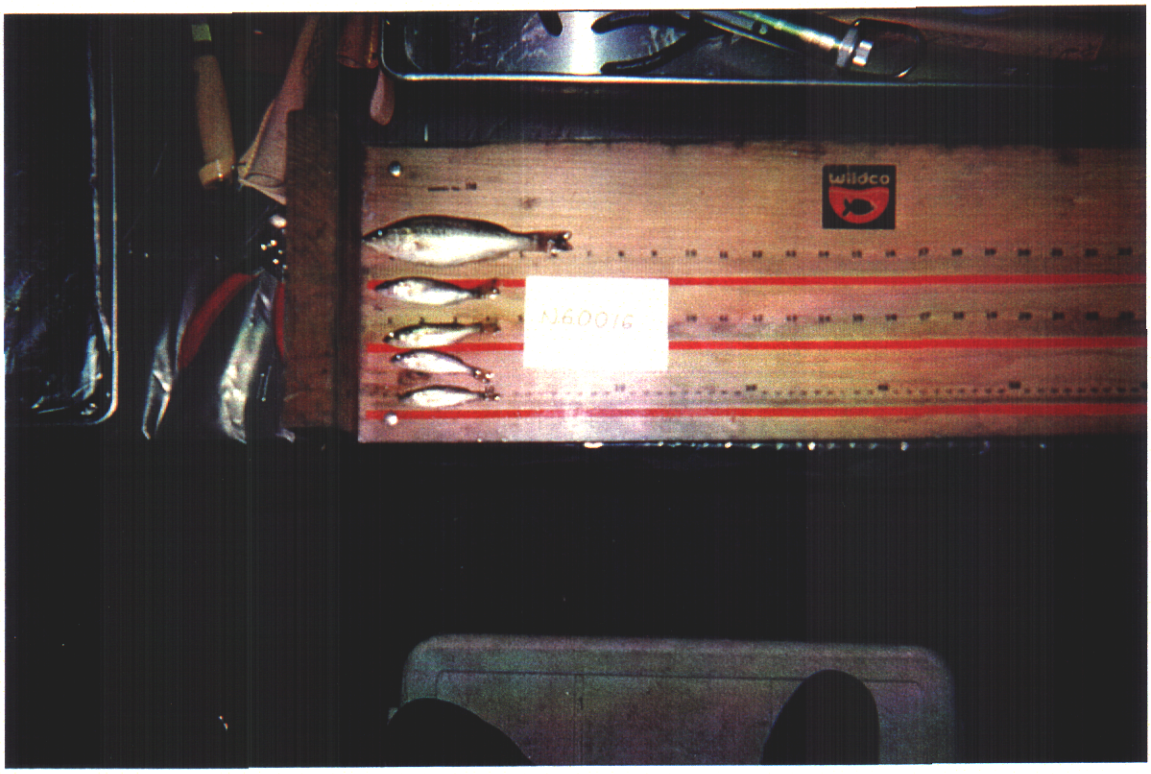


Photo 166: Lake Neely Henry Station 30 LARGEMOUTH BASS N60016

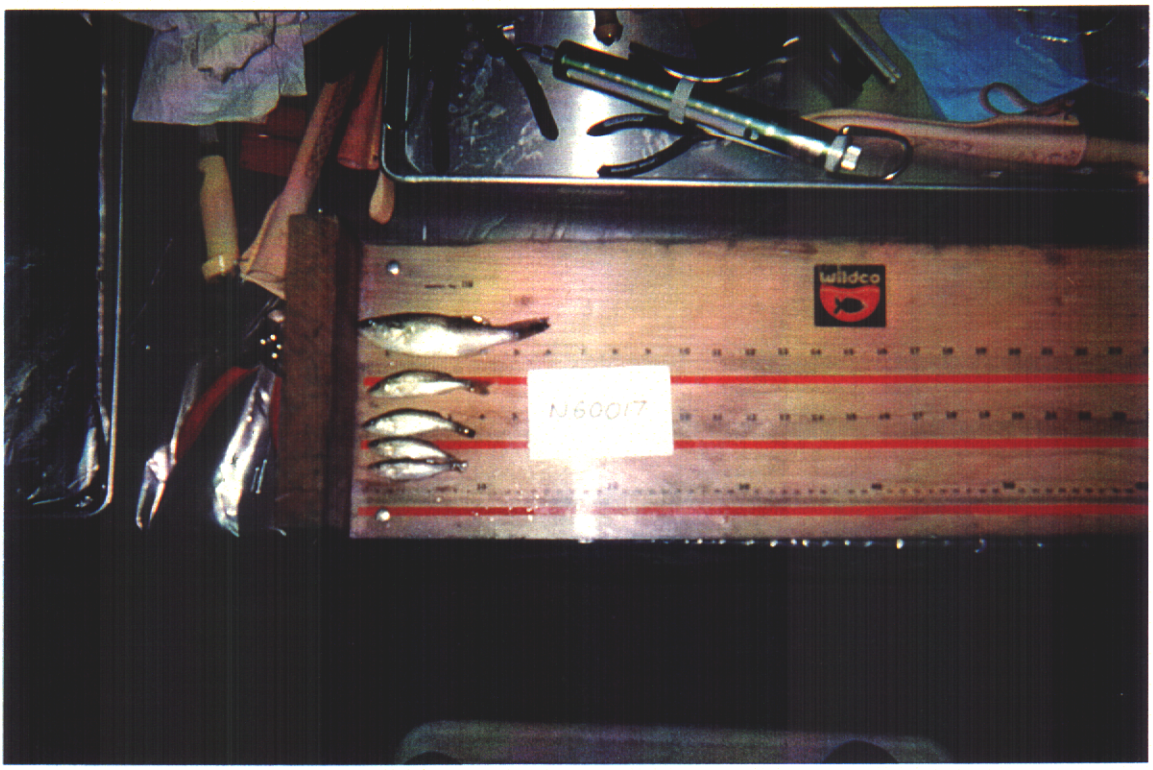


Photo 167: Lake Neely Henry Station 30 LARGEMOUTH BASS N60017

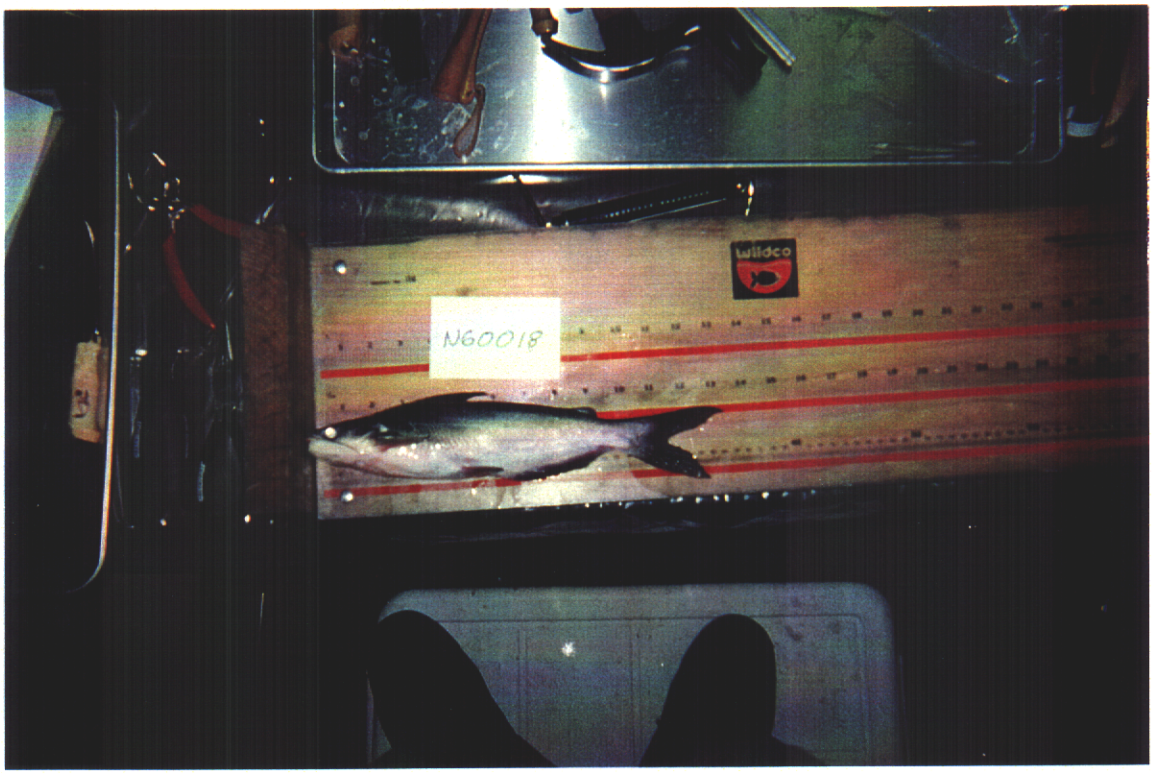


Photo 168: Lake Neely Henry Station 30 BLUE CATFISH N60018

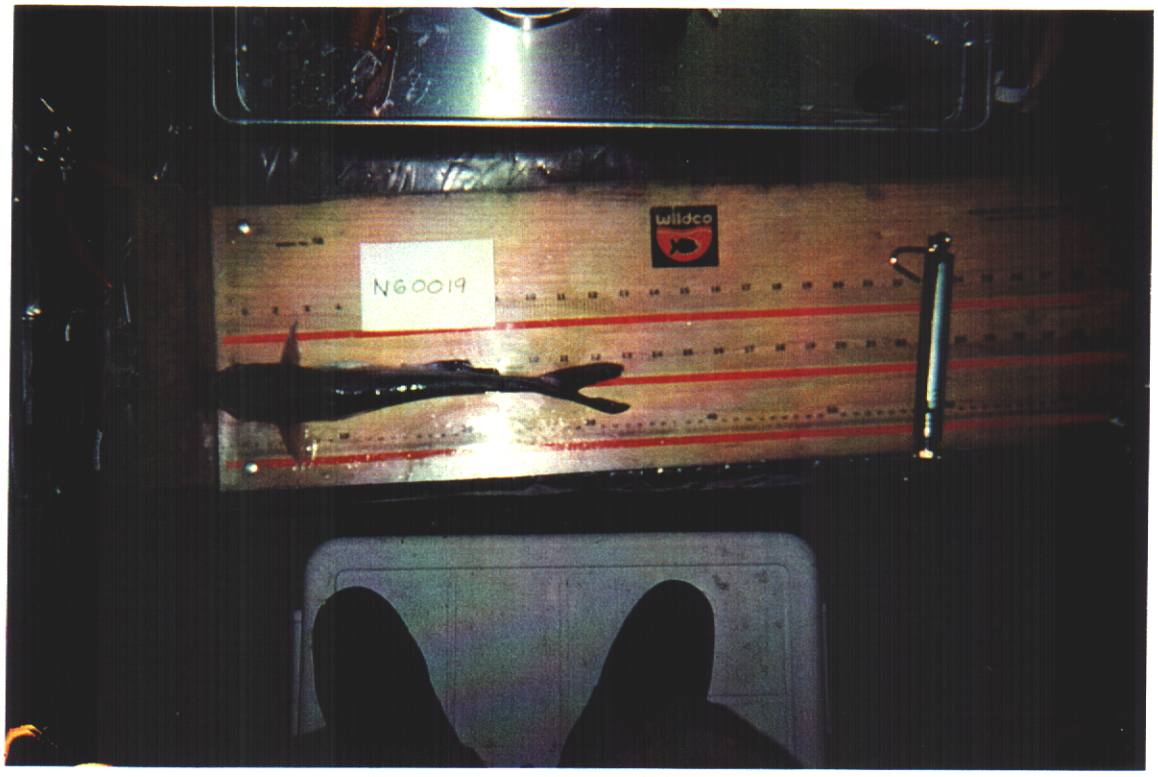


Photo 169: Lake Neely Henry Station 30 BLUE CATFISH N60019



Photo 170: Lake Neely Henry Station 30 CHANNEL CATFISH N60020

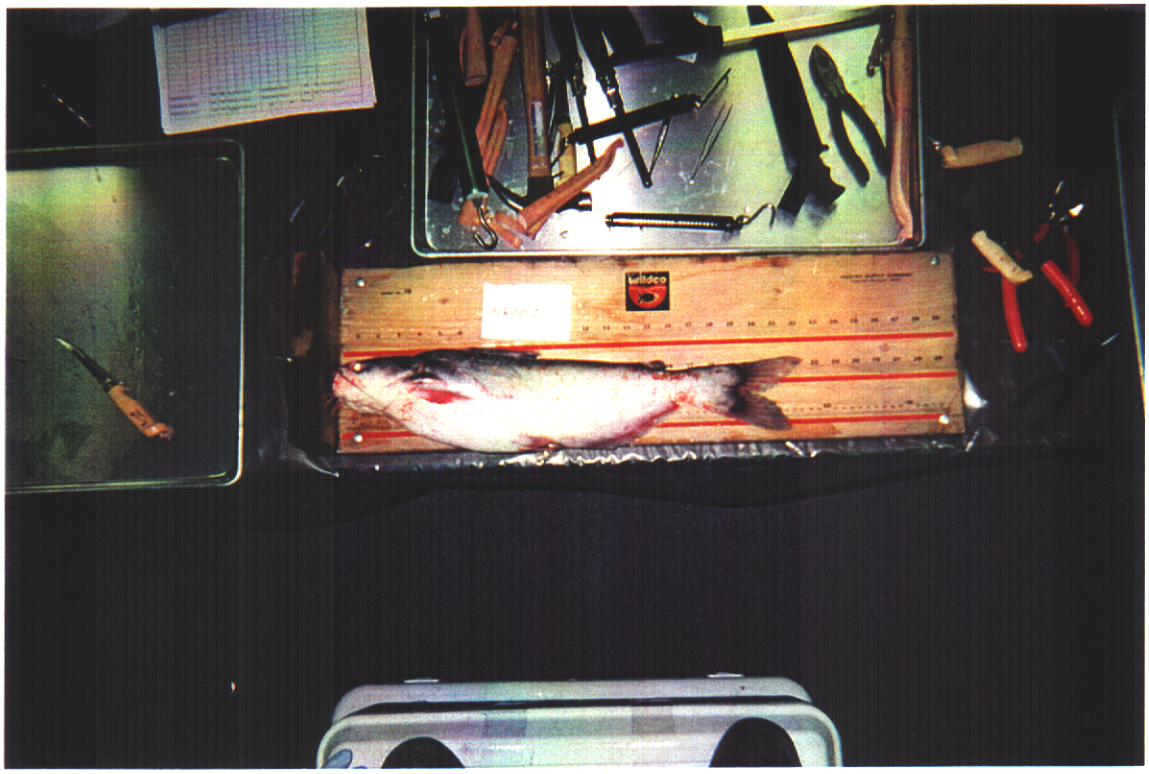


Photo 171: Lake Neely Henry Station 30 BLUE CATFISH N60021

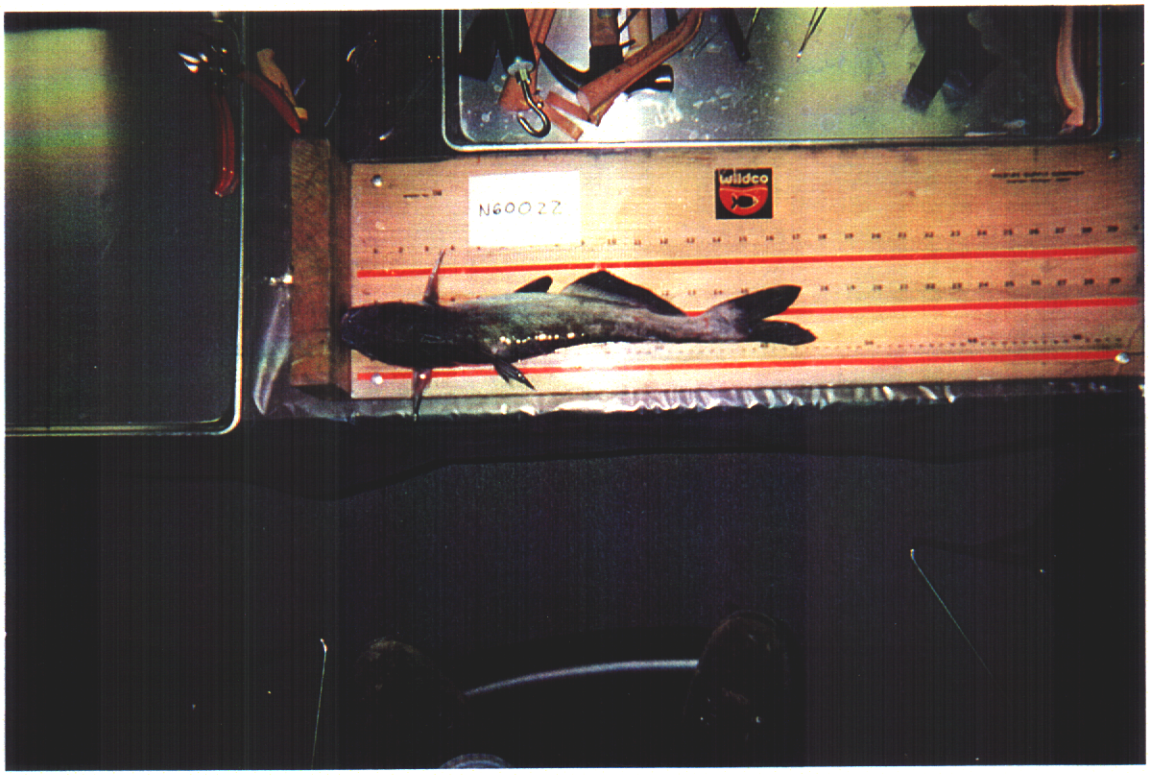


Photo 172: Lake Neely Henry Station 30 BLUE CATFISH N60022

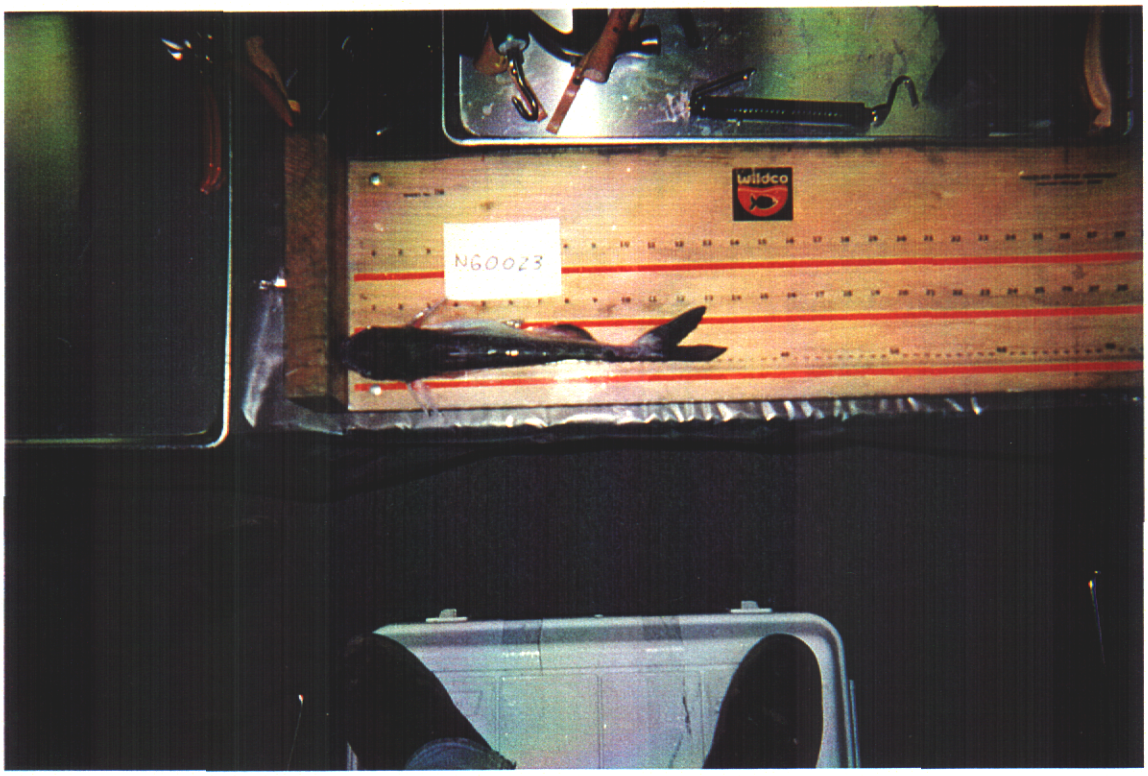


Photo 173: Lake Neely Henry Station 30 BLUE CATFISH N60023

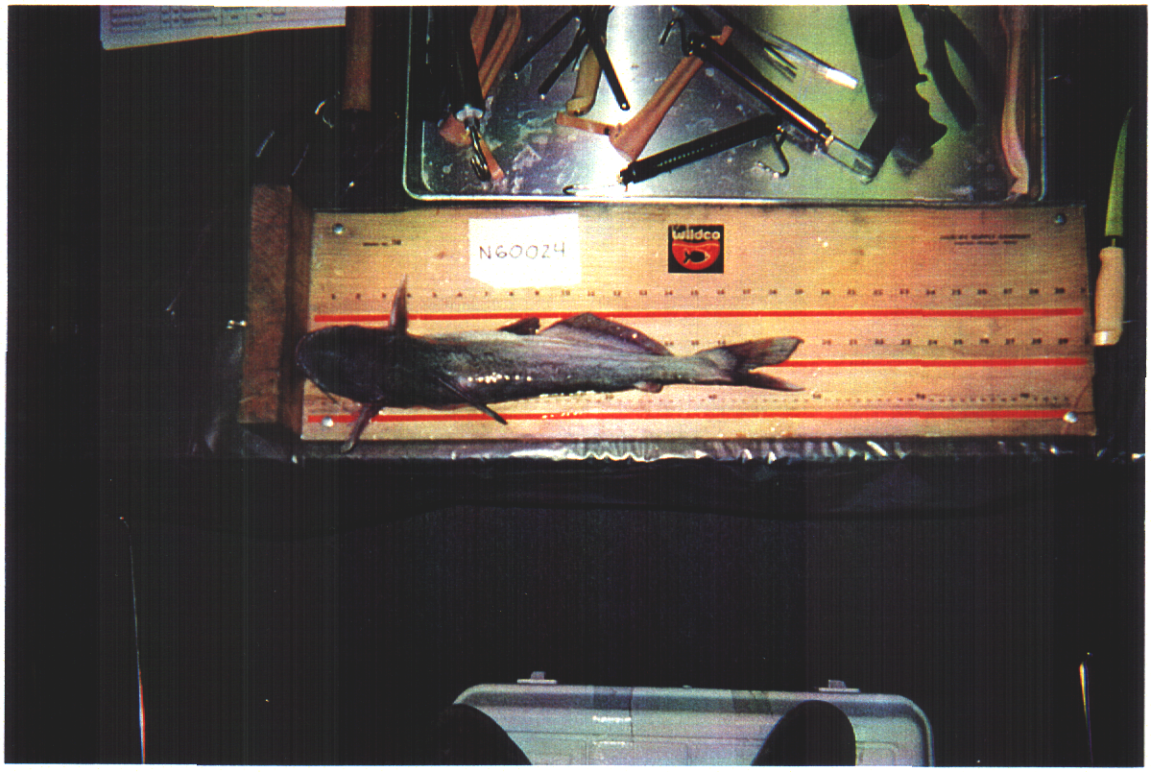
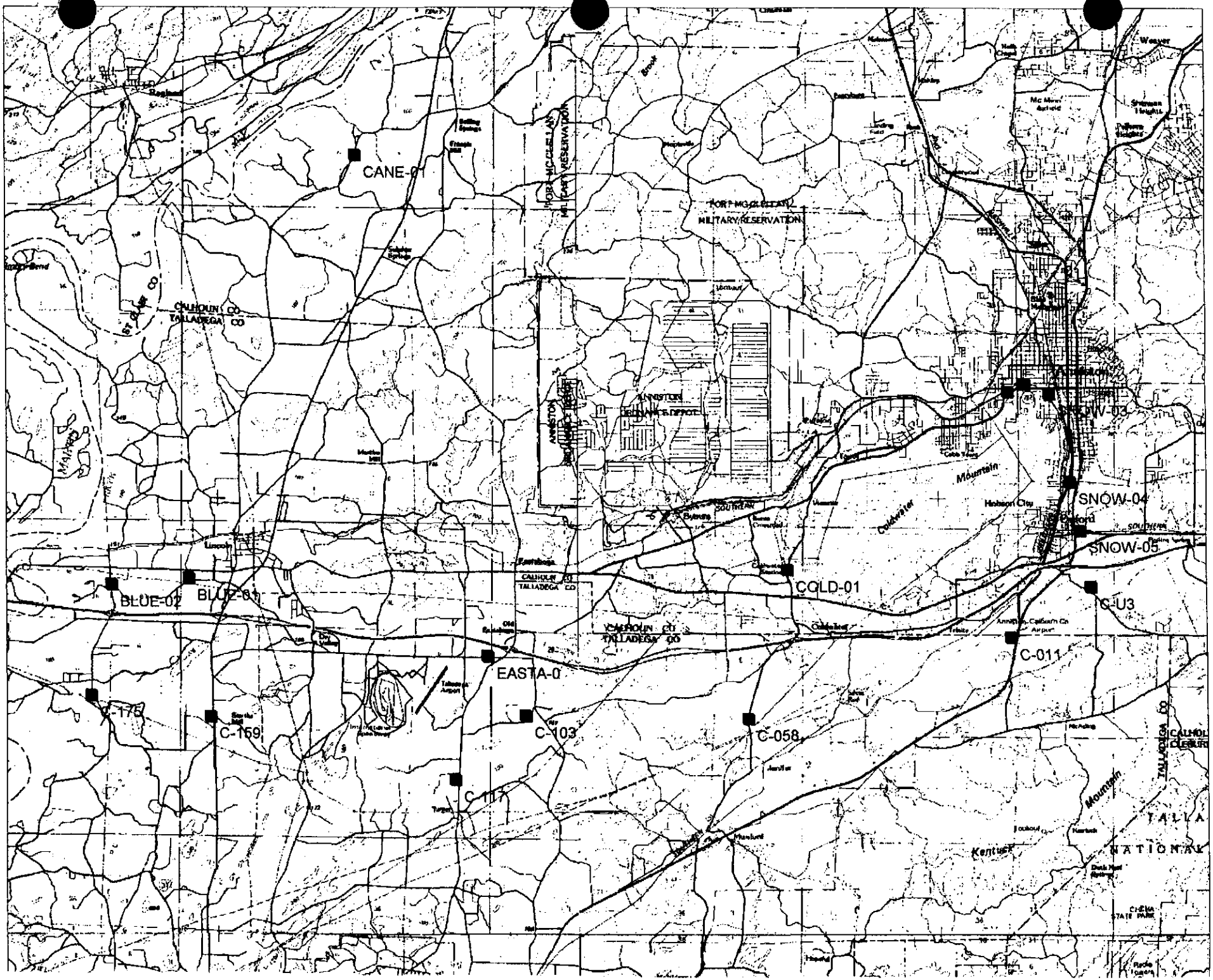


Photo 174: Lake Neely Henry Station 30 BLUE CATFISH N60024

Appendix F


CANE-01
FORT MCCLELLAN MILITARY RESERVATION
ANNISTON ARMY DEPOT
SNOW-03
SNOW-04
SNOW-05
COLD-01
C-U3
C-011
BLUE-02
BLUE-01
EASTA-0
C-175
C-169
C-103
C-058
C-117
CALHOUN CO
TALLADEGA CO

rocks w/ some [illegible]

Arrive 09:25
leave

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SPS

PROJECT: Solutia
STATION: SNOW05
GPS: N 33.60578
W 85.82531

DATE: 7/16/99

Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest | Field/Pasture | Agricultural | Residential | **Commercial** | Industrial | Other: Adjacent to recreation park; hotels & restaurants

Local Watershed Erosion: None | **Moderate** | Heavy (upstream)

Local Watershed NPS Pollution: No Evidence | **Some Potential Sources** | Obvious Sources

Estimated Stream Width (Meters): 1m - 7m

Estimated Stream Depth (Meters): 6"

