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Rev. 07/10/02

167799
K.7

Allied Paper, Inc./Portage Creek/ Kalamazoo River Superfund Site Kalamazoo, Michigan

Final Technical Memorandum 14 Biota Investigation

Appendix C Photographic Log

January 2002

Technical Memorandum

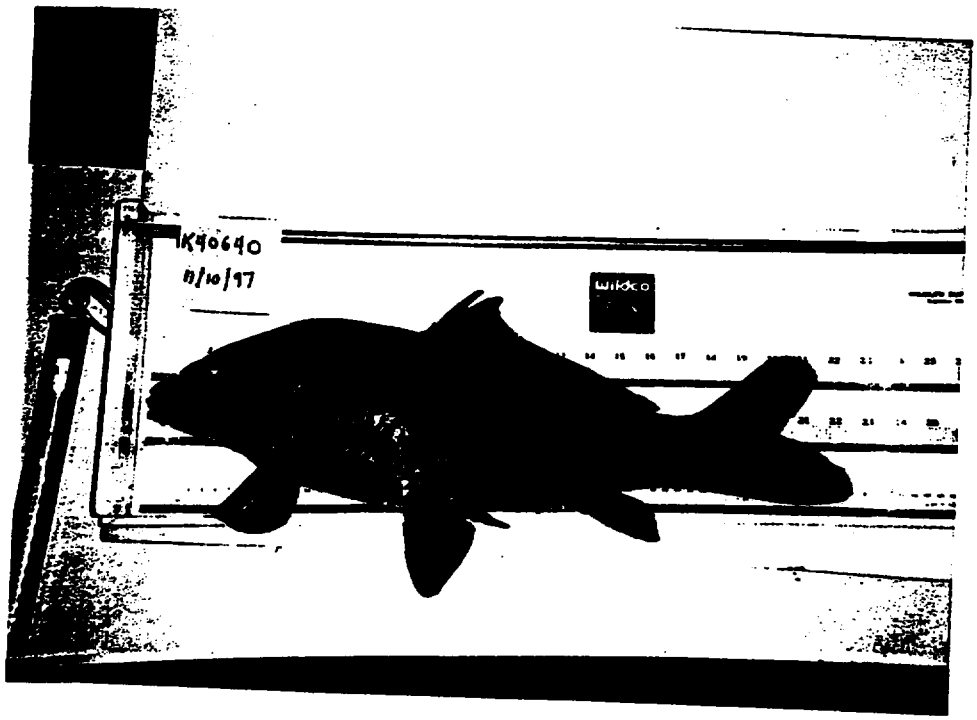
Appendix C
Photographic Log

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

ABSA #1

CARP	ADULT SMALLMOUTH BASS
K40640	K40623
K40641	K40624
K40643	K40625
K40644	K40626
K40645	K40627
K40646	K40628
K40647	K40635
K40648	K40636
K40649	K40637
K40650	K40638
K40651	K40639

Carp
(*Cyprinus carpio*)



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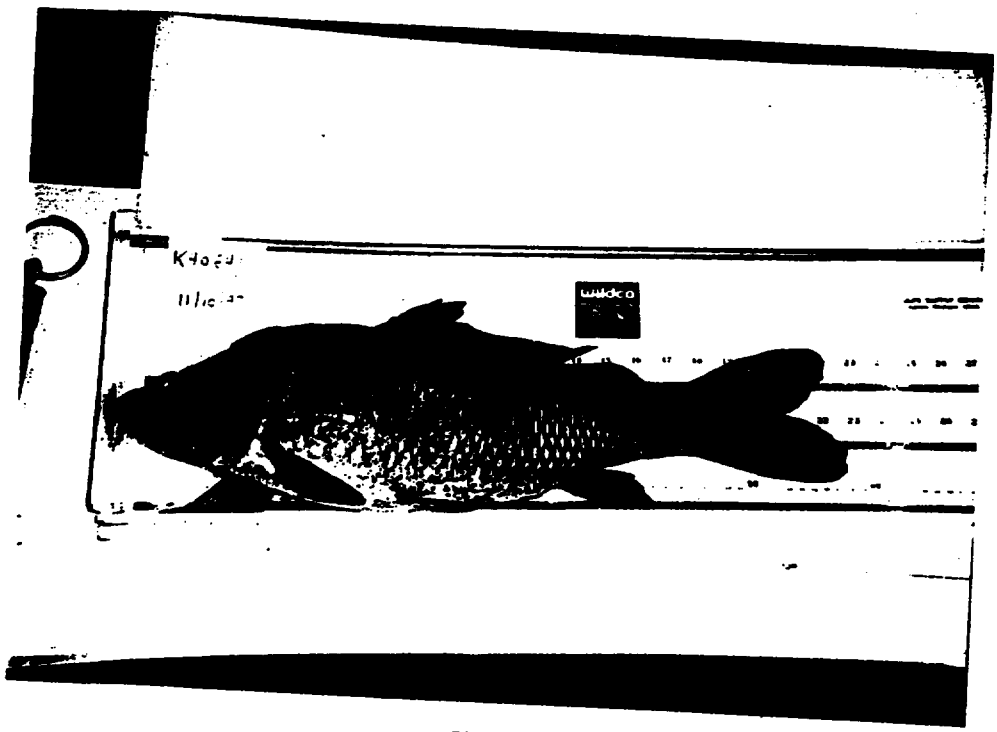

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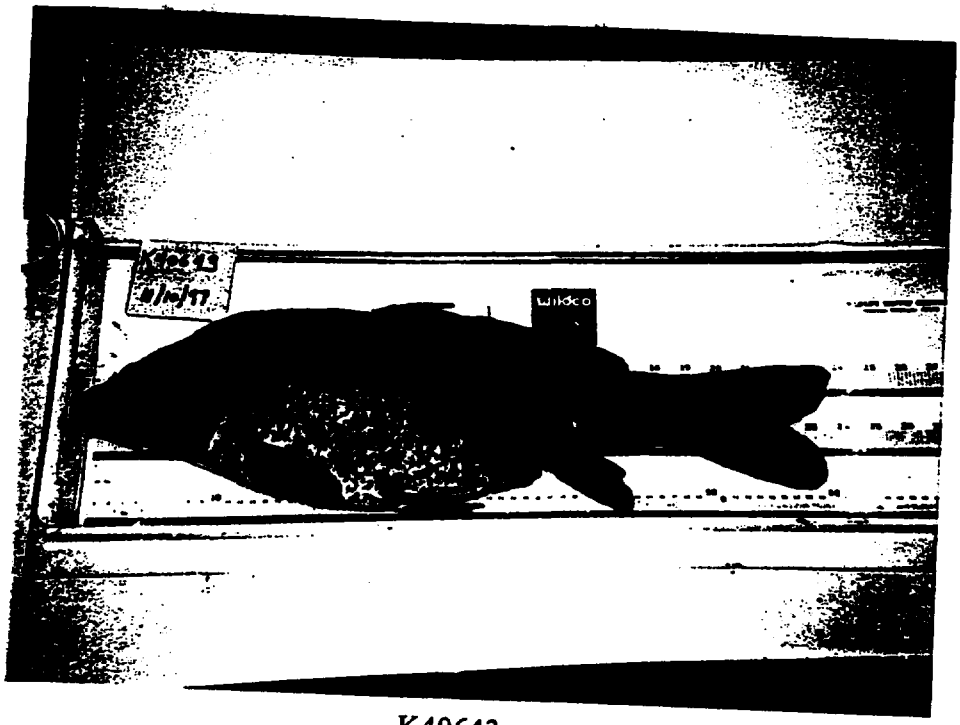

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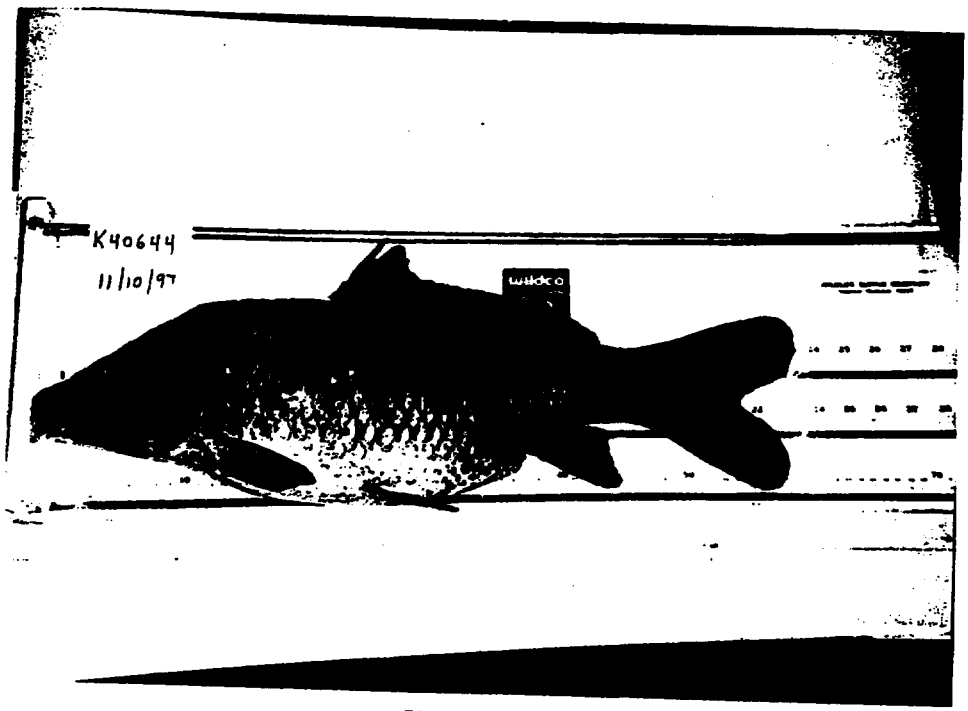

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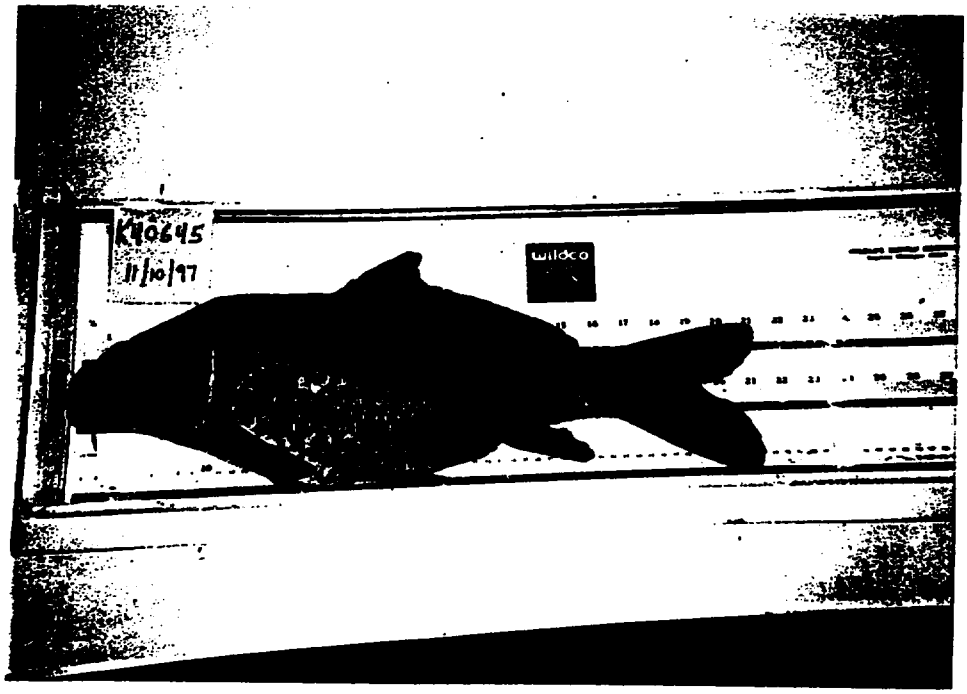

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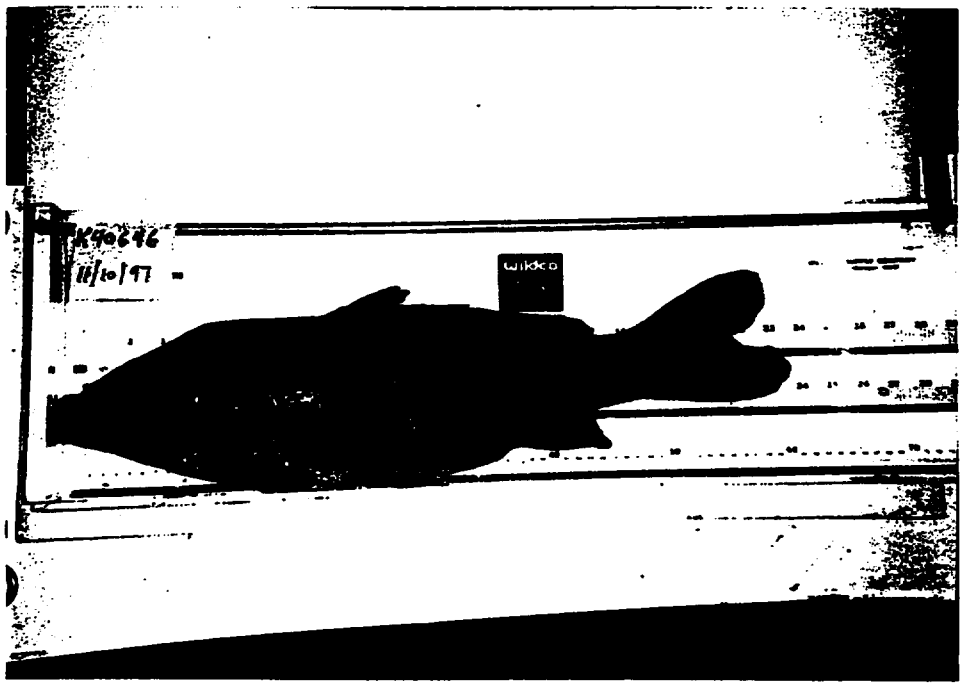

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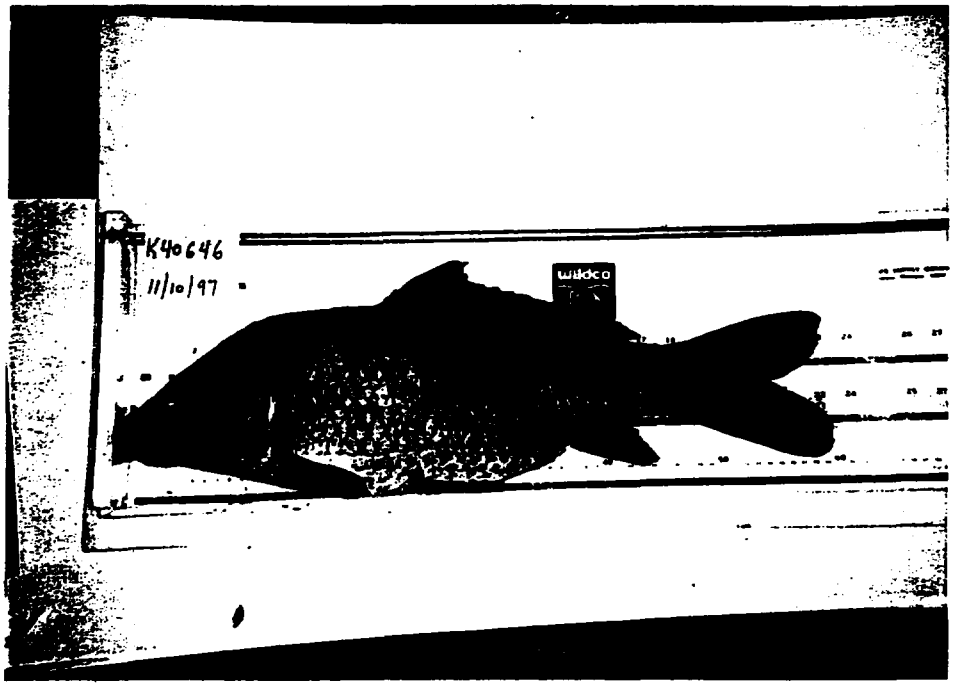

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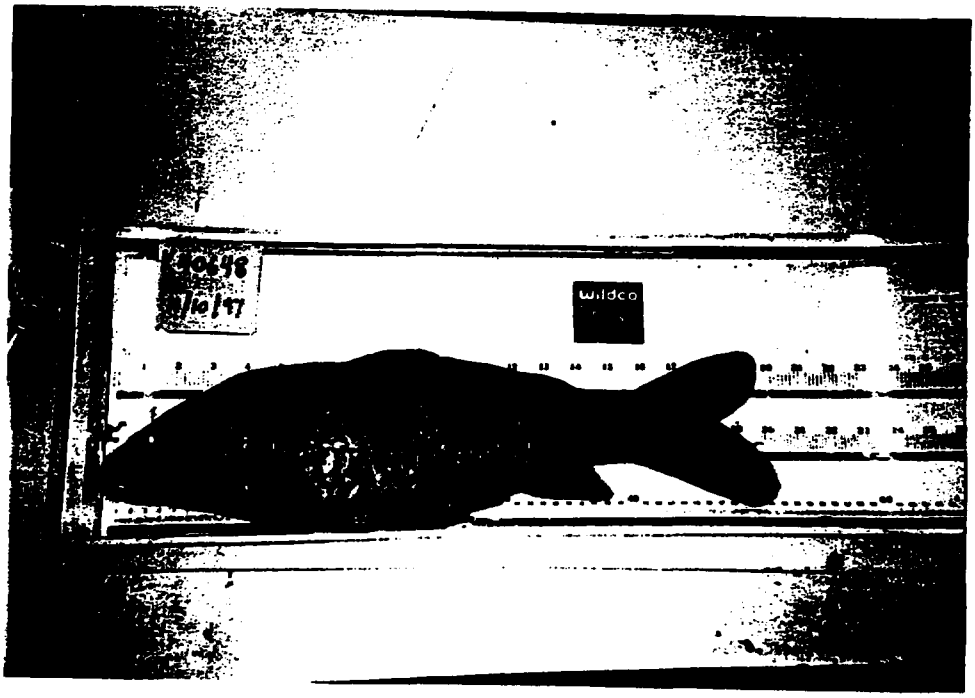

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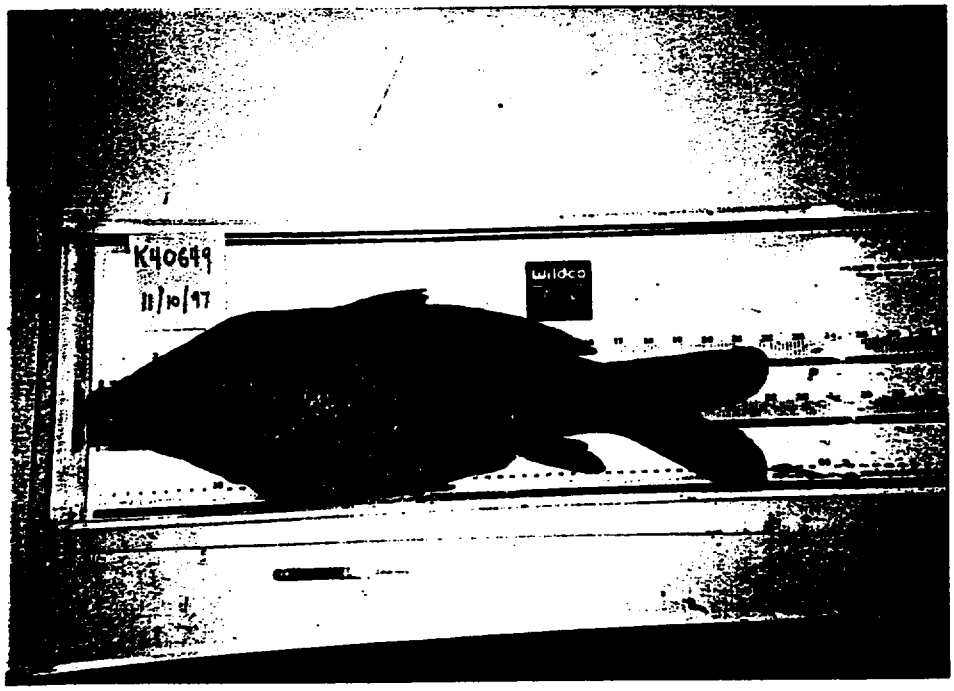

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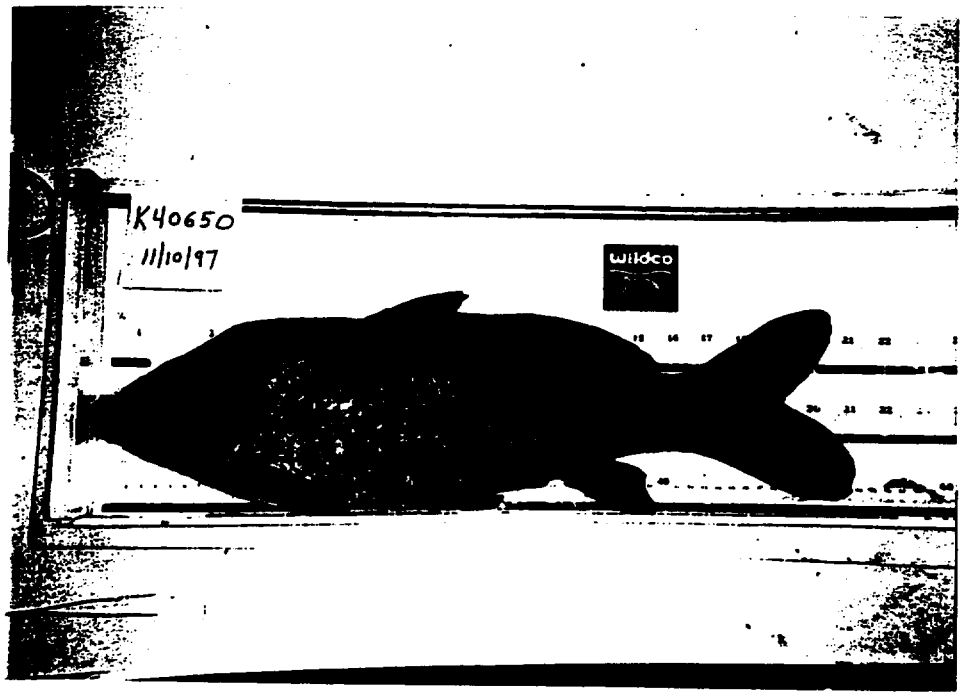

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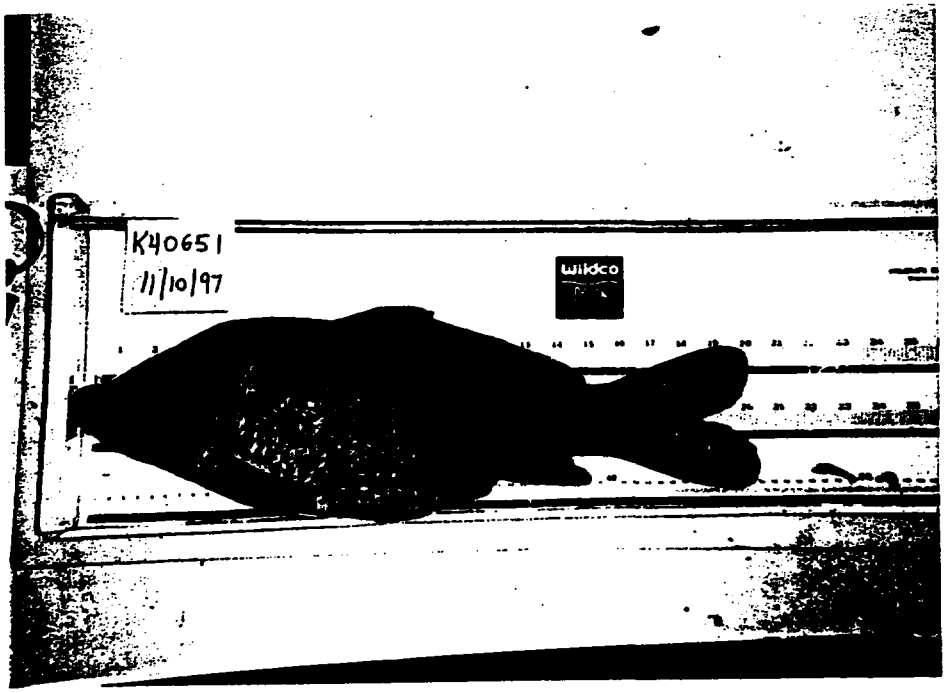

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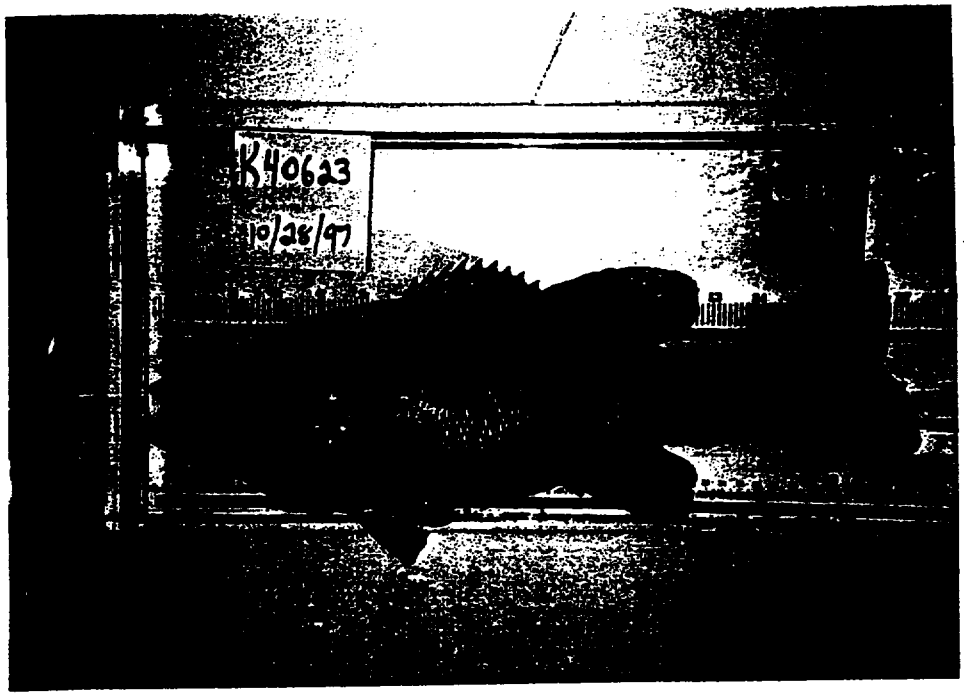
Adult Smallmouth Bass
(*Micropterus dolomieui*)



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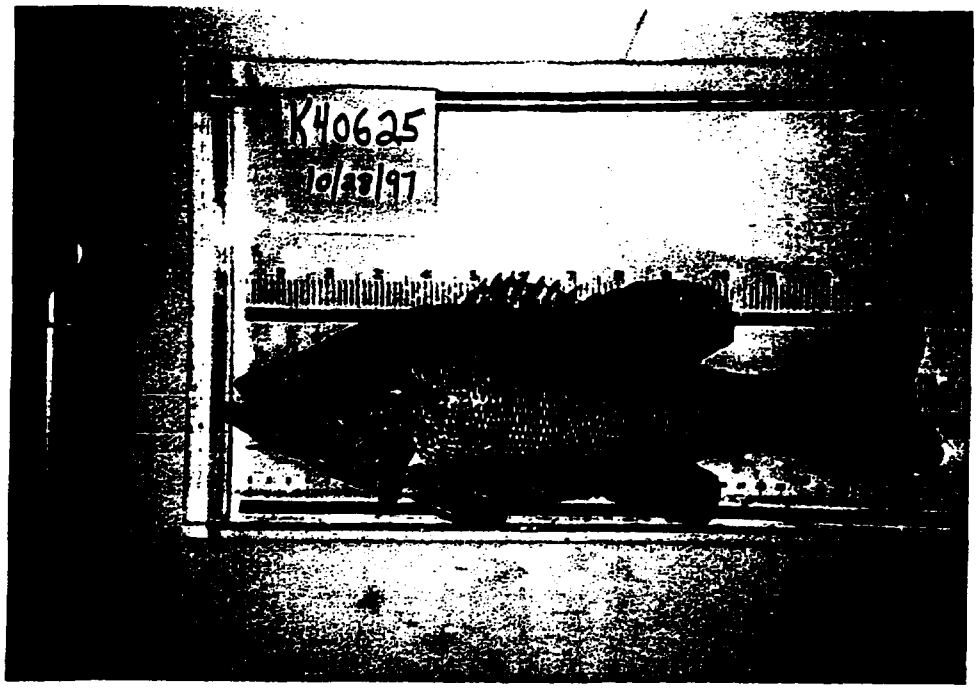

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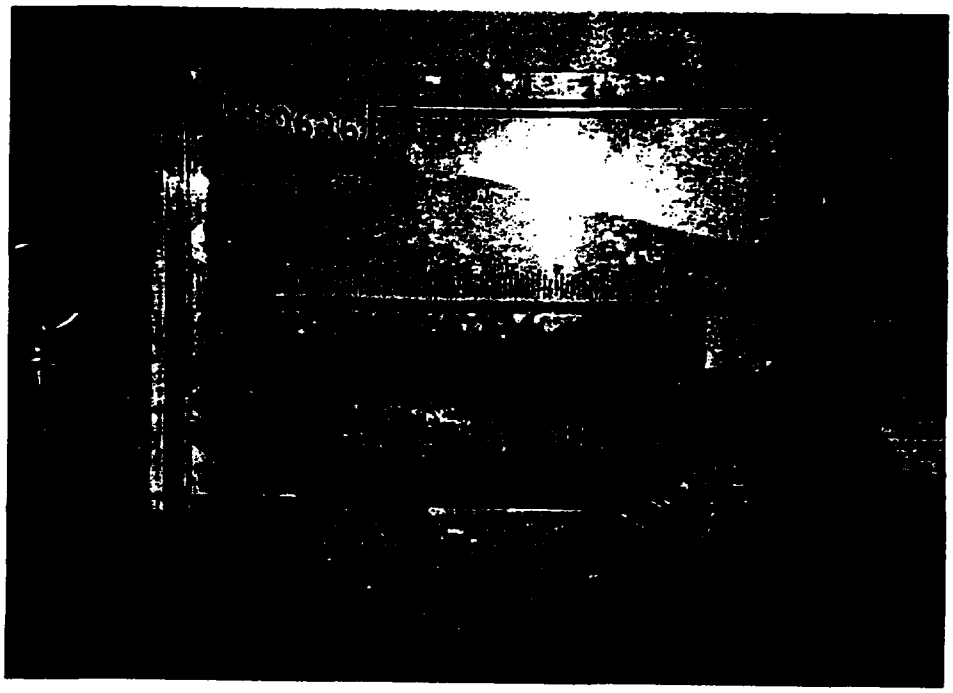

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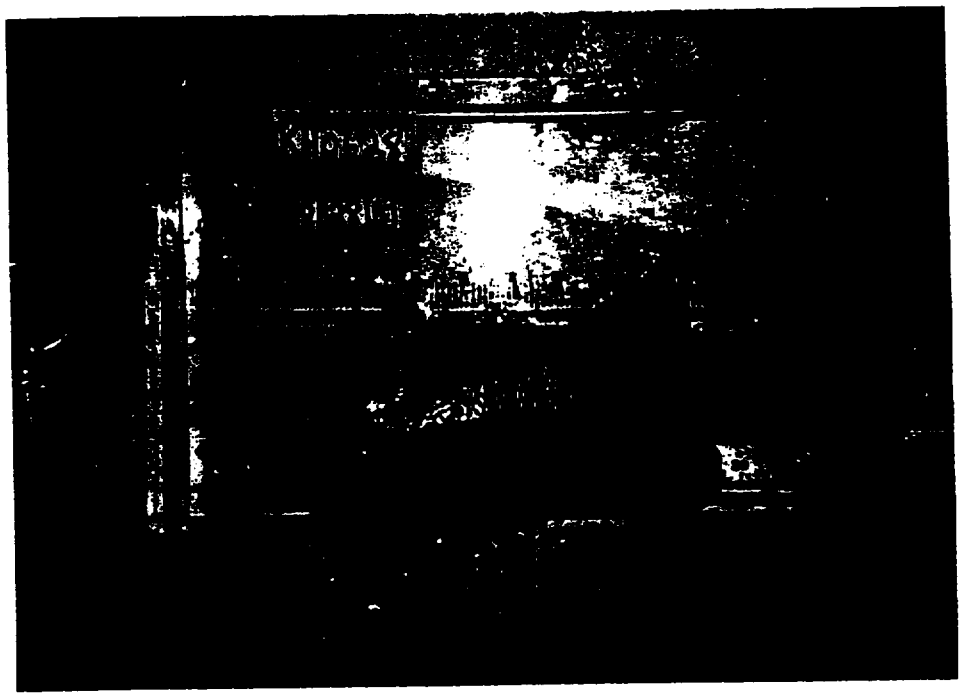

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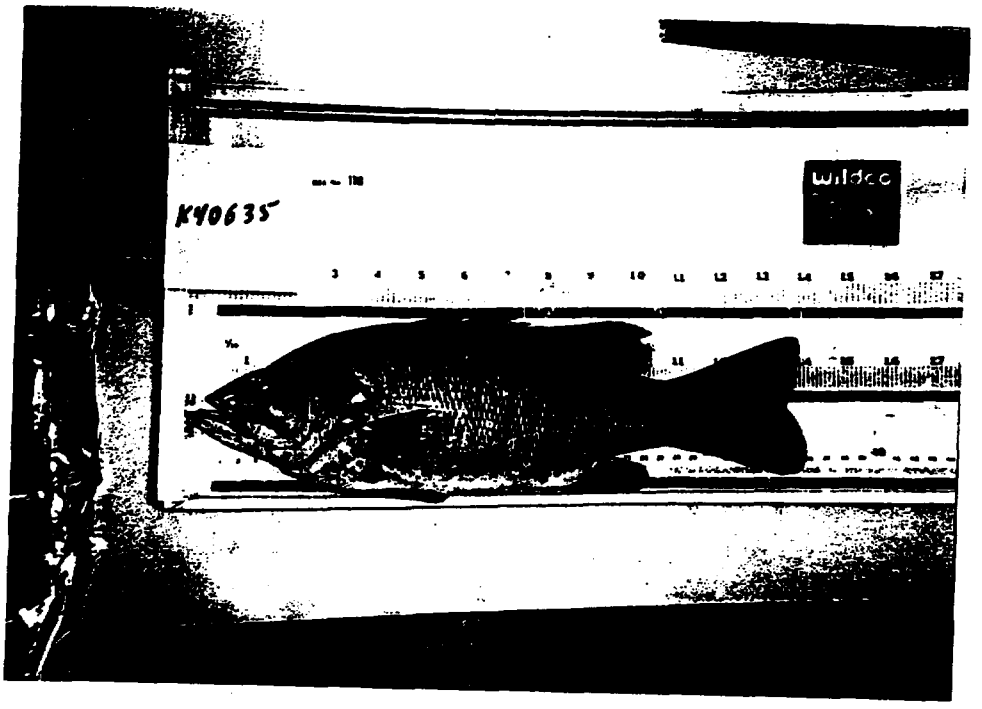

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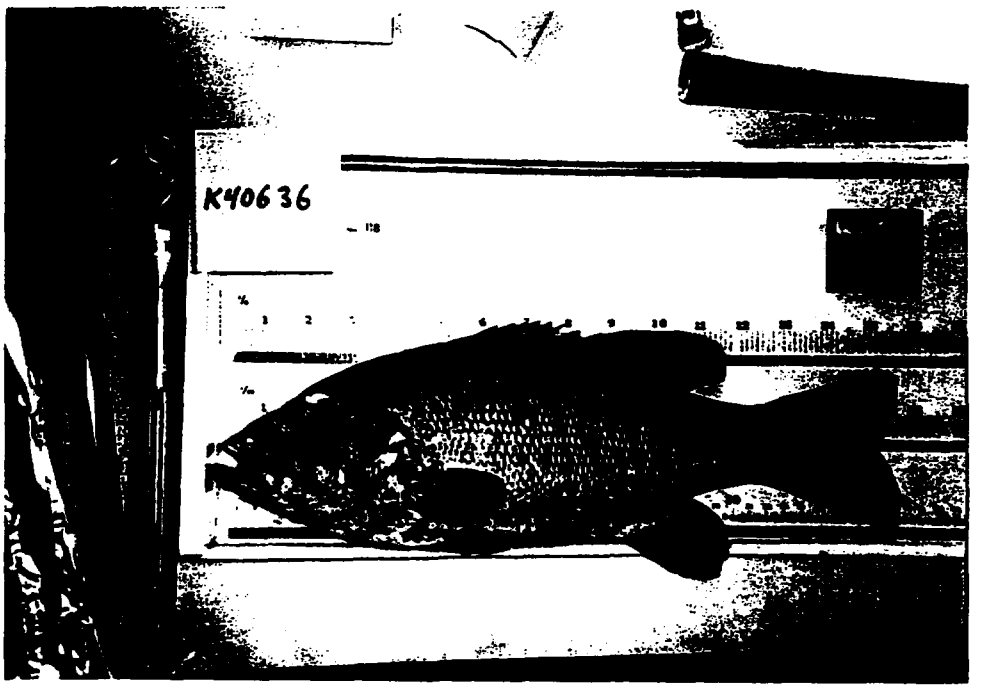

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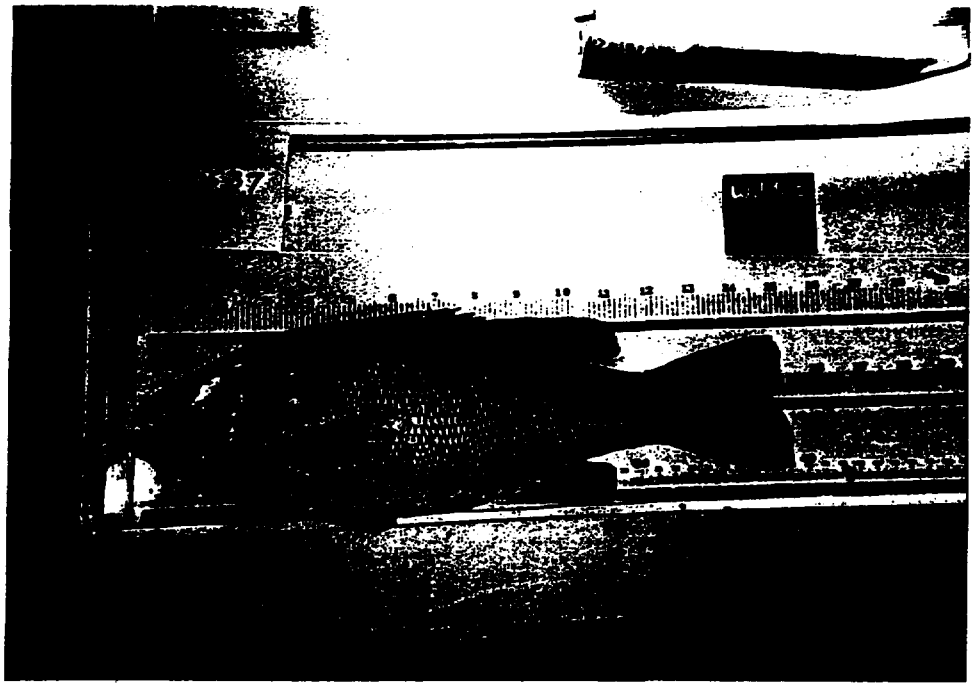

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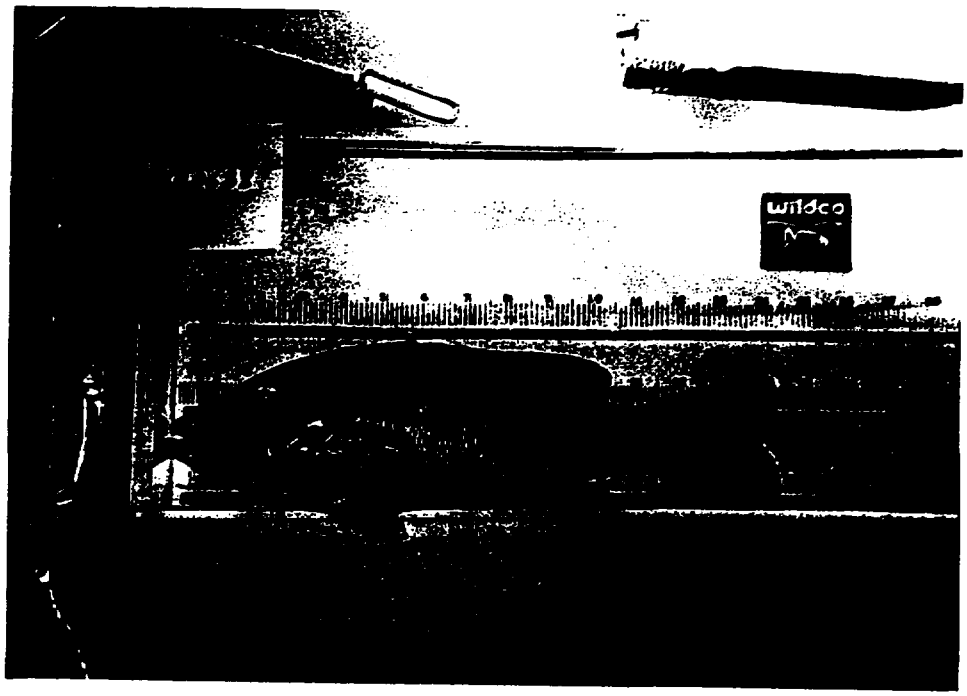