Riffle (m): 39m | Run (m): 78m | Pool(m): 23 | >140m

High Water Mark (m): 0.5m

Velocity: (run) 1ft./sec

Dam Present: yes **no**

Channelized: **yes** no partly channelized on upstream portions

Canopy Cover: Open | Partly Open | **Partly Shaded** | Shaded

SEDIMENT/SUBSTRATE:

Sediment Odors: **Normal** | Sewage | Petroleum | Chemical | Anaerobic | None | Other:

Sediment Oils: **Absent** | Slight | Moderate | Profuse

Sediment Deposits: Sludge | Sawdust | Paper fibers | Sand | Relict shells | Other: rubbish, tires, broken [illegible] [illegible] Pipe

Are the undersides of the stones that are not deeply embedded black? yes **no**

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock		0%
Boulder	>256mm (10in)	0%
Cobble	64 - 256mm (2.5 - 10 in)	30%
Gravel	2 - 64mm (.1 - 2.5 in)	30%
Sand	.06 - 2mm (gritty)	30%
Silt	.004 - .06mm	10%
Clay	<.004mm (slick)	

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	<10%
Muck / Mud	Black, very fine organic materials (FPOM)	—
Marl	Gray, Shell fragments	—

under stone → numerous ephemeroptera and dragonfly nymphs

run 98+40 = 78
pool 23+
riffle 13+19+7 = 39

78
39
23
140

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, STS

PROJECT: Solutia
STATION SNOW 05
GPS:

DATE: 9/16/99

WATER QUALITY

Temperature (water)	Dissolved Oxygen	pH	Conductivity	Secchi Disk	Other	Instrument(s) Used:
20.5°C	8.62	8.3 pre & post calib. to 7.0	na	bottom 6" deep	Alkalinity 117	

Stream Type: Cold Water (Warm Water)

Water Odors: (Normal) Sewage Petroleum Chemical None Other: _____

Water Surface Oils: Slick Sheen Globs Flocks (None) Bubbles (few)

Turbidity: Clear Slightly Turbid (Turbid) Opaque Water Color: none (tea colored)

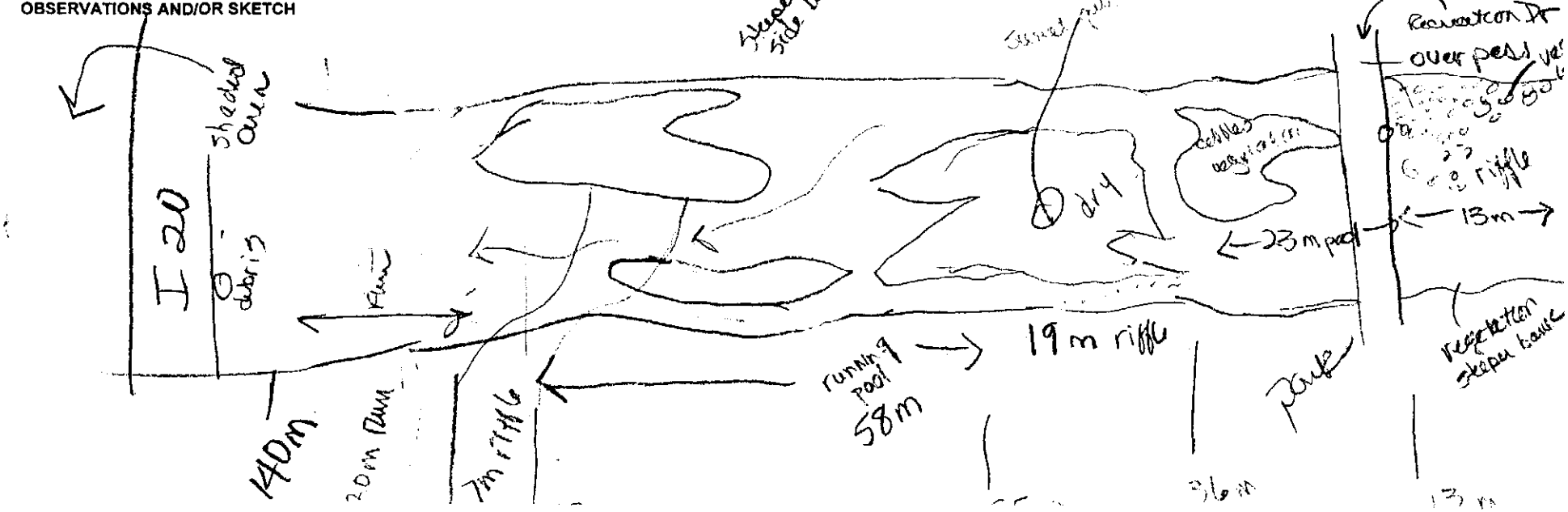
WEATHER CONDITIONS sunny / clear sky windy - (10-15 mph)

11 45 3

PHOTOGRAPH NUMBER video 1st segment starts @ 60 min

S ↔ N

OBSERVATIONS AND/OR SKETCH



TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION: 5NOW05
DATE: 9/16/99
GPS:

(behind OChar Leep)



HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
				10	
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
				7	
3	Flow at rep. Low flow .....< 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ..... (10-20)	0.03 - 0.05 cms (1-2 cfs).... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs).... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs).... 0.03 - cms (<1.0 cfs) ..... (0-5)
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing rifle/runs receive lower scores) (6-10)	Dominated by one velocity/depth category (usually pool). (0 - 3)
				7	
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt:; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
				5	
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. ~~(8-11)~~ (7-4)	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)
				5	

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION: SNOW 05
DATE: 9/16/99
GPS:



HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat.
				10	
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
				5	
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
		10			
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
				5	
	Column Totals	0	0	0	0
	Score	0			

6

Bank stabilized by vegetation

CU3 is just off Friendship Rd.

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SA2

PROJECT: Solutia
STATION CU3
GPS: N33.59847
W85.71639

DATE: 9/16/99
Arrive: 11:45
Leave: 12:05

Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest | (Field/Pasture) | Agricultural | Residential | Commercial | Industrial | Other: "car lot"

Local Watershed Erosion: None | (Moderate) | Heavy

Local Watershed NPS Pollution: No Evidence | (Some Potential Sources) | Obvious Sources

Estimated Stream Width (Meters): 8m

Estimated Stream Depth (Meters): 3m

Riffle (m): 5m

Run (m): 95m

Pool(m):

High Water Mark (m): 1.5m

Velocity: 0.1 ft./sec

Dam Present: yes (no)

Channelized: yes (no)

Canopy Cover: Open | (Partly Open) | Partly Shaded | Shaded

SEDIMENT/SUBSTRATE

Sediment Odors: (Normal) | Sewage | Petroleum | Chemical | Anaerobic | None | Other:

Sediment Oils: (Absent) | Slight | Moderate | Profuse

Sediment Deposits: Sludge | Sawdust | Paper fibers | Sand | Relict shells | Other: none

Are the undersides of the stones that are not deeply embedded black? yes | no | no stones

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock no		
Boulder no	>256mm (10in)	
Cobble no	64 - 256mm (2.5 - 10 in)	
Gravel no	2 - 64mm (.1 - 2.5 in)	
Sand	.06 - 2mm (gritty)	20% fine sand
Silt	.004 - .06mm	20%
Clay	<.004mm (slick)	

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	(Sticks, wood, Coarse Plant Materials (CPOM))	30%
Muck / Mud	Black, very fine organic materials (FPOM)	70%
Marl	Gray, Shell fragments	

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION CU3
GPS:

DATE: 7/16/99

no color change w/ phenyl thaline

WATER QUALITY

Temperature	Dissolved Oxygen	pH	~~Conductivity~~	Secchi Disk	Other	Instrument(s) Used:
21.2	6.2	7.35		bottom	Alkalinity 95	

Stream Type: Cold Water **Warm Water**

Water Odors: **Normal** Sewage Petroleum Chemical None Other: _____

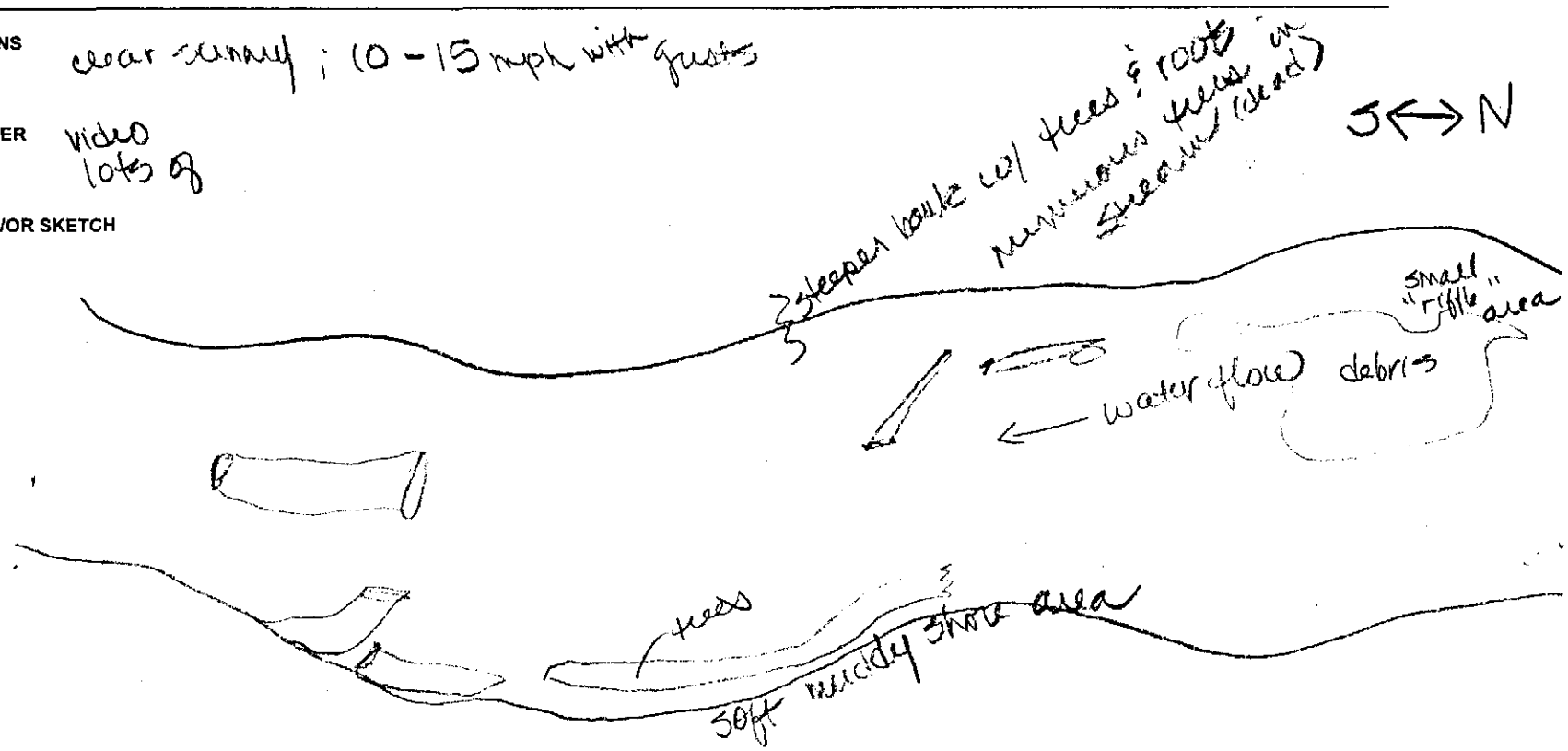
Water Surface Oils: Slick Sheen Globs Flocks **None**

Turbidity: Clear **Slightly Turbid** Turbid Opaque Water Color: _____

WEATHER CONDITIONS clear sunny ; 10 - 15 mph with gusts

PHOTOGRAPH NUMBER video lots of

OBSERVATIONS AND/OR SKETCH



TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION: 4403
DATE: 9/16/99
GPS:



HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
					0
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
					0
3	Flow at rep. Low flow ..... < 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ..... (10-20)	0.03 - 0.05 cms (1-2 cfs).... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs).... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs).... 0.03 - cms (<1.0 cfs) ..... (0-5)
				2	
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing riffle/runs receive lower scores) (6-10)	Dominated by one velocity/depth category (usually pool). (0 - 3)
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
					1
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. (8 - 11)	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)

na

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION: CH3
DATE: 9/16/99
GPS:

[redacted]

HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat. (0-3)
					2
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
					1
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
				4	
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8) numerous trees; some grasses present	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
			6		
	Column Totals	0	0	0	0
	Score	0			

Immed. S. of Hwy 21
area by bridge disturbed
rock lined shores

Divers N
looks g

numerous:
gastropods
corbicula sho
ephemeroptera
fish
megaloptera
flatworm
water beetle

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SAS

PROJECT: Solutia
STATION - C011
GPS: N 33.58436
W 85.84993

DATE: 9/16/99
Arrive: 12:28
leave: 1:00

Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest (Field/Pasture) Agricultural Residential (Commercial) Industrial Other: Airport to one sid field adjacent on other sid

Local Watershed Erosion: None (Moderate) Heavy

Local Watershed NPS Pollution: No Evidence (Some Potential Sources) Obvious Sources airport; field; construction

Estimated Stream Width (Meters): 25m Hawaiian portion 8m Estimated Stream Depth (Meters): 5m Riffle (m) 50m Run (m) 50m Pool(m) 50m

High Water Mark (m) 1m Velocity: 1/2 to 1 m/sec Dam Present: yes (no) Channelized: yes no immed. upstream channelization bank stabilized w/ limestone

Canopy Cover: (Open) Partly Open Partly Shaded Shaded

SEDIMENT/SUBSTRATE

Sediment Odors: Normal Sewage Petroleum Chemical Anaerobic None Other: slight rusty smell like iron

Sediment Oils: (Absent) Slight Moderate Profuse

Sediment Deposits: Sludge Sawdust Paper fibers (Sand) Relict shells Other: _____

Are the undersides of the stones that are not deeply embedded black? yes (no)

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
~~Bedrock~~		
~~Boulder~~	>256mm (10in)	
Cobble	64 - 256mm (2.5 - 10 in)	10%
Gravel	2 - 64mm (.1 - 2.5 in)	50%
Sand	.06 - 2mm (gritty)	20%
Silt	.004 - .06mm	20%
Clay	<.004mm (slick)	