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K40639

ABSA #2

CARP	ADULT SMALLMOUTH BASS
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K40526	K40559
K40552	K40560
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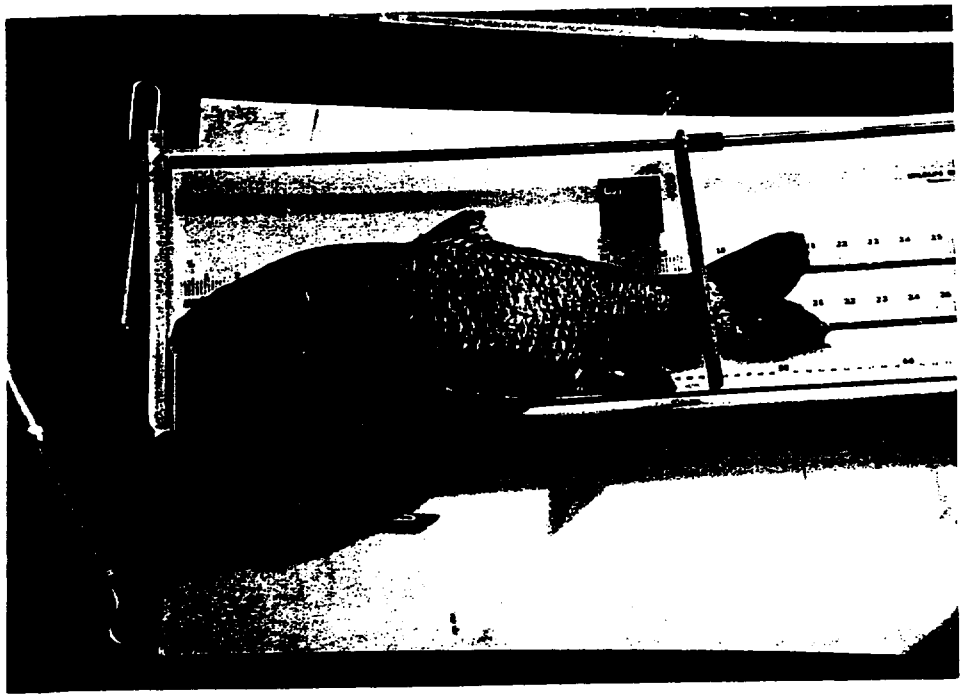
K40556	K40615
K40557	K40617

Carp
(*Cyprinus carpio*)



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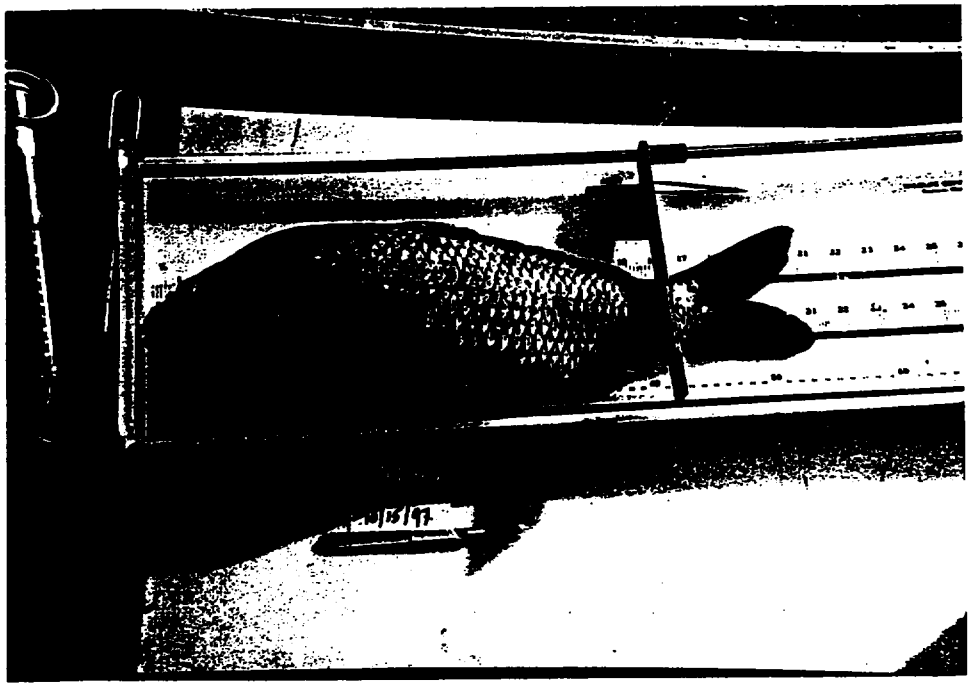

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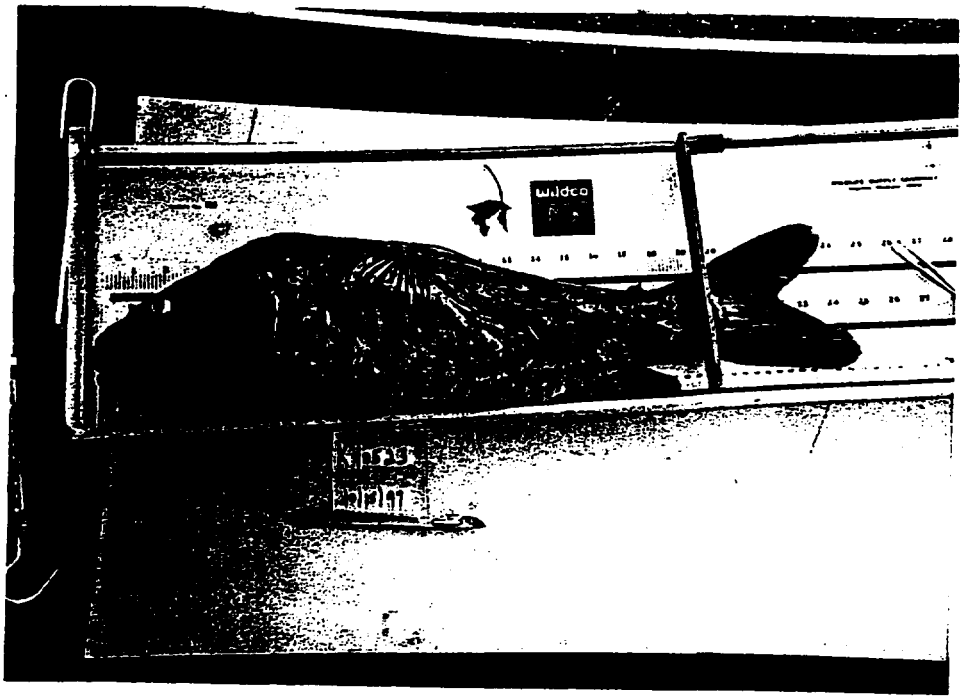

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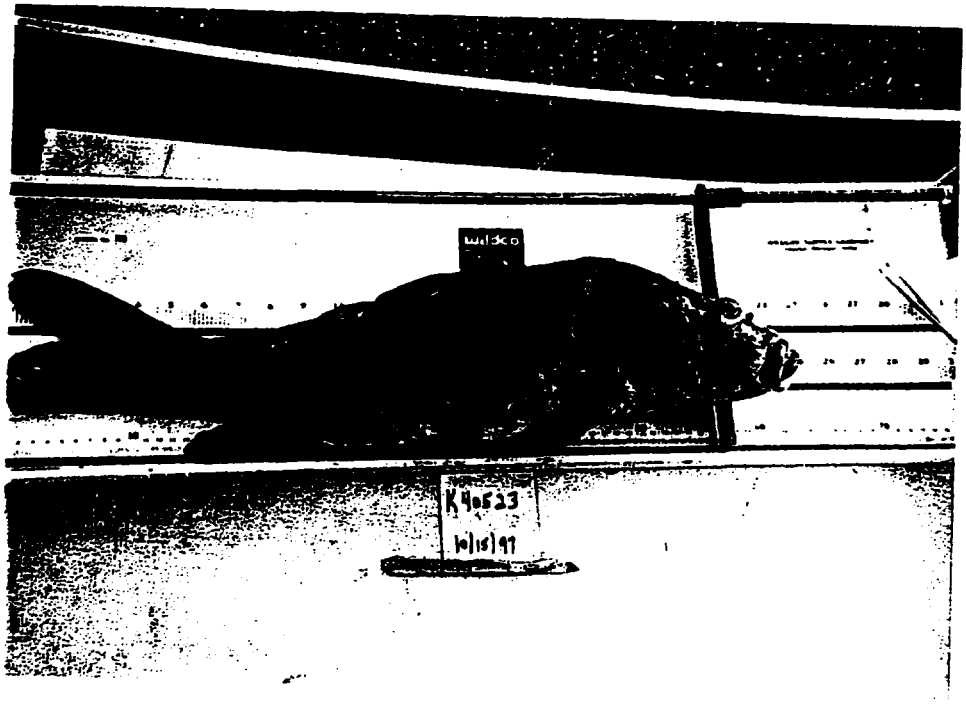

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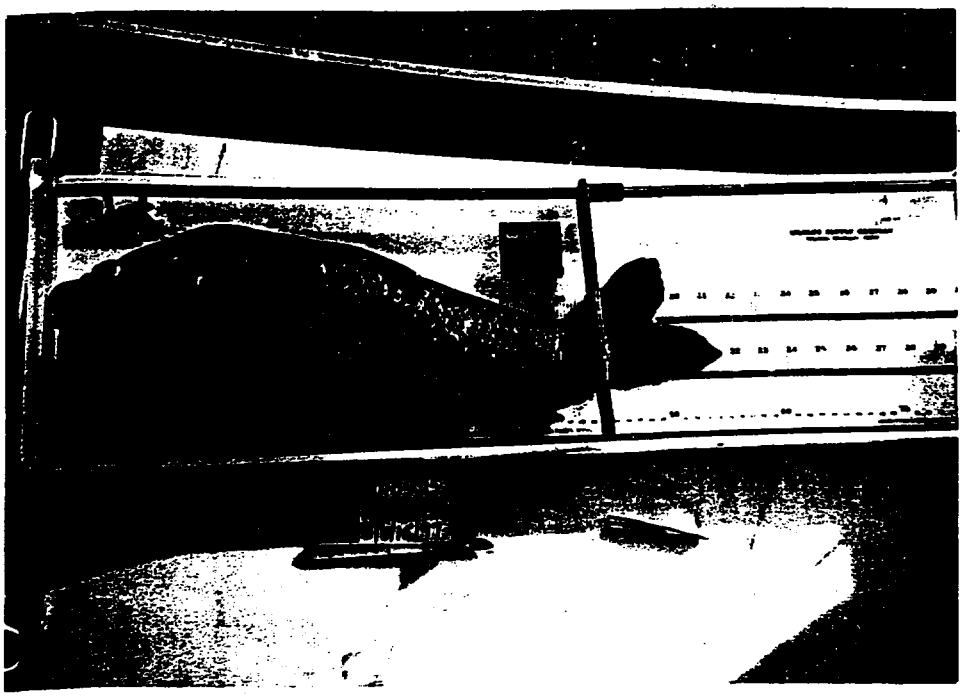

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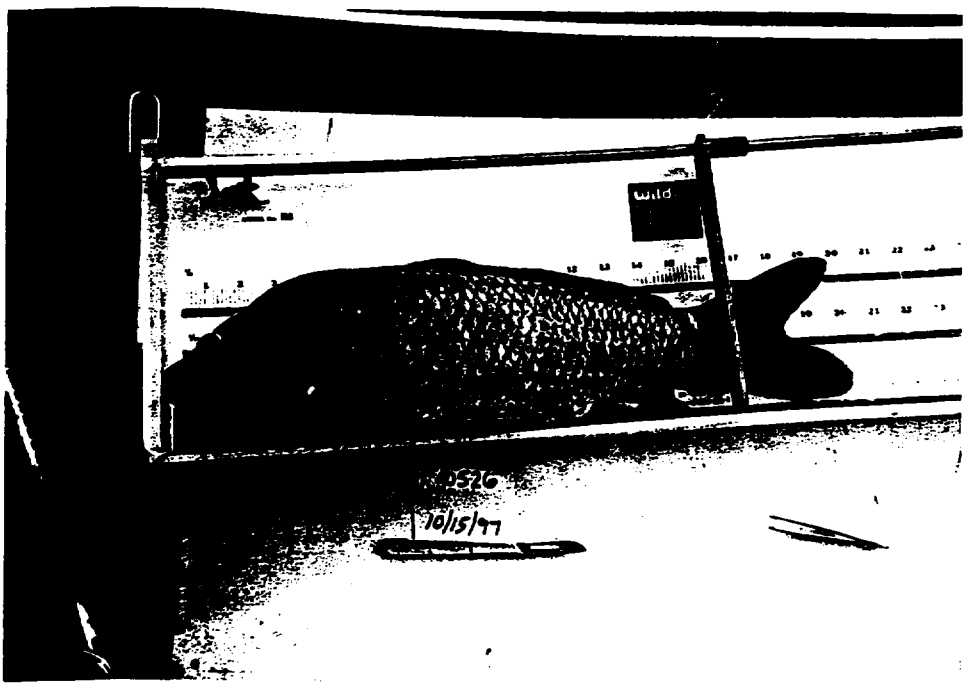

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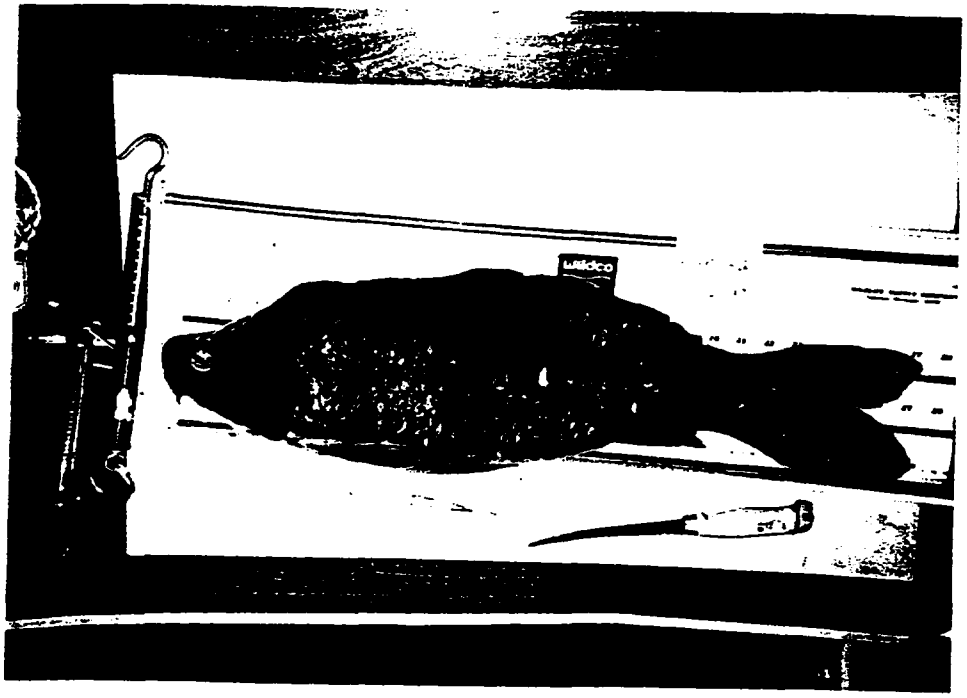

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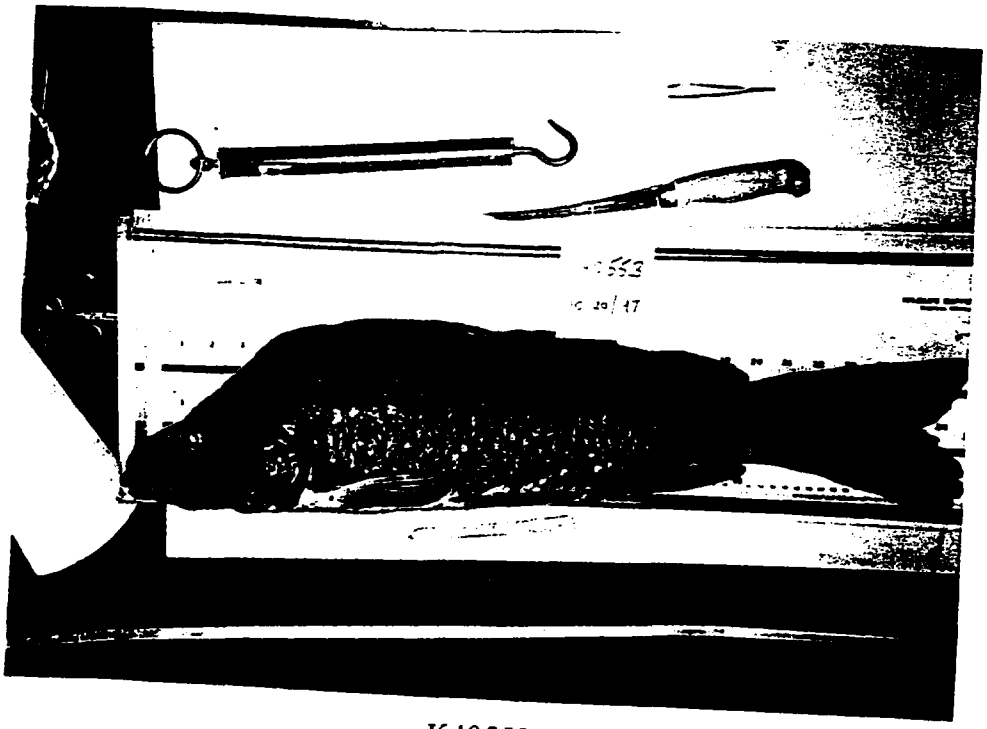

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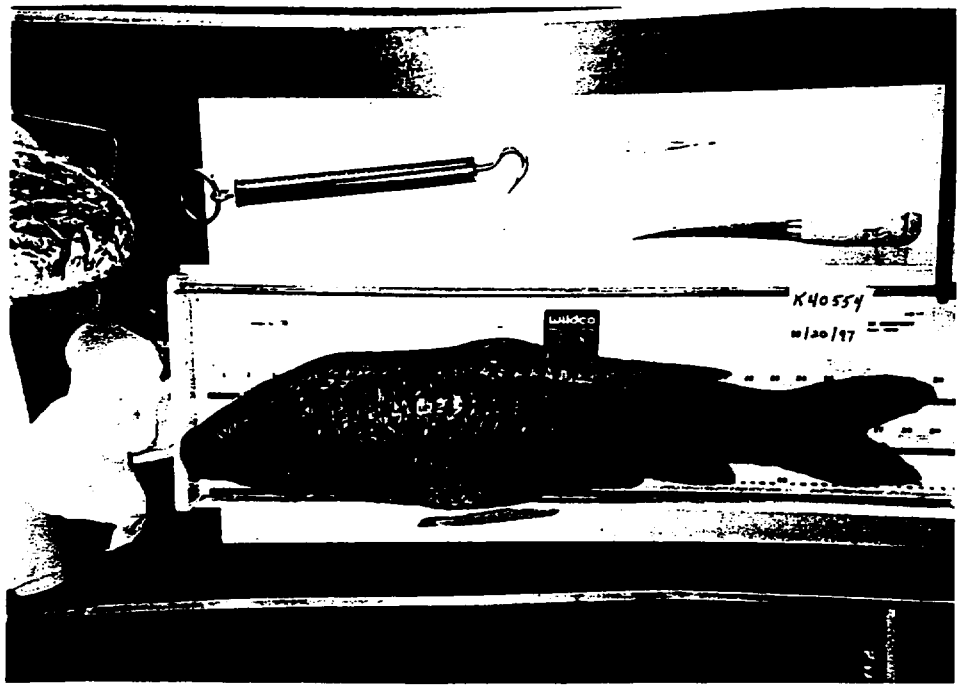

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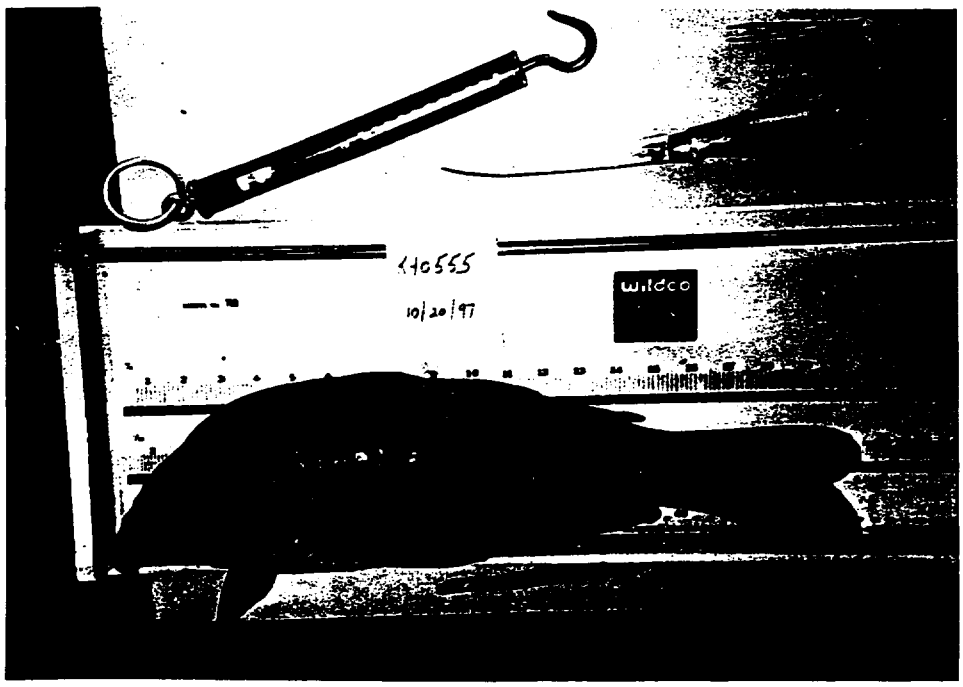

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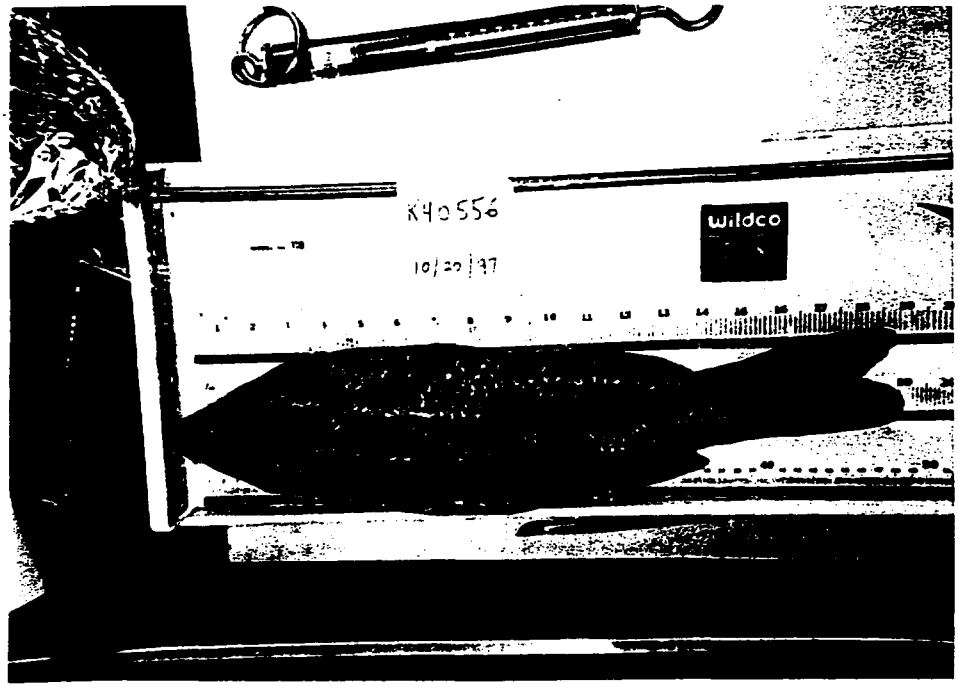
Adult Smallmouth Bass
(*Micropterus dolomieui*)



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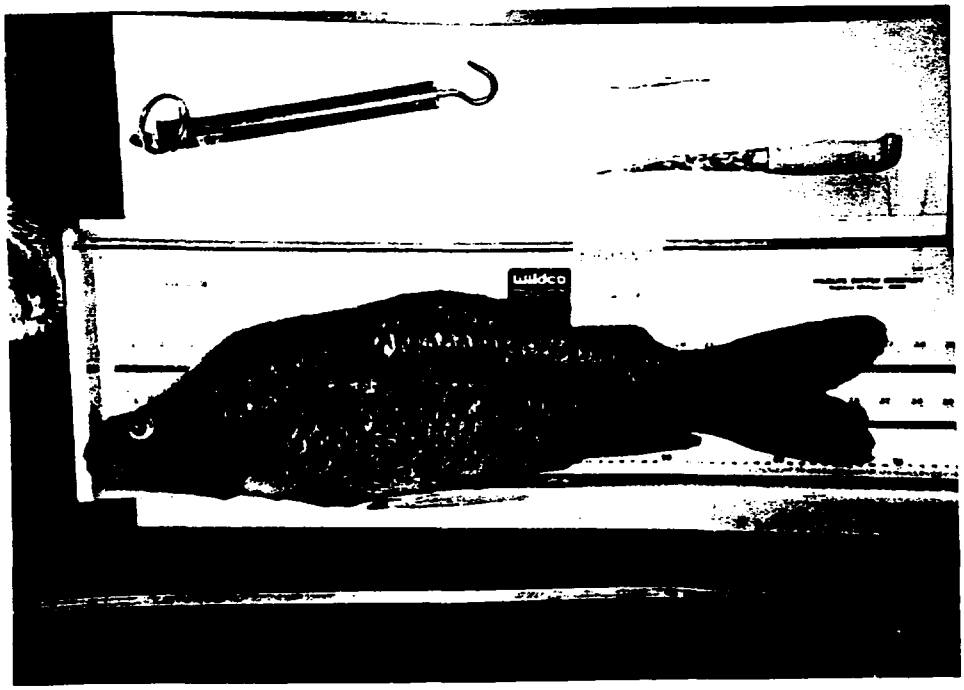

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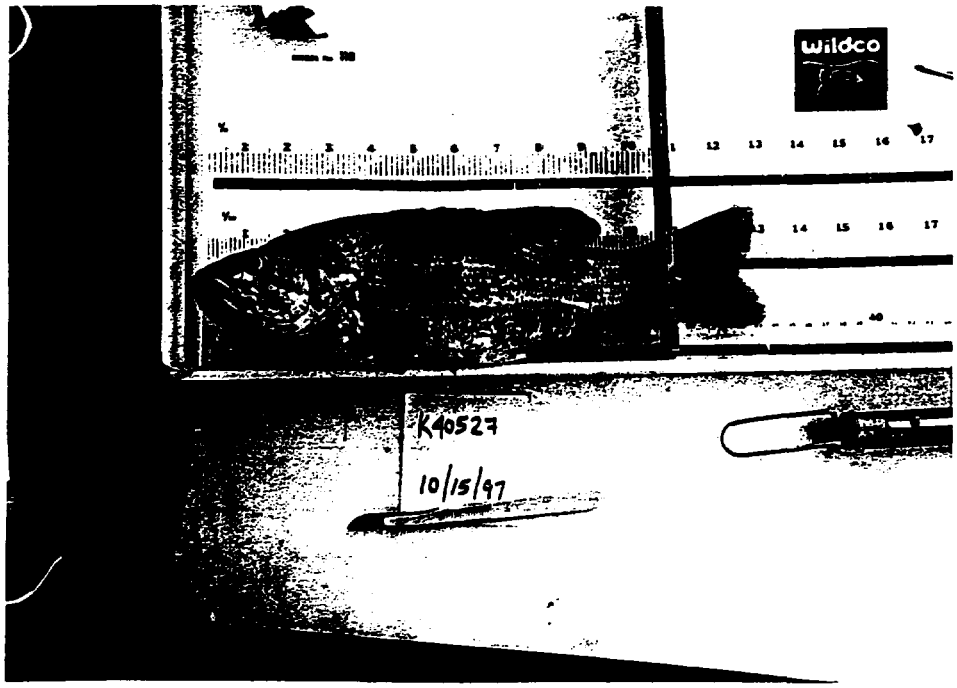

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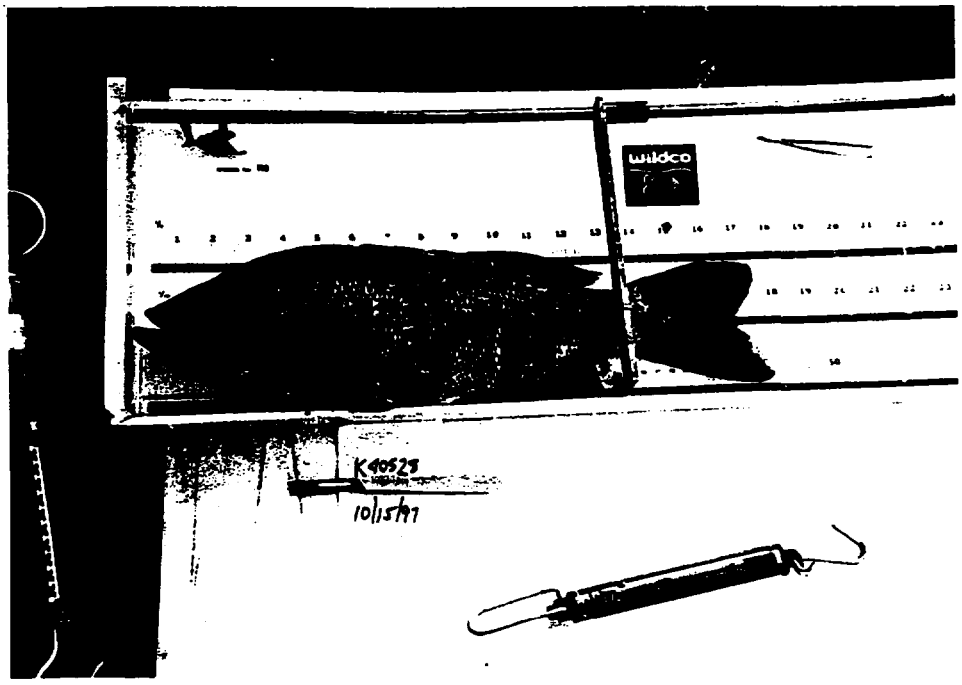

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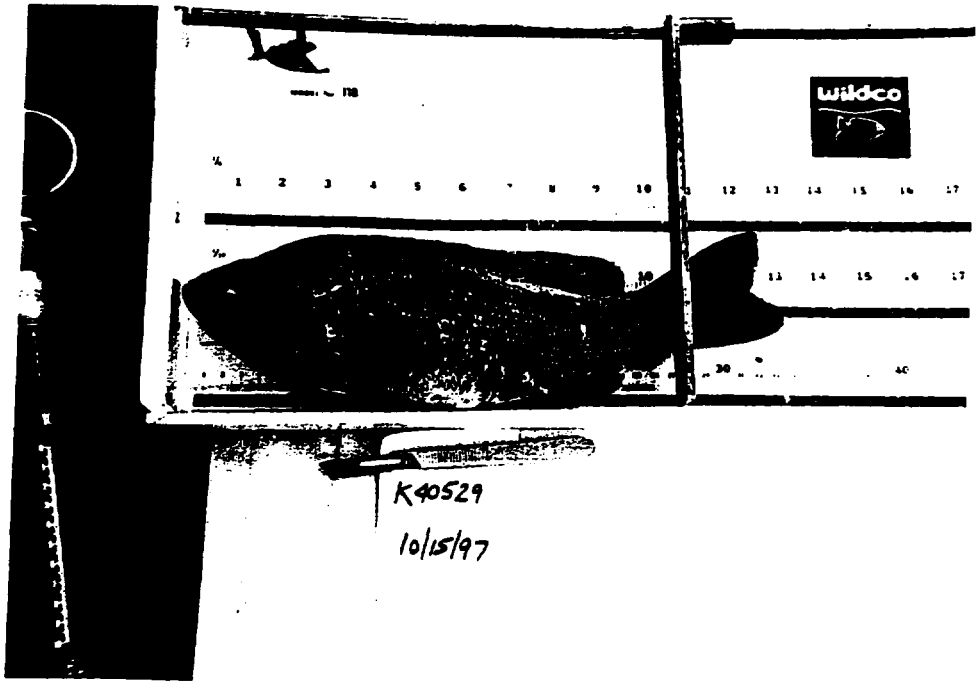

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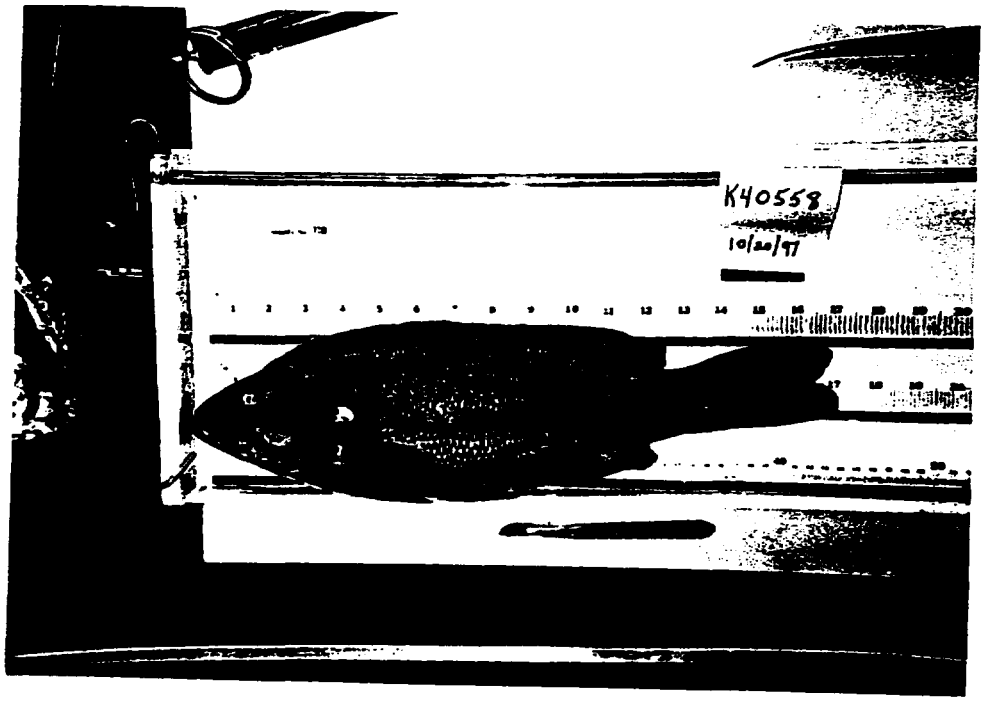

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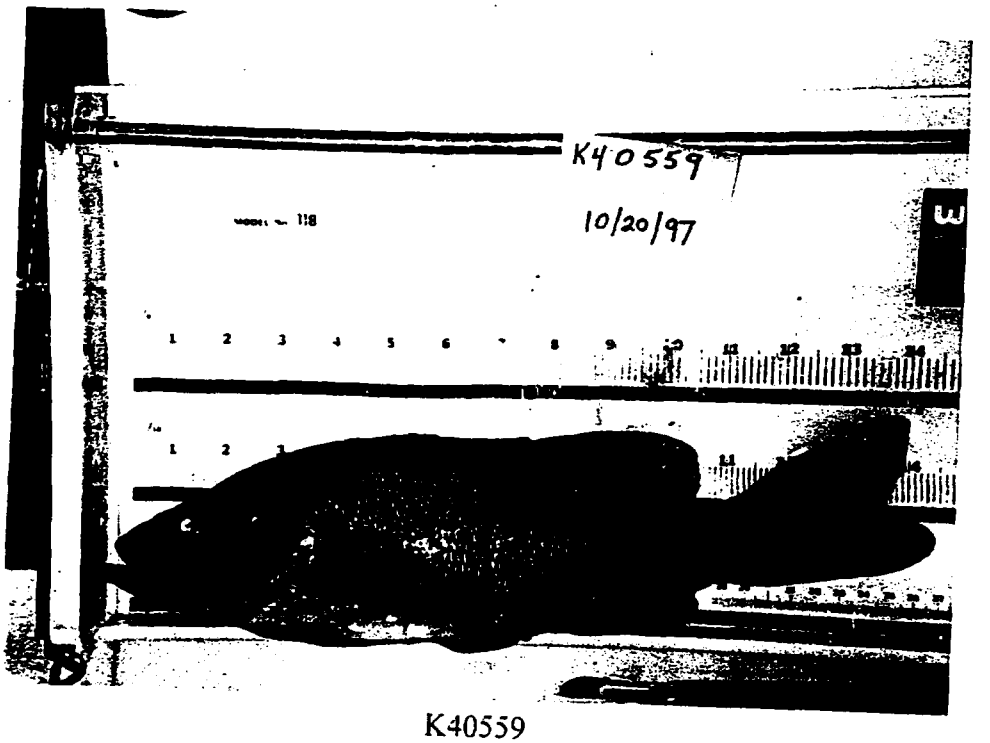

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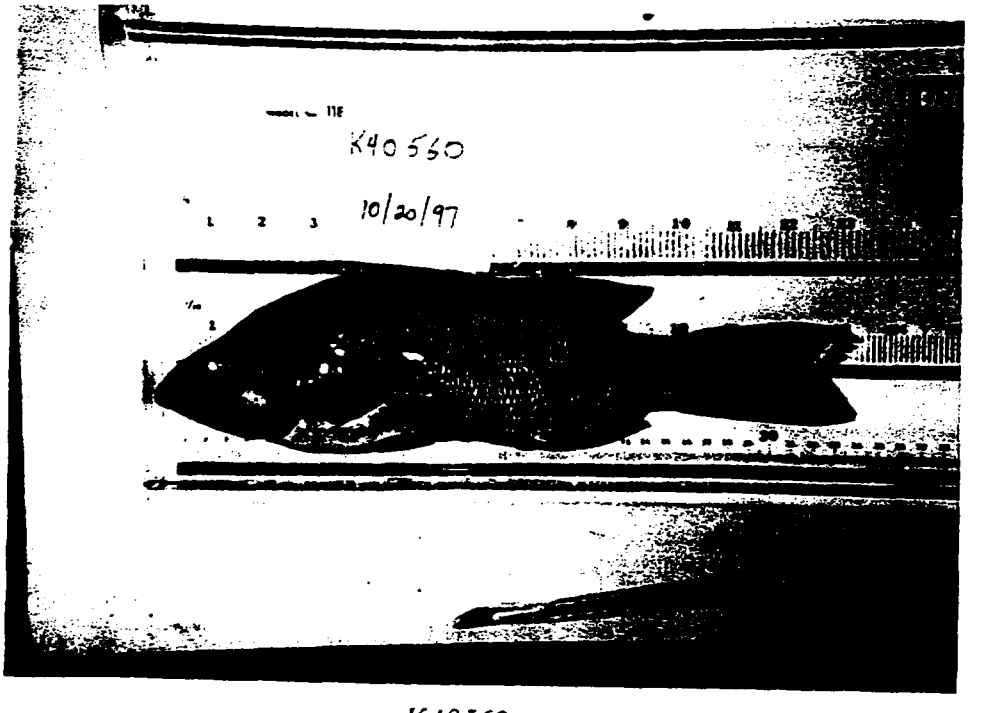

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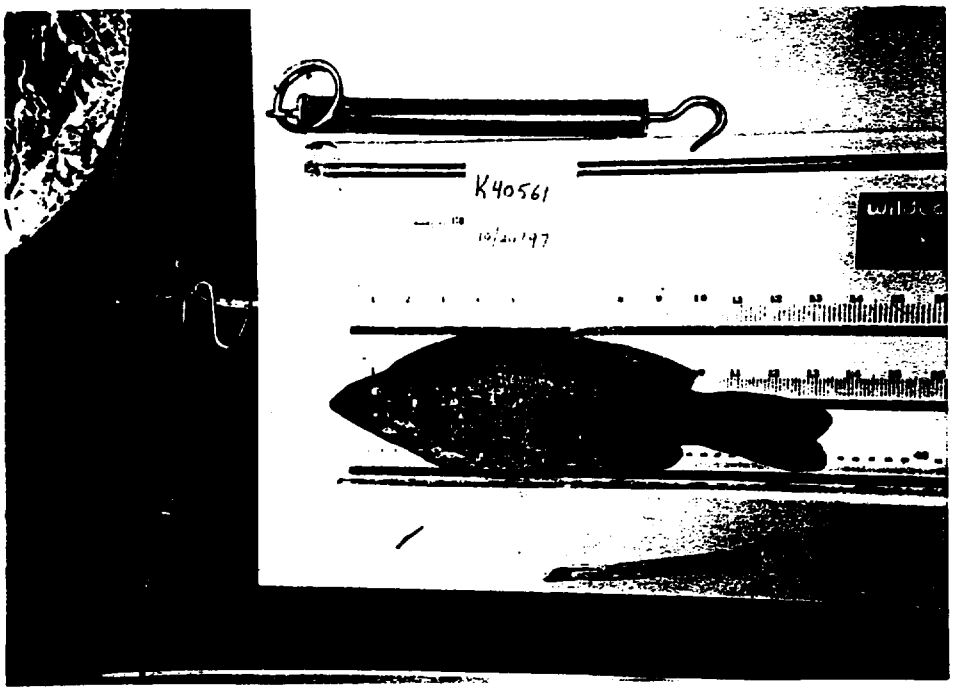