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	10%
Muck / Mud	Black, very fine organic materials (FPOM)	5% pool areas
Marl	Gray, Shell fragments	0%

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:
PROJECT: Solutia
STATION C011
GPS:
DATE: 9/16/09

WATER QUALITY

Temperature	Dissolved Oxygen	pH	Conductivity	Secchi Disk	Other	Instrument(s) Used:
23	8.3	7.2	/	bottom	alkalinity 82	

Stream Type: Cold Water (Warm Water)

Water Odors: Normal (Sewage) Petroleum Chemical None Other: _____

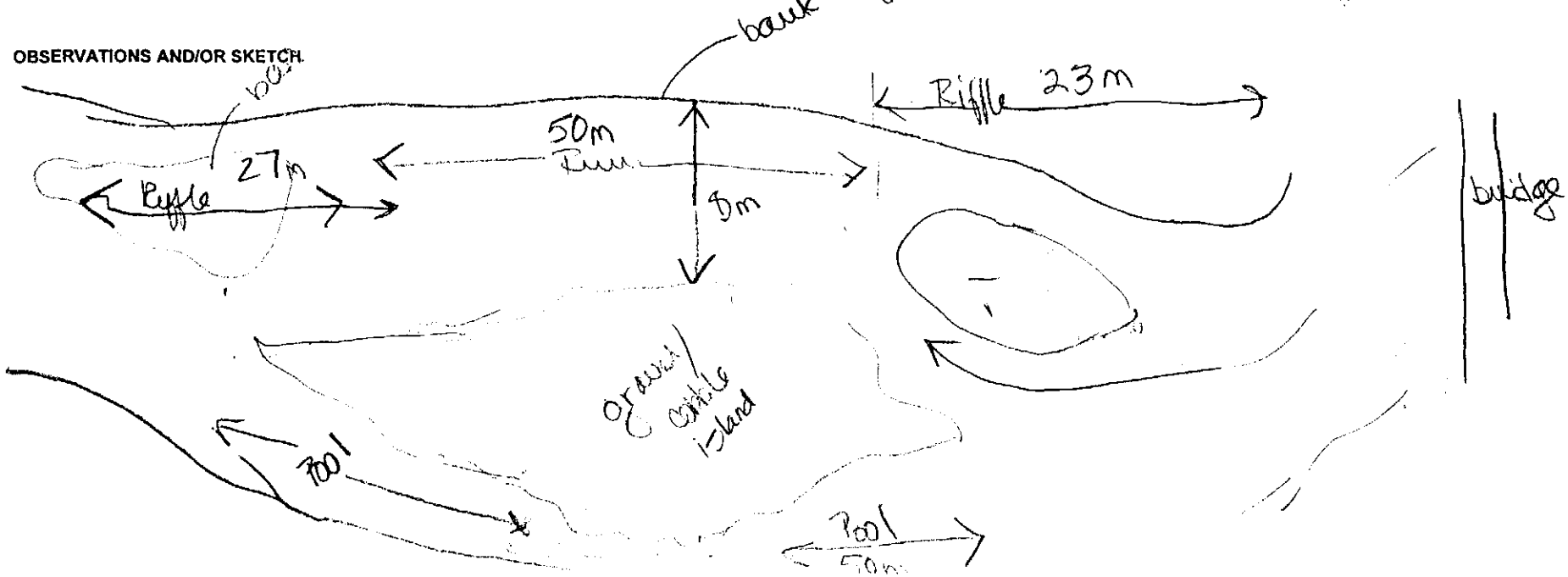
Water Surface Oils: Slick Sheen Globs Flocks (None)

Turbidity: Clear (Slightly Turbid) Turbid Opaque Water Color: _____

WEATHER CONDITIONS clear sunny, windy 10-15mph w/gusts

PHOTOGRAPH NUMBER

OBSERVATIONS AND/OR SKETCH



TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SK2

PROJECT: Solutia
STATION:
DATE: C011 9/16/99
GPS:

HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
			12		
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
			12		
3	Flow at rep. Low flow .....< 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ..... (10-20)	0.03 - 0.05 cms (1-2 cfs).... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs).... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs).... 0.03 - cms (<1.0 cfs) ..... (0-5)
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present.. (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing riffle/runs receive lower scores) (6-10)	Dominated by one velocity/depth category (usually pool). (0 - 3)
			10		
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
				5	
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. (6 - 11)	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)
			10		

TAI Environmental Sciences Inc.

CLIENT:	BB&L	PROJECT:	Solutia
LOCATION:	Anniston, Alabama	STATION:	C011
SAMPLERS:		DATE:	
		GPS:	9/16/99



HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat.
			10		
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
				3	
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8) 50 – 60%	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
			7		
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
				5	
	Column Totals	0	0	0	0

Score 0

organic [illegible] fy wpst
ephemeropteran
snail trails



- took some
Seine sample
- gastropods
- Megalopter
- ephemerote
- Chironomia

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: SCB, CJ, SAS

PROJECT: Solutia
STATION: C058
GPS: N 33.56164
W 85.94136

DATE: 9/16/99
arrive: 2:25pm
depart: 3:05

Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest | Field/Pasture | Agricultural | Rural Residential | Commercial | Industrial | Other: _____

Local Watershed Erosion: None | minimal | Moderate | Heavy

Local Watershed NPS Pollution: No Evidence | Some Potential Sources | Obvious Sources: septic tanks? agricultural

Estimated Stream Width (Meters): 10-15m

Estimated Stream Depth (Meters): 6 ft. (3-6 ft)

Riffle (m): 40m | Run (m): none | Pool(m): 60m

High Water Mark (m): 1m

Velocity: riffle: 1½m/sec. pool: < ½m/sec mostly open

Dam Present: yes | no

Channelized: yes | no

Canopy Cover: Open | Partly Open | Partly Shaded | Shaded

SEDIMENT/SUBSTRATE

Sediment Odors: Normal | Sewage | Petroleum | Chemical | Anaerobic | None | Other: _____

Sediment Oils: Absent | Slight | Moderate | Profuse

Sediment Deposits: Sludge | Sawdust | Paper fibers | Sand | Relict shells | Other: organic silty floc.

Are the undersides of the stones that are not deeply embedded black? yes | no

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock		
Boulder	>256mm (10in)	15%
Cobble	64 - 256mm (2.5 - 10 in)	55%
Gravel	2 - 64mm (.1 - 2.5 in)	25%
Sand	.06 - 2mm (gritty)	
Silt	.004 - .06mm	5%
Clay	<.004mm (slick)	

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	20%
Muck / Mud	Black, very fine organic materials (FPOM)	5%
Marl	Gray, Shell fragments	

concrete pieces on shore

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION C058
GPS:

DATE: 9/16/99

WATER QUALITY

Temperature	Dissolved Oxygen	pH	Conductivity	Secchi Disk	Other	Instrument(s) Used:
24°C	10.8	7.4	/	bottom	Alkalinity 92	

Stream Type: Cold Water (Warm Water)

Water Odors: (Normal) Sewage Petroleum Chemical None Other: _____

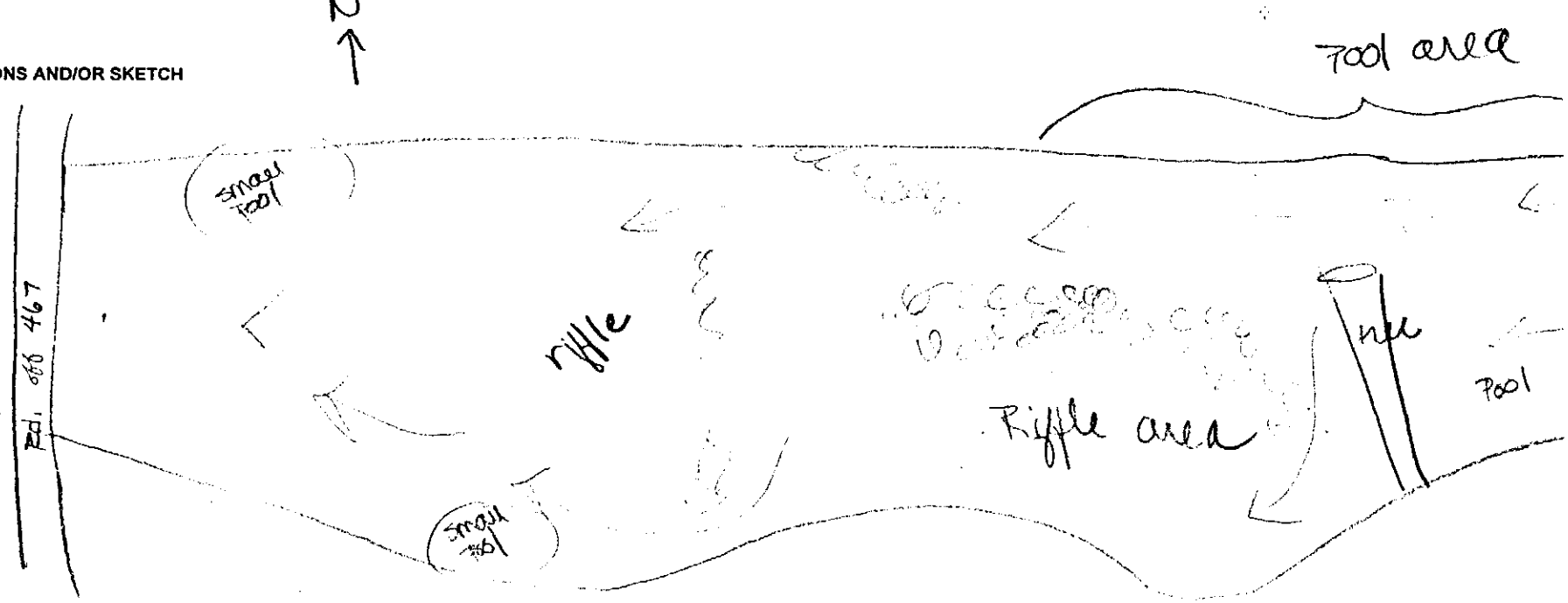
Water Surface Oils: Slick Sheen Globs Flocks (None)

Turbidity: Clear (Slightly Turbid) Turbid Opaque Water Color: none

WEATHER CONDITIONS clear, sunny windy (wind less than 4mi)

PHOTOGRAPH NUMBER

OBSERVATIONS AND/OR SKETCH



TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION: C058
DATE: 9/16/99
GPS:

[redacted]

HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
		18			
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
		18			
3	Flow at rep. Low flow ..... < 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ..... (10-20)	0.03 - 0.05 cms (1-2 cfs).... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs).... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs).... 0.03 - cms (<1.0 cfs) ..... (0-5)
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing rifle/runs receive lower scores) (6-10)	Dominated by one velocity/depth category (usually pool). (0 - 3)
		18			
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt:; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
			9		
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. (8 - 11)	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)
		13			

TAI Environmental Sciences Inc.

CLIENT:	BB&L	PROJECT:	Solutia
LOCATION:	Anniston, Alabama	STATION: C058	
SAMPLERS:		DATE: 9/16/99	
		GPS:	



HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat.
		13			
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
			7		
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
		9			
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
			8		
	Column Totals	0	0	0	0
	Score	0			

- Megalop[illegible]n * photo

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SAS

PROJECT: Solutia
STATION C103
GPS: N33.56156 W86.01666

DATE: 9/16/99
Arrived 3:25
Leave 3:50

Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use: Rural

Forest | Field/Pasture | (Agricultural) | Residential | Commercial | Industrial | Other: - cows - forested

Local Watershed Erosion: None | (Moderate) | Heavy

Local Watershed NPS Pollution: No Evidence | (Some Potential Sources) livestock | Obvious Sources

Estimated Stream Width (Meters): 20 m

Estimated Stream Depth (Meters): 6"-12"

Riffle (m): 40 m

Run (m): 60 m

Pool(m): _____

High Water Mark (m): _____

Velocity: 0.75-1 ft/sec

Dam Present: yes (no)

Channelized: yes (no)

Canopy Cover: Open | (Partly Open) mostly shaded | Partly Shaded | Shaded

SEDIMENT/SUBSTRATE

Sediment Odors: (Normal) | Sewage | Petroleum | Chemical | Anaerobic | None | Other: _____

Sediment Oils: (Absent) | Slight | Moderate | Profuse

Sediment Deposits: Sludge | Sawdust | Paper-fibers | Sand | Relict shells | Other: silty deposits

Are the undersides of the stones that are not deeply embedded black? yes (no)

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock		
Boulder	>256mm (10in)	5 %
Cobble	64 - 256mm (2.5 - 10 in)	
Gravel	2 - 64mm (.1 - 2.5 in)	70 %
Sand	.06 - 2mm (gritty)	20 %
Silt	.004 - .06mm	5 %
Clay	<.004mm (slick)	

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	25 %
Muck / Mud	Black, very fine organic materials (FPOM)	<5 %
Marl	Gray, Shell fragments	

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION C103
GPS:

DATE: 9/16/99

WATER QUALITY

Temperature	Dissolved Oxygen	pH	Conductivity	Secchi Disk	Other	Instrument(s) Used:
24 °C	10.5	7.8	/	bottom	98	

Stream Type: Cold Water (Warm Water)