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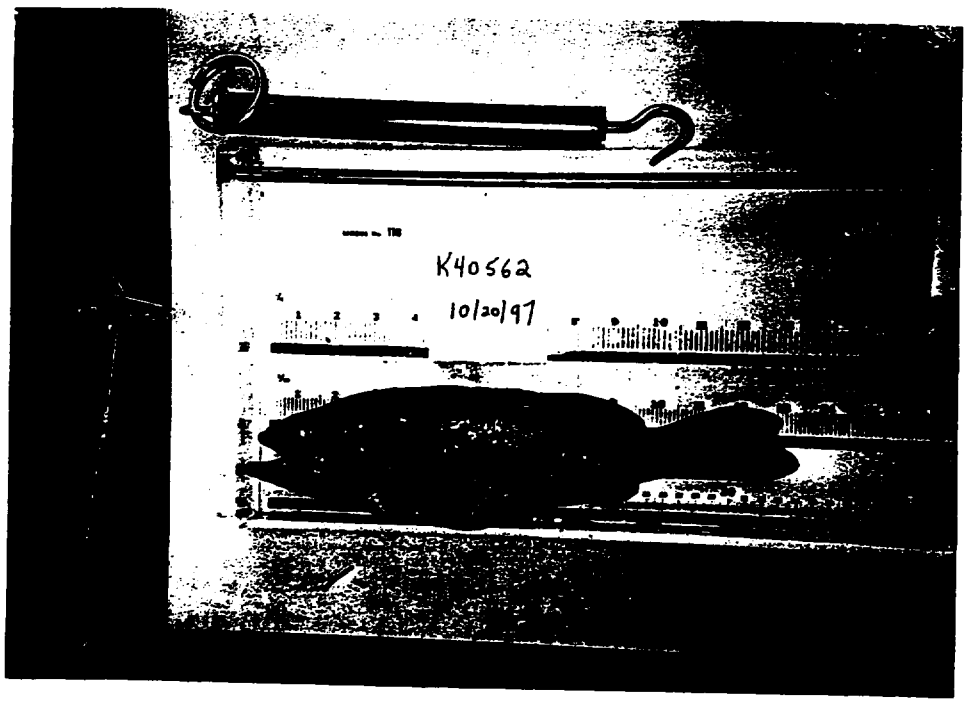

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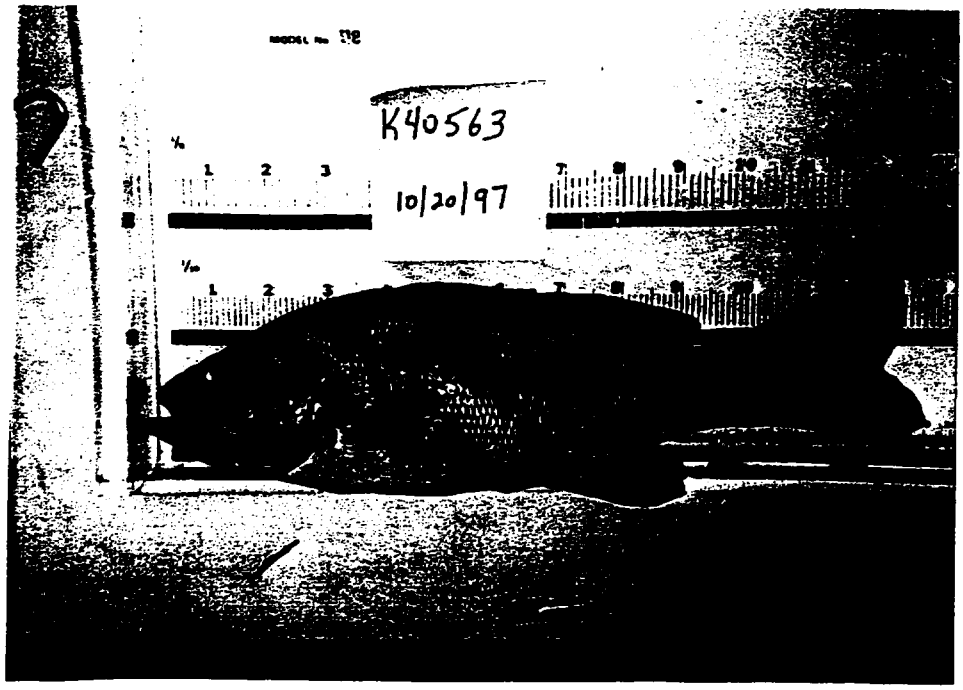

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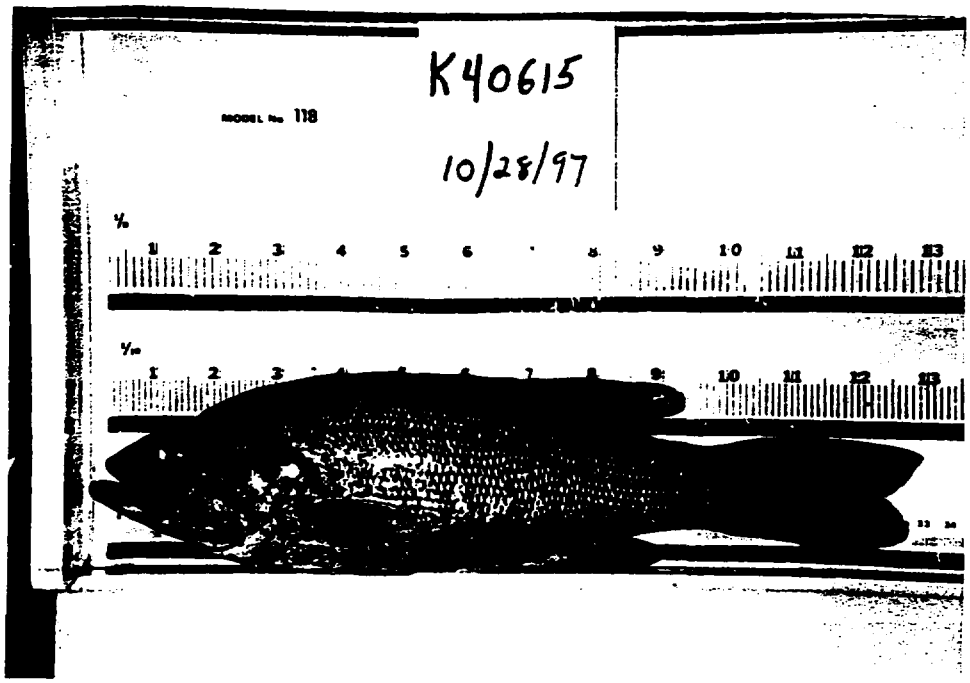

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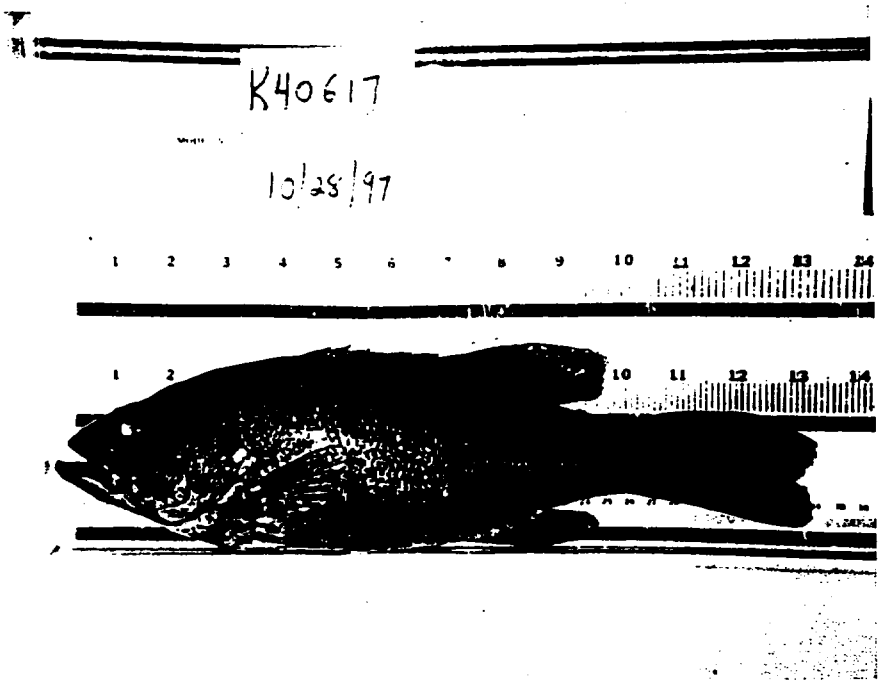

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ABSA #5

CARP	ADULT SMALLMOUTH BASS
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K40586	K40598
K40587	K40599
K40588	K40600
K40589	K40601
K40591	K40602
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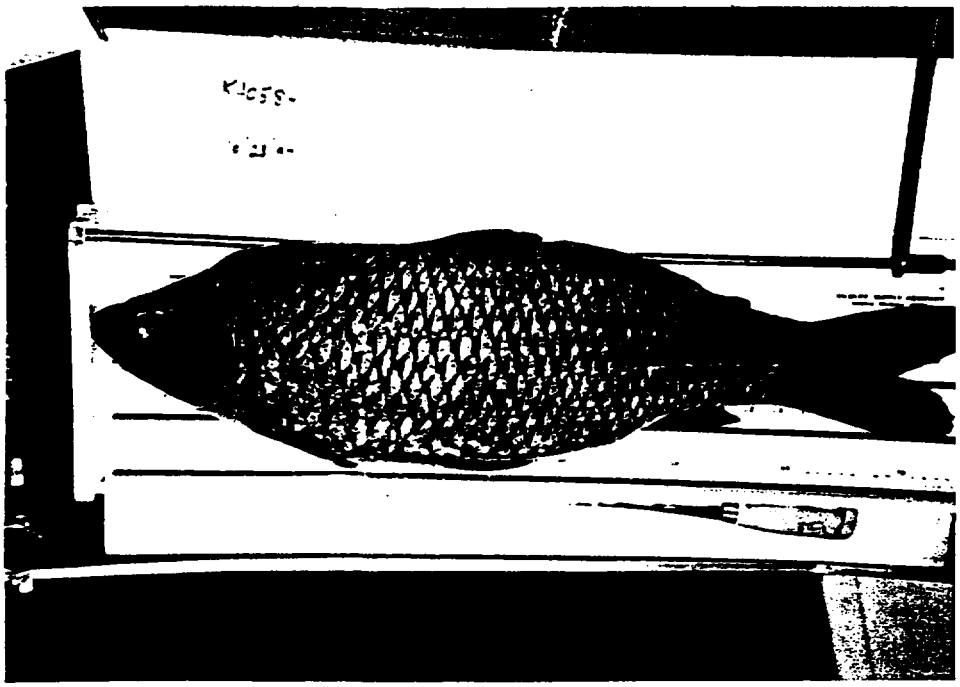
Carp
(*Cyprinus carpio*)



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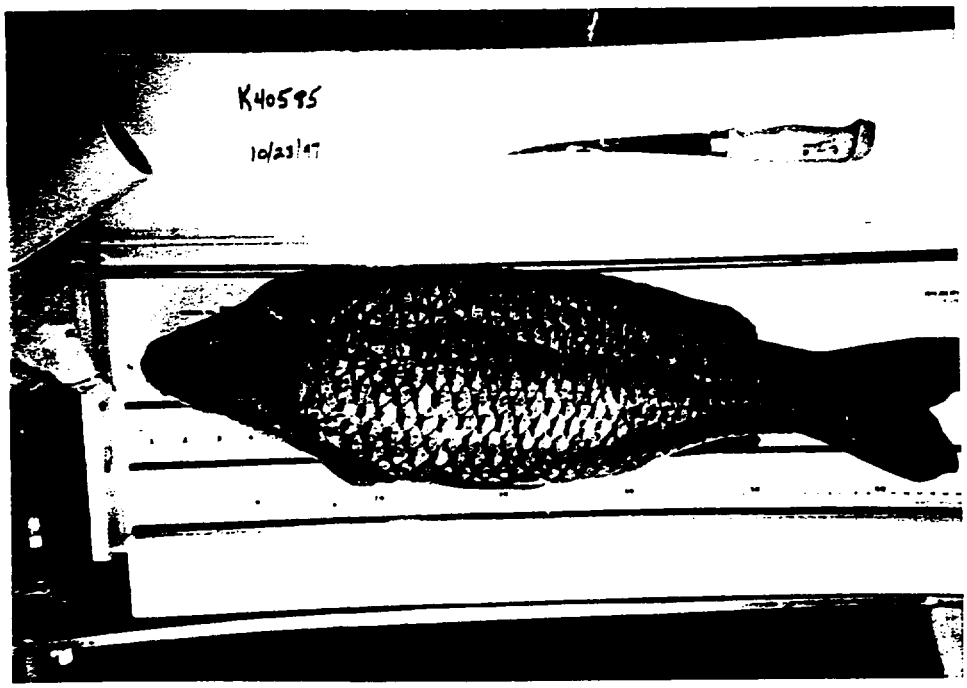

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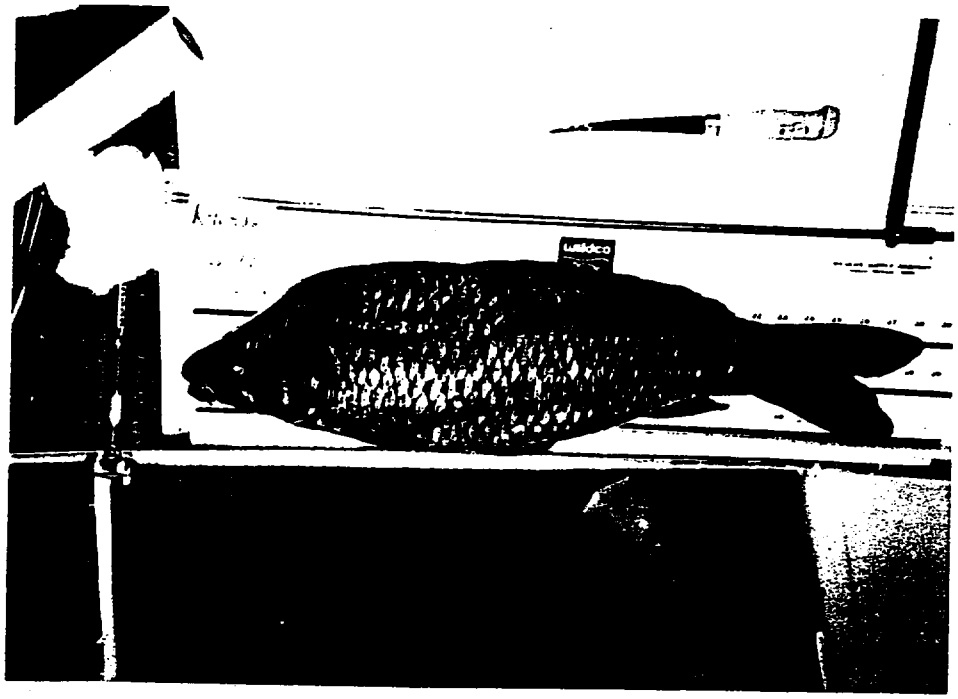

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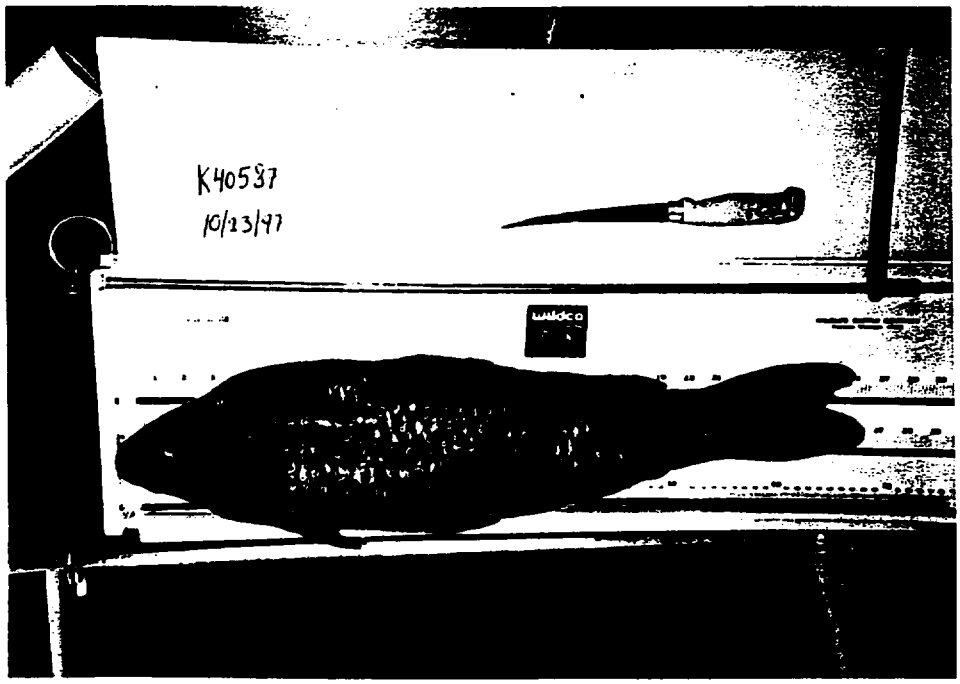

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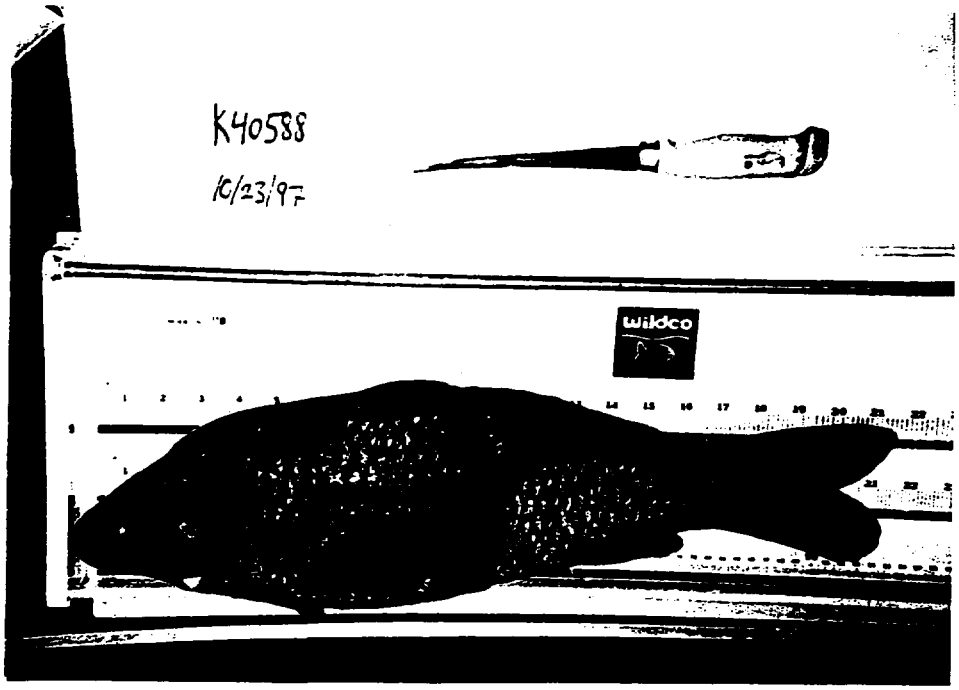

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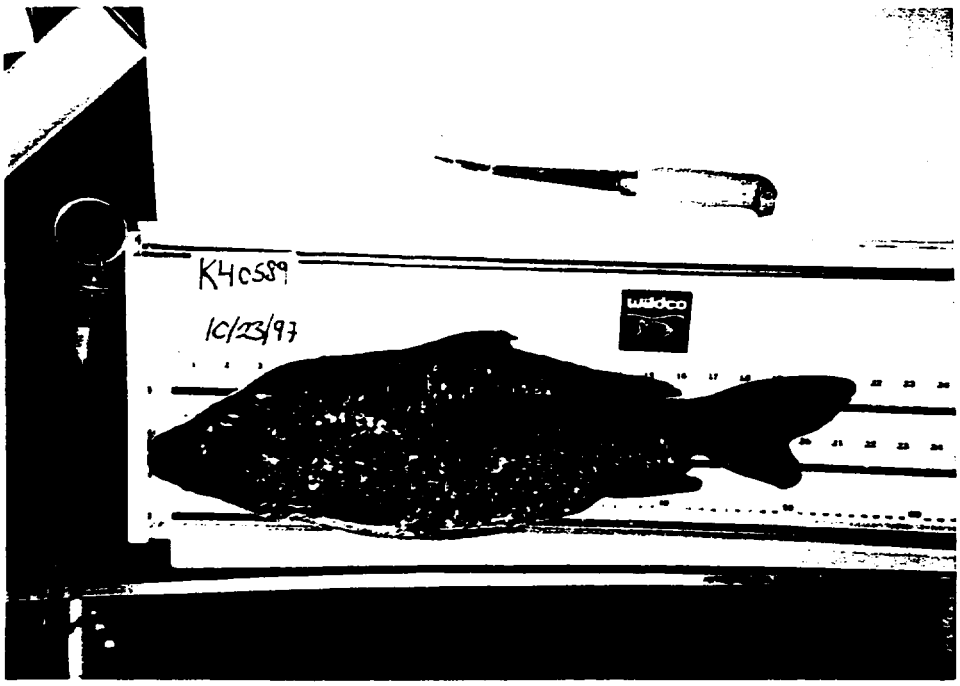

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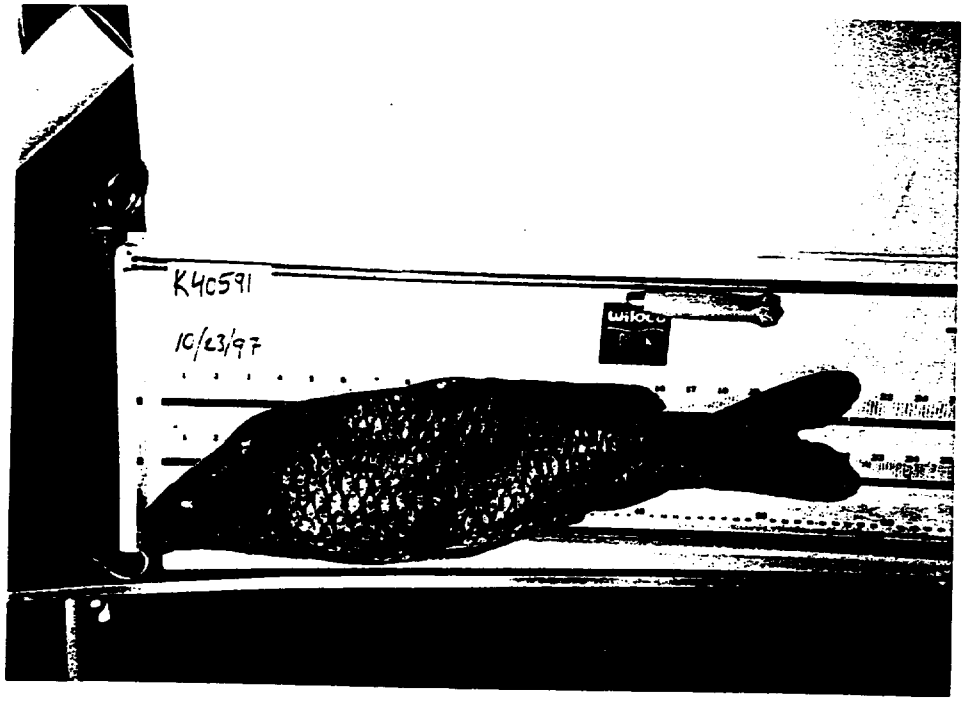

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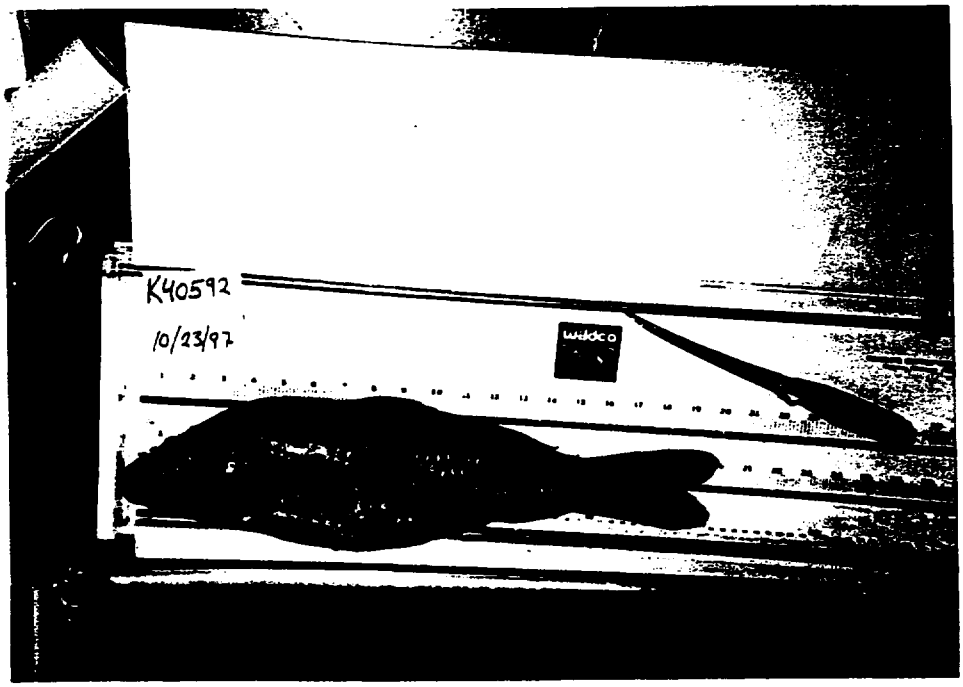

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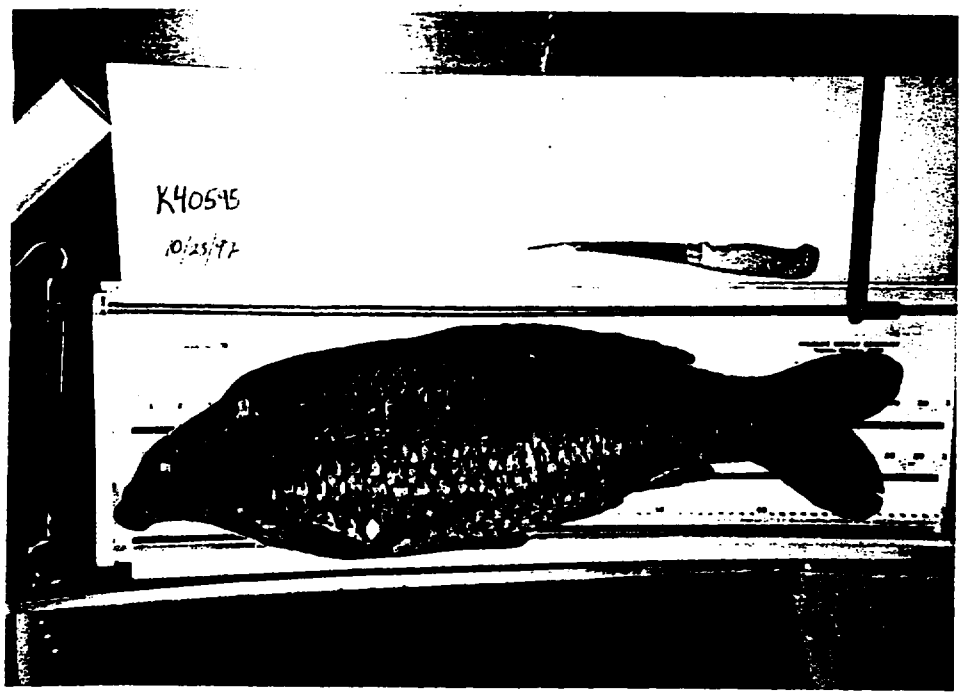

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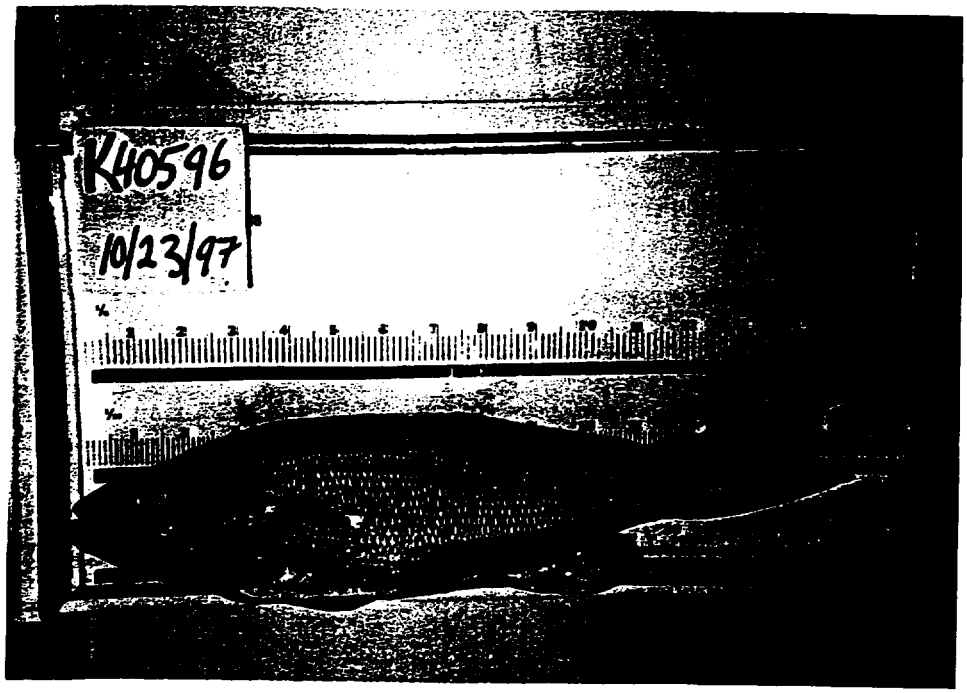
Adult Smallmouth Bass
(*Micropterus dolomieui*)



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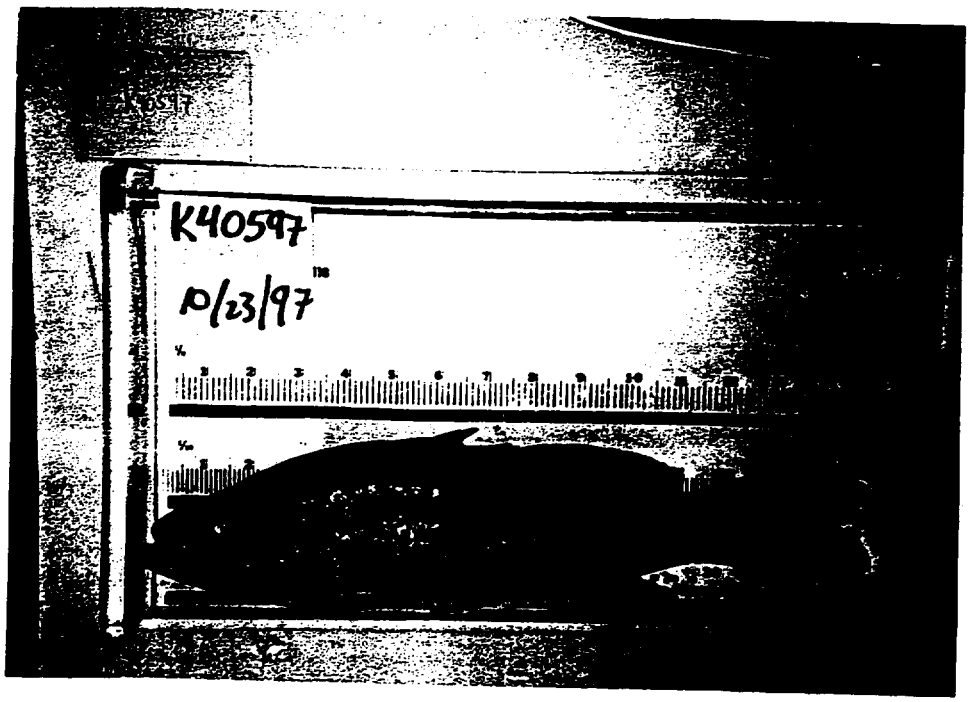

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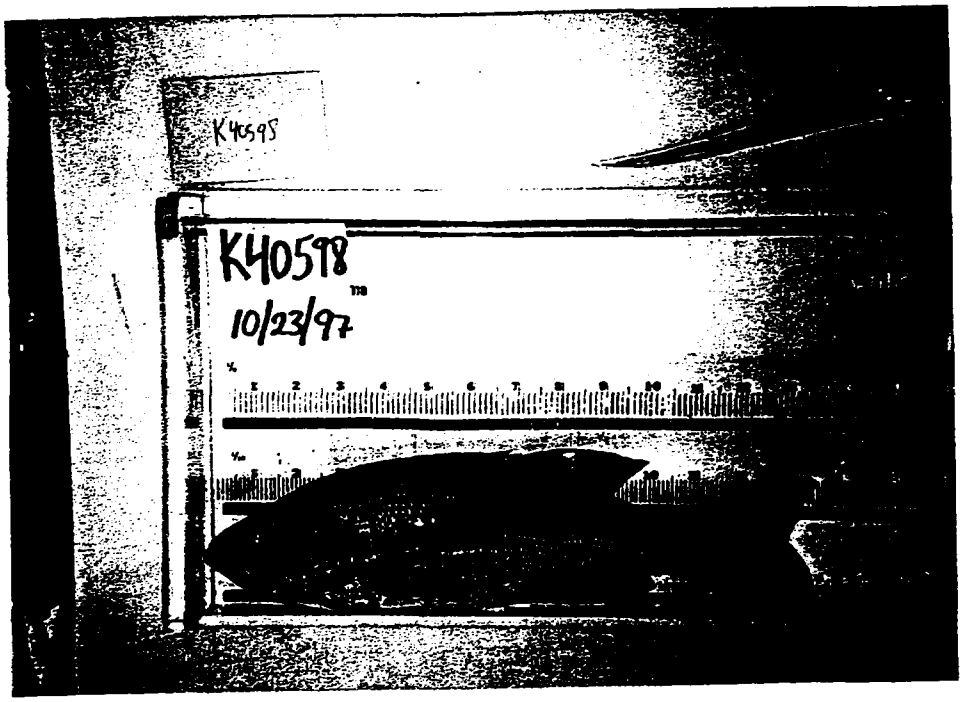

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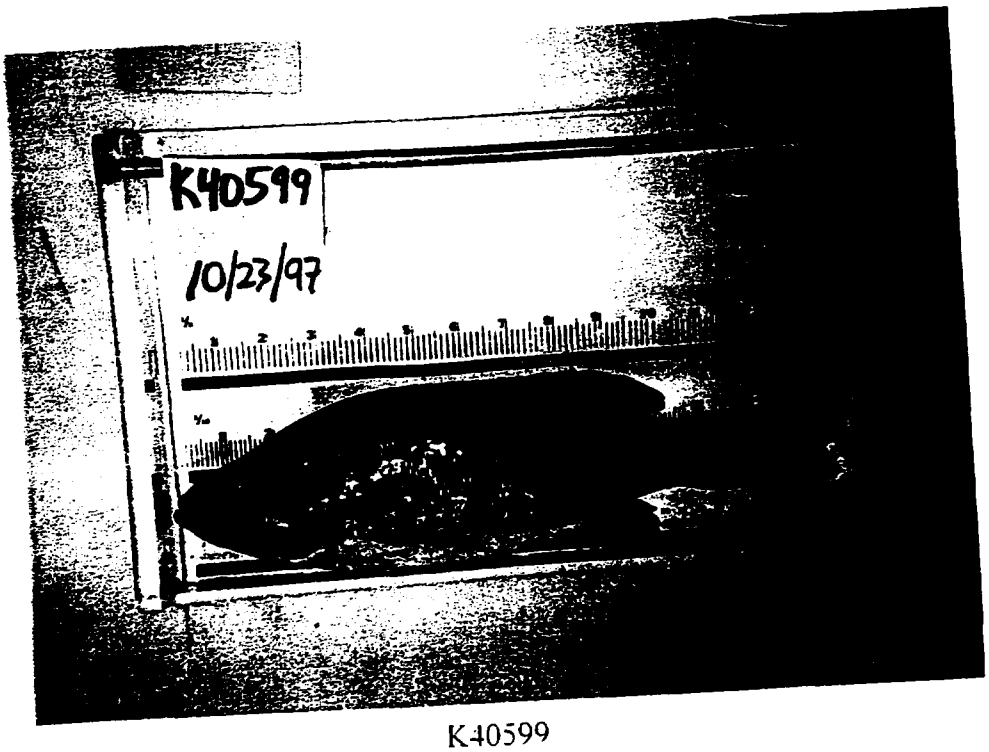
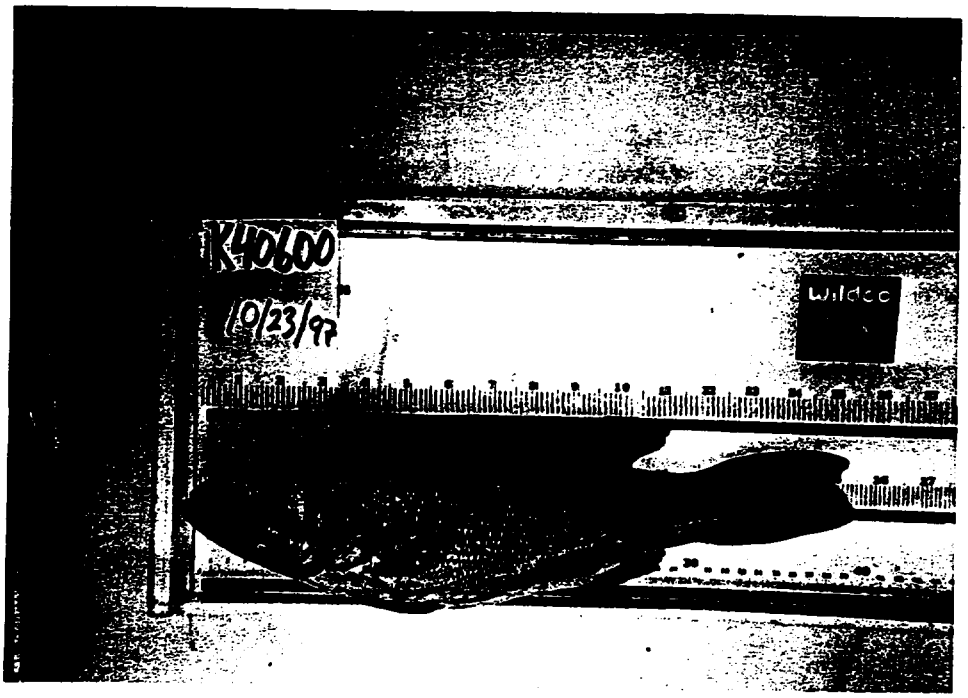
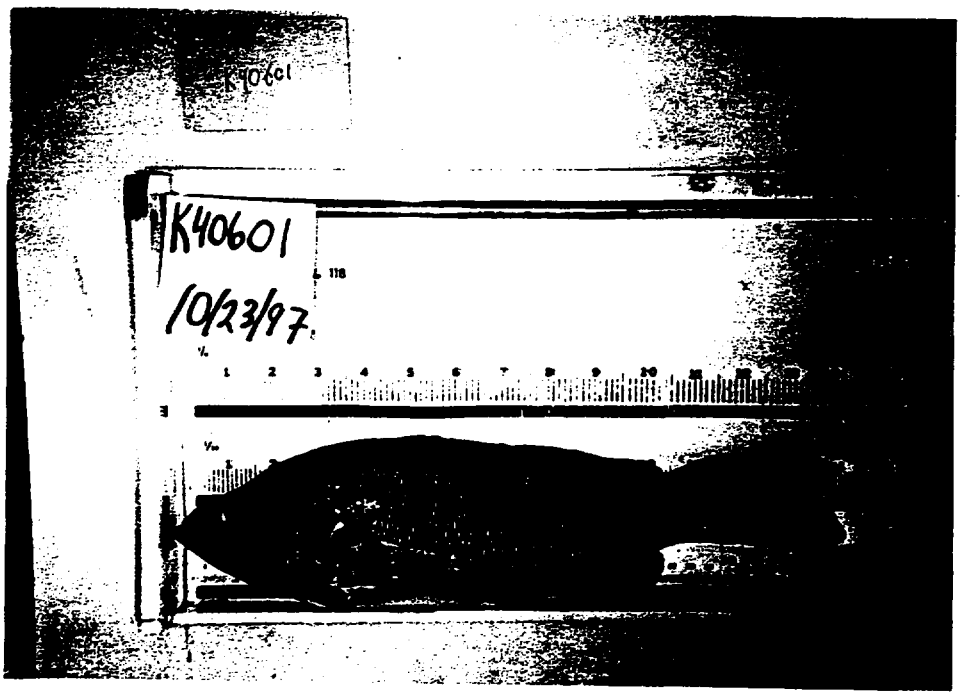