Water Odors: (Normal) Sewage Petroleum Chemical None Other: _____

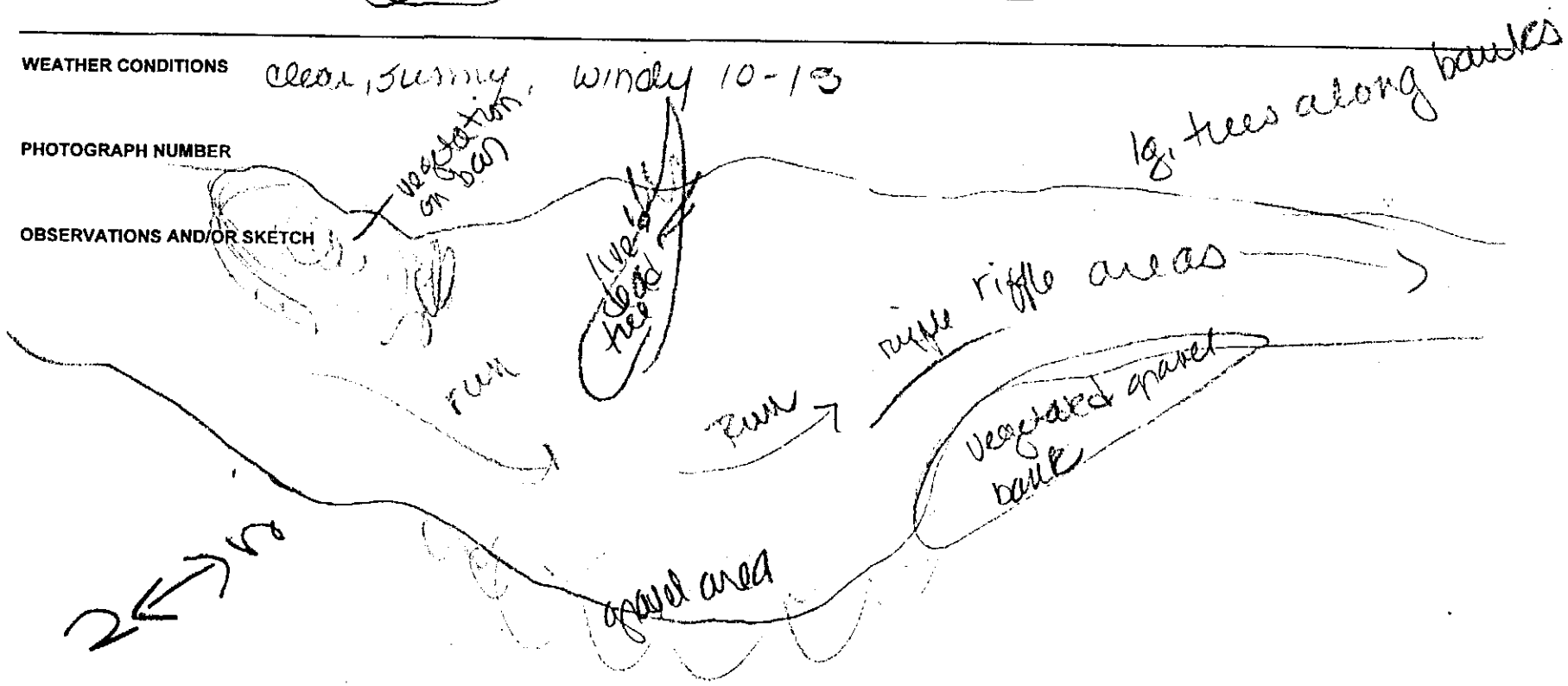
Water Surface Oils: Slick Sheen Globs Flocks (None)

Turbidity: Clear (Slightly Turbid) Turbid Opaque Water Color: _____

WEATHER CONDITIONS clear, sunny, windy 10-15

PHOTOGRAPH NUMBER

OBSERVATIONS AND/OR SKETCH



TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: C103
STATION:
DATE: 4/16/99
GPS:

Solutia

[redacted]

HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
		18			
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
		17			
3	Flow at rep. Low flow .....< 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ..... (10-20)	0.03 - 0.05 cms (1-2 cfs).... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs).... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs).... 0.03 - cms (<1.0 cfs) ..... (0-5)
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing rifle/runs receive lower scores) (6-10)	Dominated by one velocity/depth category (usually pool). (0 - 3)
			9		
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars; pools partially filled with silt:; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
			-	6	
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. (8 - 11)	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)
			10		

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION: C103
DATE: 9/16/99
GPS:



HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat.
			8		
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
				A	
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
				5	
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
			6		
	Column Totals	0	0	0	0

Score 0

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SIS

PROJECT: Solutia
STATION: C117
GPS: N 33.94446
W 86.04120

DATE: 9/16/99
arrive 4:20
leave 1:42

Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest | (Field/Pasture) | (Agricultural) | Residential | Commercial | Industrial | Other: cotton fields, old pastures, some pines in water

Local Watershed Erosion: None | (Moderate) | Heavy

Local Watershed NPS Pollution: No Evidence | Some Potential Sources | (Obvious Sources)

Estimated Stream Width (Meters): 25 m

Estimated Stream Depth (Meters): 2 ft.

Riffle (m): 30m

Run (m): 70 m

Pool(m): not really

High Water Mark (m): 1.5m

Velocity: 1.5-2 ft/sec.

Dam Present: yes | (no)

Channelized: yes | (no)

Canopy Cover: (Open) | Partly Open | Partly Shaded | Shaded

SEDIMENT/SUBSTRATE:

Sediment Odors: (Normal) | Sewage | Petroleum | Chemical | Anaerobic | None | Other:

Sediment Oils: (Absent) | Slight | Moderate | Profuse

Sediment Deposits: Sludge | Sawdust | Paper fibers | Sand | Relict shells | Other: none

Are the undersides of the stones that are not deeply embedded black? yes | (no)

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock		
Boulder	>256mm (10in)	5 %
Cobble	64 - 256mm (2.5 - 10 in)	30 %
Grave	2 - 64mm (.1 - 2.5 in)	40 %
Sand	.06 - 2mm (gritty)	15 %
Silt	.004 - .06mm	2 %
Clay	<.004mm (slick)	2 %

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	
Muck / Mud	Black, very fine organic materials (FPOM)	
Marl	Gray, Shell fragments	

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECS CJ SAS

PROJECT: Solutia
STATION C117
GPS:

DATE: 9/16/99

WATER QUALITY

Temperature	Dissolved Oxygen	pH	Conductivity	Secchi Disk	Other	Instrument(s) Used:
23°C	10.1	7.2	/	bottom	alkalinity 94	

Stream Type: Cold Water (Warm Water)

Water Odors: (Normal) Sewage Petroleum Chemical None Other: _____

Water Surface Oils: Slick Sheen Globs Flocks (None)

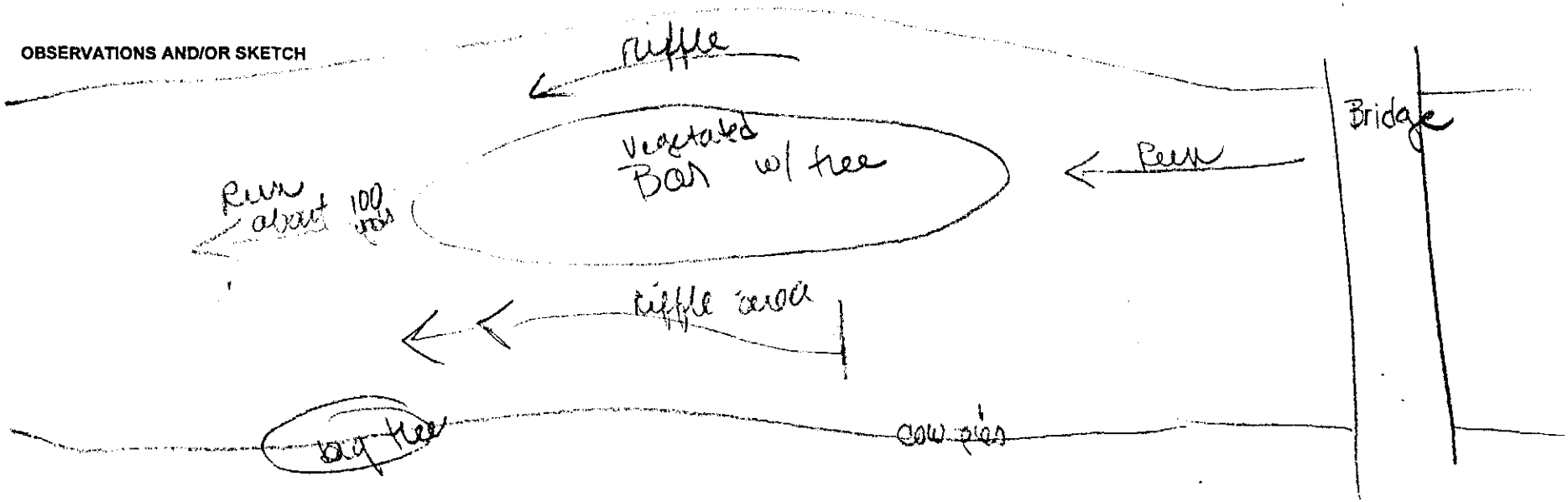
Turbidity: (Clear) (Slightly Turbid) Turbid Opaque Water Color: _____

almost clear

WEATHER CONDITIONS

PHOTOGRAPH NUMBER

OBSERVATIONS AND/OR SKETCH



TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: FMB CLT MAR

PROJECT: Solutia
STATION: C117
DATE: 9/16/99
GPS:

[redacted]

HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
			14		
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
			14		
3	Flow at rep. Low flow .....< 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ..... (10-20)	0.03 - 0.05 cms (1-2 cfs)....0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs)....0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs)....0.03 - cms (<1.0 cfs) ..... (0-5)
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing riffle/runs receive lower scores) (6-10)	Dominated by one velocity/depth category (usually pool). (0 - 3)
				8	
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
			10		
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. (6 - 11)	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)
			10		

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SG

PROJECT: Solutia
STATION: C117
DATE: 9/16/99
GPS:

[redacted]

HABITAT ASSESSMENT FIELD DATA

70/30

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat. (0-3)
				5	
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
				4	
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
		9			
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
				5	
	Column Totals	0	0	0	0

Score: 0

- 5m
- 1 lg. fish
- shotgun shells
- lots of gastropod
- ephemeropteras
- some bivalves (corbicula)

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SS

PROJECT: Solutia
STATION Easta0
GPS: N 33.57946
W 86.03031

DATE: 9/16/99
Arrive: 5:12
Depart: 5:40

Physical Characterization

RIPARIAN ZONE / INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest | Field/Pasture | Agricultural | Residential | Commercial | Industrial | Other: Rural

Local Watershed Erosion: (None) | Moderate | Heavy

Local Watershed NPS Pollution: No Evidence | (Some Potential Sources) Road runoff | Obvious Sources

Estimated Stream Width (Meters): 3-6 m

Estimated Stream Depth (Meters): 6"-1ft

Riffle (m): 10 | Run (m): 7001/Run - 90m | Pool(m):

High Water Mark (m): 2 ft.

Velocity: riffle: 1ft/sec; run/pool: 1 inch/sec

Dam Present: yes (no)

Channelized: yes (no)

Canopy Cover: Open | Partly Open | Partly Shaded | (Shaded)

SEDIMENT / SUBSTRATE

Sediment Odors: (Normal) | Sewage | Petroleum | Chemical | Anaerobic | None | Other:

Sediment Oils: (Absent) | Slight | Moderate | Profuse

Sediment Deposits: Sludge | Sawdust | Paper fibers | Sand | Relict shells | Other: None

Are the undersides of the stones that are not deeply embedded black? yes (no)

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock		
Boulder	>256mm (10in)	1%
Cobble	64 - 256mm (2.5 - 10 in)	20%
Grave	2 - 64mm (.1 - 2.5 in)	30%
Sand	.06 - 2mm (gritty)	9%
Silt	.004 - .06mm	10%
Clay	<.004mm (slick)	

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	50%
Muck / Mud	Black, very fine organic materials (FPOM)	
Marl	Gray, Shell fragments	

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SK

PROJECT: Solutia
STATION EC-HA0
GPS:

DATE: 9/16/99

WATER QUALITY

Temperature 21°C | Dissolved Oxygen 8.9 | pH meter died | Conductivity / | Secchi Disk bottom | Other alkalinity 203 | Instrument(s) Used:

Stream Type: Cold Water (Warm Water)

Water Odors: (Normal) Sewage Petroleum Chemical None Other:

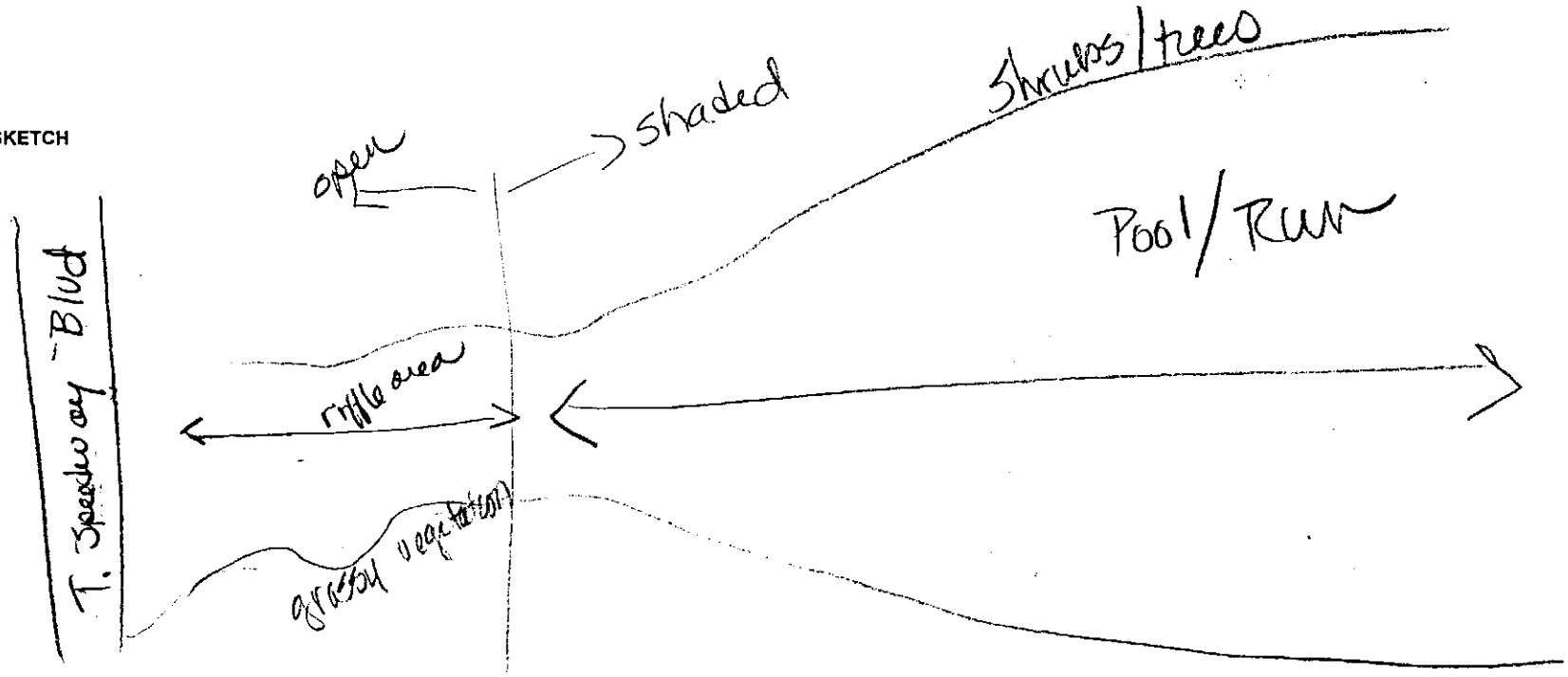
Water Surface Oils: Slick Sheen Globs Flocks (None)