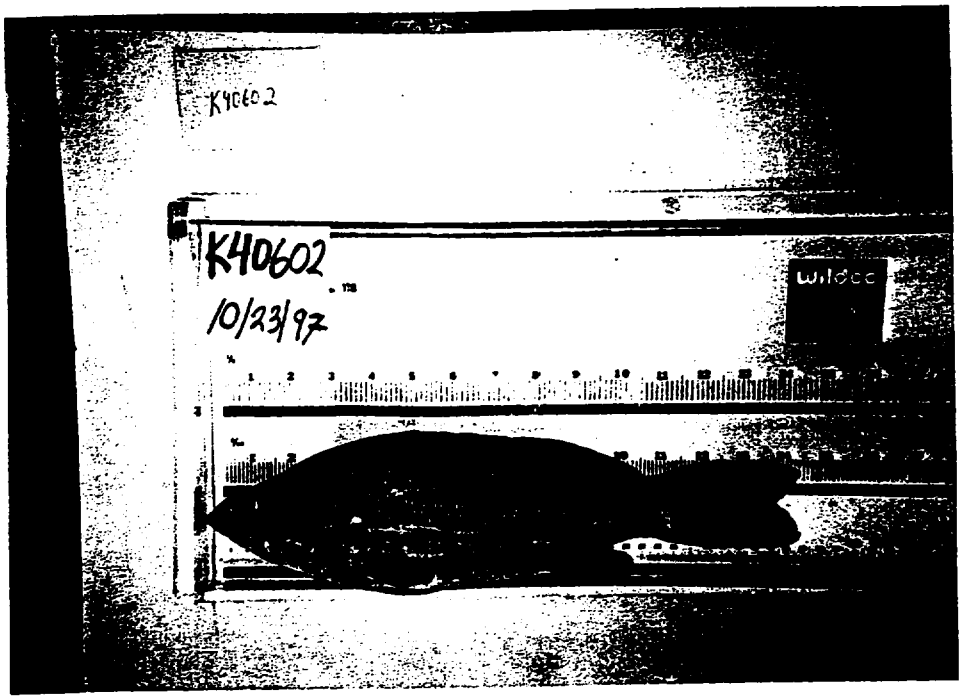
K40599



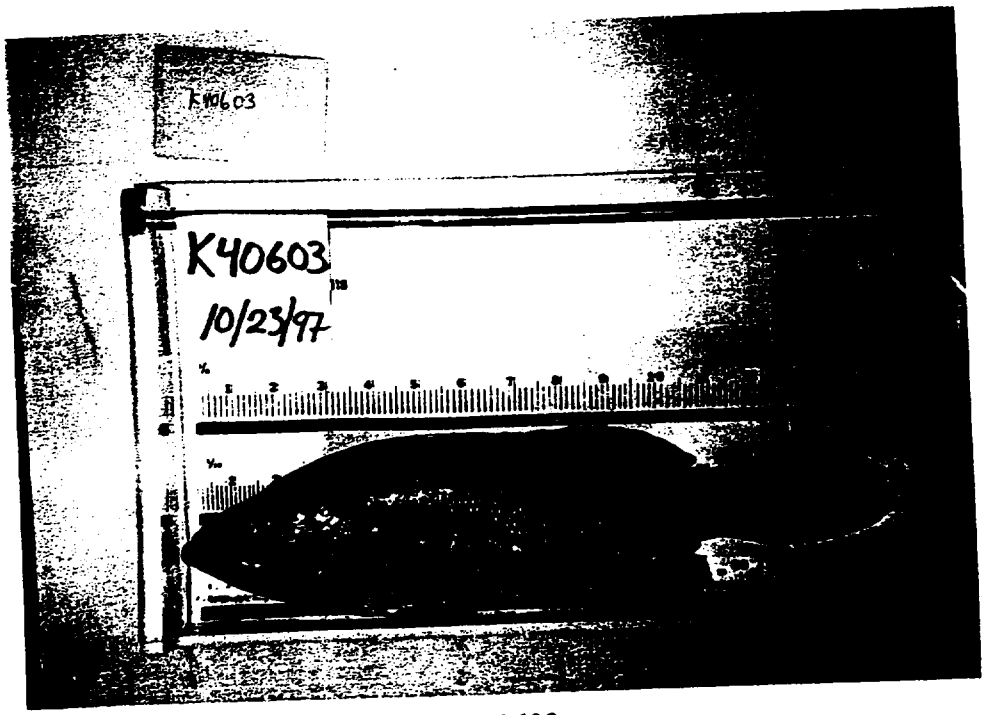
K40600



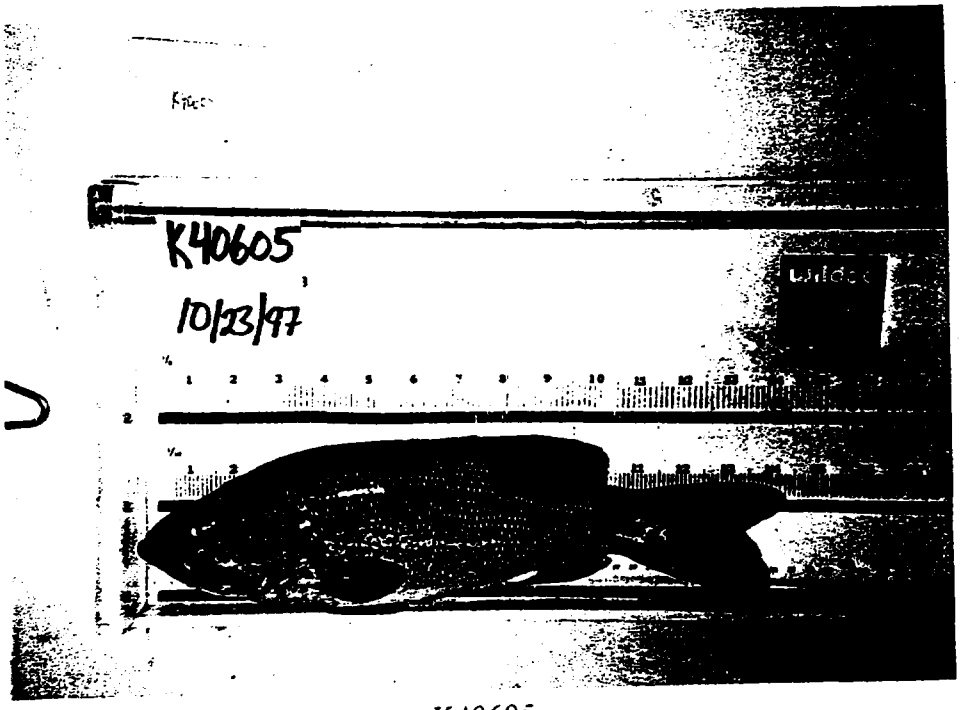
K40601



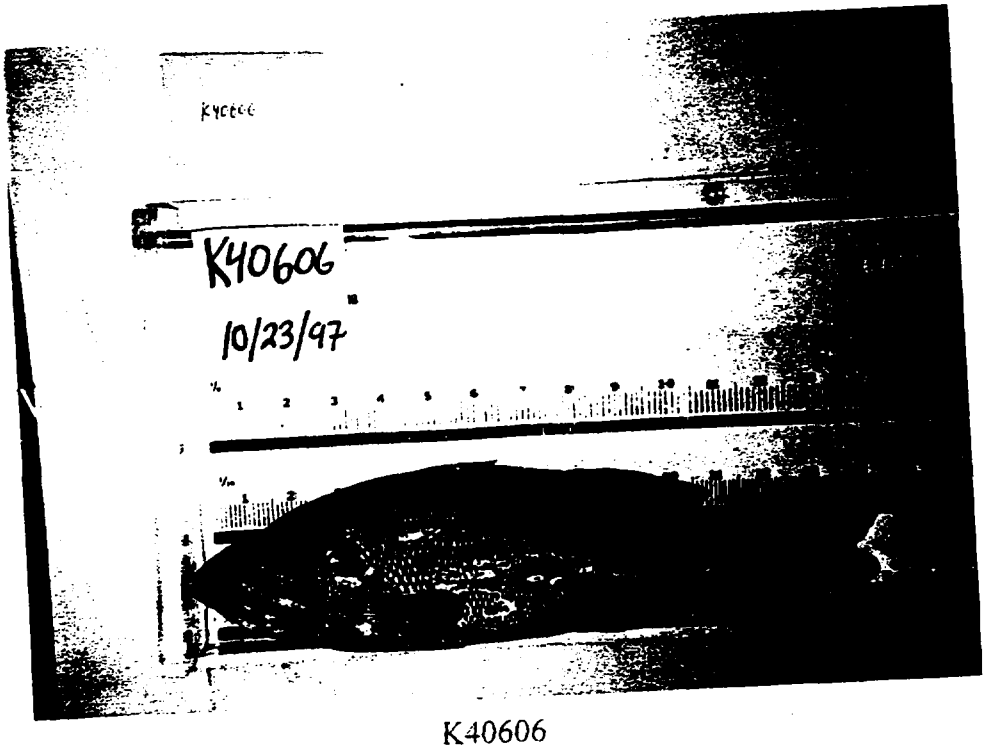
K40602



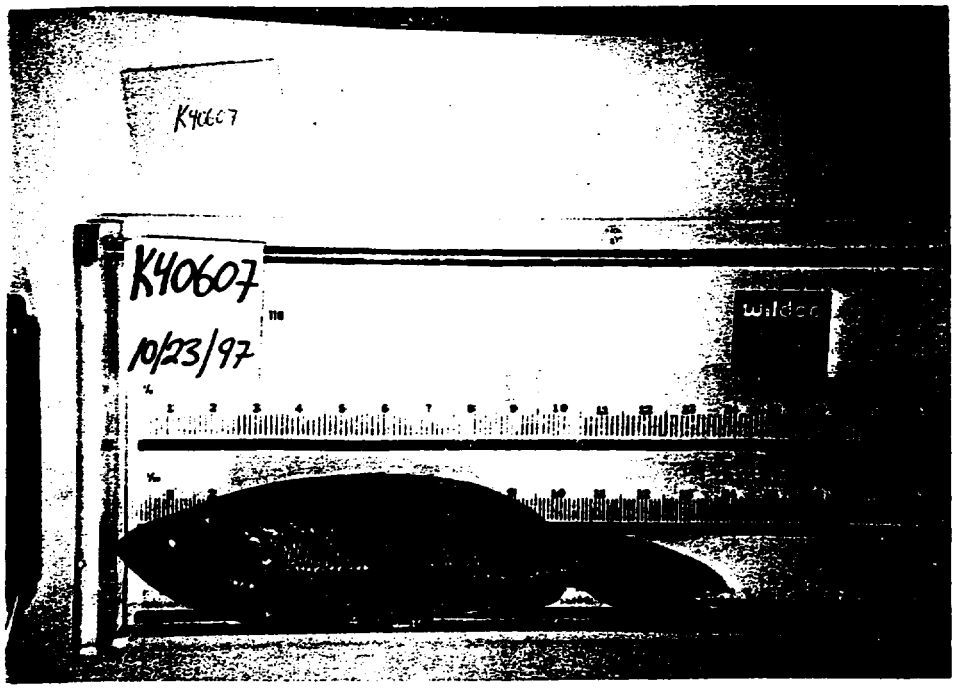
K40603



K40605



K40606

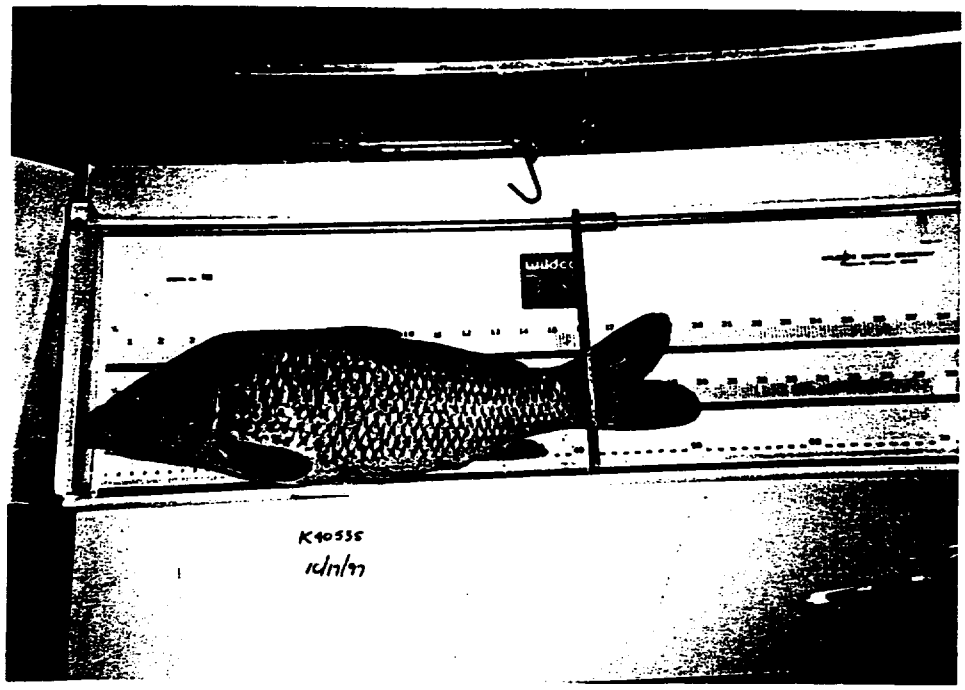


K40607

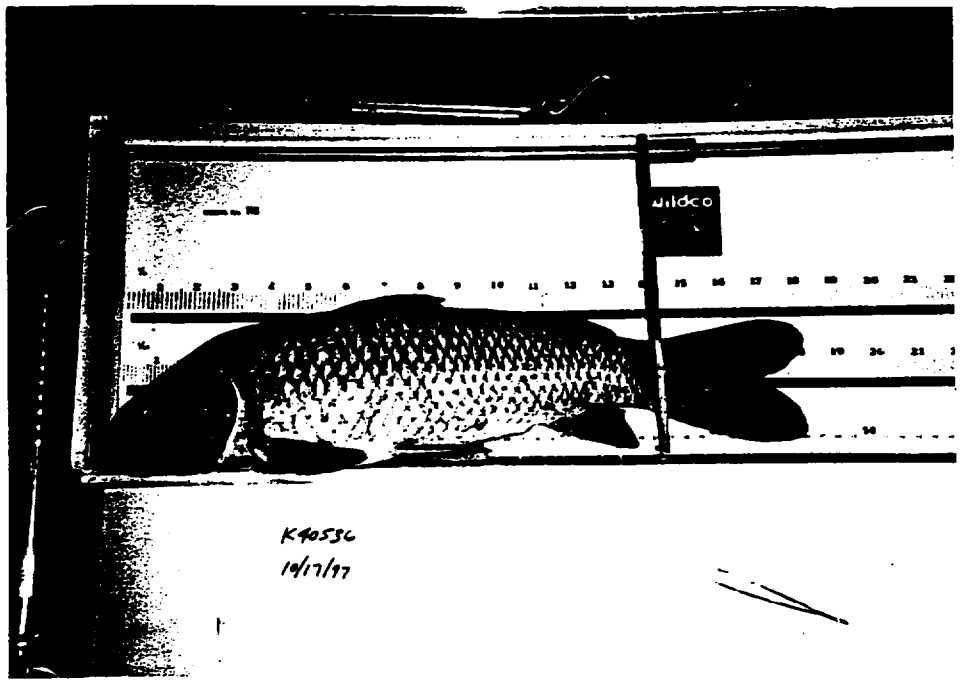
ABSA #9

CARP	ADULT SMALLMOUTH BASS
K40535	K40540
K40536	K40542
K40537	K40575
K40538	K40576
K40539	K40577
K40568	K40578
K40569	K40579
K40570	K40580
K40571	K40581
K40572	K40582
K40574	K40583

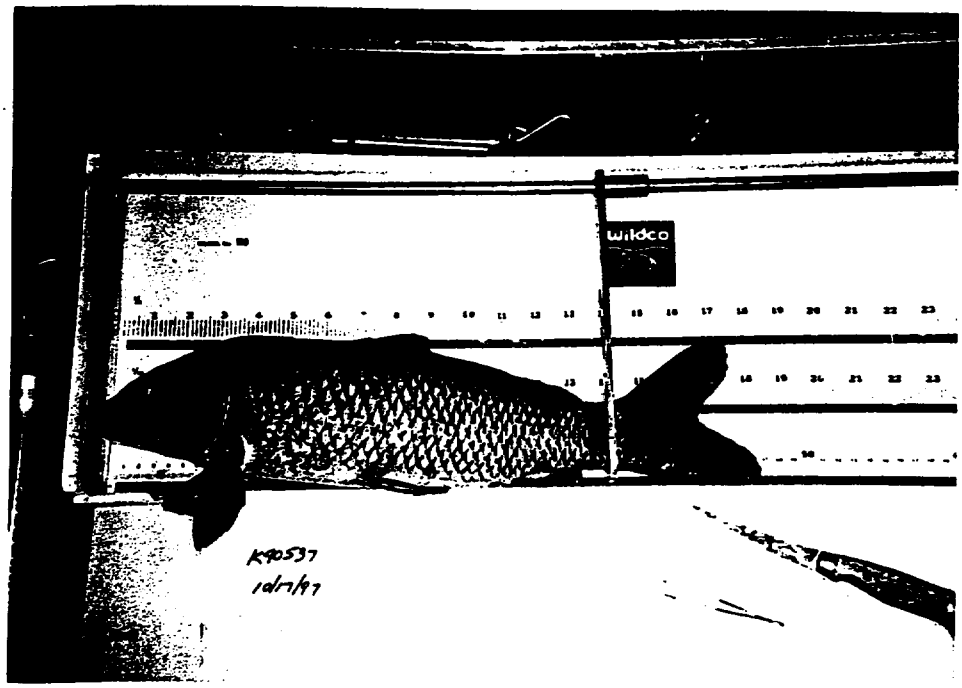
Carp
(*Cyprinus carpio*)



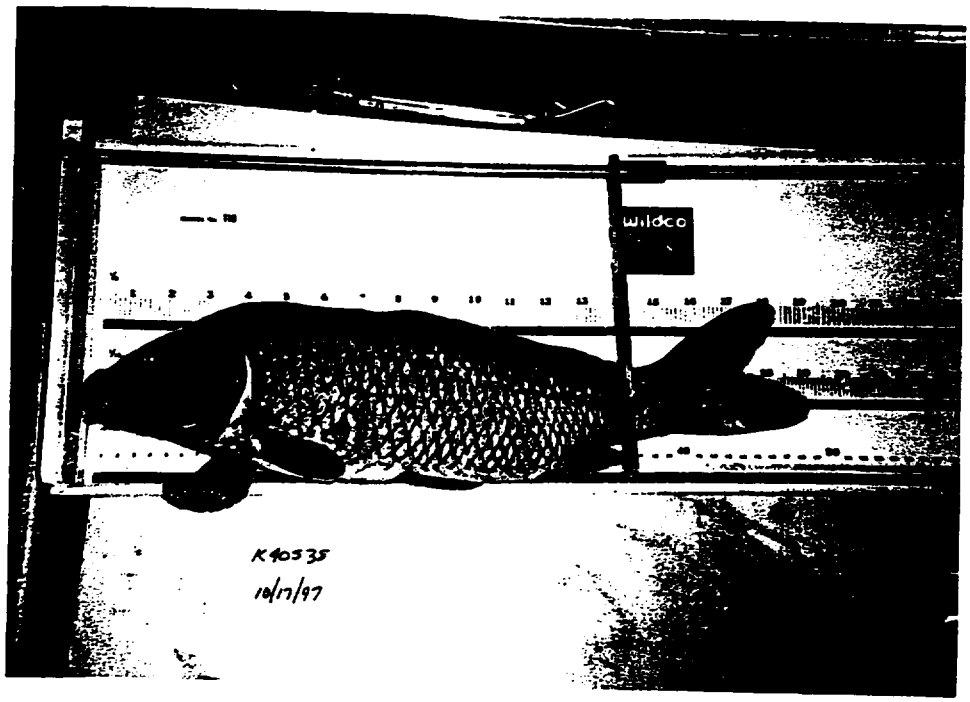
K40535



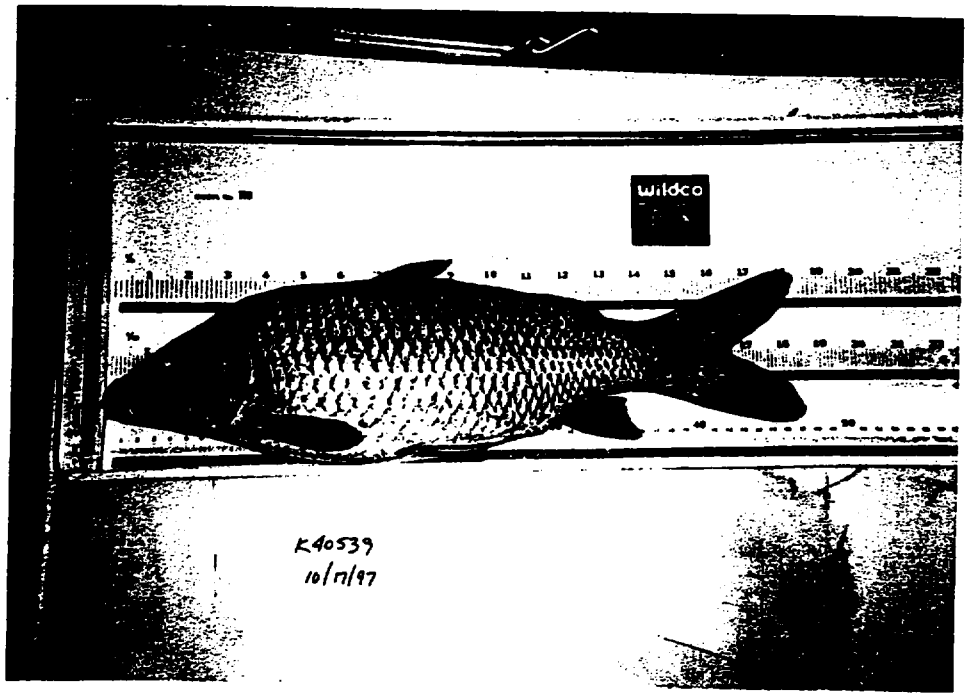
K40536



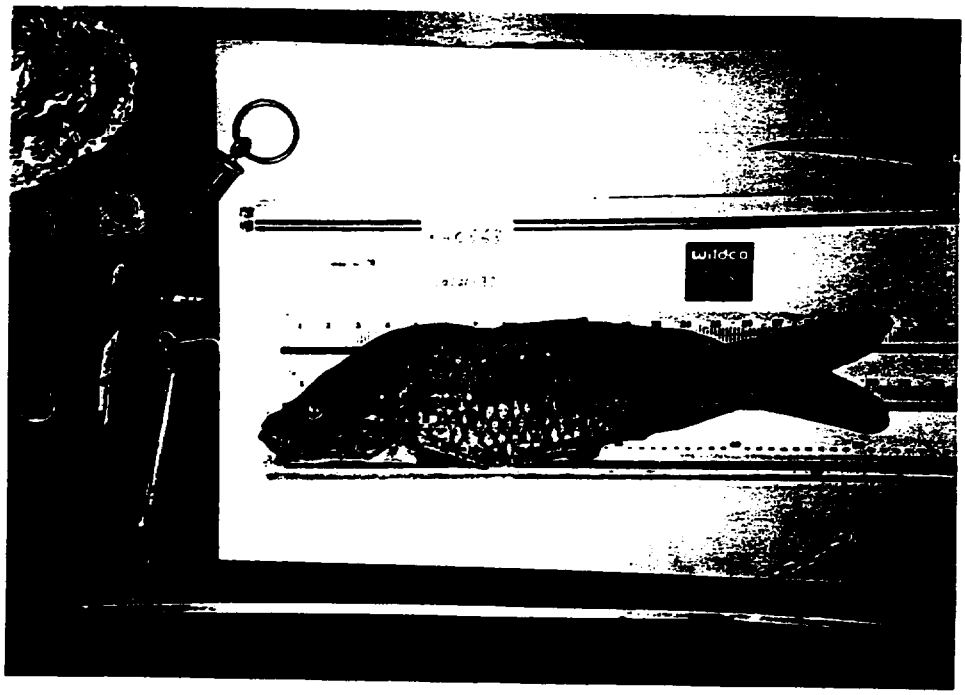
K40537



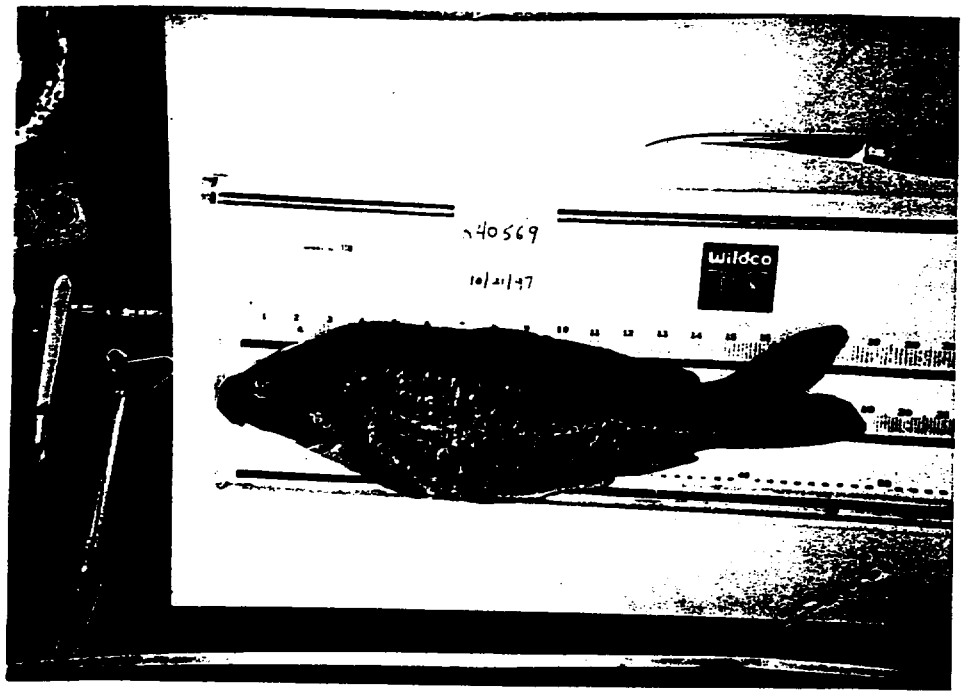
K40538



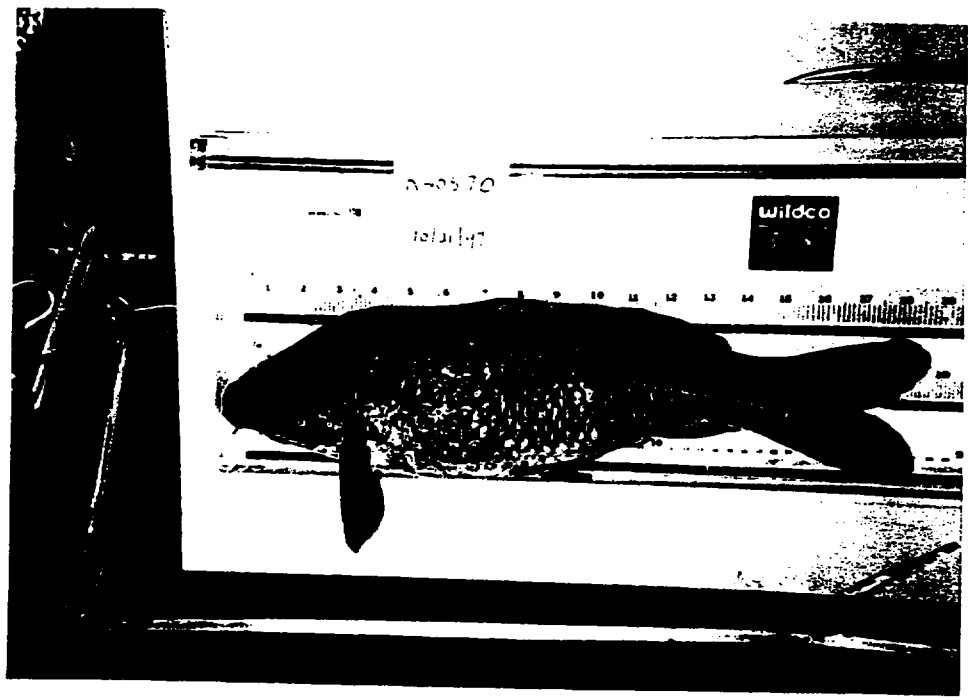
K40539



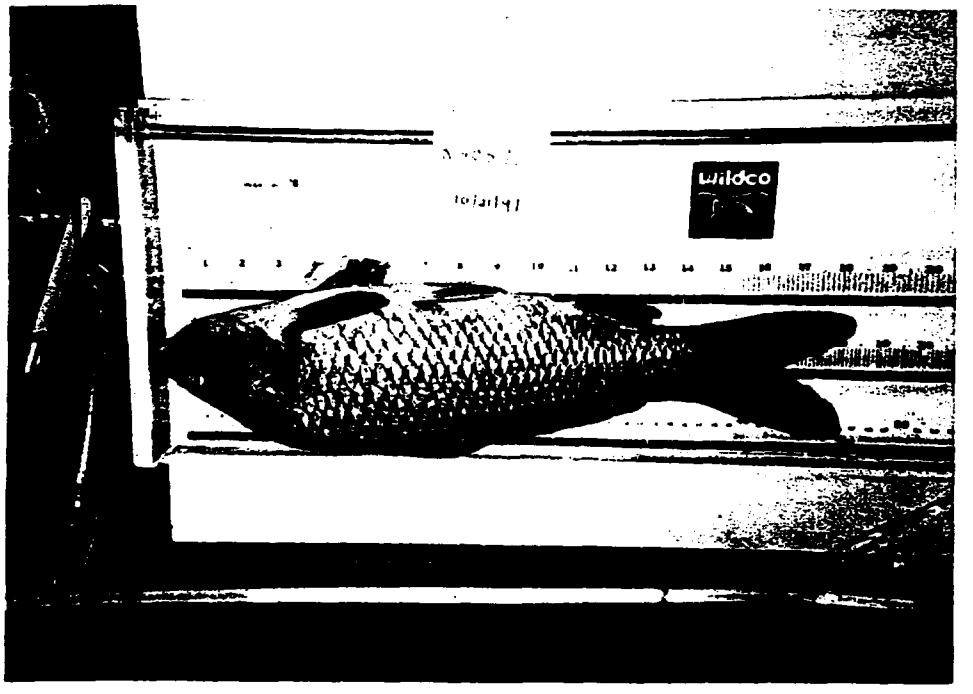
K40568



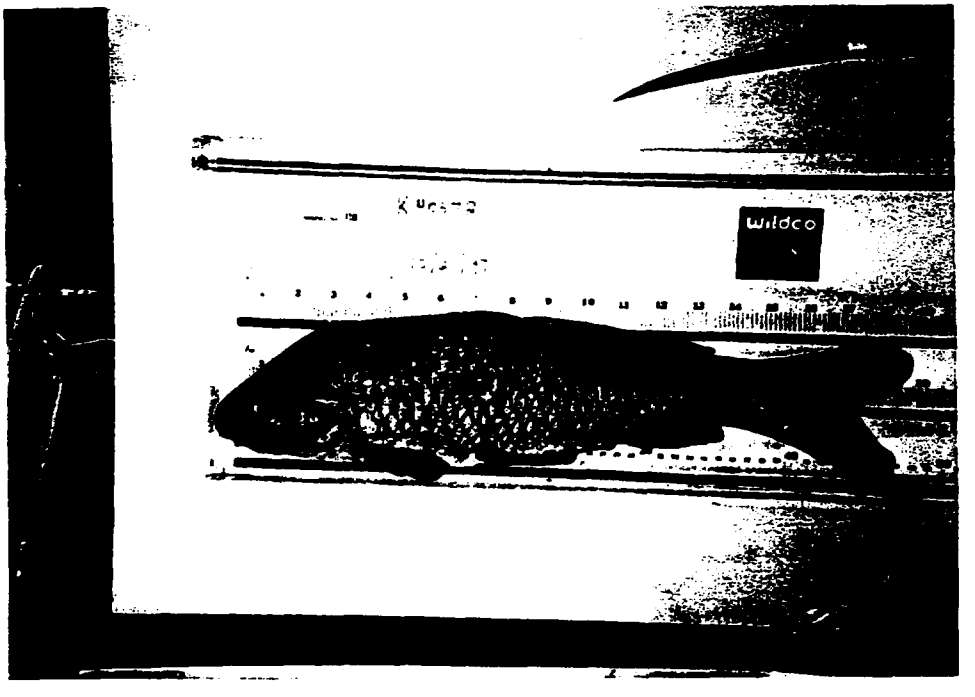
K40569



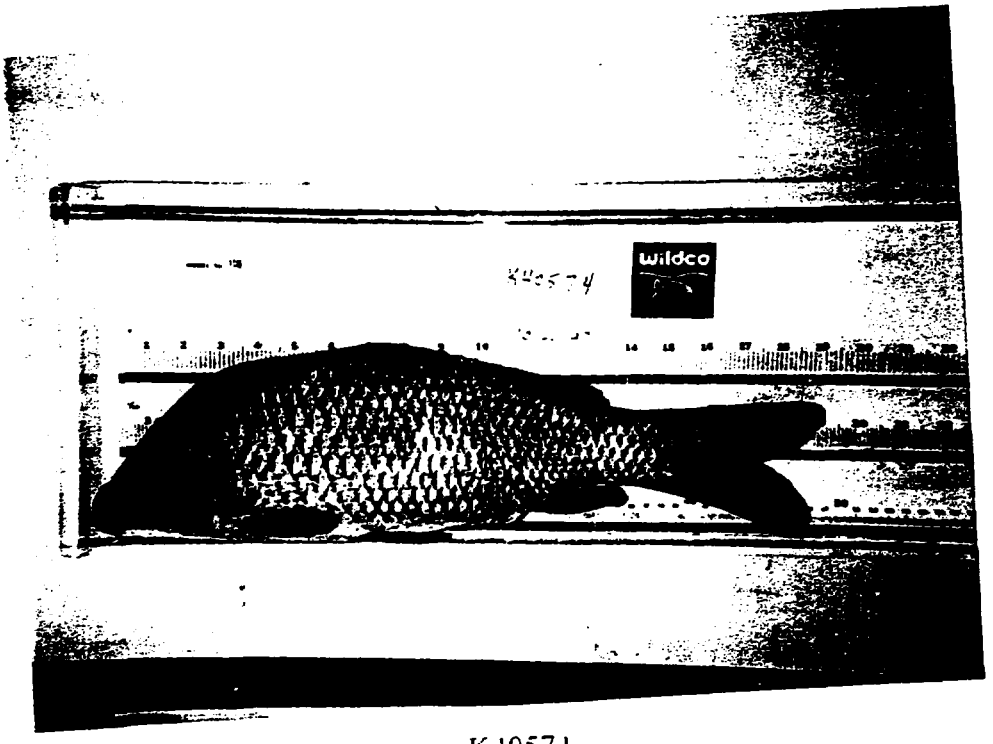
K40570



K40571

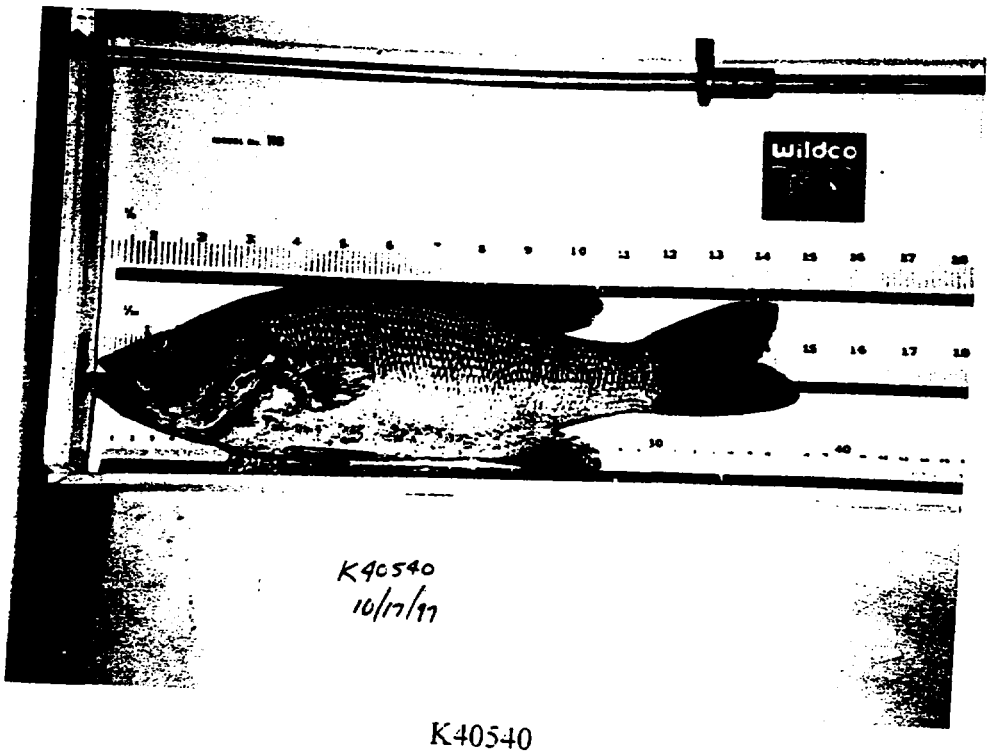


K40572

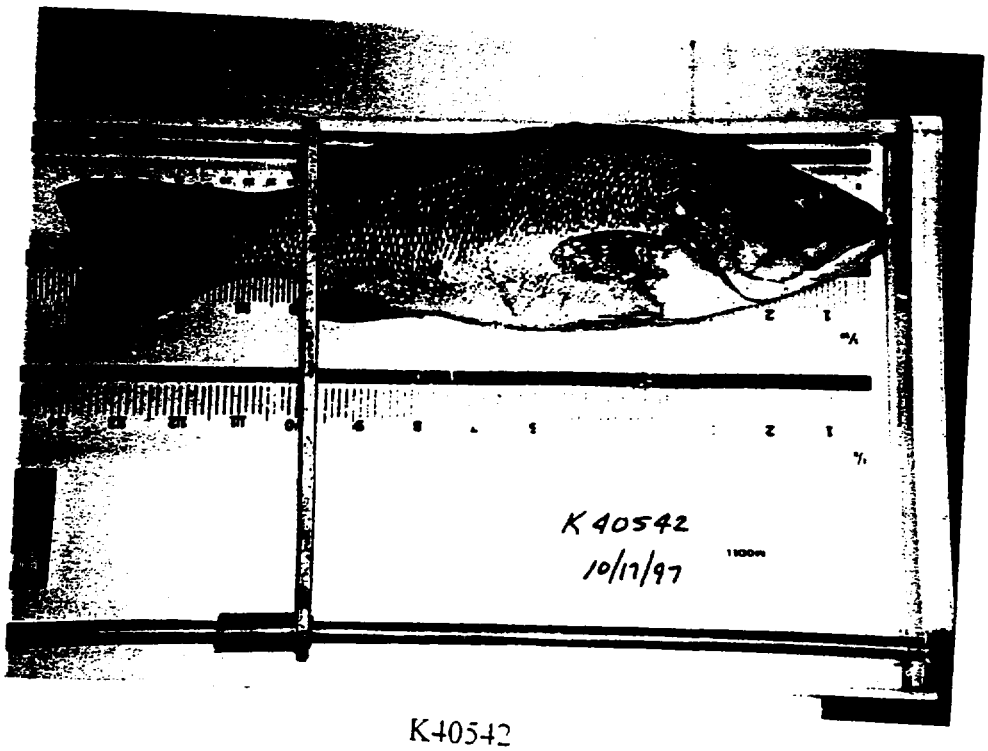


K40574

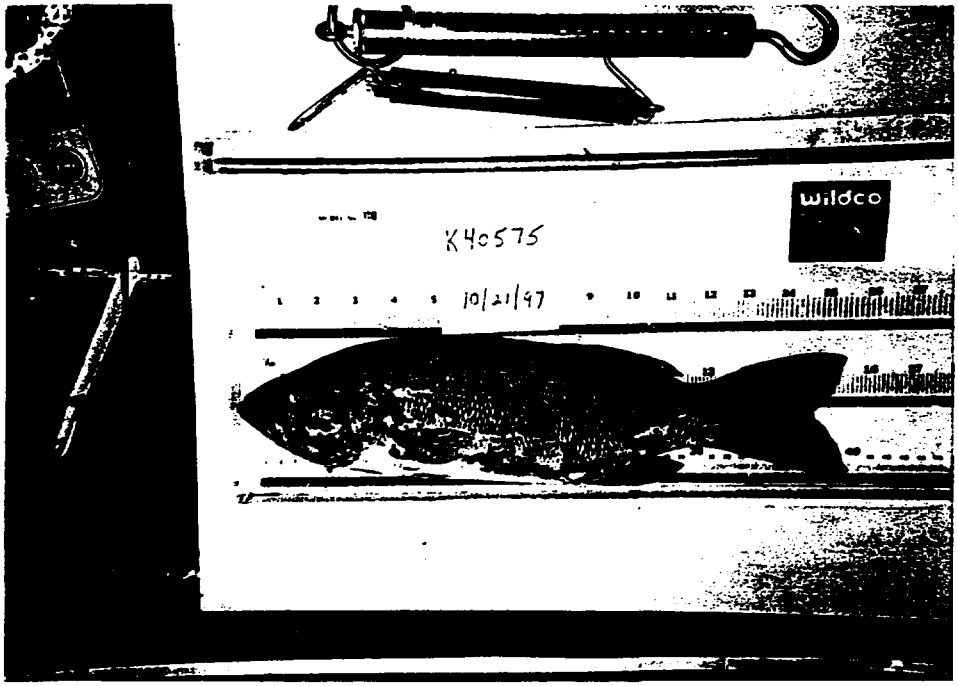
Adult Smallmouth Bass
(*Micropterus dolomieui)*