Turbidity: (Clear) Slightly Turbid Turbid Opaque Water Color: none

WEATHER CONDITIONS clear, sunny, windy (less windy than AM)

PHOTOGRAPH NUMBER

OBSERVATIONS AND/OR SKETCH



TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, FRS

PROJECT: Solutia
STATION: Control
DATE: 9/16/97
GPS:



HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
			15		
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
			12		
3	Flow at rep. Low flow .....< 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ~~(16-20)~~ (20 - 16)	0.03 - 0.05 cms (1-2 cfs)..... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs)..... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs)..... 0.03 - cms (<1.0 cfs) ..... (0-5)
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing riffle/runs receive lower scores) (6-10) 6-8	Dominated by one velocity/depth category (usually pool). (0 - 5)
				6	
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
				5	
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. ~~(8-11)~~ (7 - 4)	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)
				9 6	

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, JKS

PROJECT: Solutia
STATION: Easta O
DATE: 9/16/99
GPS:

HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat. (0-3)
				5	
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
				3	
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
		9			
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
			8		
	Column Totals	0	0	0	0

Score 0

* lotic environment *
* not a stream now *

→ boat ramp
- soft shell turtle
- fish
- swallow nests on bridge
- pigeons



PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SAQ

PROJECT: Solutia
STATION C159
GPS: N 33.56149
W86.12707

DATE: 9/16/99
arrive: 5:50
leave 6:07

Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest | Field/Pasture | (Agricultural) | Residential | Commercial | Industrial | Other: Recreational (Boat ramp)

Local Watershed Erosion: None | Moderate | Heavy

Local Watershed NPS Pollution: No Evidence | Some Potential Sources | (Obvious Sources) Pasture roadway residential

Estimated Stream Width (Meters): ~~X~~ (@ 5m ok map)

Estimated Stream Depth (Meters): Riffle (m) / Run (m) / Pool(m) / Lake segment

High Water Mark (m) 1 1/2 ft.

Velocity: na

Dam Present: yes (no)

Channelized: yes (no)

Canopy Cover: (Open) | Partly Open | Partly Shaded | Shaded

SEDIMENT/SUBSTRATE

Sediment Odors: (Normal) | Sewage | Petroleum | Chemical | Anaerobic | None | Other:

Sediment Oils: (Absent) | Slight | Moderate | Profuse

Sediment Deposits: Sludge | Sawdust | Paper fibers | Sand | Relict shells | Other: some fill deposits in areas dirt/gravel

Are the undersides of the stones that are not deeply embedded black? yes (no)

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock		
Boulder	>256mm (10in)	
Cobble	64 - 256mm (2.5 - 10 in)	
Gravel	2 - 64mm (.1 - 2.5 in)	
Sand	.06 - 2mm (gritty)	
Silt	.004 - .06mm	50% ?
Clay	<.004mm (slick)	50% ?

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	10%
Muck / Mud	Black, very fine organic materials (FPOM)	
Marl	Gray, Shell fragments	

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SAG

PROJECT: Solutia
STATION C159
GPS:

DATE: 9/16/99

WATER QUALITY

Temperature	Dissolved Oxygen	pH	Conductivity	Secchi Disk	Other	Instrument(s) Used:
25°C	11.2	/	/	2 ft.	alkalinity 101	

Stream Type: Cold Water (Warm Water)

Water Odors: (Normal) Sewage Petroleum Chemical None Other: _____

Water Surface Oils: Slick Sheen Globs Flocks (None)

Turbidity: Clear Slightly Turbid (Turbid) Opaque Water Color: _____

WEATHER CONDITIONS

PHOTOGRAPH NUMBER

OBSERVATIONS AND/OR SKETCH

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CS, [illegible]

PROJECT: Solutia
STATION: C159
DATE: 9/16/99
GPS:



HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover na	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
2	Embeddedness na	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
3	Flow at rep. Low flow .....< 0.15 cms (5cfs) no	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ..... (10-20)	0.03 - 0.05 cms (1-2 cfs).... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs).... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs).... 0.03 - cms (<1.0 cfs) ..... (0-5)
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing rifle/runs receive lower scores) (6-10)	Dominated by one velocity/depth category (usually pool). (0 - 3)
4	Channel Alteration no	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt:; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
5	Bottom Scouring and Deposition na	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. (8 - 11)	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SAF2

PROJECT: Solutia
STATION: C159
DATE: 9/16/99
GPS:



HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width) n.a.	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat.
7	Bank Stability n.a	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
8	Bank Vegetation stability na	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
9	Streamside Cover na	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
	Column Totals	0	0	0	0

Score 0

need boat Gr clearance

Right on old [illegible]
1st Right Spring Hill R
⊥ take R. Stemley
Pasture area

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SA2

PROJECT: Solutia
STATION C175
GPS:

DATE: 9/16/99



Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest | Field/Pasture | Agricultural | Residential | Commercial | Industrial | Other: _____

Local Watershed Erosion: ? | None | Moderate | Heavy

Local Watershed NPS Pollution: | No Evidence | Some Potential Sources | Obvious Sources

Estimated Stream Width (Meters): >100m ?

Estimated Stream Depth (Meters): Riffle (m) / Run (m) / Pool (m) / Lotic

High Water Mark (m) _____ Velocity: _____ Dam Present: yes no Channelized: yes no

Canopy Cover: Open | Partly Open | Partly Shaded | Shaded

SEDIMENT/SUBSTRATE

Sediment Odors: Normal | Sewage | Petroleum | Chemical | Anaerobic | None | Other: _____

Sediment Oils: Absent | Slight | Moderate | Profuse

need boat

Sediment Deposits: Sludge | Sawdust | Paper fibers | Sand | Relict shells | Other: _____

Are the undersides of the stones that are not deeply embedded black? yes no

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock		
Boulder	>256mm (10in)	
Cobble	64 - 256mm (2.5 - 10 in)	
Grave	2 - 64mm (.1 - 2.5 in)	
Sand	.06 - 2mm (gritty)	
Silt	.004 - .06mm	
Clay	<.004mm (slick)	

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	
Muck / Mud	Black, very fine organic materials (FPOM)	
Marl	Gray, Shell fragments	

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: EOB, DS, JBS

PROJECT: Solutia
STATION C175
GPS:

DATE: 9/16/99

WATER QUALITY

Temperature	Dissolved Oxygen	pH	Conductivity	Secchi Disk	Other	Instrument(s) Used:

Stream Type: Cold Water (Warm Water)

Water Odors: Normal Sewage Petroleum Chemical None Other: _____

Water Surface Oils: *Slick* *Sheen* *Globs* *Flocks* *None*

Turbidity: Clear Slightly Turbid (Turbid) Opaque Water Color: _____

WEATHER CONDITIONS

PHOTOGRAPH NUMBER

OBSERVATIONS AND/OR SKETCH

This is lotic sheet n/a.

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: BCB, CT, SAS

PROJECT: Solutia
STATION: C175
DATE: 9/16/99
GPS:



HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
3	Flow at rep. Low flow .....< 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ..... (10-20)	0.03 - 0.05 cms (1-2 cfs).... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs).... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs).... 0.03 - cms (<1.0 cfs) ..... (0-5)
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (6-11)	Only 2 of the 4 habitat categories present (missing rifle/runs receive lower scores) (6-10)	Dominated by one velocity/depth category (usually pool). (0 - 3)
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. (8 - 11)	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)

TAI Environmental Sciences Inc.

CLIENT:	BB&L	PROJECT:	Solutia
LOCATION:	Anniston, Alabama	STATION:	
SAMPLERS:		DATE:	
		GPS:	



HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat.
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and *or mine tailings*. (0-2)
	Column Totals	0	0	0	0

Score 0

Low turbidity in all cross sections

Some algae along edges
Snails
Corbicula
Water skippers

calibrated pH 7.
Cyber Scan pH 10 - OK
Temp 24°C
8.7 calibrated to

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, SAC, John Schell

PROJECT: Solutia
STATION BLUE 01
GPS: N 33.602 37 W 85.834 90

marked "002" at 1615

DATE: 9/20/99
Arrive @ 3:55 pm
Start ~ 4:20

Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest | Field/Pasture | (Agricultural) | Residential | Commercial | Industrial | Other: Rural

Local Watershed Erosion: None | Moderate | Heavy

Local Watershed NPS Pollution: No Evidence | Some Potential Sources | (Obvious Sources) livestock; pasture

Estimated Stream Width (Meters): 1-7m (pools)

Estimated Stream Depth (Meters): 6" - 3' (rock)

Riffle (m): 15 | Run (m): 40 | Pool (m): 45m/pool/run

High Water Mark (m): 1.5m

Velocity: 2 ft/sec.

Dam Present: yes (no)

Channelized: yes (no)

Pools are deeper than

Canopy Cover: Open | Partly Open | (Partly Shaded) | Shaded

SEDIMENT/SUBSTRATE

Sediment Odors: (Normal) | Sewage | Petroleum | Chemical | Anaerobic | None | Other:

Sediment Oils: (Absent) | Slight | Moderate | Profuse

Sediment Deposits: Sludge | Sawdust | Paper fibers | Sand | Relict shells | Other: none

Are the undersides of the stones that are not deeply embedded black? yes (no)

Inorganic Substrate Components			Organic Substrate Components		
Substrate Type	Diameter	Percent Composition in Sampling Area	Substrate Type	Characteristics	Percent Composition in Sampling Area
Bedrock		10%	Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	
Boulder	>256mm (10in)				
Cobble	64 - 256mm (2.5 - 10 in)	40%			
Grave	2 - 64mm (.1 - 2.5 in)	10%	Muck / Mud	Black, very fine organic materials (FPOM)	
Sand	.06 - 2mm (gritty)				
Silt	.004 - .06mm				
Clay	<.004mm (slick)		Marl	Gray, Shell fragments	

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, SAS Johns

PROJECT: Solutia
STATION: Blue 01
GPS:

DATE: 9/20/99

WATER QUALITY

Temperature	Dissolved Oxygen	pH	Conductivity	Secchi Disk	Other	Instrument(s) Used:
21.8°C	6.7	8.6	~~/~~	bottom	no color change; ~~pH~~ alkalinity 132	

Stream Type: Cold Water **Warm Water**

Water Odors: **Normal** Sewage Petroleum Chemical None Other: _____

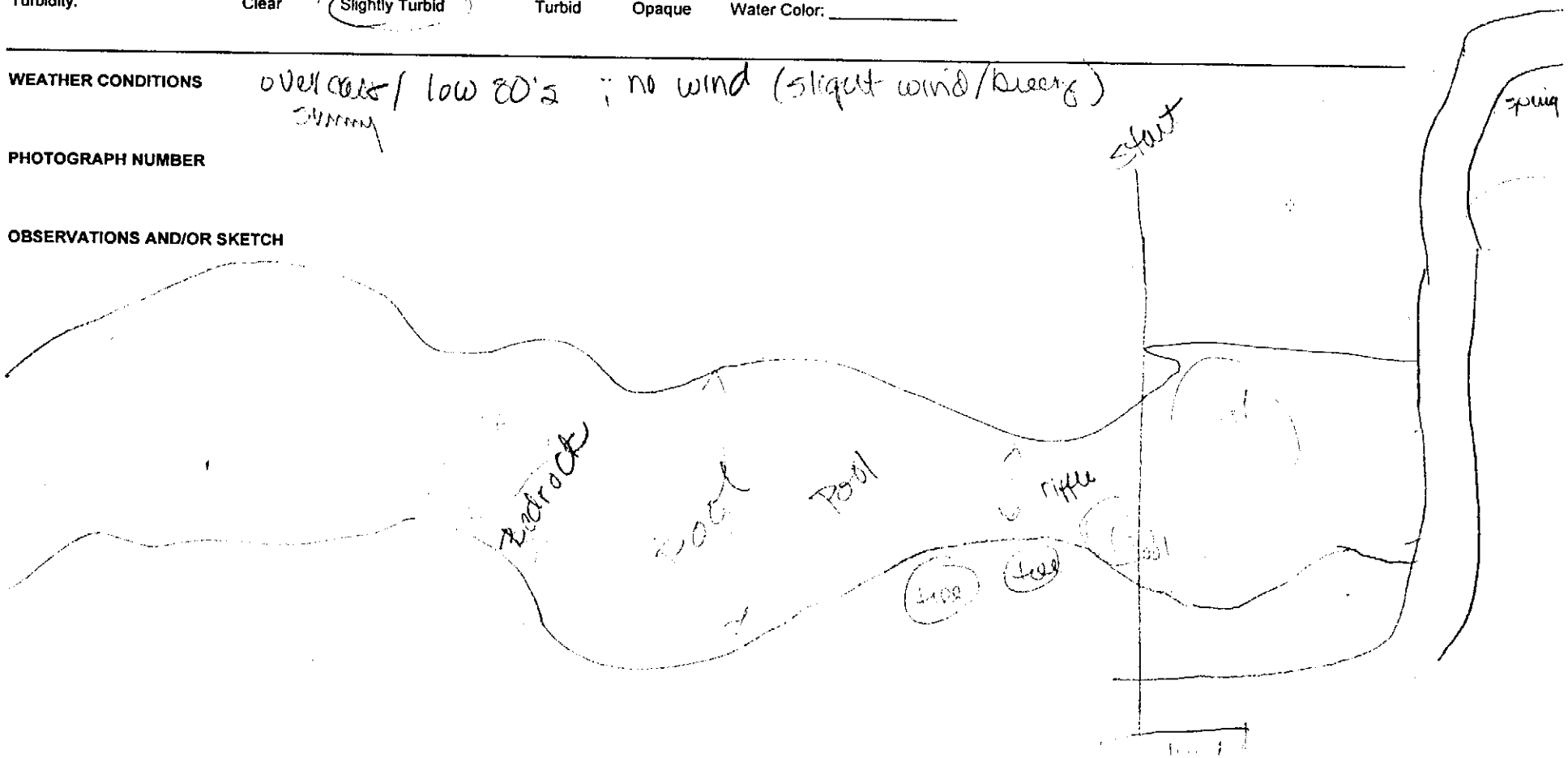
Water Surface Oils: Slick Sheen Globs Flocks **None**