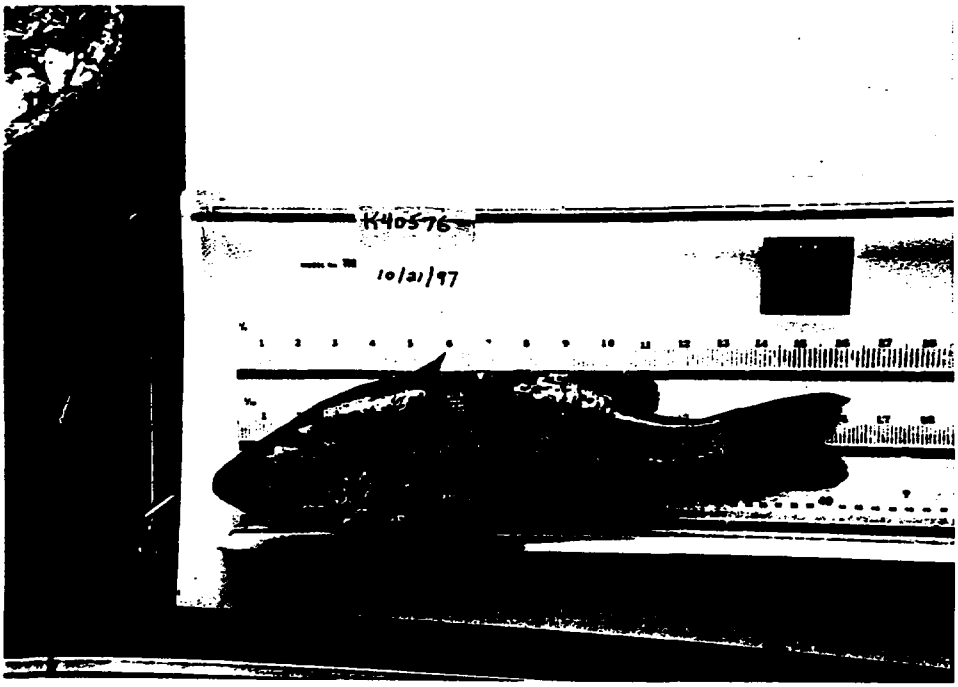
K40540



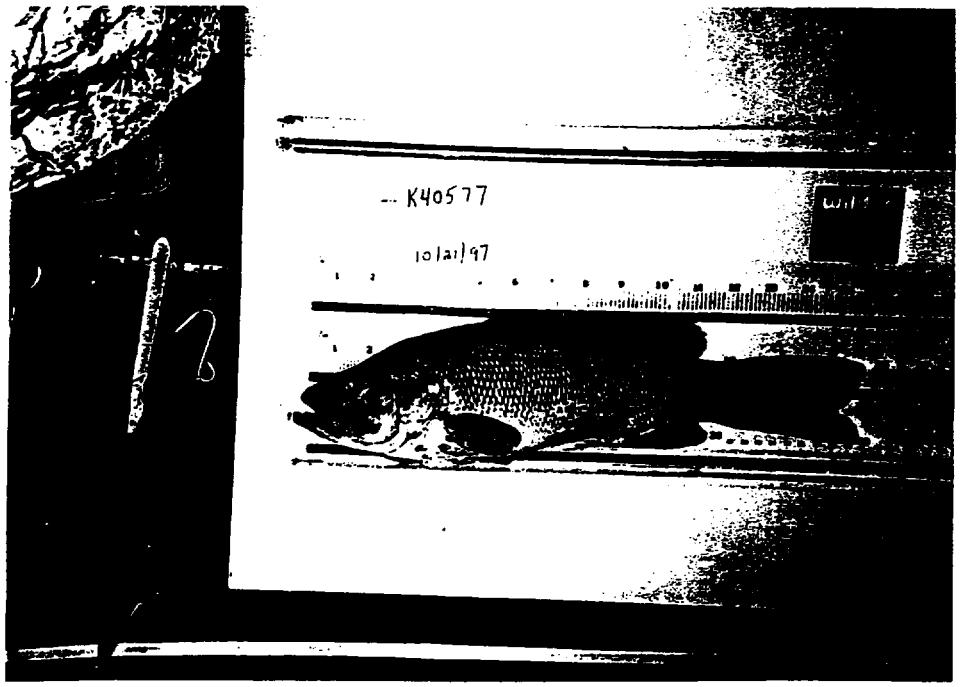
K40542



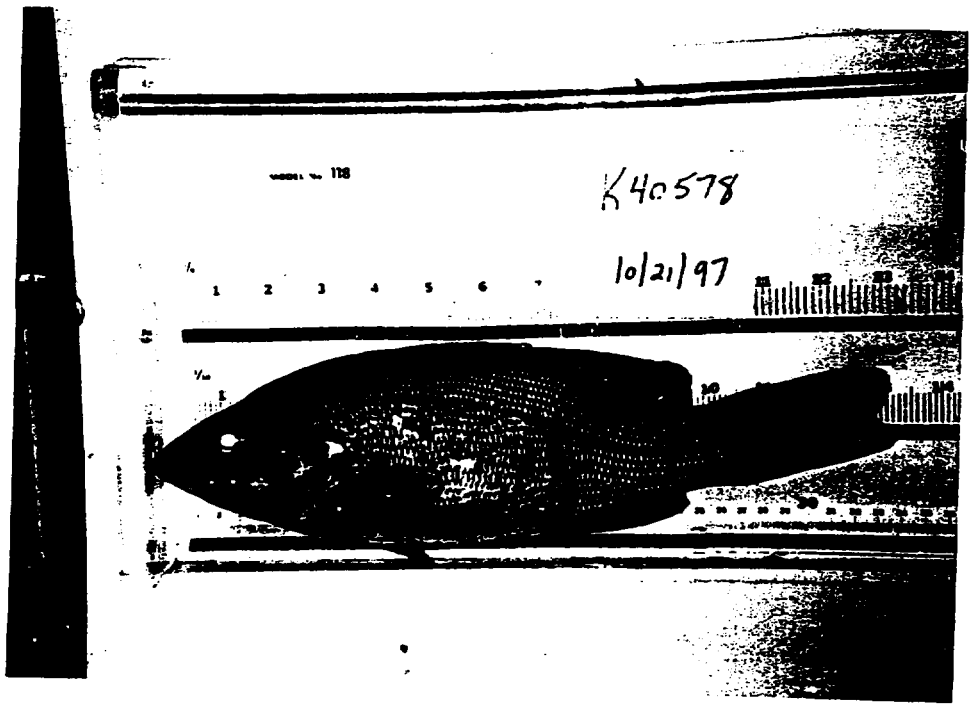
K40575



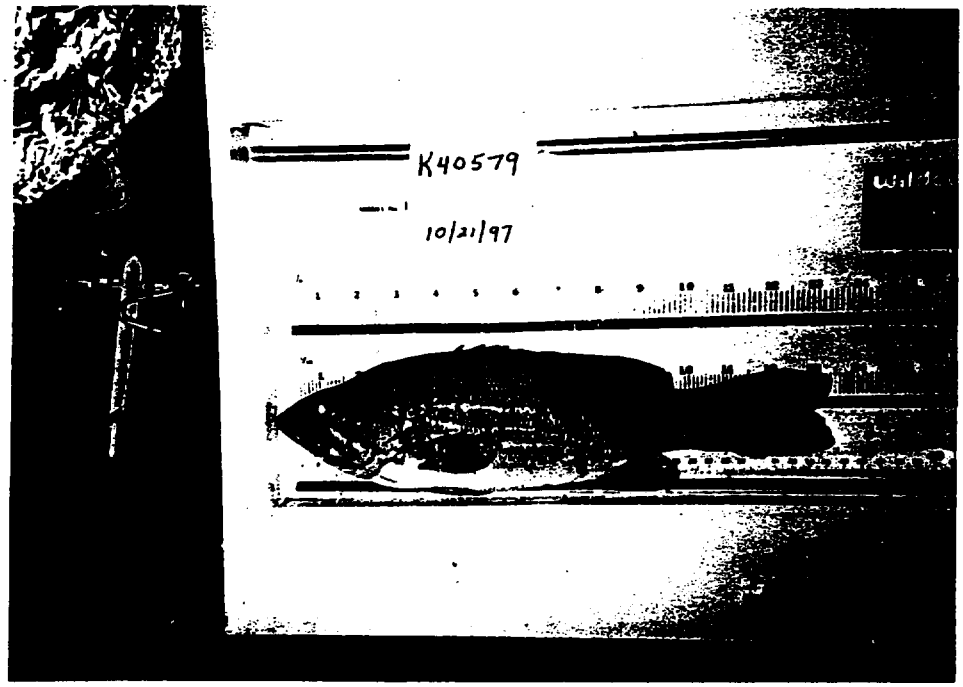
K40576



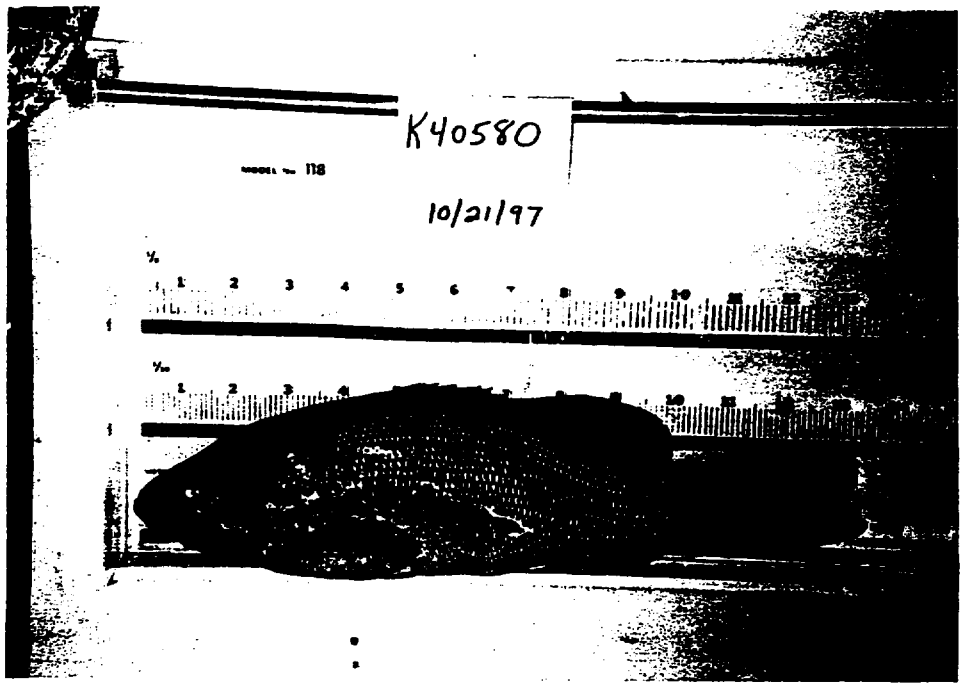
K40577



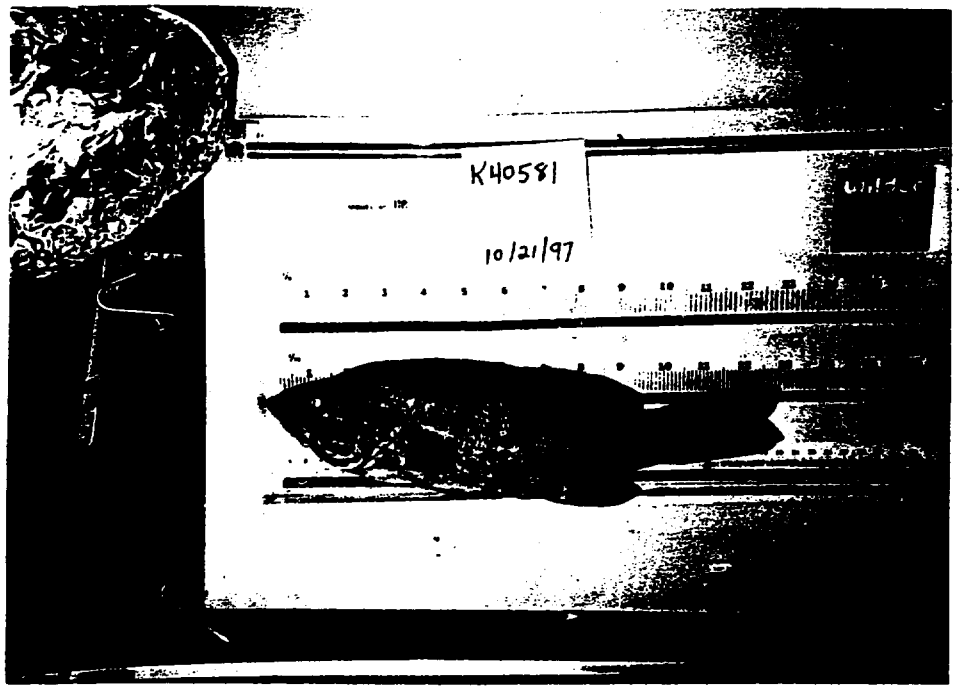
K40578



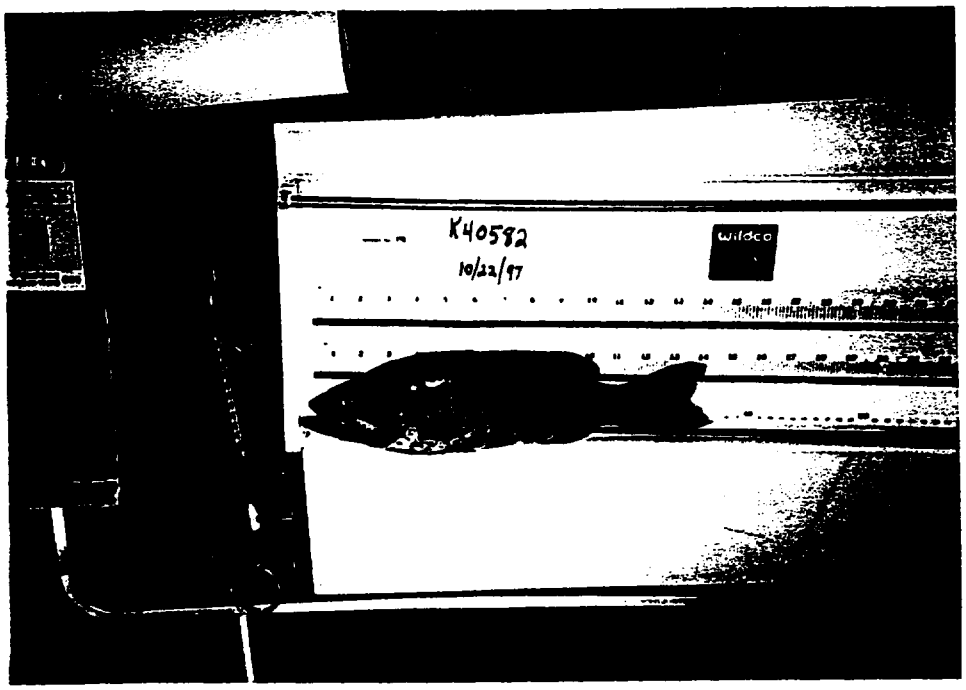
K40579



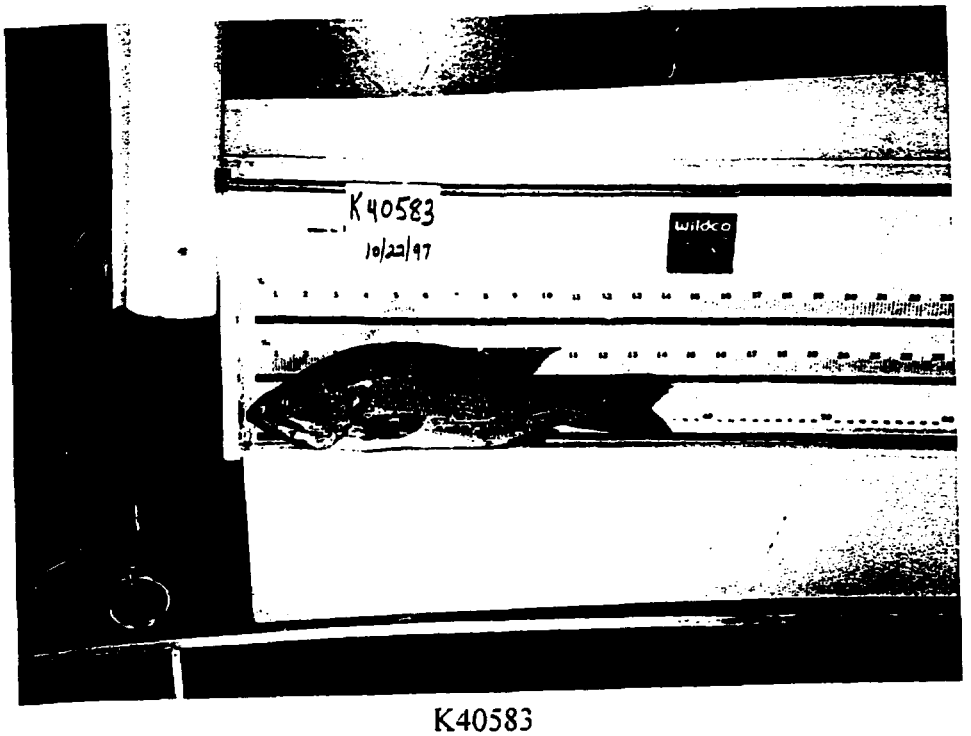
K40580



K40581



K40582

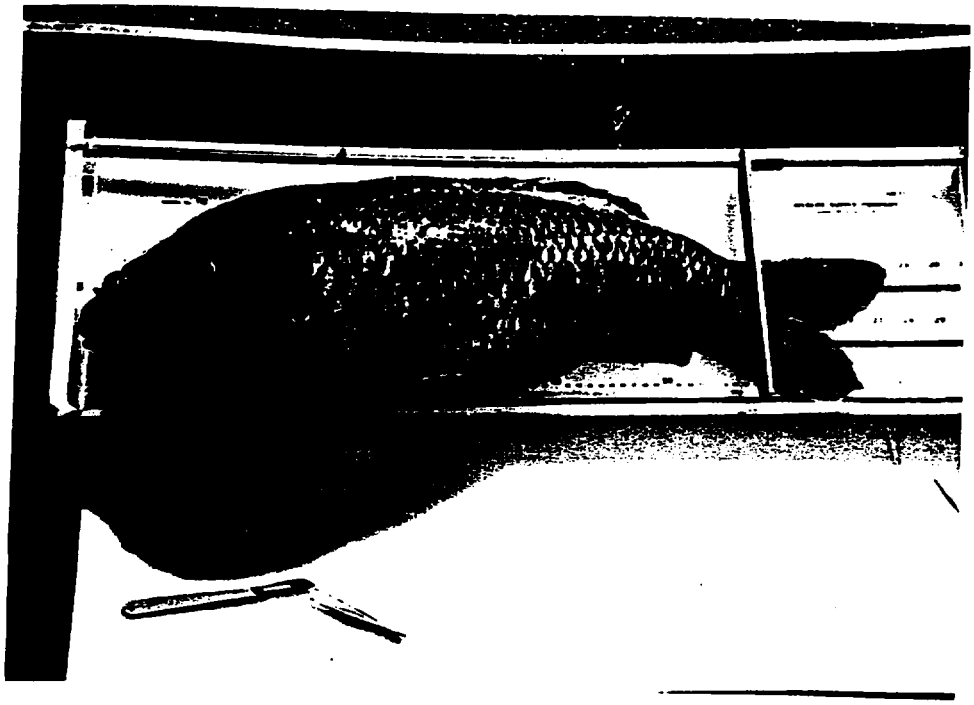


K40583

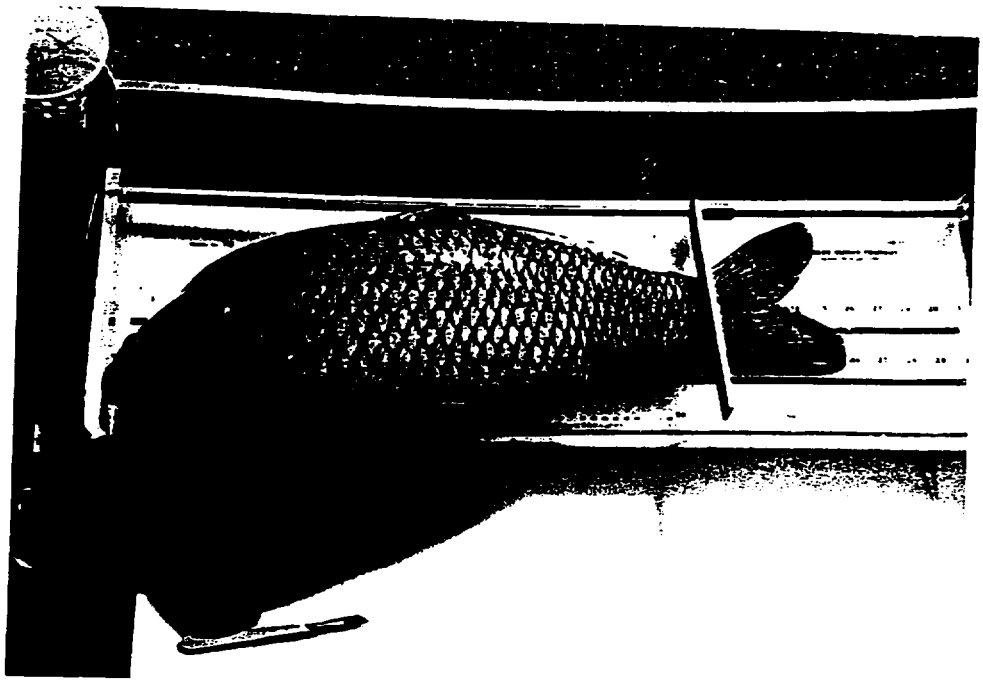
ABSA #11

CARP	ADULT SMALLMOUTH BASS
K40505	K40500
K40506	K40502
K40507	K40544
K40508	K40545
K40509	K40546
K40511	K40547
K40512	K40548
K40513	K40549
K40514	K40550
K40515	K40613
K40516	K40614
K40543	

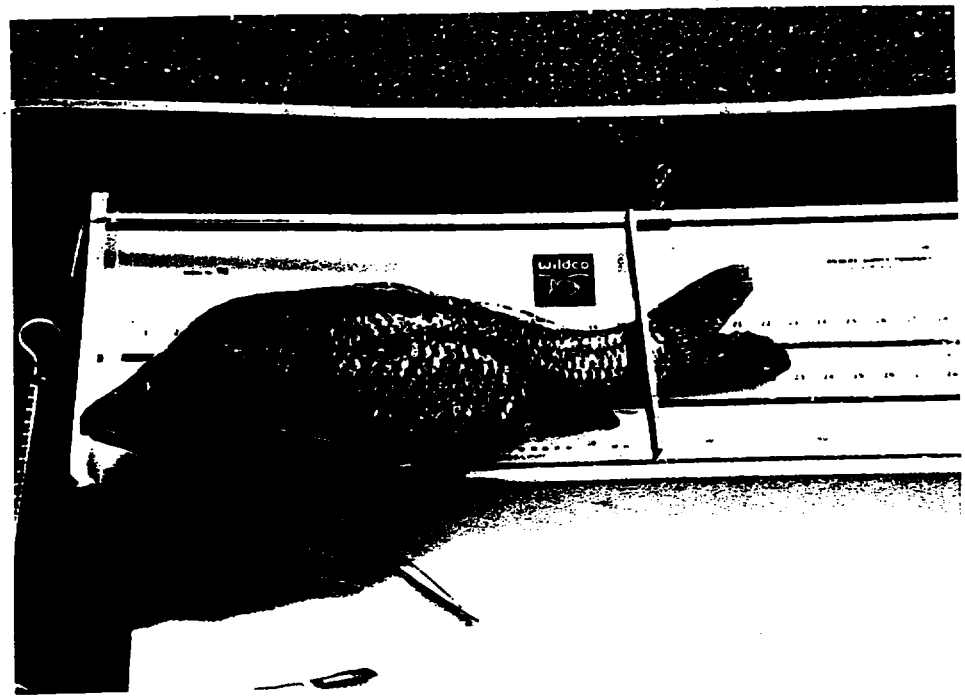
Carp
(*Cyprinus carpio*)



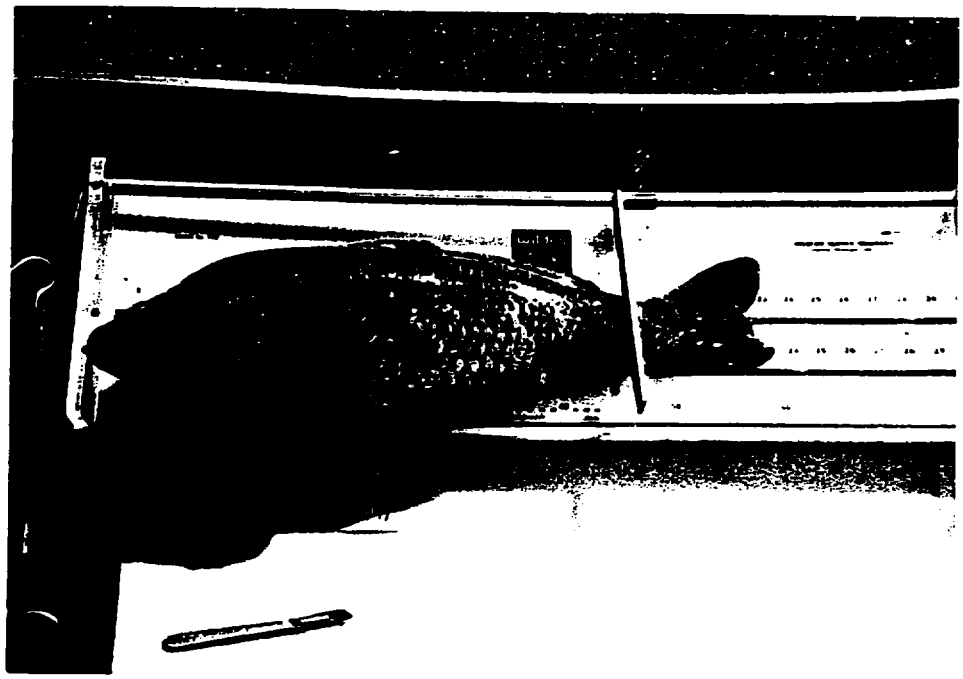
K40505



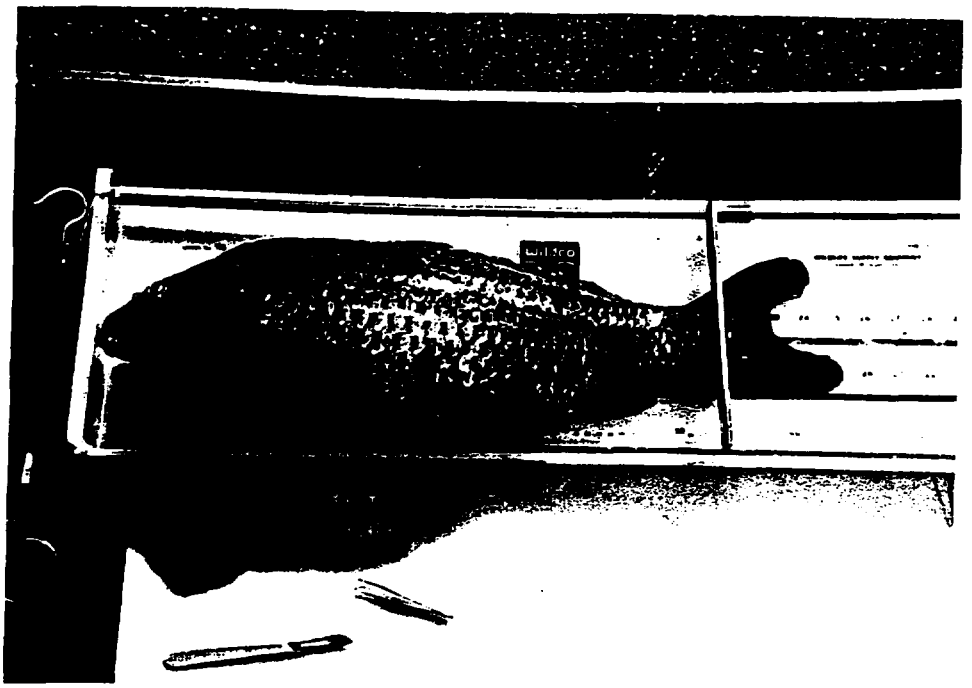
K40506



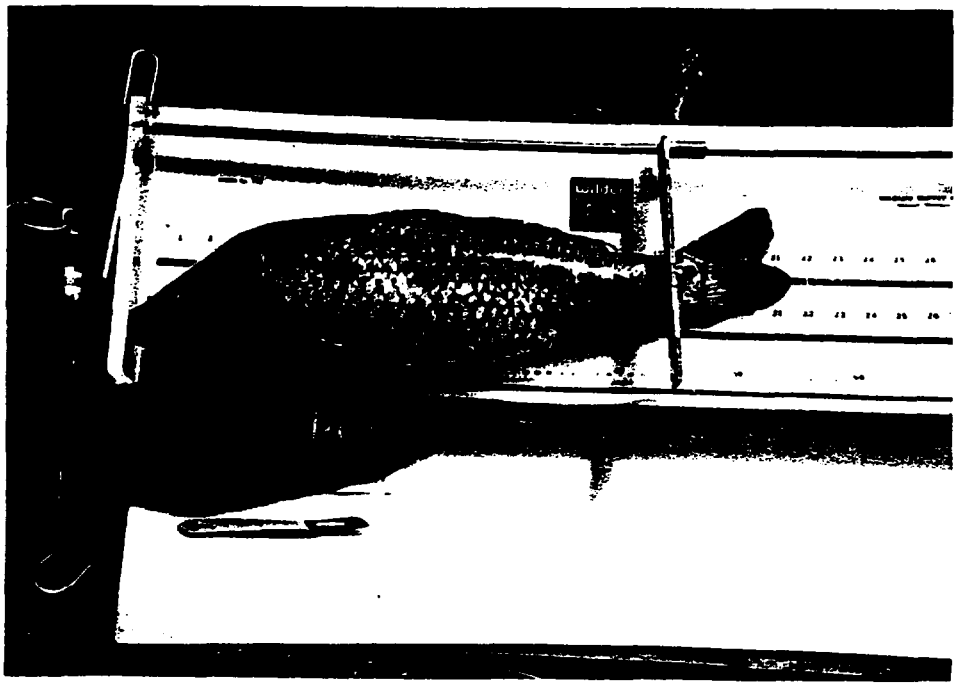
K40507



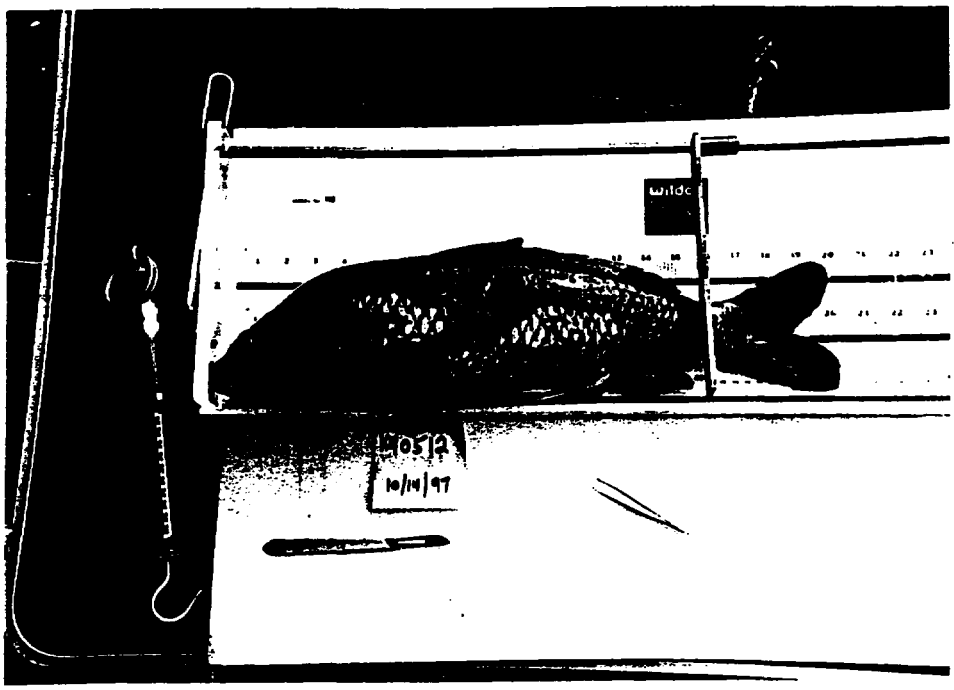
K40508



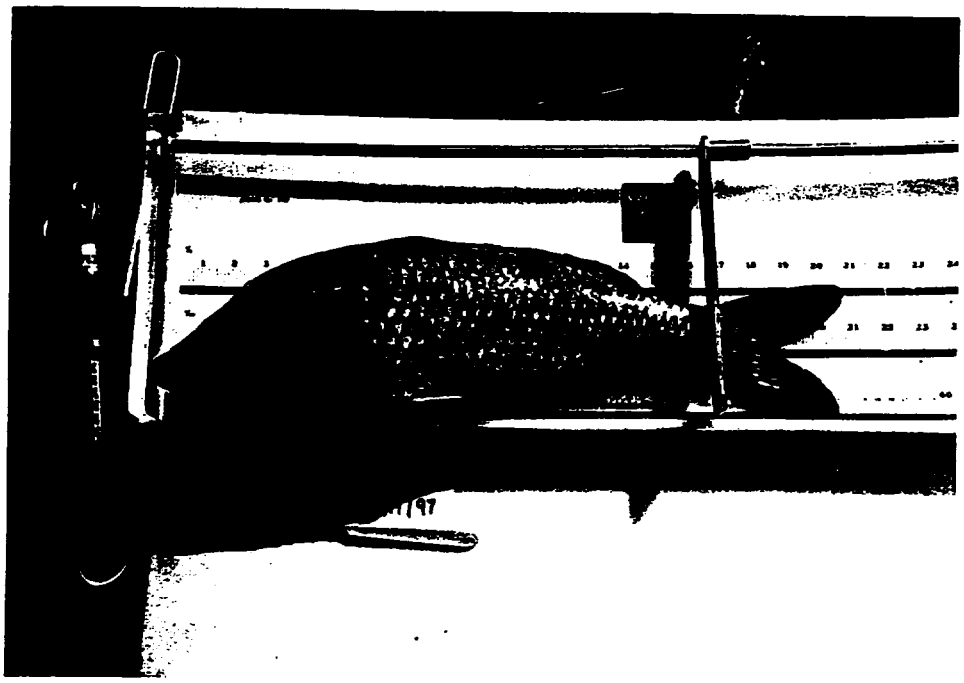
K40509



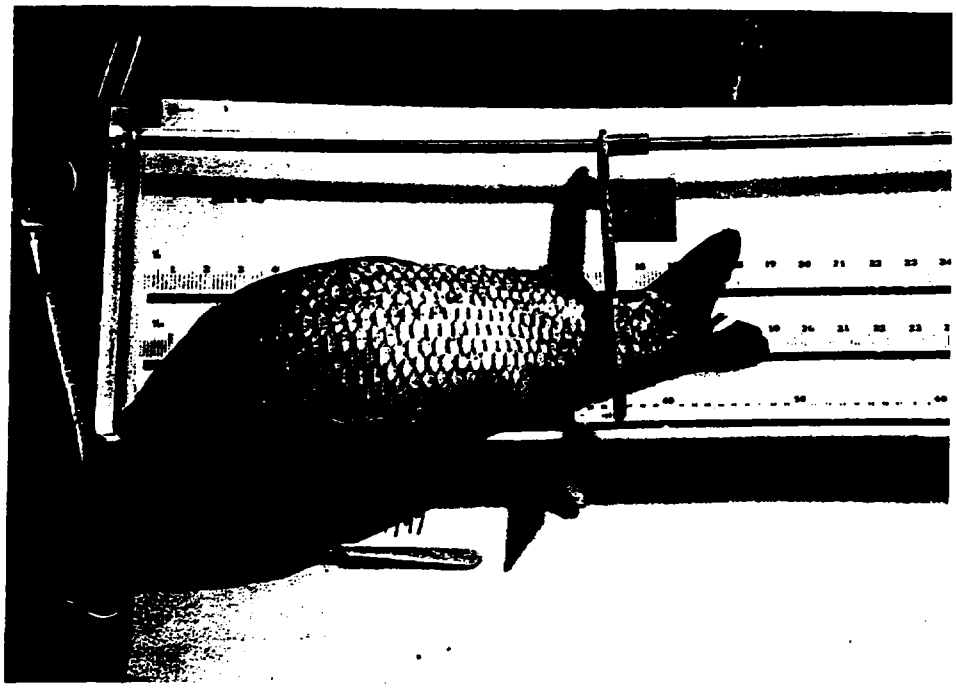
K40511



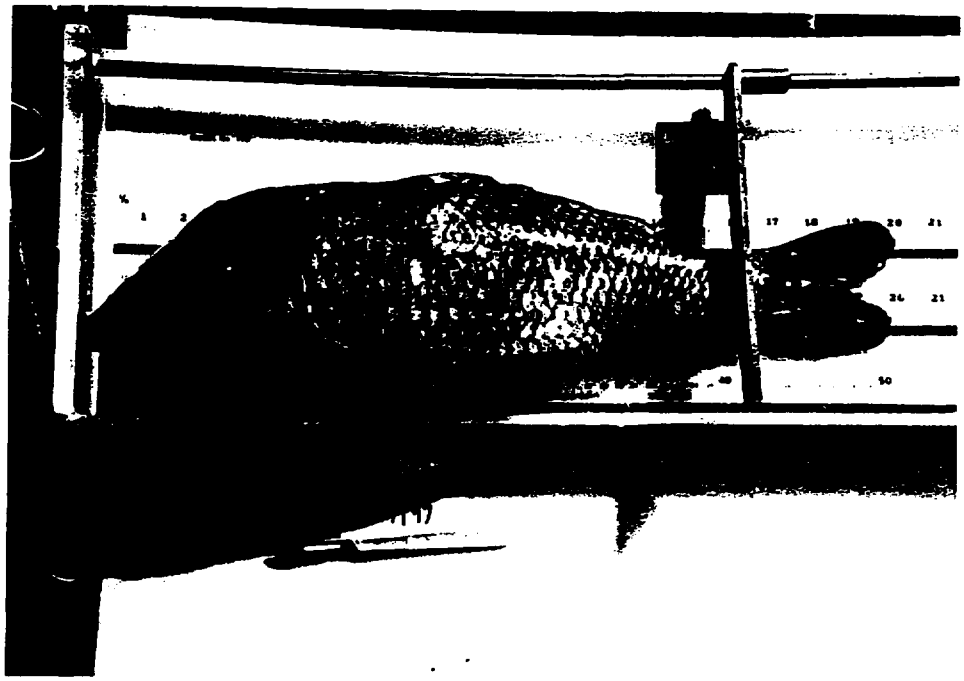
K40512



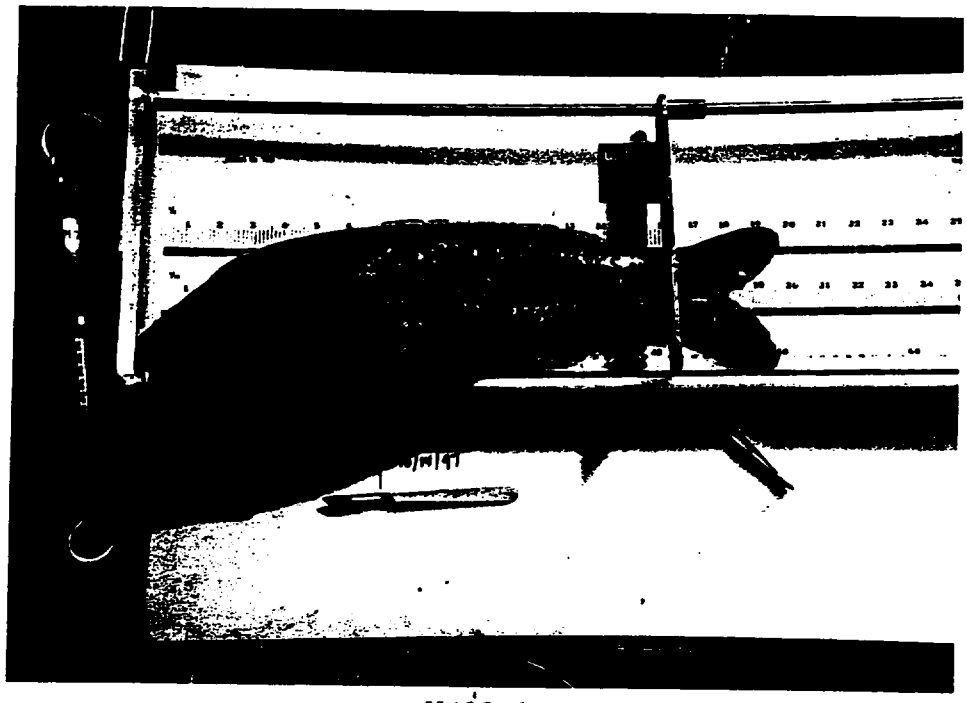
K40513



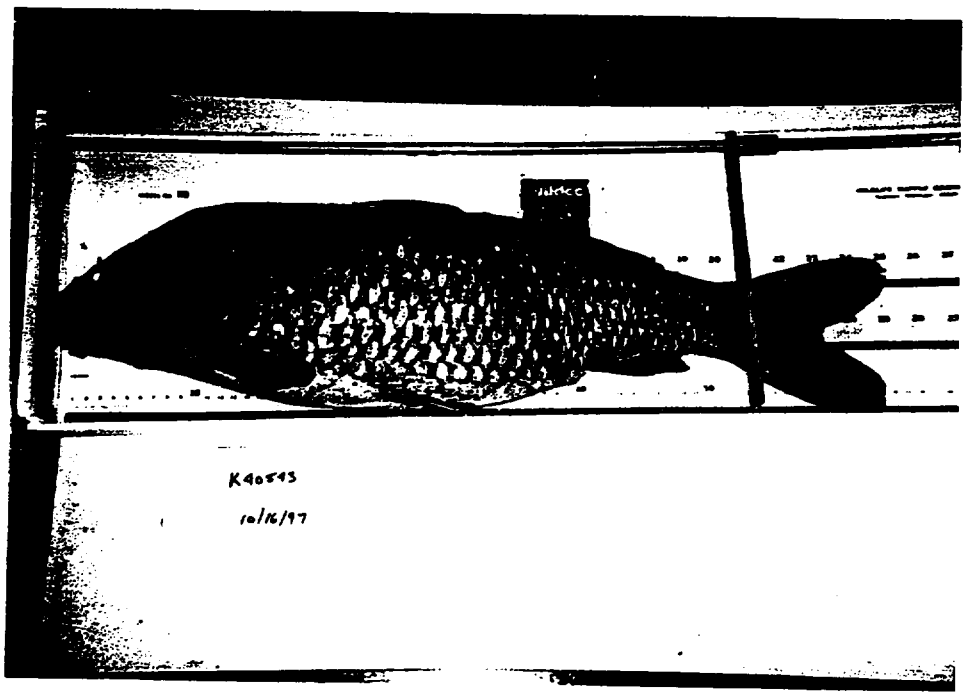
K40514



K40515

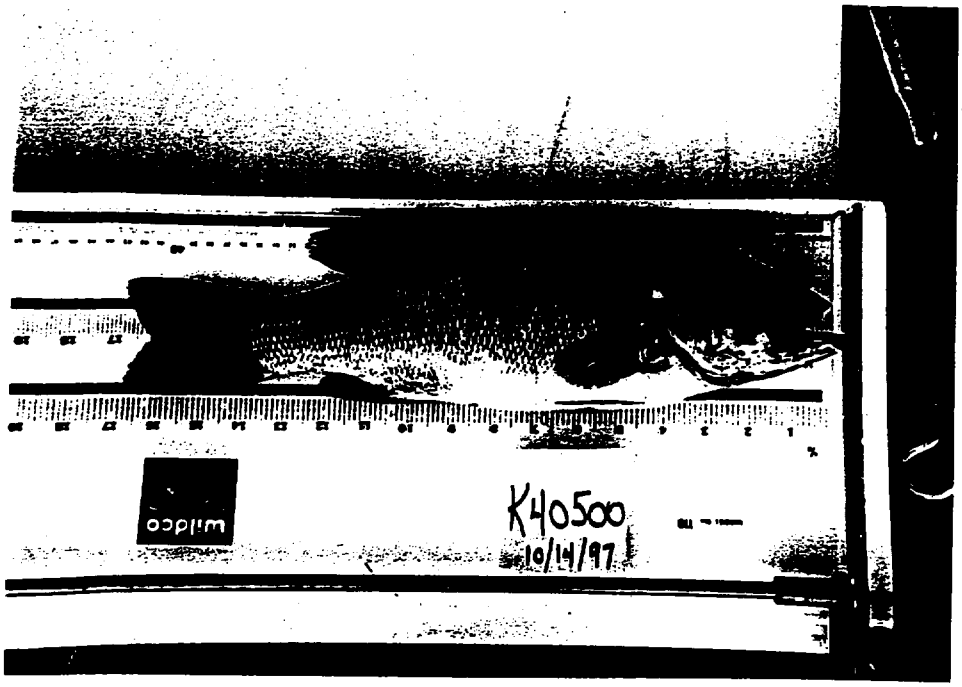


K40516

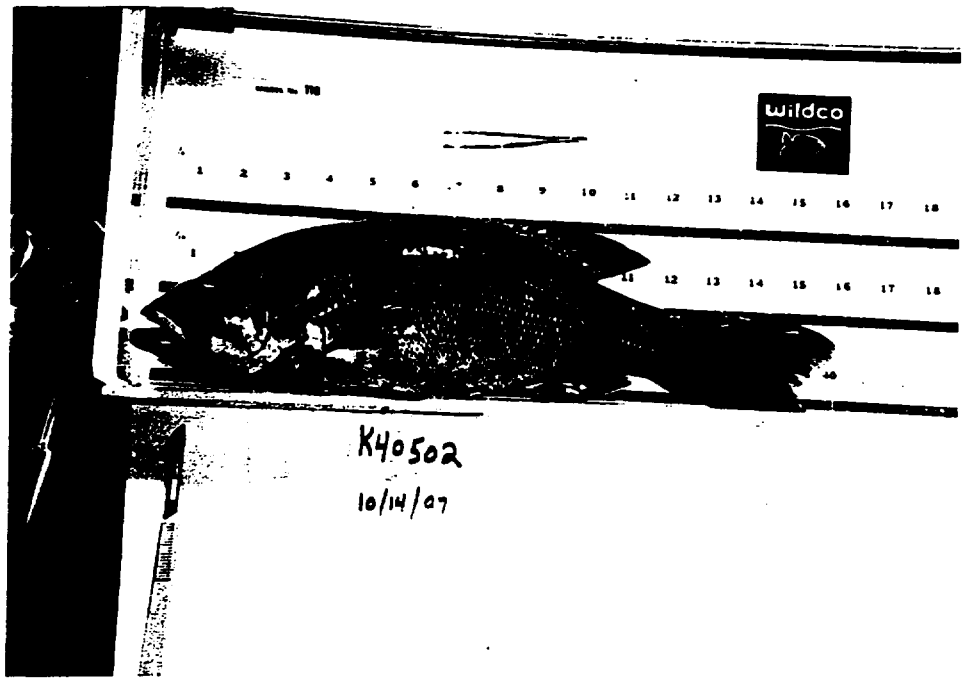


K40543

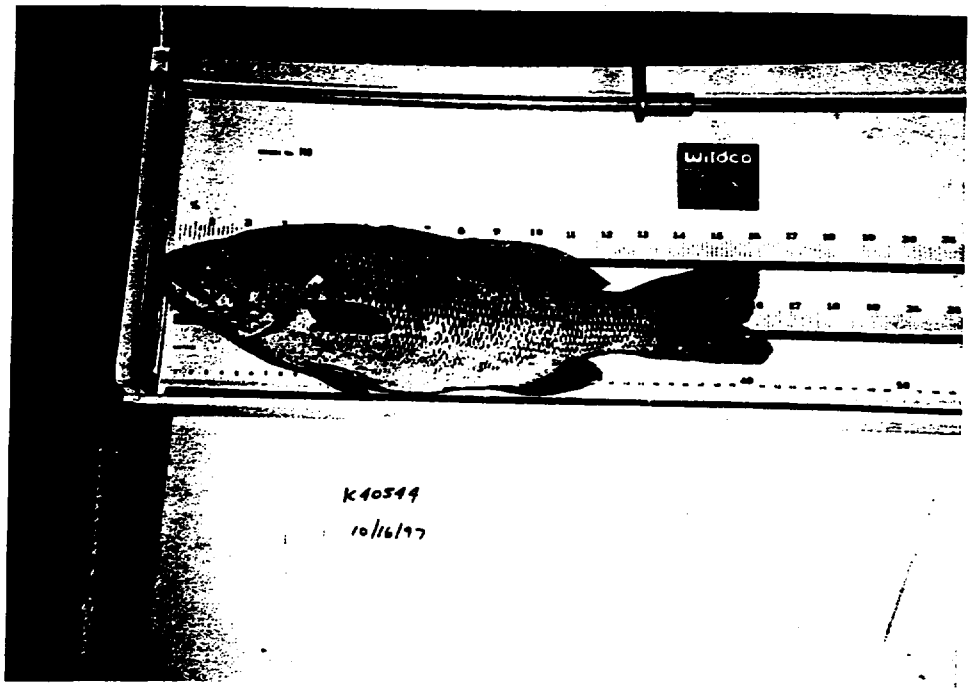
Adult Smallmouth Bass
(*Micropterus dolomieui*)



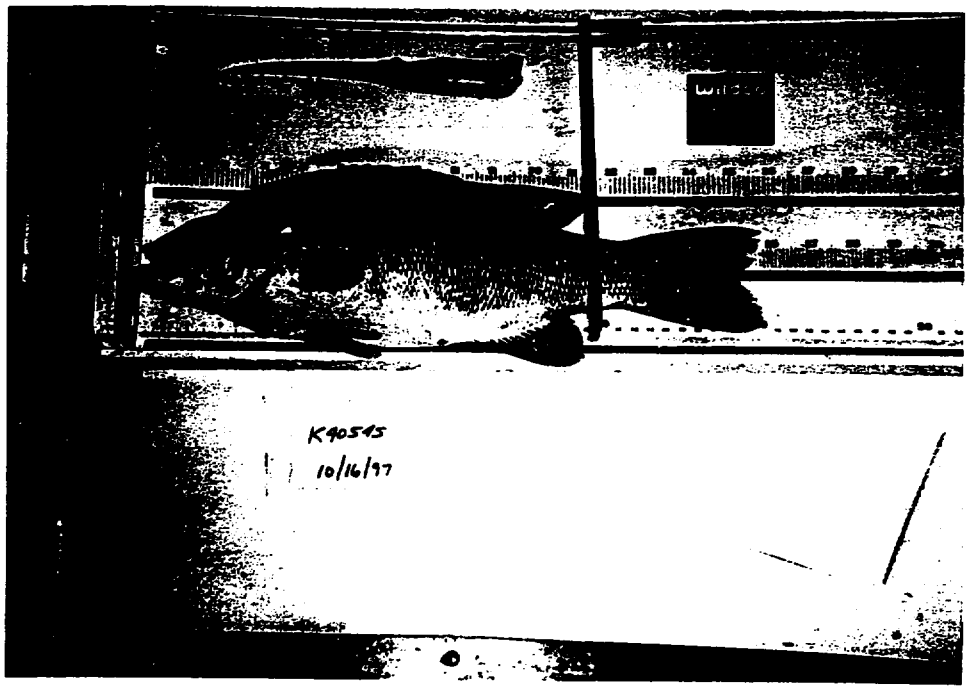
K40500



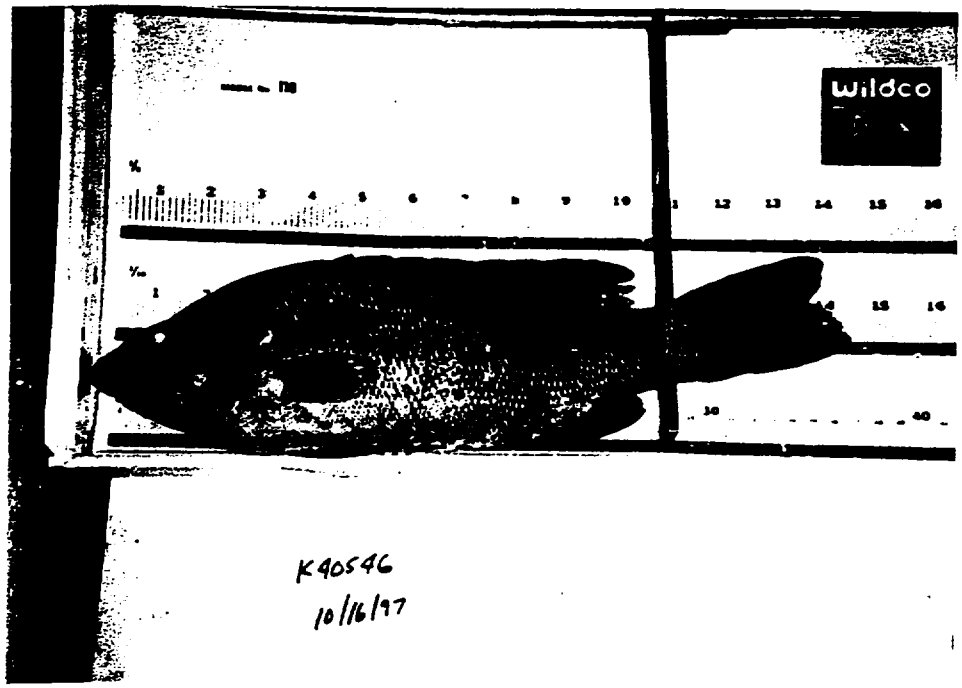
K40502



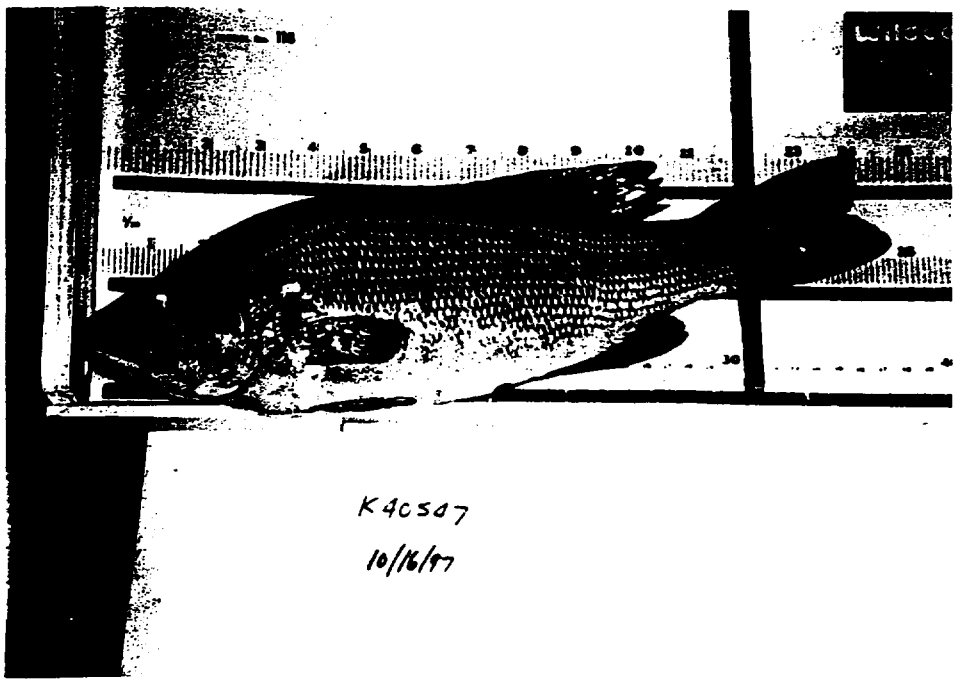
K40544



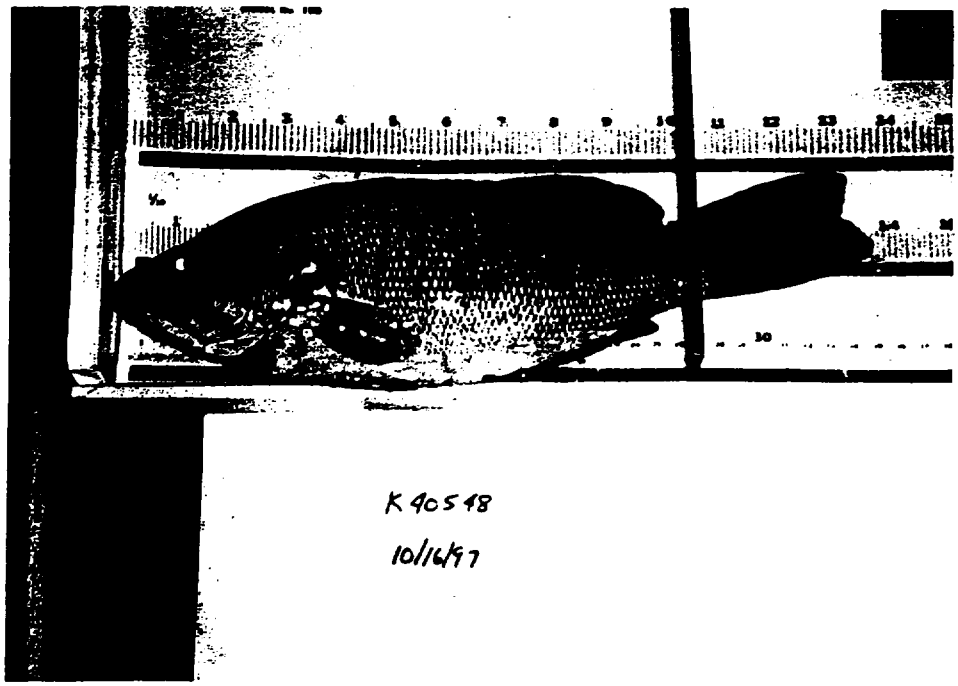
K40545



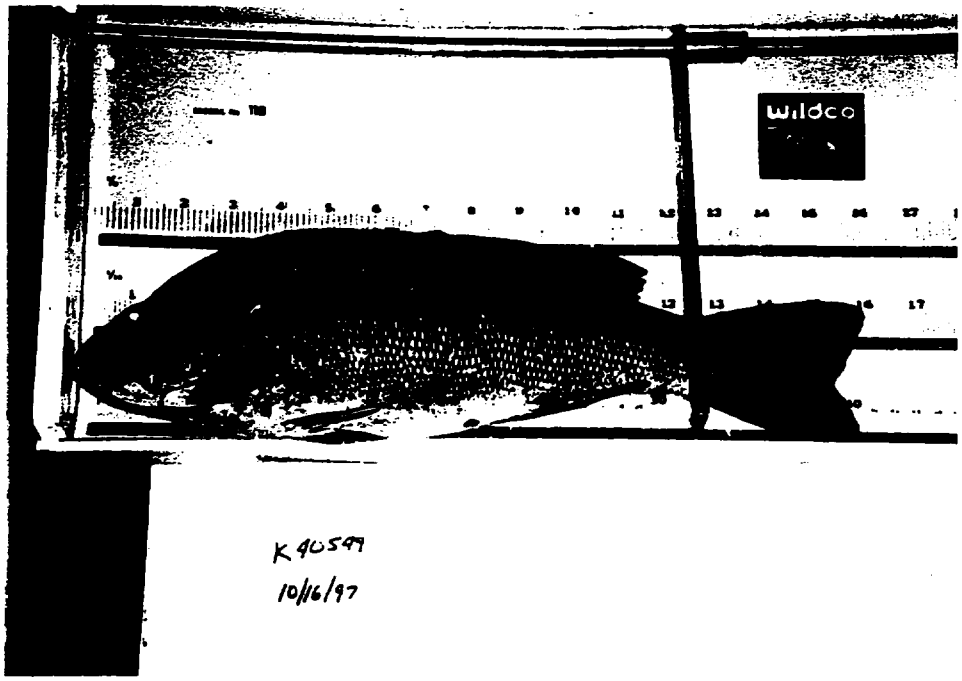
K40546



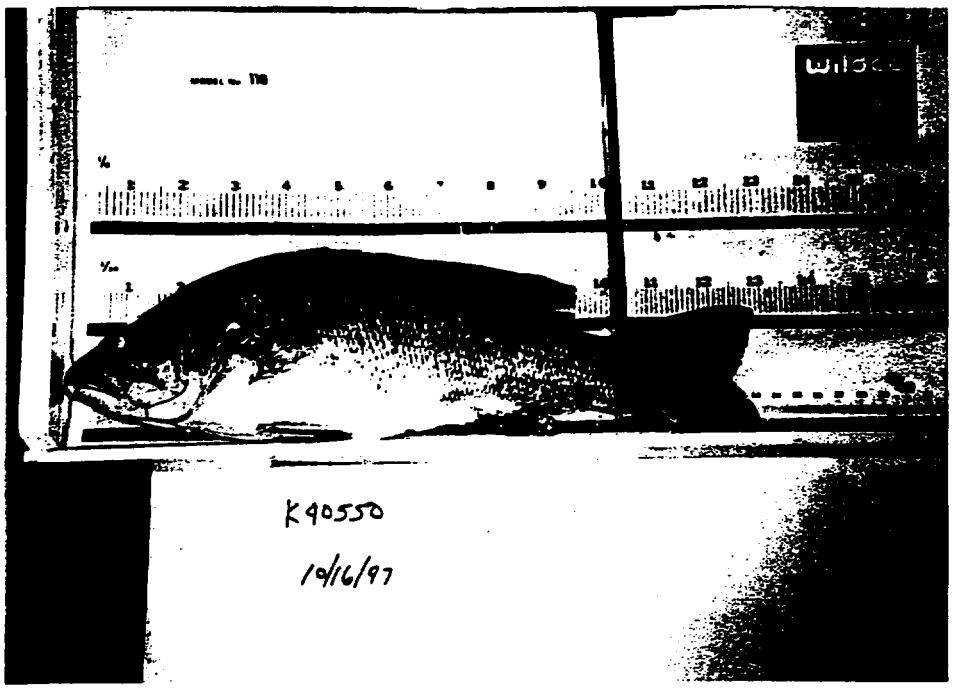
K40547



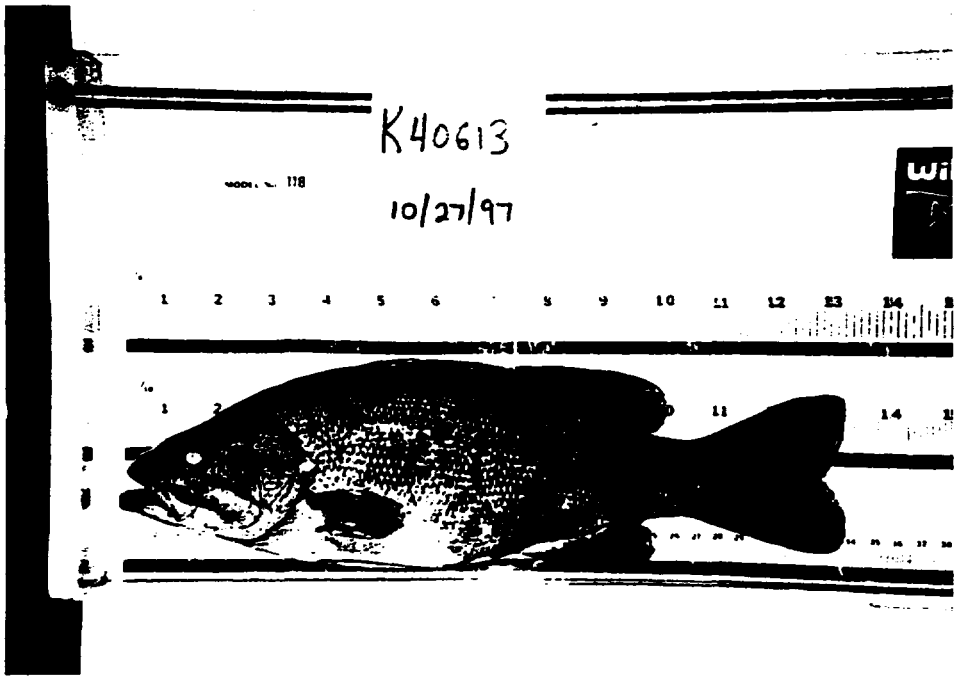
K40548



K40549



K40550



K40613

K40614

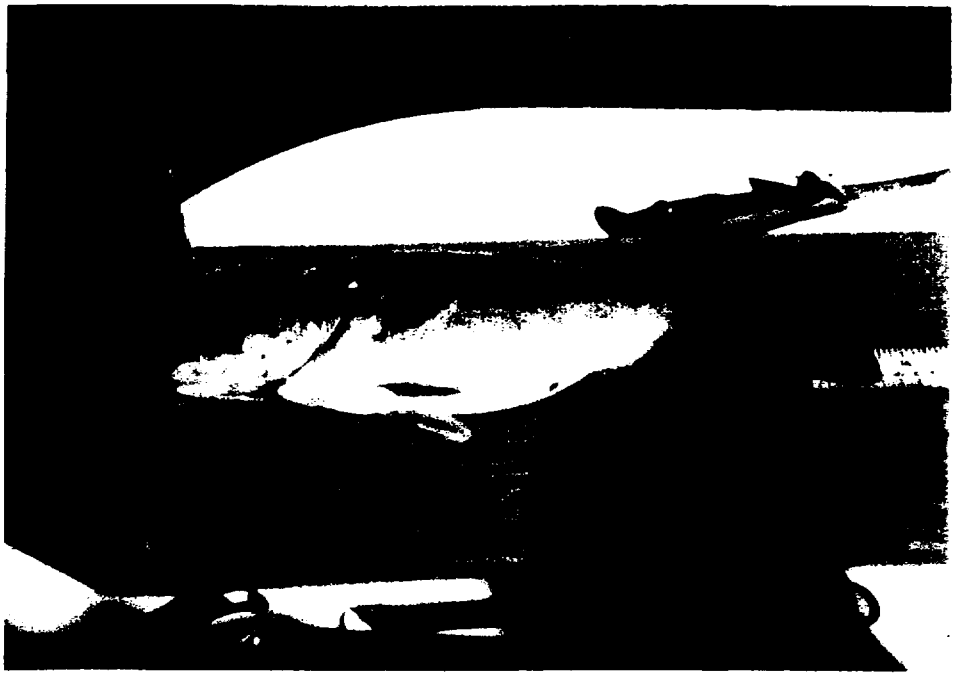
ABSA #1

Carp	Smallmouth Bass	White Sucker	Snapping Turtle
K40421	K40239	K40228	K42015
K40422	K40240	K40229	K42016
K40423	K40241	K40230	K42017
K40424	K40242	K40231	K42018
K40425	K40243	K40232	K42019
K40426	K40244	K40233	K42022
K40427	K40245	K40234	K42023
K40428	K40246	K40235	K42024
K40429	K40247	K40236	K42025
K40430	K40248	K40237	K42026
K40431	K40249	K40238	K42027

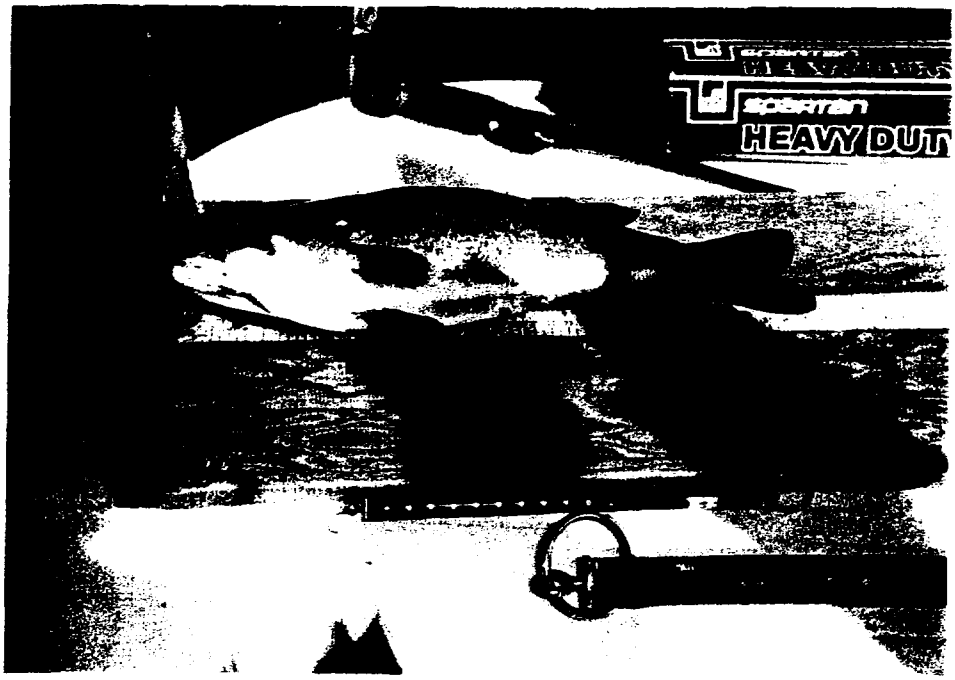
Smallmouth Bass
(*Micropterus dolomieui*)

6/20/94
1094912.F

K40239

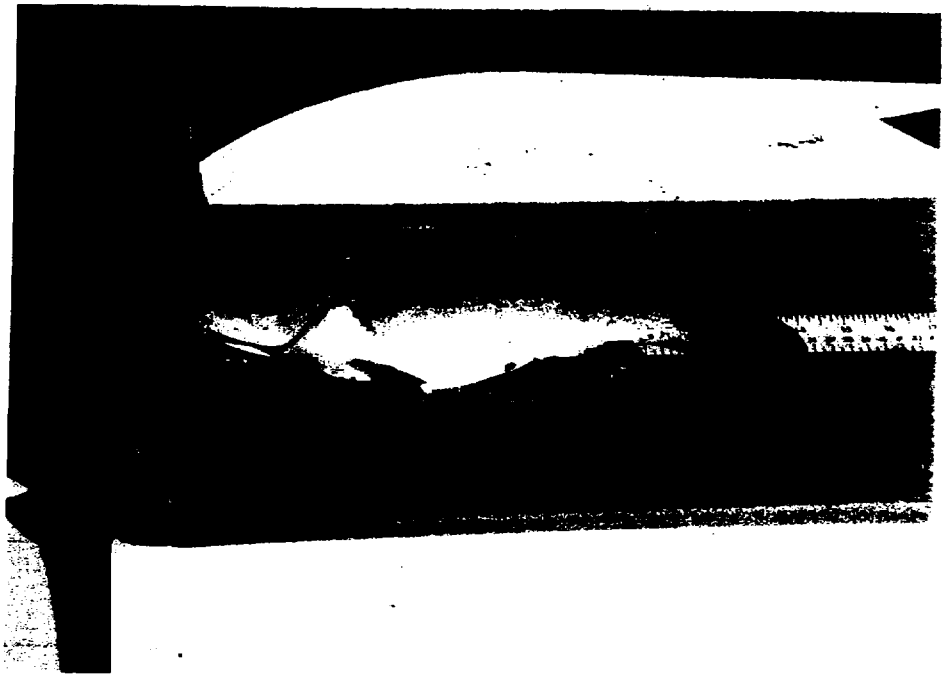


K40240

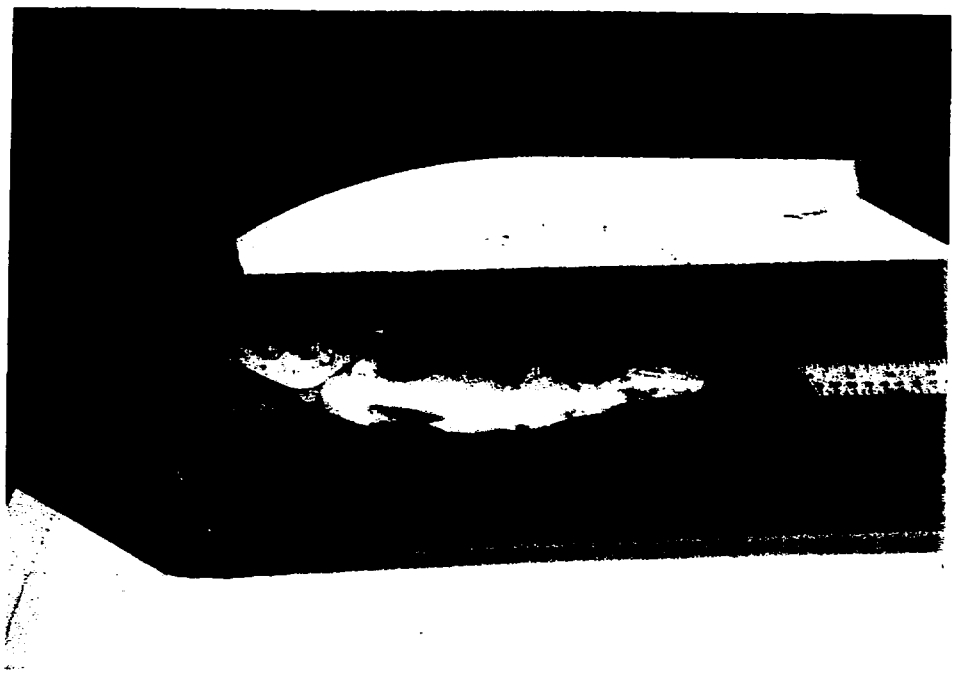


K40241

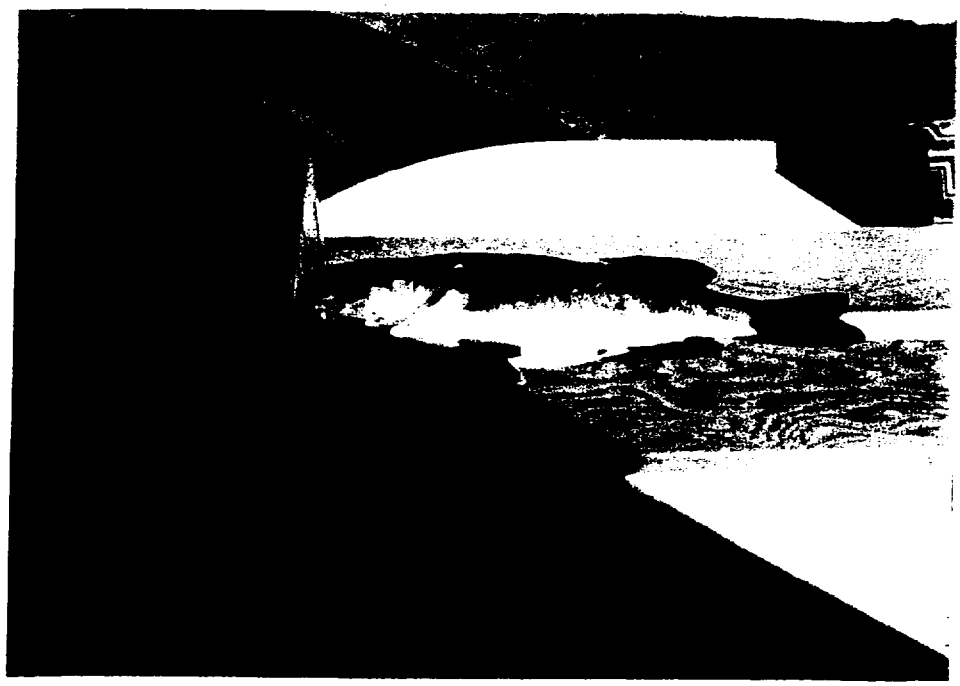
K40242



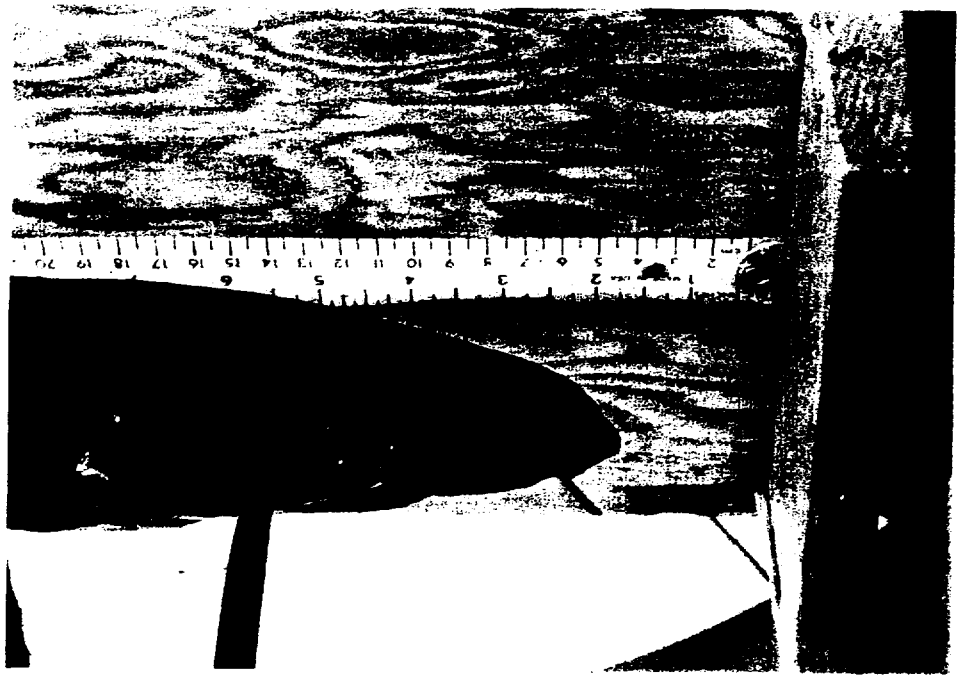
K40243



K40244

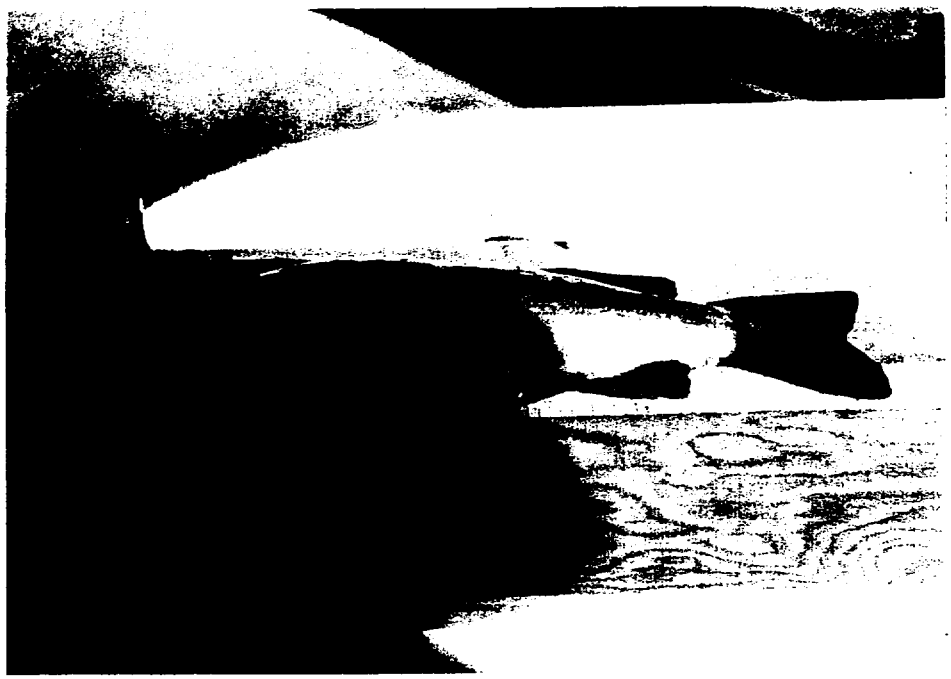


K40245

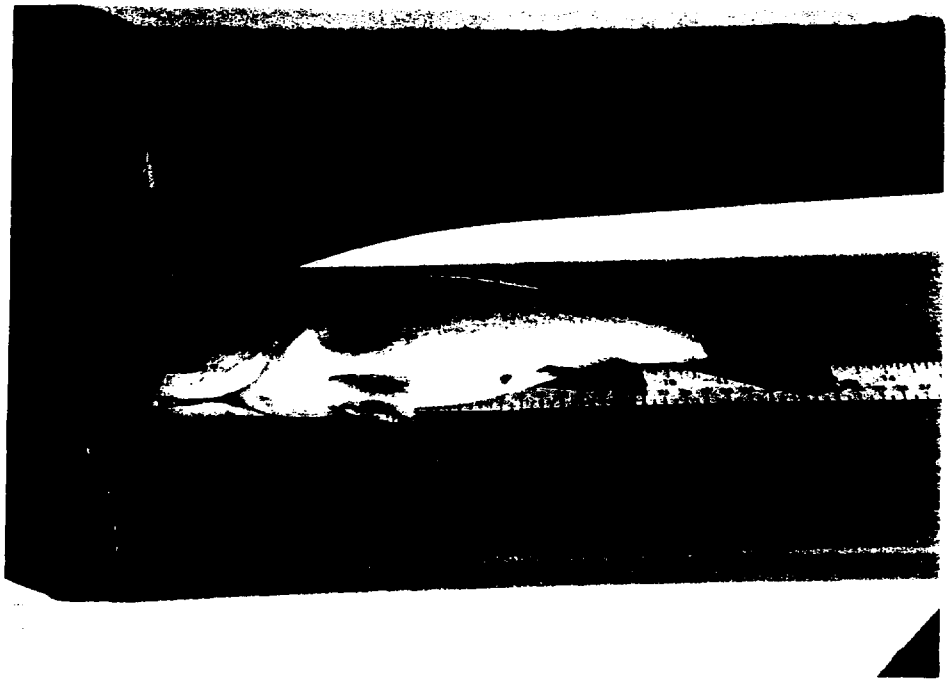


K40245 (Missing right eye)