Turbidity: Clear **Slightly Turbid** Turbid Opaque Water Color: _____

WEATHER CONDITIONS overcast / low 80's ; no wind (slight wind/breezy)
sunny

PHOTOGRAPH NUMBER

OBSERVATIONS AND/OR SKETCH



TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: SCB, JAG

PROJECT: Solutia
STATION: Blue 01
DATE: 9/20/99
GPS:



HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
				8	
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
					5
3	Flow at rep. Low flow .....< 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs) ..... (10-20)	0.03 - 0.05 cms (1-2 cfs).... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs).... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs).... 0.03 - cms (<1.0 cfs) ..... (0-5)
				Or 6	
	..... Or ..... >0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... ~~(16-20)~~ 12 - 15	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing rifle/runs receive lower scores) ~~(6-10)~~ (4 - 7)	Dominated by one velocity/depth category (usually pool). (0 - 3)
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (8-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
				4	
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (8 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. ~~(8-11)~~ 4 - 7	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)
				5	

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: [redacted]

PROJECT: Solutia
STATION: Blue Cr
DATE: 9/20/99
GPS:

HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat.
				7	
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
				7	
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
			10		
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
			8		
	Column Totals	0	0	0	0

Score 0

small than o[illegible]s
meanders (2nd order)
bends

- 78 [illegible]
- Blue Eye [illegible]
- take [illegible]

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, CJ, SAS

PROJECT: Solutia
STATION Blue 01
GPS: N 33.60123
W 86.13472

DATE: 9/16/99
Arrive 6:37
Leave 6:55



* Do not w[illegible] take readin[illegible] from ne[illegible] one or[illegible]

Physical Characterization

RIPARIAN ZONE/INSTREAM FEATURES

Predominant Surrounding Land Use:

Forest Field/Pasture **Agricultural** **Residential** Commercial Industrial Other: Rural

Local Watershed Erosion: **None** Moderate Heavy

Local Watershed NPS Pollution: No Evidence **Some Potential Sources** Obvious Sources

Estimated Stream Width (Meters): 3m

Estimated Stream Depth (Meters): 6-8"

Riffle (m) 2m Run (m) 88m Pool(m) 10m

High Water Mark (m) 1 1/2 ft.

Velocity: riffle: 1 ft/sec run: 6"/sec

Dam Present: yes **no**

Channelized: yes **no**

Canopy Cover: Open Partly Open Partly Shaded **Shaded**

SEDIMENT/SUBSTRATE

Sediment Odors: **Normal** Sewage Petroleum Chemical Anaerobic None Other:

Sediment Oils: **Absent** Slight Moderate Profuse

Sediment Deposits: Sludge Sawdust Paper fibers Sand Relict shells Other: none

Are the undersides of the stones that are not deeply embedded black? yes **no**

Inorganic Substrate Components

Substrate Type	Diameter	Percent Composition in Sampling Area
Bedrock		30%
Boulder	>256mm (10in)	5%
Cobble	64 - 256mm (2.5 - 10 in)	2%
Grave	2 - 64mm (.1 - 2.5 in)	30%
Sand	.06 - 2mm (gritty)	33%
Silt	.004 - .06mm	
Clay	<.004mm (slick)	

Organic Substrate Components

Substrate Type	Characteristics	Percent Composition in Sampling Area
Detritus	Sticks, wood, Coarse Plant Materials (CPOM)	40% if no algae
Muck / Mud	Black, very fine organic materials (FPOM)	10%
Marl	Gray, Shell fragments	

* 1st algae present 50%

PHYSICAL CHARACTERISTICS / WATER QUALITY DATA SHEET

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS: ECB, SPG, CJ

PROJECT: Solutia
STATION Blue 01
GPS:

DATE: 9/16/99

WATER QUALITY

Temperature	Dissolved Oxygen	pH	Conductivity	Secchi Disk	Other	Instrument(s) Used:
17°C	4.5	/	/	bottom	159	

Stream Type: Cold Water (Warm Water)

Water Odors: (Normal) Sewage Petroleum Chemical None Other: _____

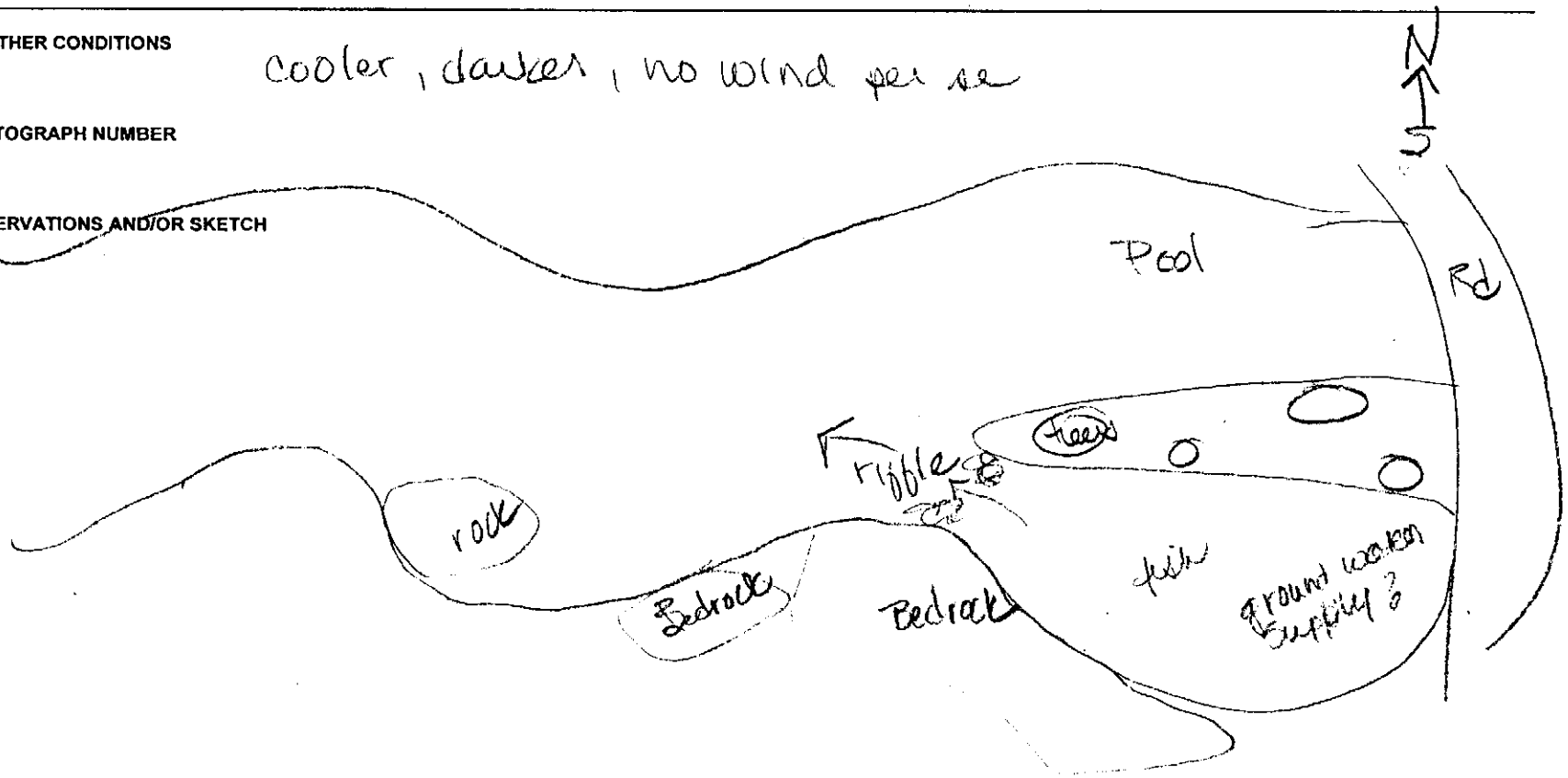
Water Surface Oils: Slick Sheen Globs Flocks (None)

Turbidity: (Clear) Slightly Turbid Turbid Opaque Water Color: _____

WEATHER CONDITIONS cooler, darker, no wind per se

PHOTOGRAPH NUMBER

OBSERVATIONS AND/OR SKETCH



TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION: Blue 01
DATE: 9/16/99
GPS:

[redacted]

HABITAT ASSESSMENT FIELD DATA

	Habitat Parameters	Category: Excellent	Good	Fair	Poor
1	Bottom Substrate and Available Cover	Greater than 50% rubble, gravel, submerged logs, undercut banks or other stable habitat (16-20)	10% - 50% rubble, gravel or other stable habitat. Adequate habitat. (11-15)	10% - 30% rubble, gravel or other stable habitat. Habitat availability less than desirable. (6 - 10)	Less than 10% rubble, gravel or other stable habitat. Lack of Habitat is obvious. (0 - 5)
			14		
2	Embeddedness	Gravel, cobble, and boulder particles are between 0-25% surrounded by fine sediment.. (16-20)	Gravel, cobble, and boulder particles are between 25%-50% surrounded by fine sediment.. (11-15)	Gravel, cobble, and boulder particles are between 50% - 75% surrounded by fine sediment..... (5-10)	Gravel, cobble, and boulder particles are between 75% - 100% surrounded by fine sediment.. (0-5)
			15		
3	Flow at rep. Low flow .....< 0.15 cms (5cfs)	Cold > 0.05 cms (2cfs)..... Warm > 0.15 cms (5 cfs)..... (16-20) 16-20	0.03 - 0.05 cms (1-2 cfs).... 0.05-0.15 cms (2-5 cfs) ..... (11-15)	0.01 - 0.03 cms (1-2 cfs).... 0.03-0.05 cms (2-5 cfs) ..... (6-10)	< 0.01 - cms (0.5 cfs).... 0.03 - cms (<1.0 cfs) ..... (0-5)
			12		
	.....Or .....>0.15 cms (5 cfs) velocity/depth	Slow (< 0.3 m/s), deep (>0.5 m); slow, shallow (< 0.5 m); fast(>0.3 m/s), deep; fast, shallow habitats all present... (16-20)	Only 3 of the 4 habitat categories present, mostly from coarse gravel and/or some channelization present. (8-11)	Only 2 of the 4 habitat categories present (missing riffle/runs receive lower scores) (6-10)	Dominated by one velocity/depth category (usually pool). (0 - 3)
4	Channel Alteration	Little or no enlargement of islands or point bars and/or no channelization (12-15)	Some new increases in bar formation, mostly from coarse gravel; and/or some channelization present. (6-11)	Moderate deposition of new gravel coarse sand on old new bars: pools partially filled with silt; and/or embankments on both banks. (4 -7)	Heavy deposits of fine materials; increased bar development; most pools filled with silt and or extensive channelization. (0-3)
		14			
5	Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition (12-15)	5%-10% affected. Scour and constrictions and where grades steepen; some deposition in pools. (6 - 11)	30% - 50% affected. Scour at constrictions and where grades steepen. Some deposition in pools. (6-11) 4 - 7	More than 50% of the bottom changing. Nearly year long. Pools almost absent due to deposition. Only large rocks in riffle exposed. (0 - 3)
			8		

TAI Environmental Sciences Inc.

CLIENT: BB&L
LOCATION: Anniston, Alabama
SAMPLERS:

PROJECT: Solutia
STATION: Blue 01
DATE:
GPS: 9/16/99

HABITAT ASSESSMENT FIELD DATA

6	Pool/Riffle, run/bend ratio (distance between riffles divided by stream width)	5 - 7 . Variety of habitat, deep riffles and pools. (12-15)	7 - 15 . Adequate depth in pools and riffles, bends provide habitat. (8 - 11)	15 - 25. Occasional riffle or bend. Bottom contours provide some habitat. (4 - 7)	> 25. Essentially a straight stream, generally all flat water or shallow riffle. Poor habitat.
				5	
7	Bank Stability	Stable. No evidence of erosion or bank failure, side slopes generally < 30%. Little potential for future problems. (9-10)	Moderately stable. Infrequent, small areas of erosion mostly healed over. Side slopes up too 40% on one bank. Slight erosion potential in extreme floods. (6-8)	Moderately unstable. Moderate frequency and size of erosional areas. Side slopes up to 60% on some banks. High erosion potential during extreme high flow. (3-5)	Unstable. Many eroded areas. Side slopes >60% common. "Raw" areas frequent along straight sections and bends. (0-2)
			7		
8	Bank Vegetation stability	Over 80% of the stream bank surfaces covered by vegetation or boulders and cobble (9-10)	50% - 79% of the stream bank surfaces covered by vegetation or boulders and cobble (6-8)	25% - 49% of the stream bank surfaces covered by vegetation or boulders and cobble (3 - 5)	Less than 25% of the stream bank surfaces covered by vegetation or boulders, cobble and larger materials..... (0-2)
		9			
9	Streamside Cover	Dominant Vegetation is shrub .. (9-10)	Dominant Vegetation is of tree form (6-8)	Dominant Vegetation is grass or forbes. (3-5)	Over 50% of the stream bank has no vegetation and dominant material is soil, rock, bridge materials, culverts and or mine tailings. (0-2)
			8		
	Column Totals	0	0	0	0

Score 0

Appendix G

Appendix G

Development of BSAF

The method used to extrapolate the fish-consumption-based HPV and EPV to a sediment concentration is the biota-sediment accumulation factor (BSAF) model. In situations such as this site, where site-specific information on fish tissue and sediment PCB concentrations are available, the BSAF model provides a direct and scientifically sound approach for quantifying bioaccumulation. For chemicals that are highly lipophilic (such as PCBs), USEPA has specified that the BSAF is a preferred approach for modeling the transfer of chemicals into resident aquatic biota (USEPA, 1995, 1998b). Simply stated, the BSAF is the ratio of a chemical concentration in the fish tissue normalized for lipid content, divided by the chemical concentration in sediment, normalized for the organic carbon content.

$$BSAF = \frac{Ct/\%Lipid}{Cs/\%TOC} \quad \text{(Eq. 1)}$$

Where:

Ct = chemical concentration in fish tissue (mg/kg, wet weight)

%Lipid = lipid content of fish tissue

Cs = chemical concentration in sediment (mg/kg, dry weight)

%TOC = percent of total organic carbon in sediment

The BSAFs for Choccolocco Creek are species-specific and are a function of the home ranges of the different species collected as part of the field sampling effort. The adult species chosen for PCB analysis were bass (largemouth bass or spotted bass) and catfish (blue catfish and/or channel catfish). For the bass species, the home ranges are reported to be only a few hundred feet (Miller, 1975), while catfish species are known to travel over 15 miles in river/creek environments (Dames, 1989; Hale, 1986). Since fish integrate PCB concentrations over the entire area of their home range, the "exposure concentration" for these two species (bass and catfish) will be different based on the spatial distribution of surficial sediment PCB concentrations in Choccolocco Creek. The BSAFs for these species were calculated in the following manner. First, fish collected in 1999 from three sampling locations (ADEM 96, New 99, and Station 35) in Choccolocco Creek were used in the calculation (Figure 3-39). Second, the sediment exposure point concentrations for the two species collected were determined based on the home range for the specific species.

For the bass species, with limited home ranges, the average sediment PCB concentrations from the 10 surficial samples collected at the time of fish sampling were used as the relevant exposure concentrations in the table below.

Average Sediment PCB and TOC Concentrations for Bass Exposure

Sample Location	Average TOC Concentration (mg/kg)	Average PCB Concentration (mg/kg)
ADEM 96	3,813	0.76
New 99	21,590	0.65
Station 35	28,800	0.28

For the more mobile species (i.e., the two catfish species), the surface area weighted average for sediments collected within the distinct areas defined by certain geographic reaches of Choccolocco Creek are described below. To estimate the exposure point concentration for fish collected at location ADEM 96, an area of 10 miles adjacent to the sampling station, including two of the geographic reaches illustrated in Figure G-1 (i.e., the confluence of Snow Creek to Coldwater Creek and Coldwater Creek to Cheaha Creek), was considered. For location New 99, the exposure area included the geographic reaches of Coldwater Creek to Cheaha Creek and Cheaha Creek to Jackson Shoals. The exposure area for catfish collected at Station 35 only included the backwater area of the lake at the downstream end of Choccolocco Creek, termed "Lake Logan Martin" on Figure G-2. The Jackson Shoals area upstream of this reach was not included since it is considered a physical barrier limiting fish migration.

The table below lists the surface-area weighted average (SAWA) PCB sediment concentrations used to derive the BSAFs for catfish that were subsequently used to calculate the RBALs for the protection of human and ecological receptors. The SAWAs were calculated using the areas estimated for each sediment stratum of Choccolocco Creek and the average PCB concentration from that stratum in the surficial layer of each sediment core analyzed (0- to 2-inch depth interval). Areas were sediment was not recoverable (classified as bedrock and boulders) were assumed to have a concentration of ½ the approximate analytical quantitation limit of 0.060 mg/kg.

Sediment PCB and TOC Concentrations for Catfish Exposure

Sampling Station	Exposure Area	SAWA PCB Concentration (mg/kg)	SAWA TOC Concentration (mg/kg)
ADEM 96	Snow Creek to Cheaha Creek	0.322	3,084
NEW 99	Coldwater Creek to Jackson Shoals	0.259	4,856
Station 35	Lake Logan Martin (backwater area)	0.356	10,999

A BSAF was not developed for Snow Creek because biological surveys of the creek revealed that the fish living in the stream channel are of insufficient size to be considered edible. Thus, based on biological factors, human exposure via the consumption of fish is considered an incomplete exposure pathway for Snow Creek. For human receptors, direct contact with Snow Creek sediments is considered the only significant complete exposure pathway. For mink, the habitat requirements preclude the occurrence of these sensitive ecological receptors since the creek is highly channelized with steep banks, and courses through urban areas with large sections of commercialized and industrialized properties, making the stream channel both unattractive and inaccessible by these receptors. It is highly unlikely that any members of a regional mink population would be directly exposed to fish accumulating PCBs from Snow Creek, thus removing this pathway from further consideration.

BSAFs also were not derived for Lake Logan Martin. Although there is the potential for a complete exposure pathway between humans and consumption of fish, PCB sediment concentrations were below the analytical quantitation limits (approximately 60 micrograms per kilogram [µg/kg]). Thus, these sediments cannot be evaluated as to their relationship to fish PCB levels, nor whether they exceed any RBAL. In addition, the average PCB concentrations for the bass and catfish sampled during the Off-Site RFI were below the ADPH advisory level of 2 mg/kg.

Segment-Specific and Species-Specific BSAFs

		Carbon Normalized Average PCB Concentration		
Sampling Station	**Fish Species**	**Fish Tissue mg/kg_{lipid}**	**Sediment mg/kg_{TOC}**	**BSAF[3]**
ADEM 96	Bass[1]	1387	193	11.8
	Catfish[1]	448	117	1.2
	Bass YOY[2]	659	193	5.6
New 99	Bass	2107	34.2	61.8
	Catfish	900	34.1	3.95
	Bass YOY	394	34.2	3.86
Station 35	Bass	799	25.8	30.4
	Catfish	537	26.3	5.11
	Bass YOY	304	25.8	11.6

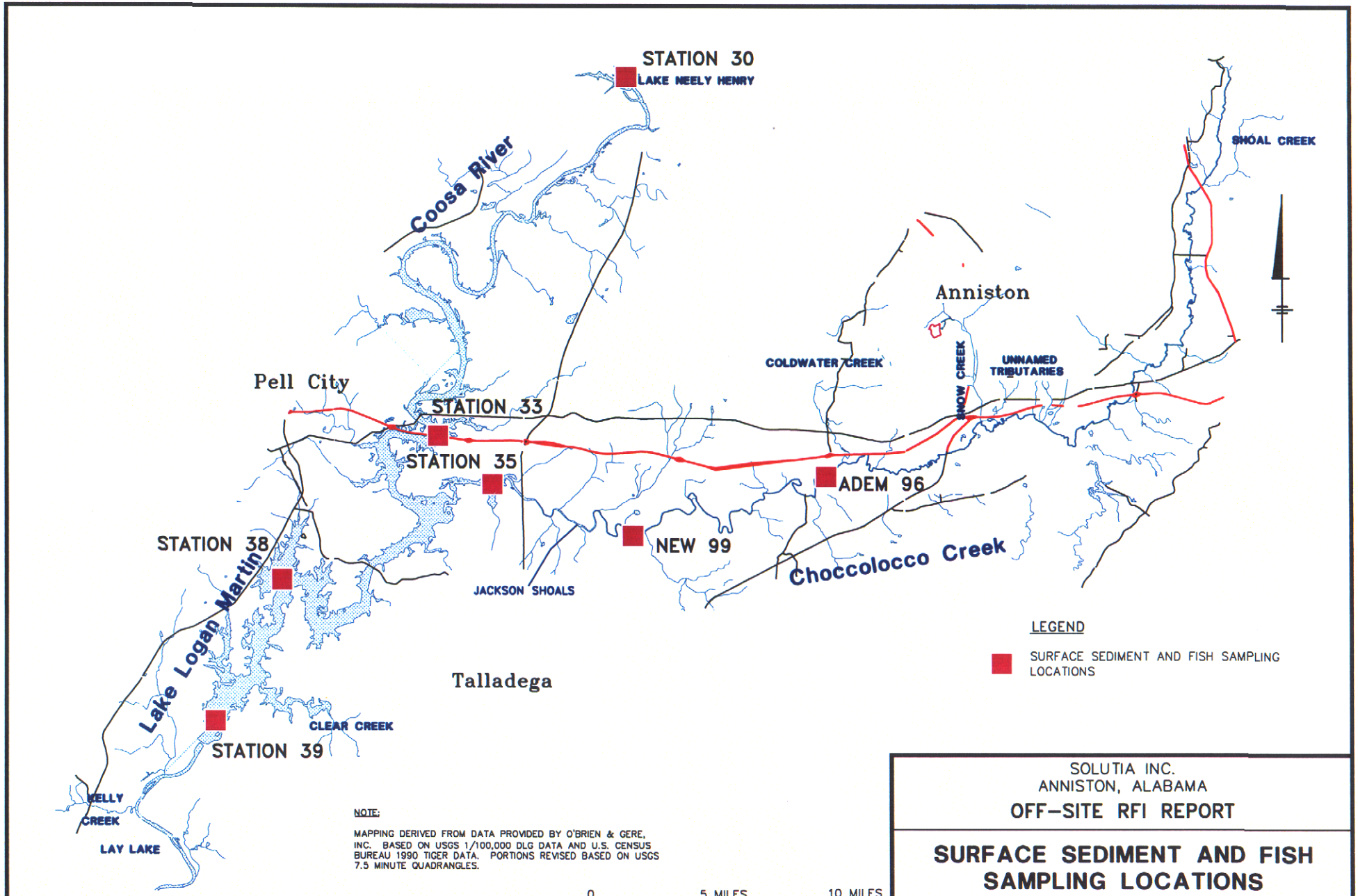
Notes:

[1] PCBs analyzed in fillets of "catchable" size fish (ADEM).

[2] PCBs in whole bodies of young-of-year (YOY) were analyzed.

[3] BSAFs were calculated on an individual basis, and not using the average concentrations provided in tables. That is, an individual BSAF for each sediment sample was developed using the lipid normalized fish tissue value. The concentrations in the table are presented solely for the purpose of giving an indication of the levels found in these compartments.

Differences in BSAFs within species of fish and among the various creek segments are not unexpected. The factors that determine the magnitude of accumulation, such as habitat structure, food items, and physical characteristics of the stream channel, are highly variable and may have a great degree of influence on the amount of PCBs removed from sediments and incorporated into biological tissue. An important observation concerning the results of the BSAF calculations is that, with the exception of bass at location New 99, the values for a particular area are generally within an order of magnitude. The outlier in this analysis, spotted bass fillets from New 99, had a reported value of only approximately 0.2% lipid on average. This value is considered very low for fish tissue. The low lipid content, which may be an analytical artifact, would result in an overestimation of bioaccumulation on a lipid basis and would be expressed as a higher numeral value for the BSAF.



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OFF-SITE RFI REPORT

SURFACE SEDIMENT AND FISH SAMPLING LOCATIONS

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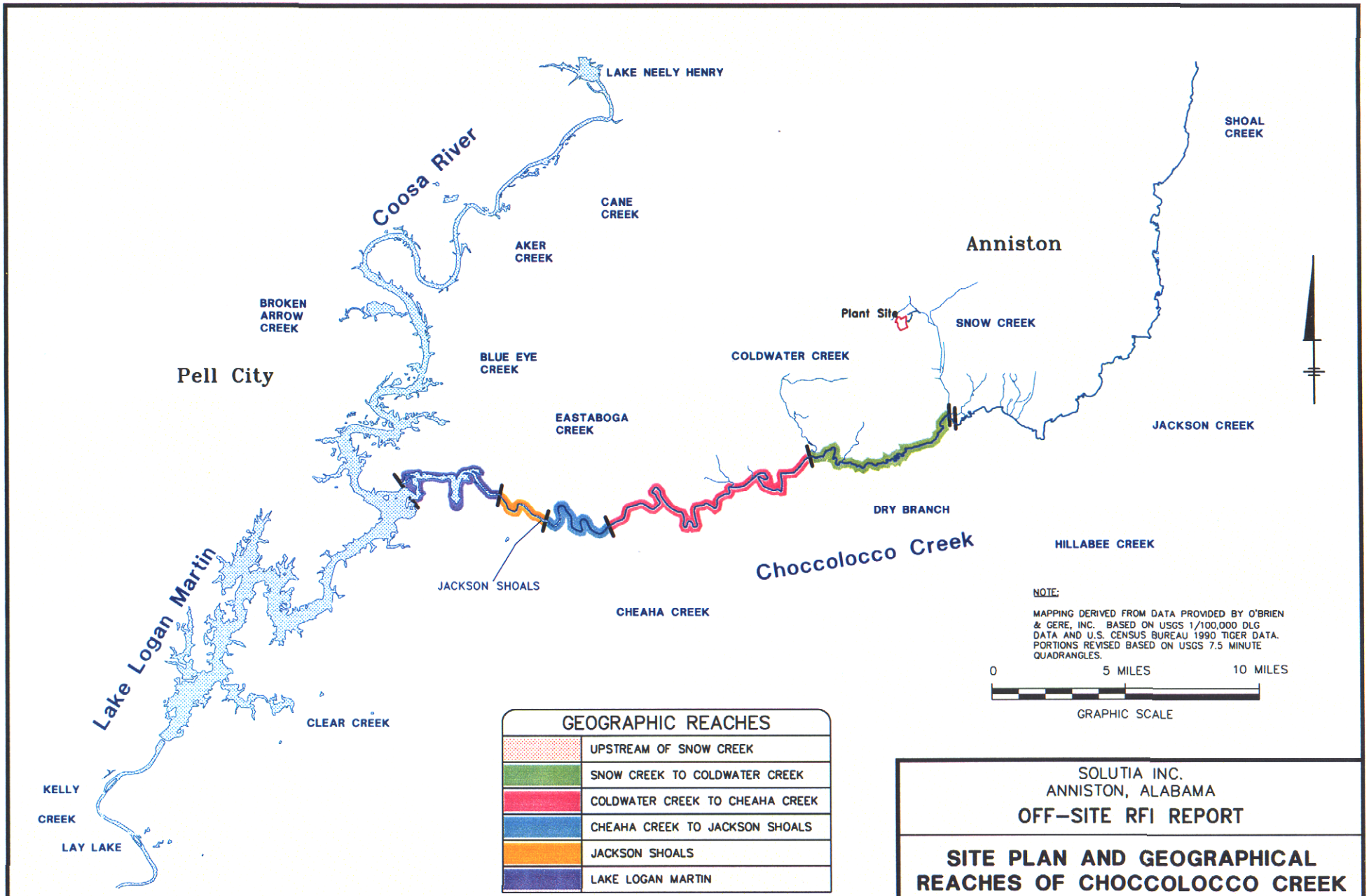
FIGURE G-1



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OFF-SITE RFI REPORT

SITE PLAN AND GEOGRAPHICAL REACHES OF CHOCCOLOCCO CREEK

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FIGURE G-2