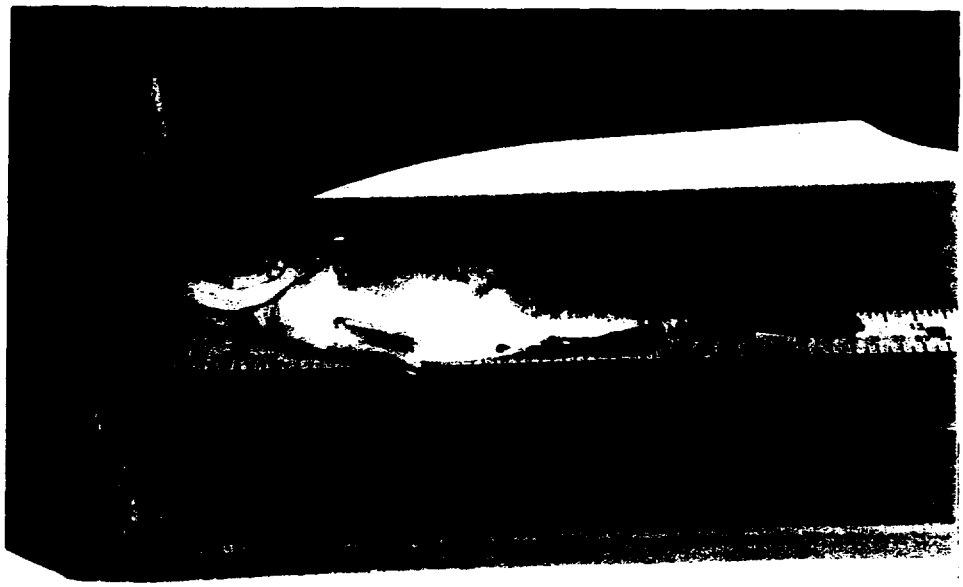
K40246



K40247



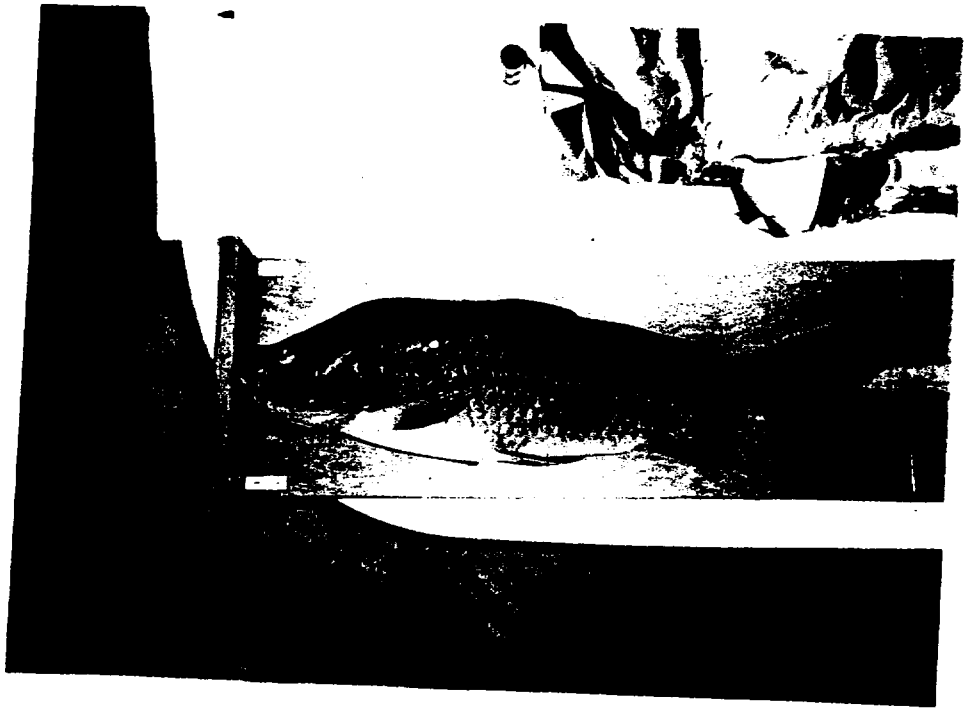
K40248



K40249

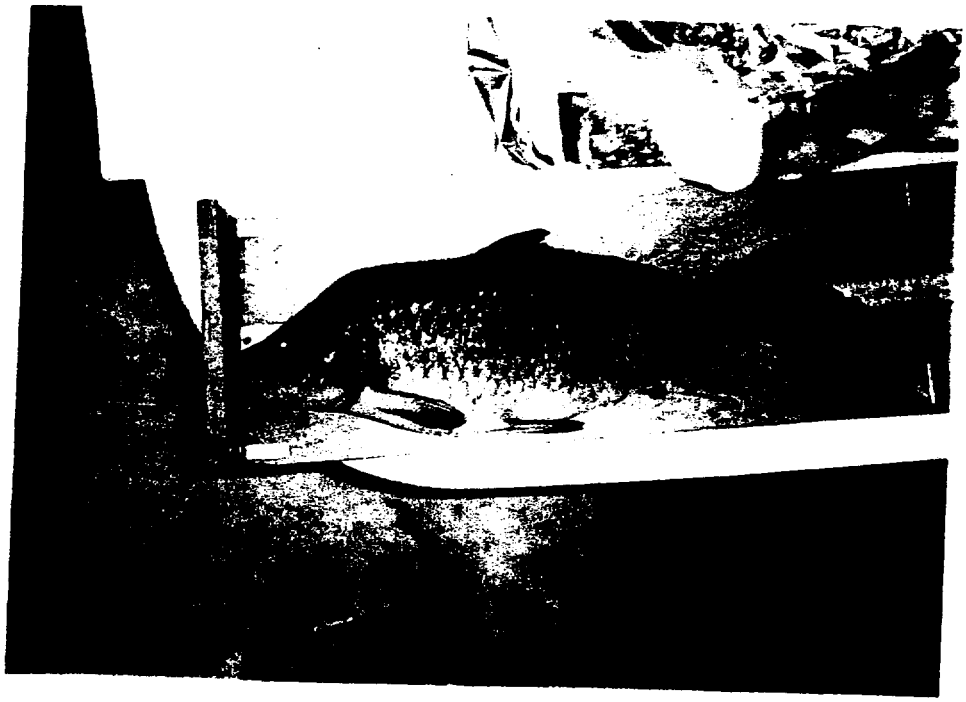
Carp
(*Cyprinus carpio*)

6/20/94
1094912.F



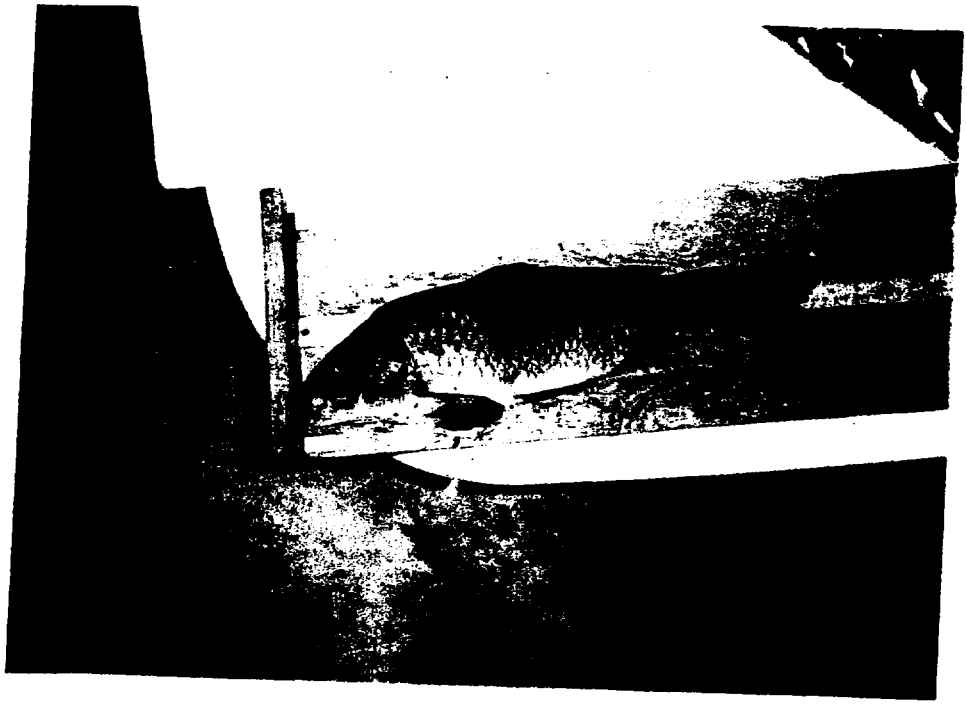
K40421

K40422



K40423

K40424

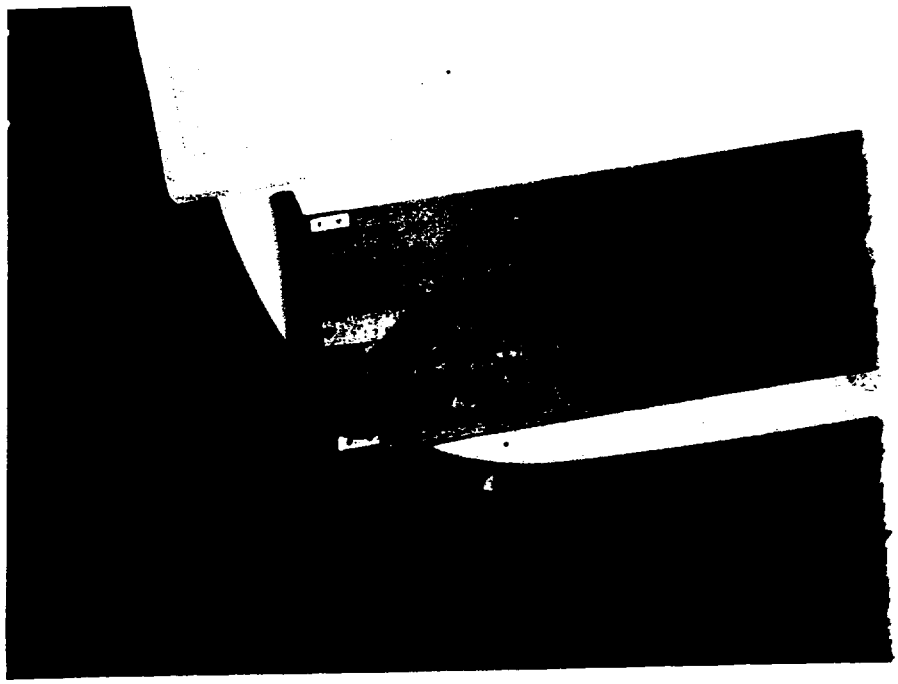


K40425

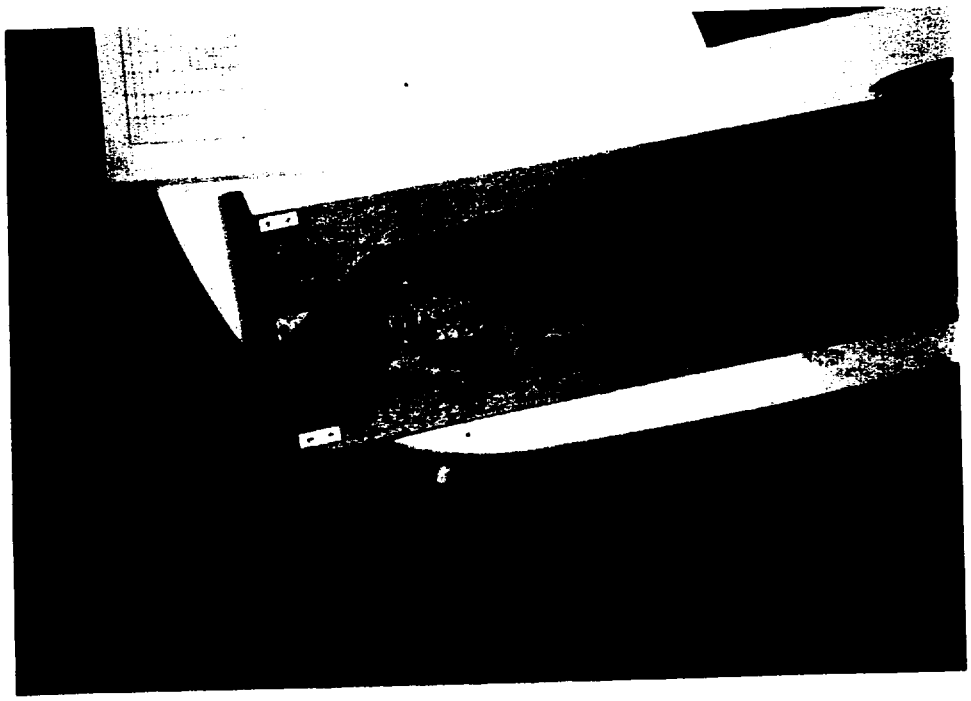
K40426

K40427

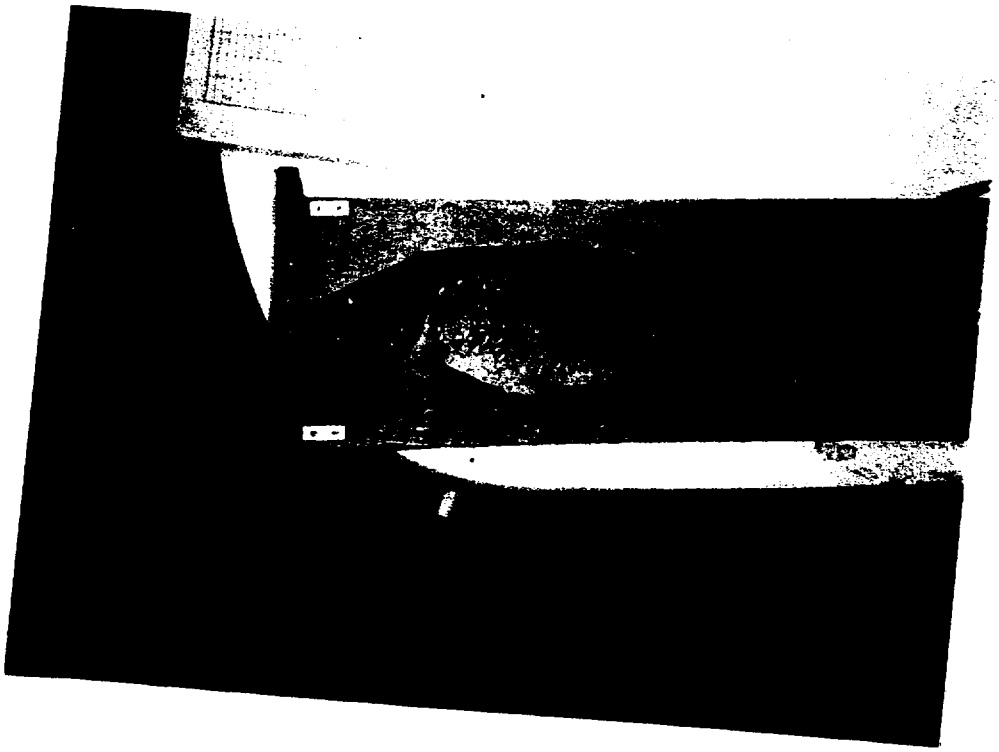
K40428



K40429



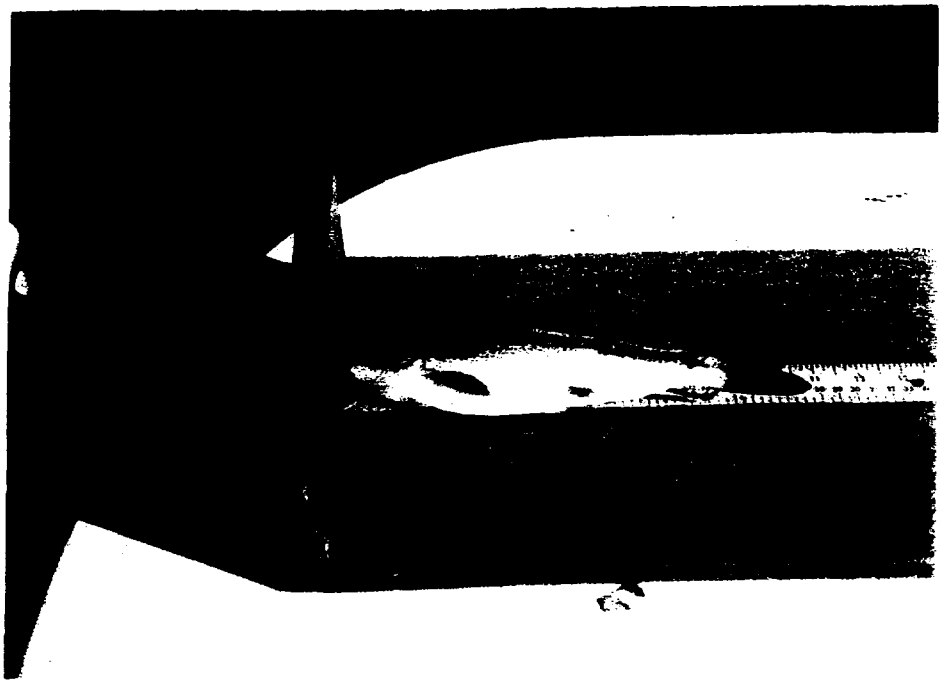
K40430



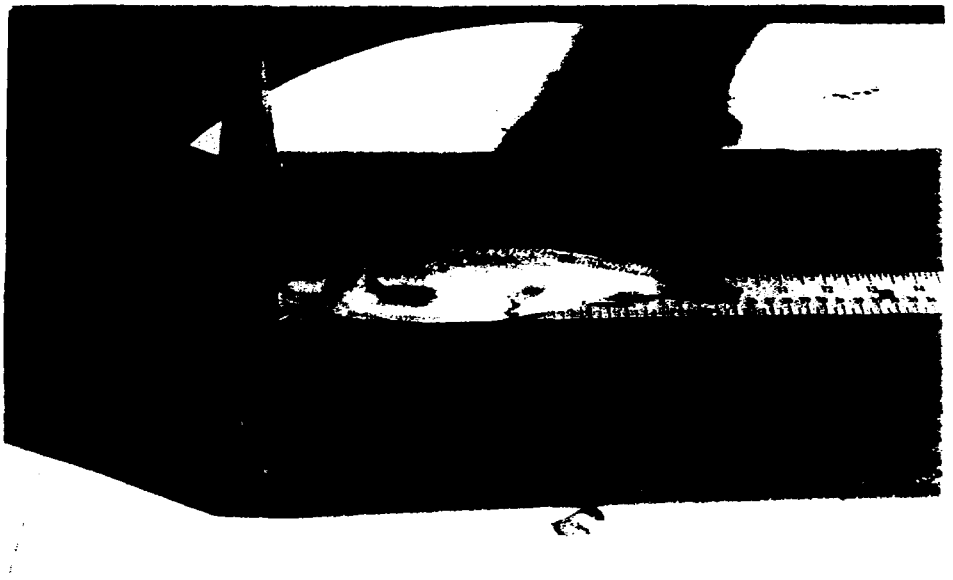
K40431

White Sucker
(*Catostomus commersoni*)

6/20/94
1094912.F

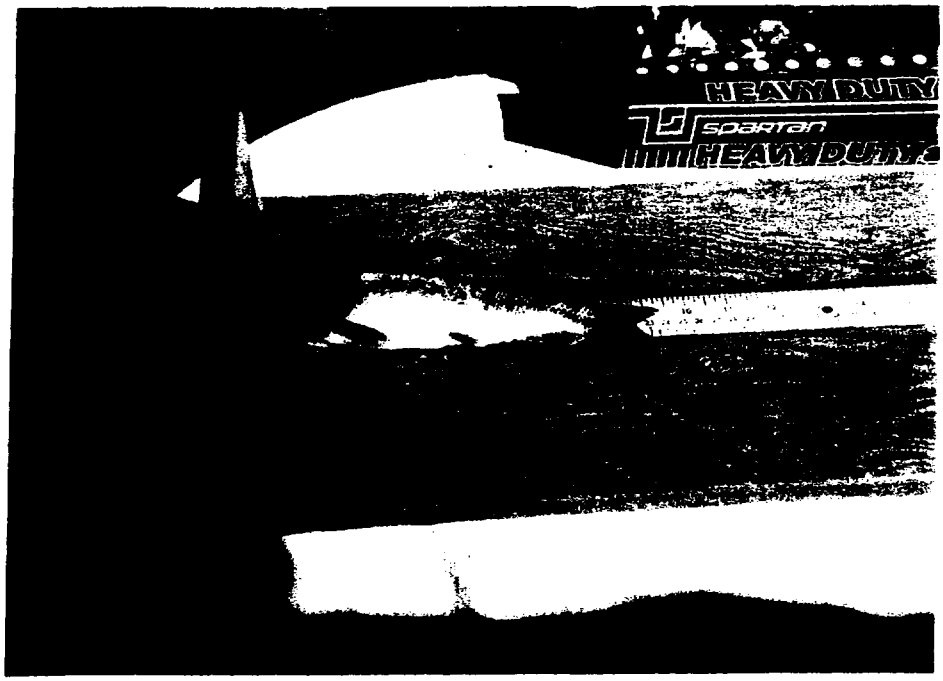


K40228

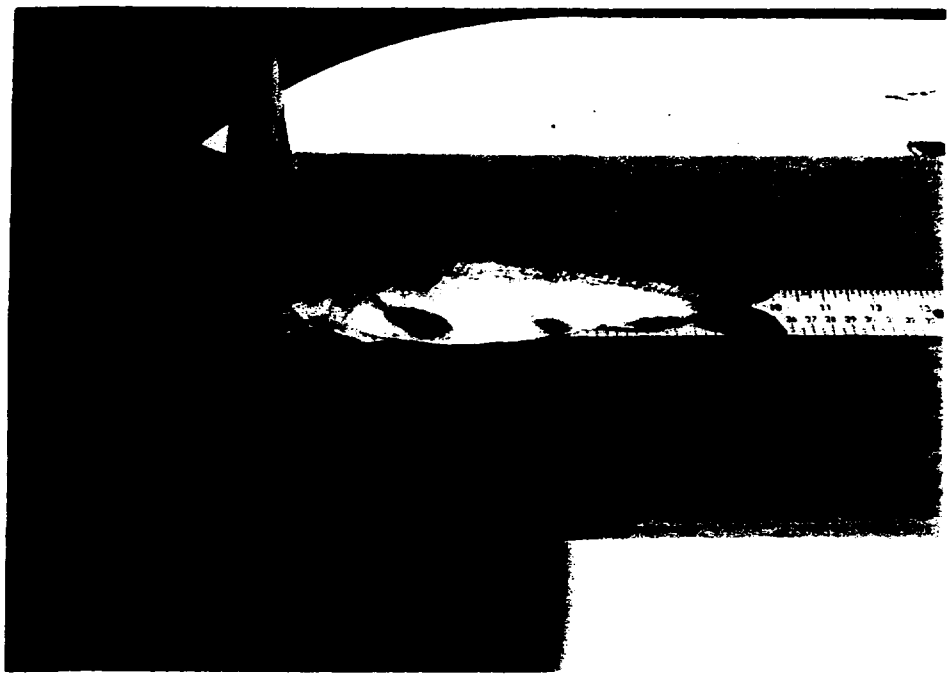


K40229

6/16/94
294912F



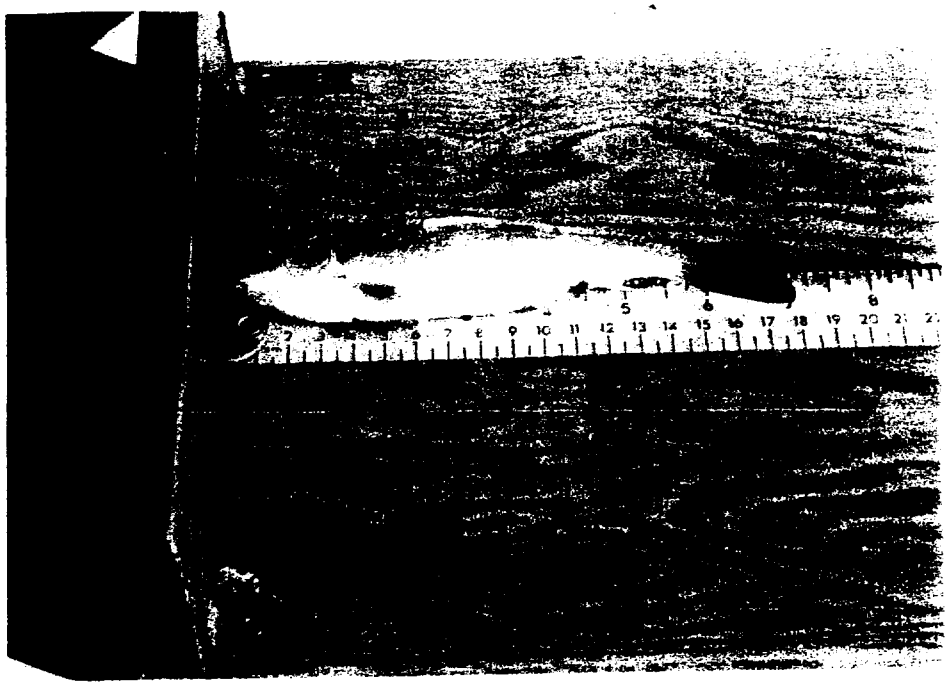
K40230



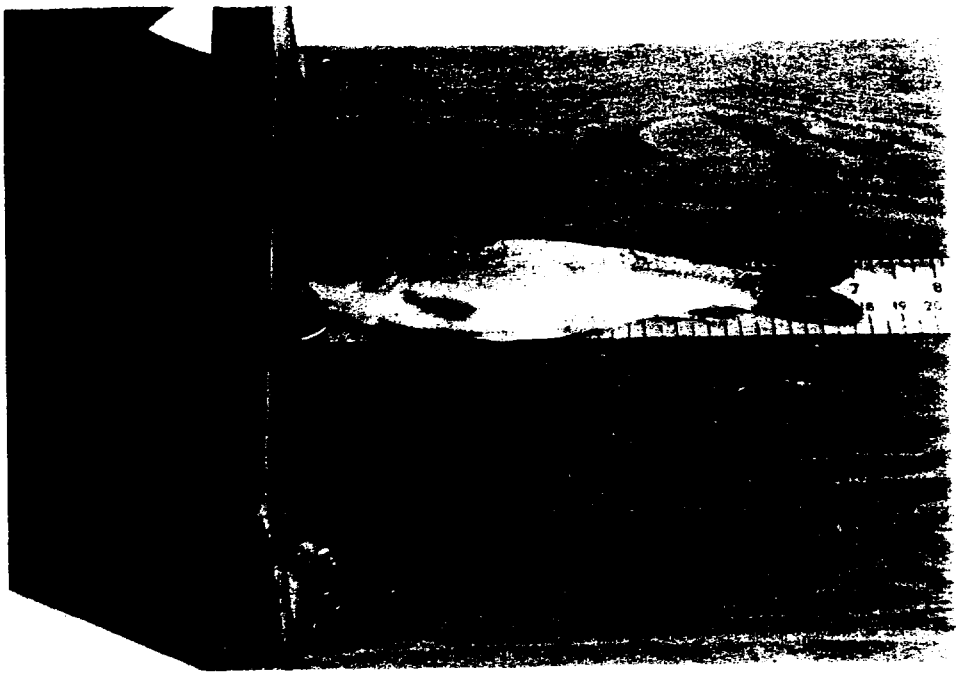
K40231

K40232

K40233

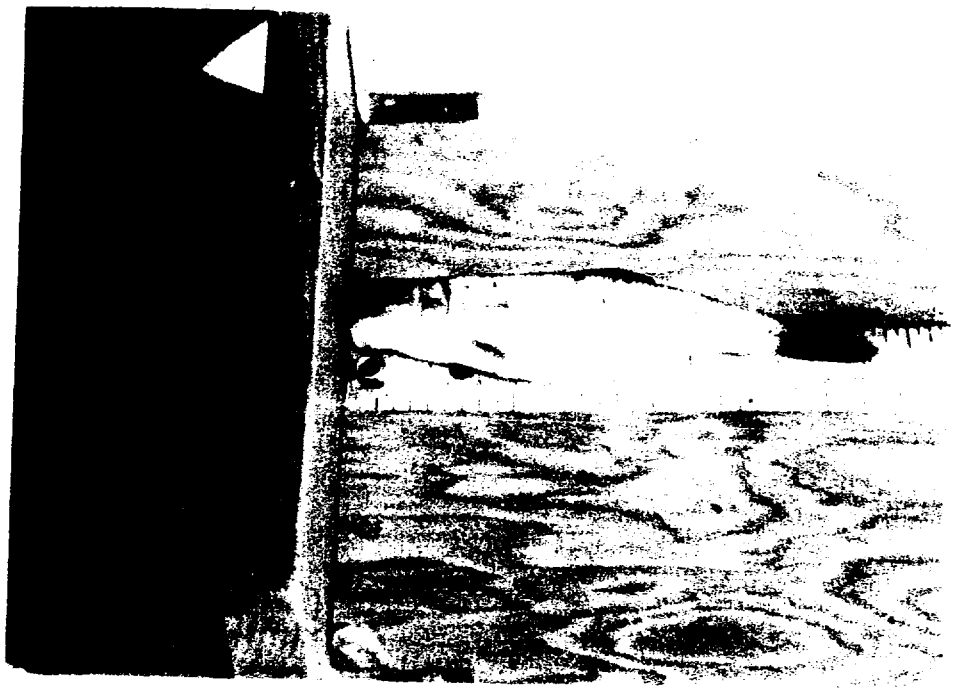


K40234

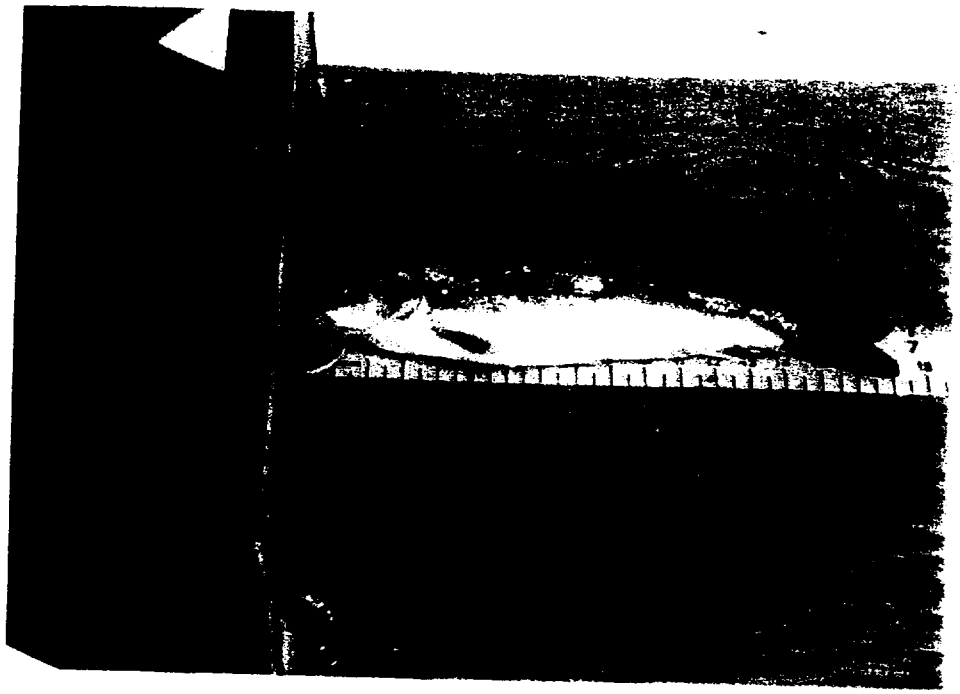


K40235

6/16/94
294912F

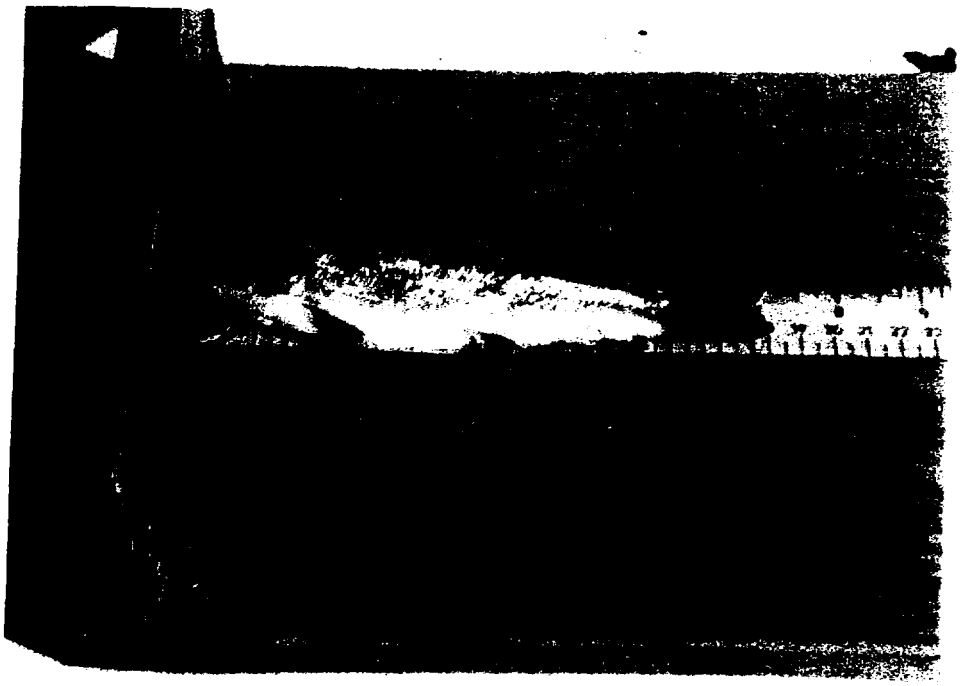


K40236



K40237

6/16/94
294912F

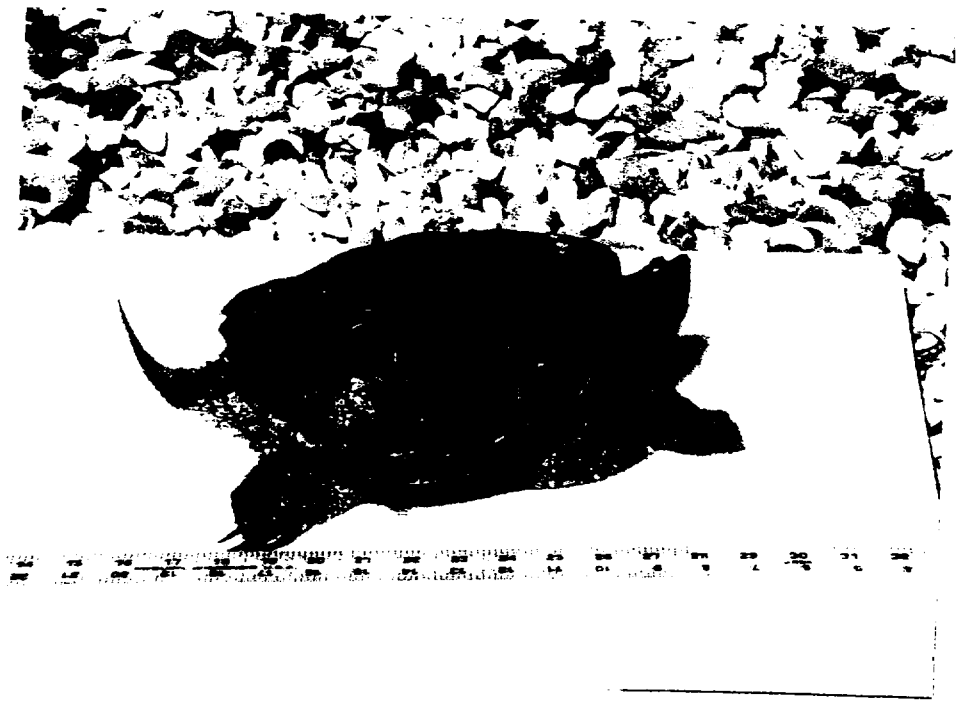


K40238

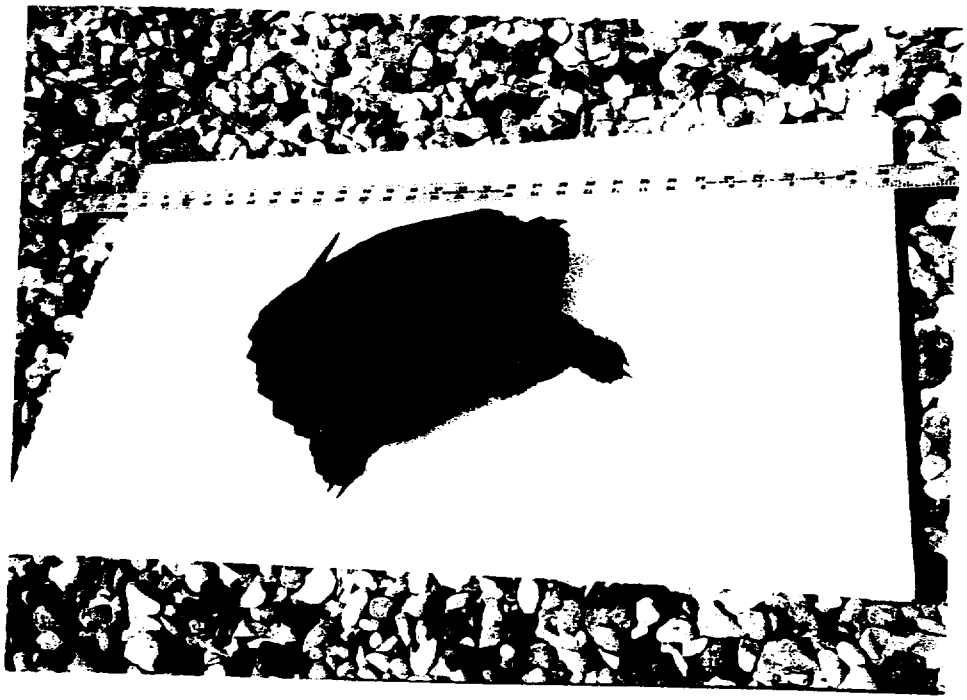
6/16/94
294912F

Snapping Turtle
(*Chelydra serpentina*)

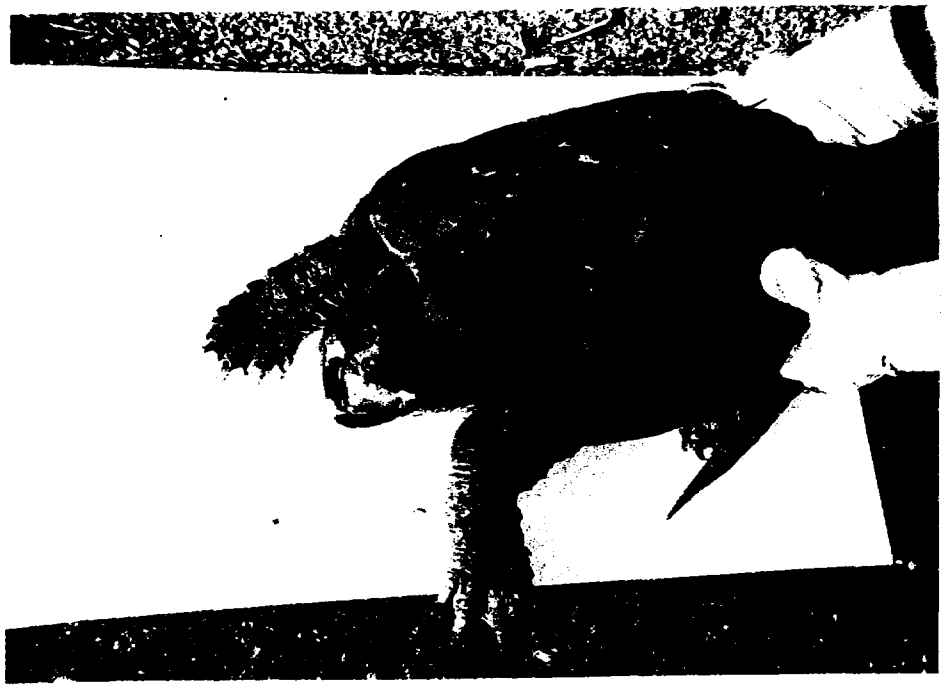
6/20/94
1094912.F



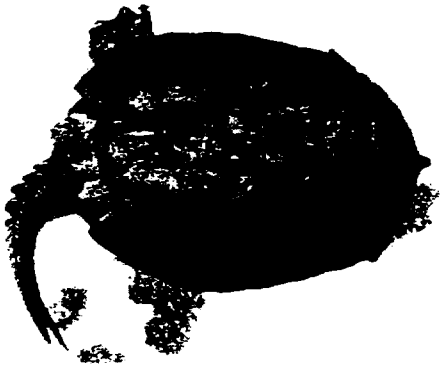
K42015



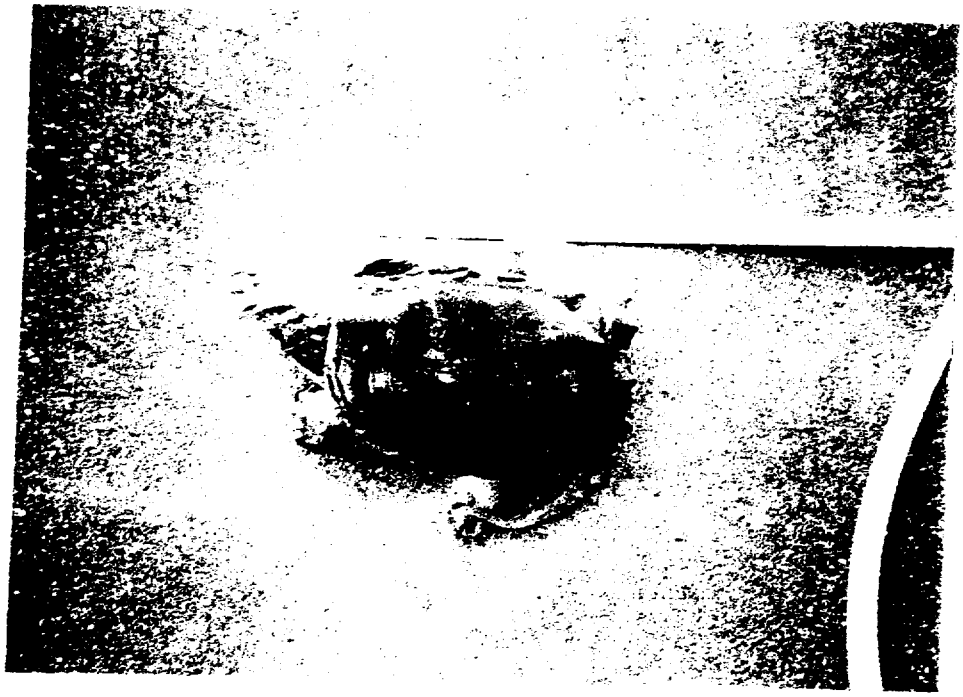
K42016



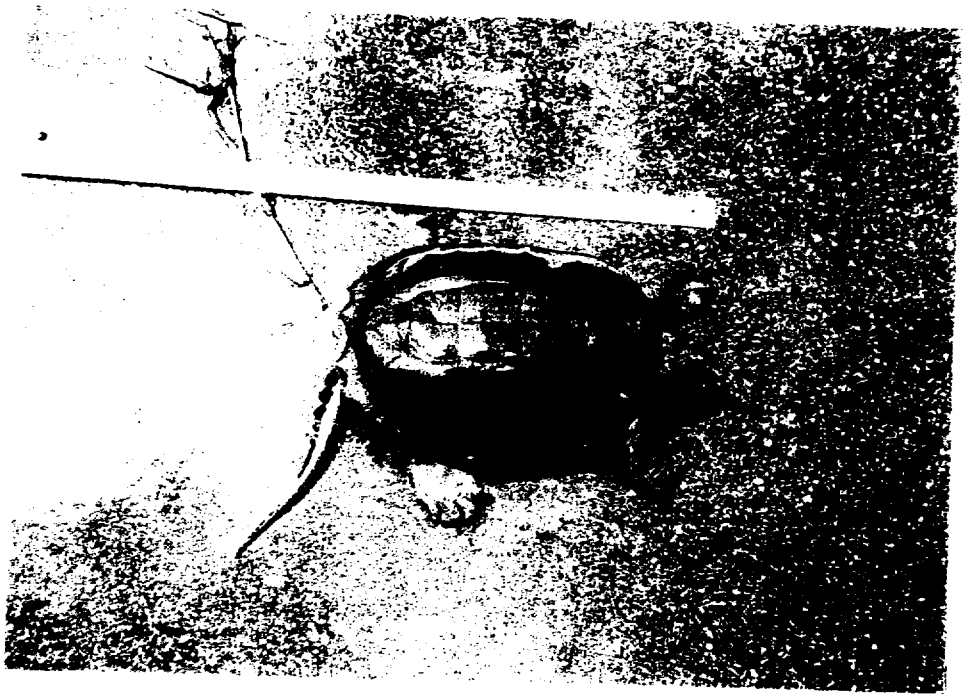
K42017



K42018

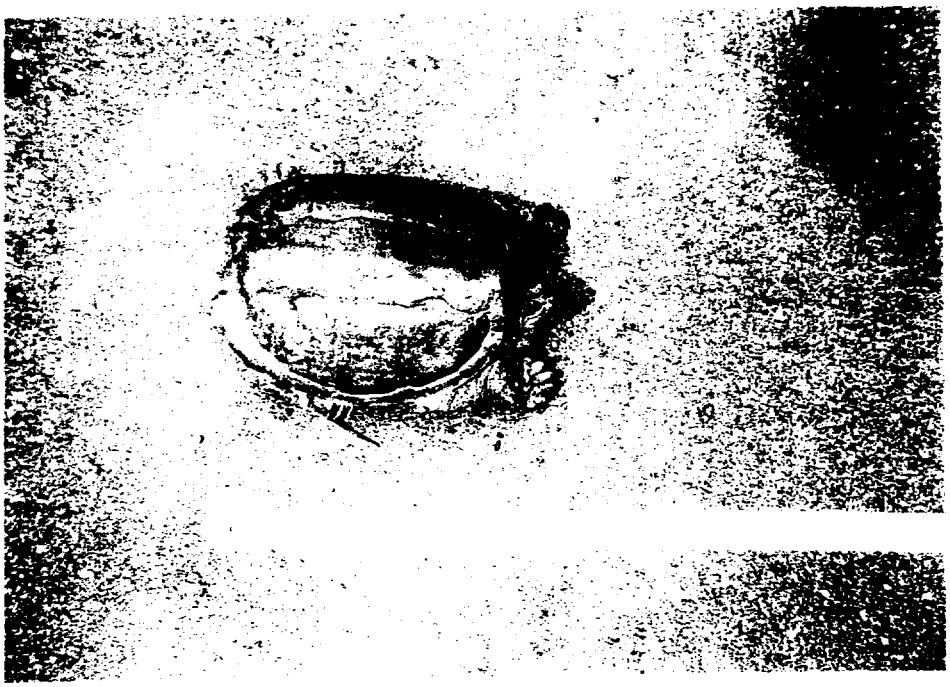


K42019

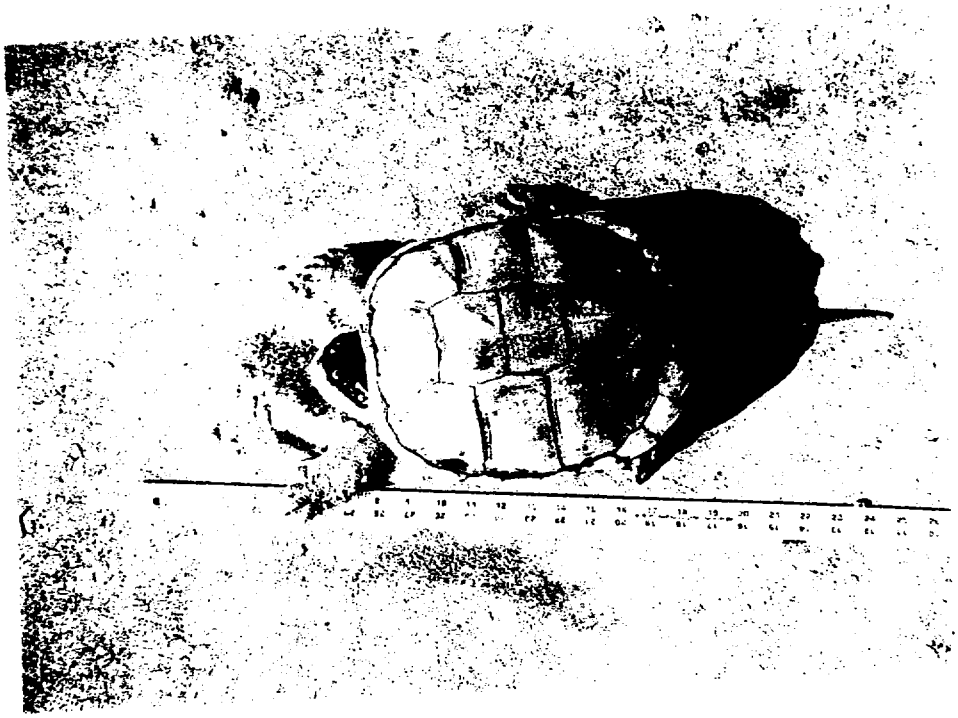


K42022

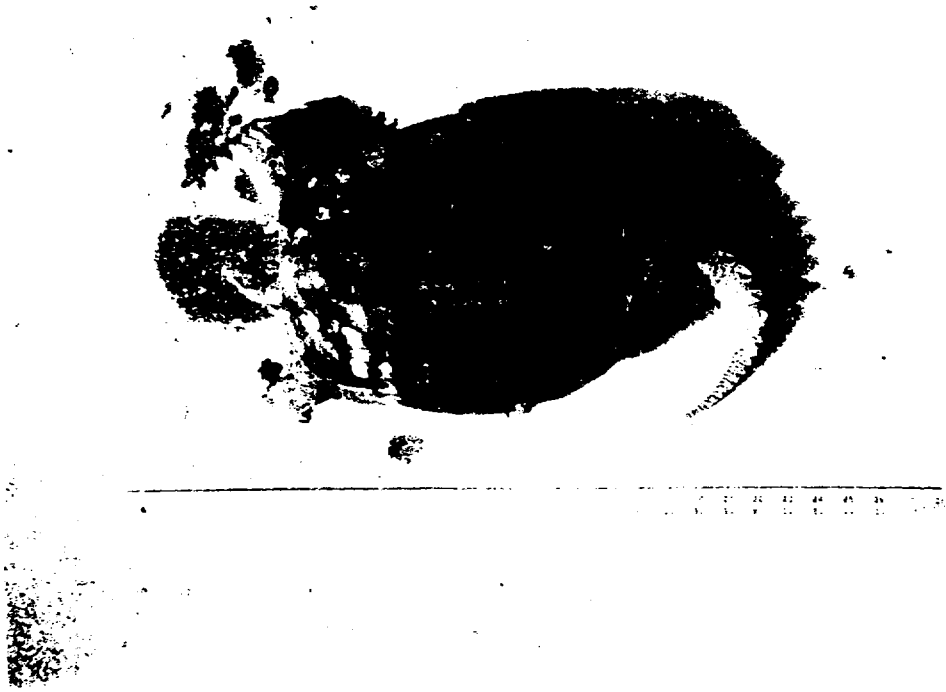
K42023



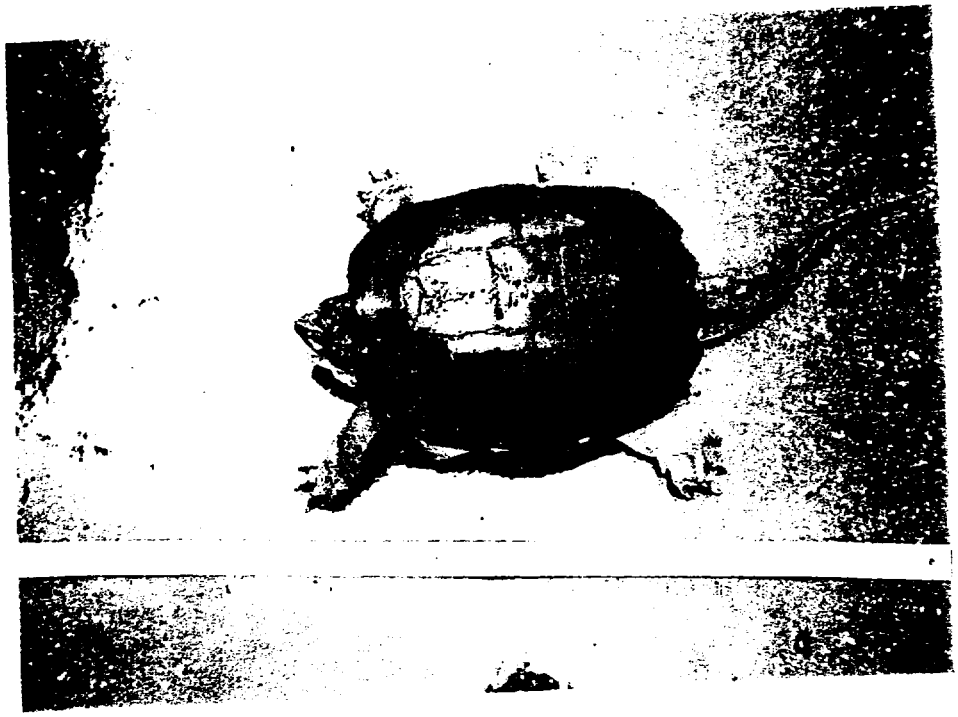
K42024



K42025



K42026



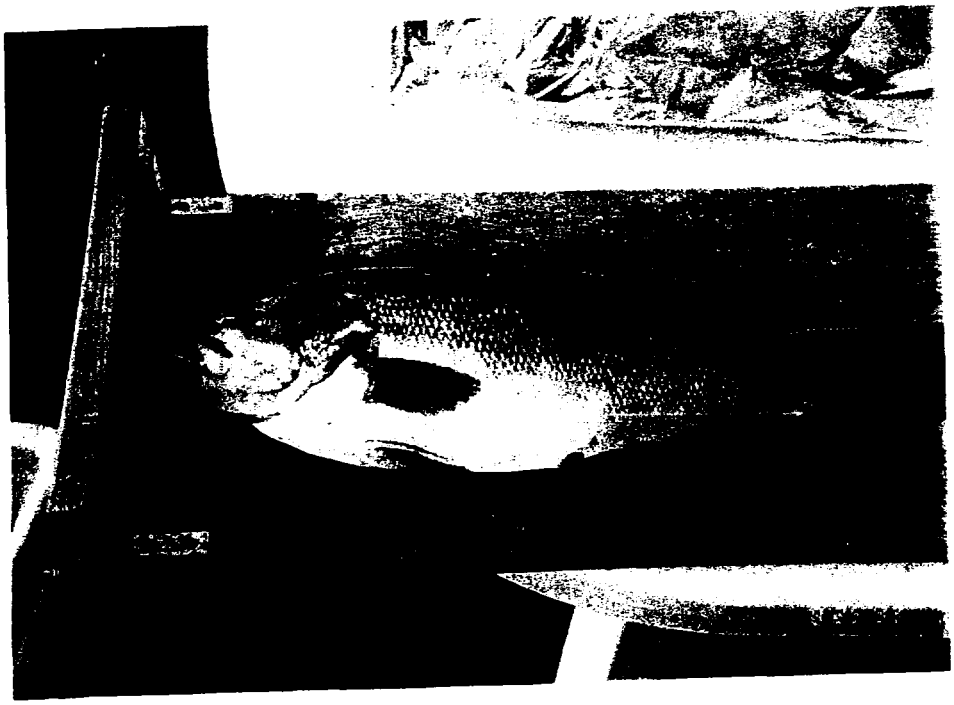
K42027

ABSA #2
Morrow Lake

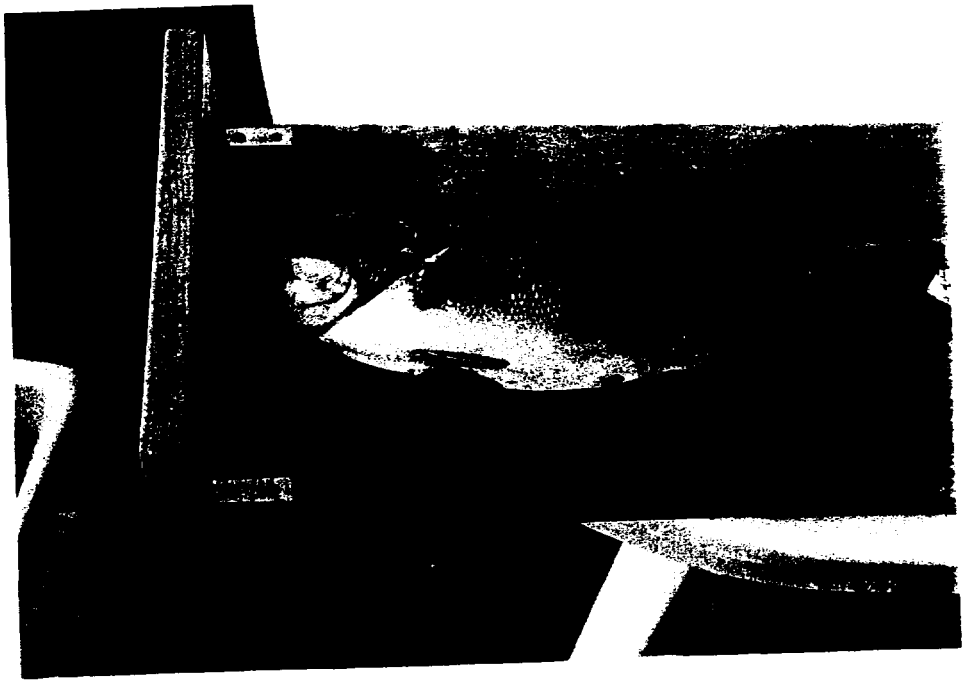
Carp	Smallmouth Bass	White Sucker
K40001	K40012	K40016
K40002	K40013	K40017
K40003	K40014	K40018
K40004	K40015	K40019
K40005	K40025	K40020
K40006	K40026	K40021
K40007	K40027	K40022
K40008	K40387	K40023
K40009	K40388	K40024
K40010	K40389	K40032
K40011	K40390	K40033

Smallmouth Bass
(*Micropterus dolomieui*)

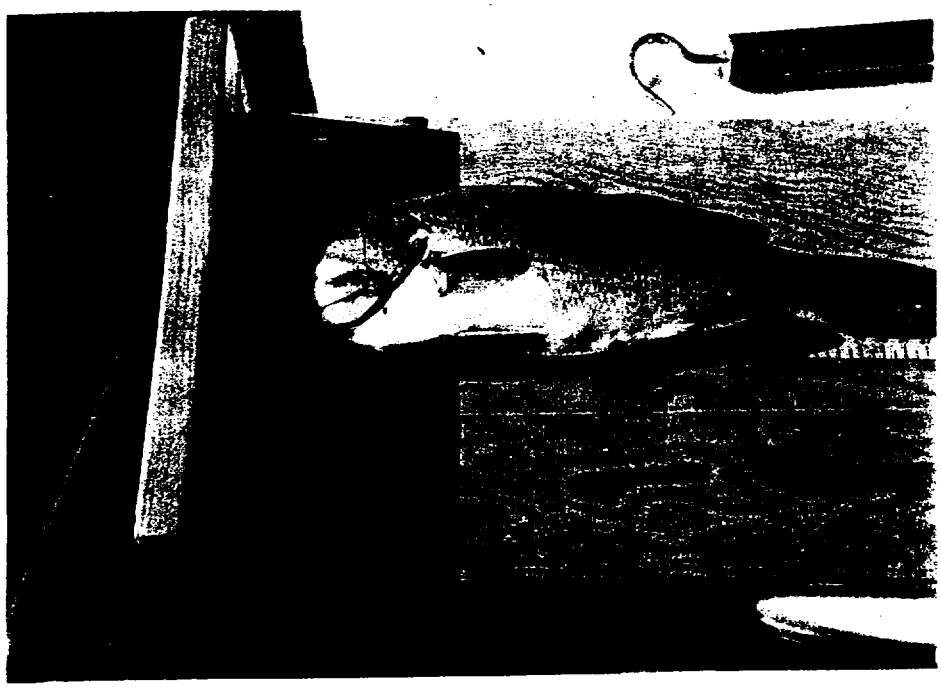
6/20/94
1094912.F



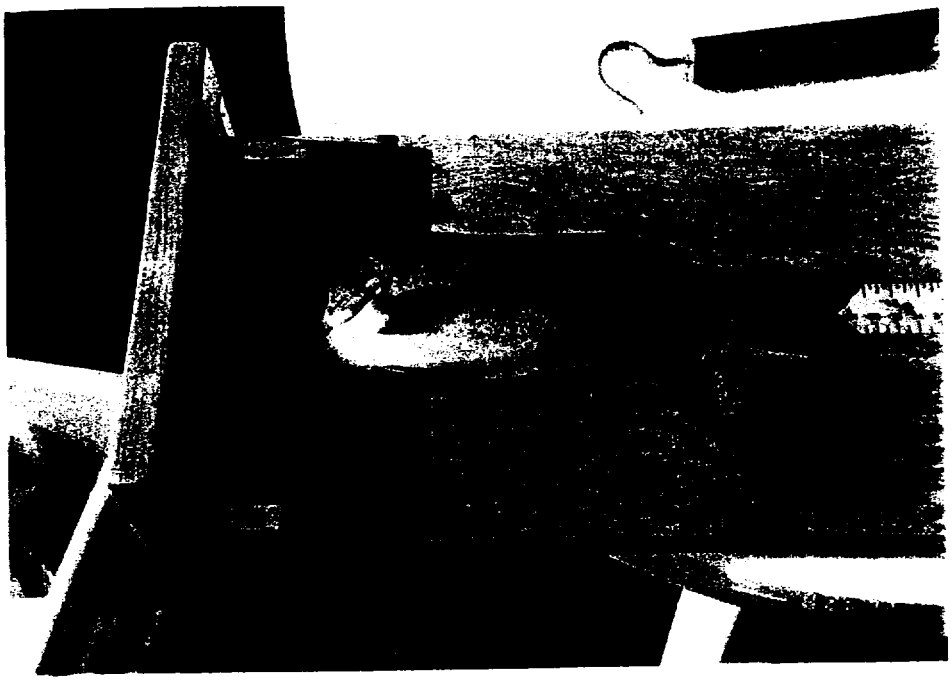
K40012



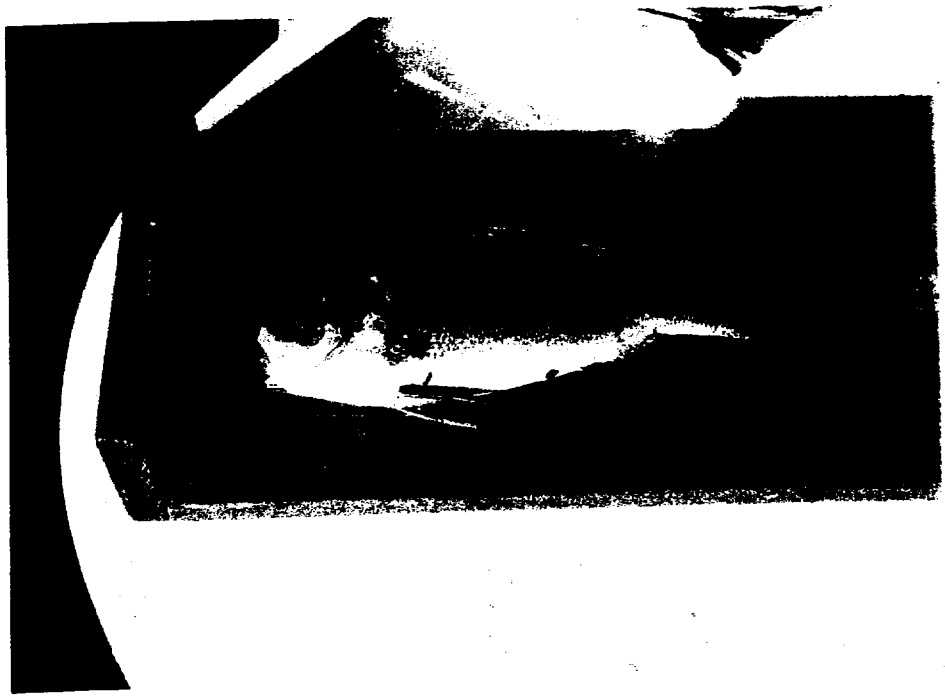
K40013



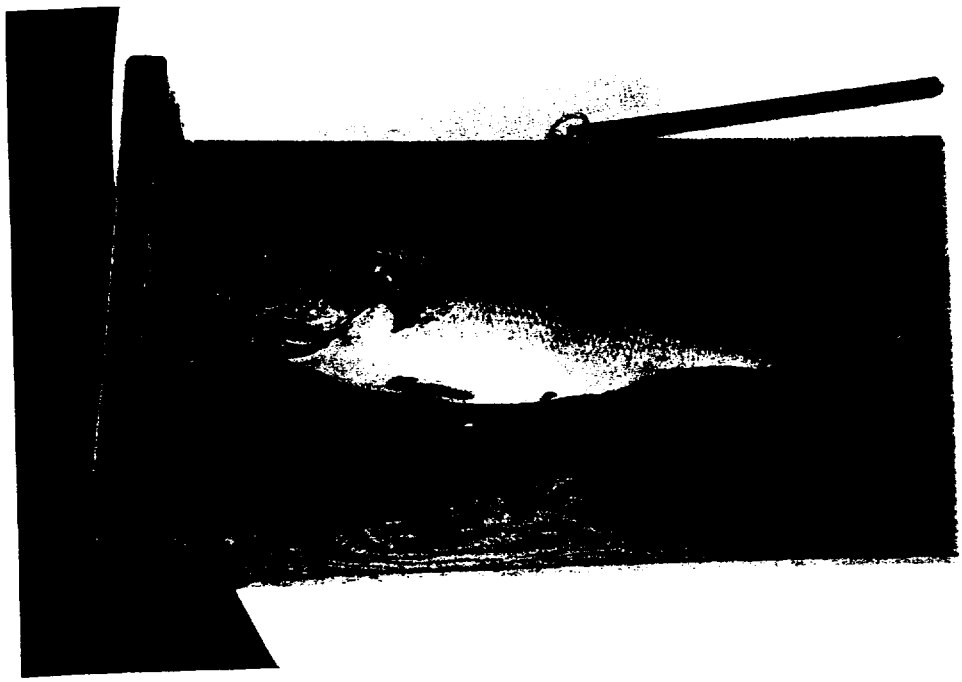
K40014



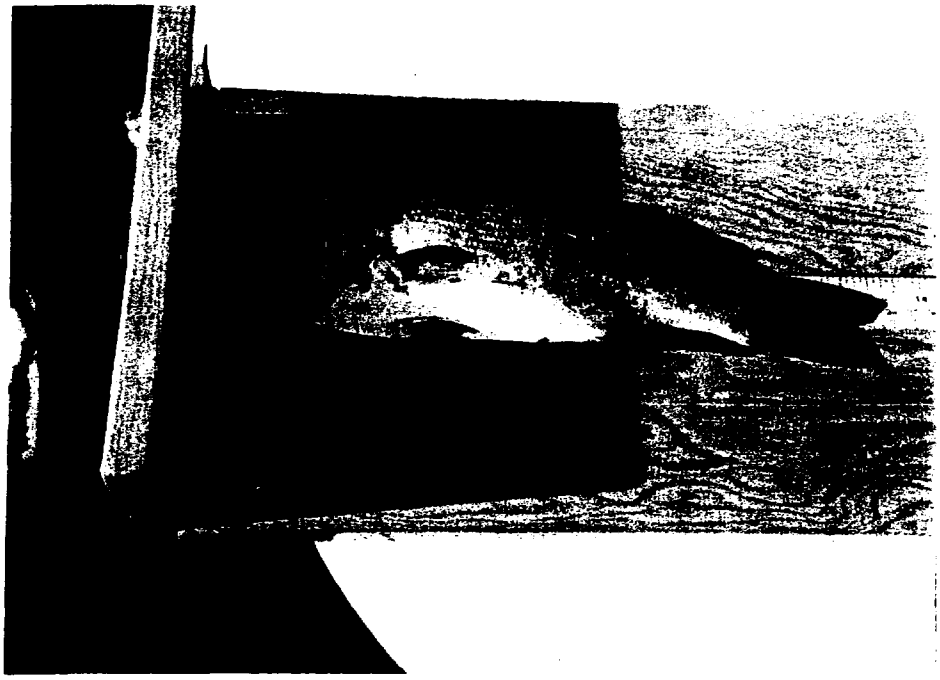
K40015



K40025

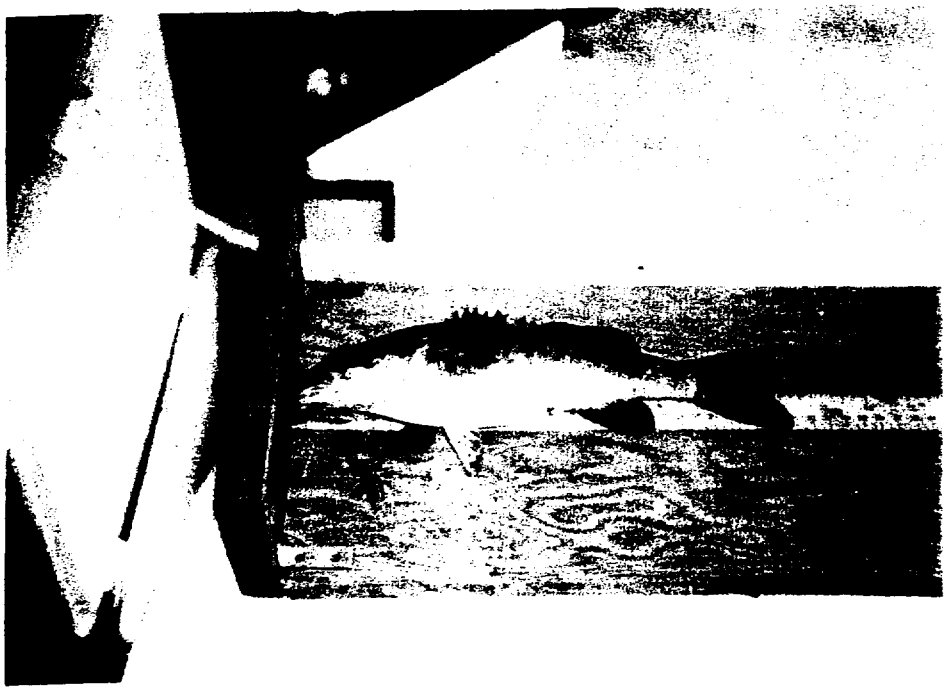


K40026

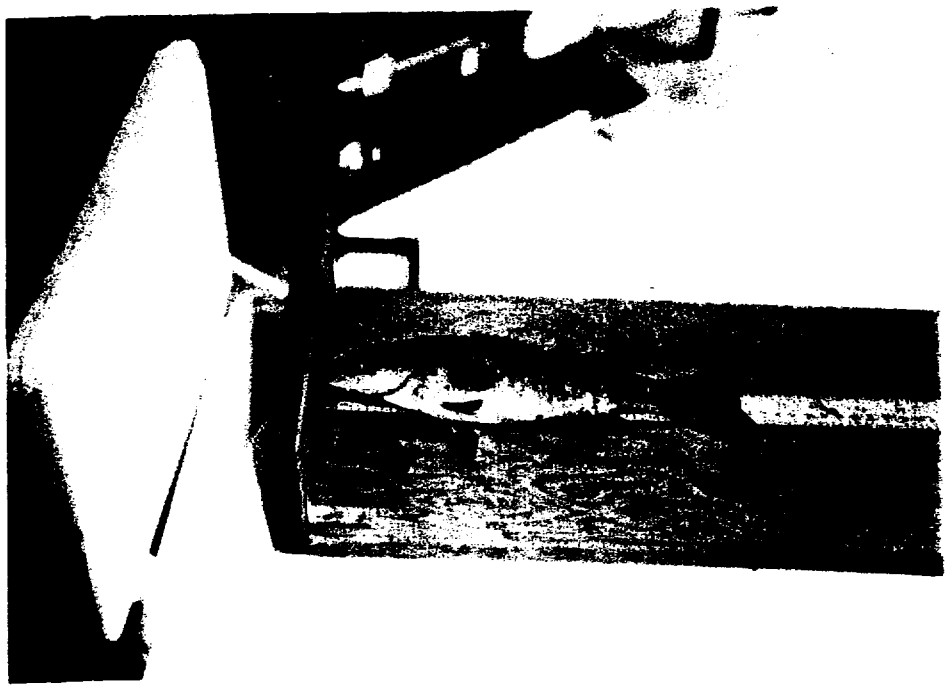


K40027

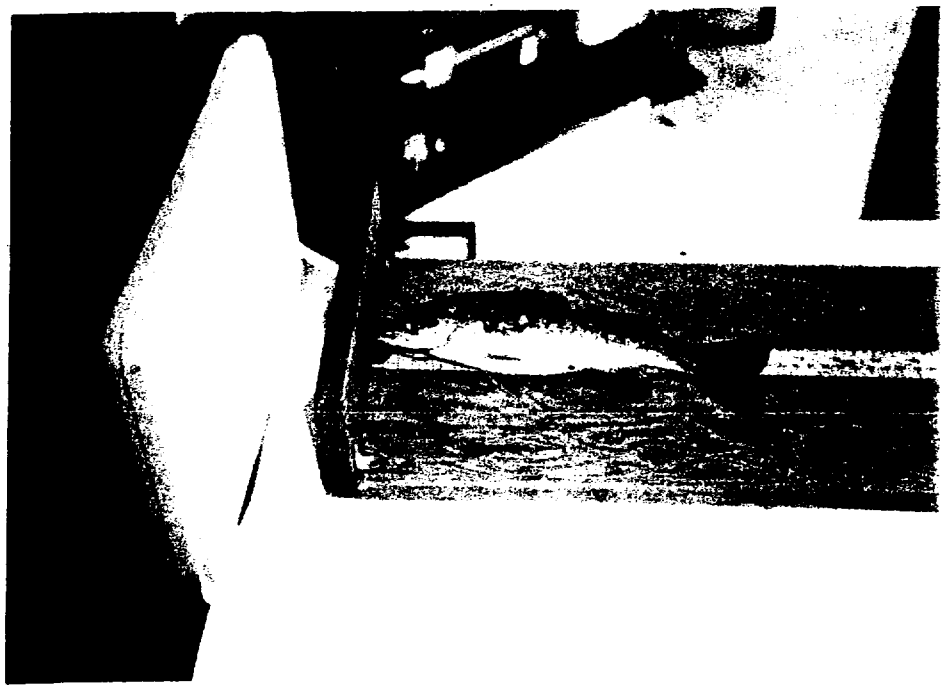
K40387



K40388



K40389

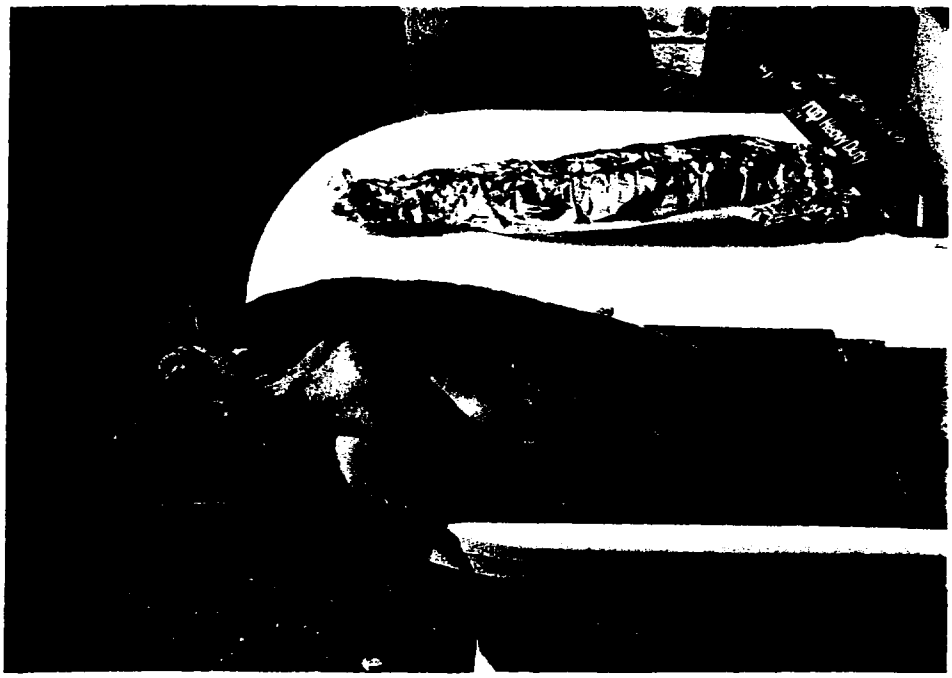


K40390

Carp
(*Cyprinus carpio*)

6/20/94
1094912.F

K40001



K40002

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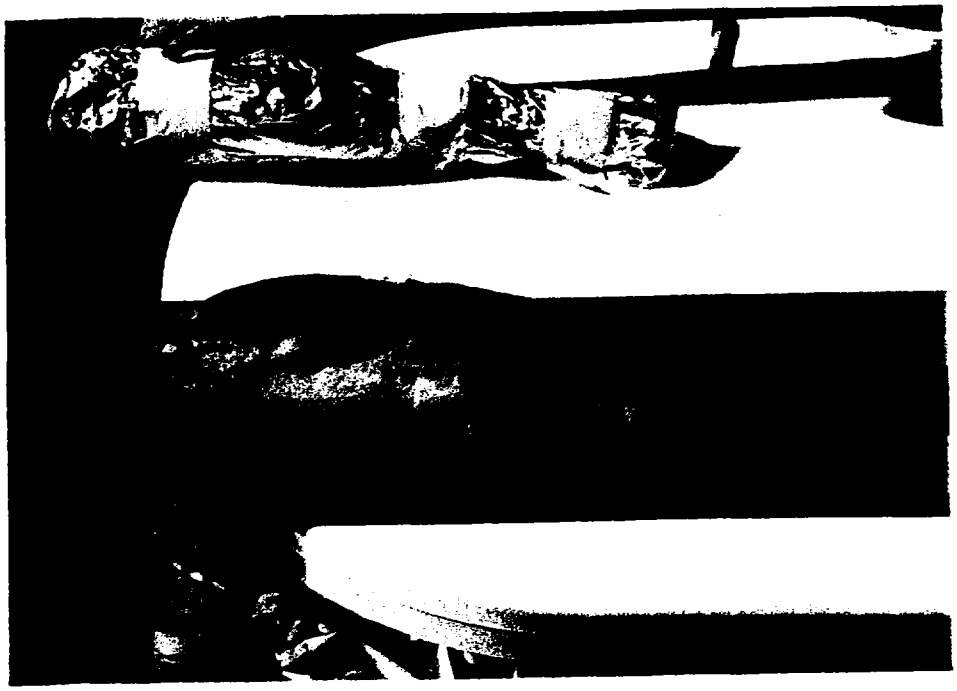
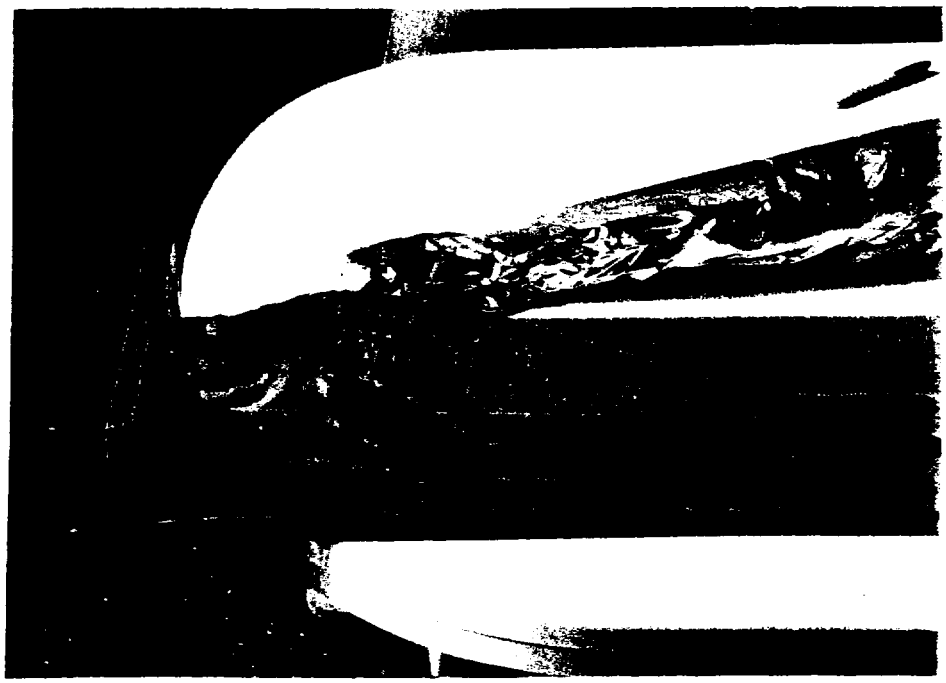
494912F

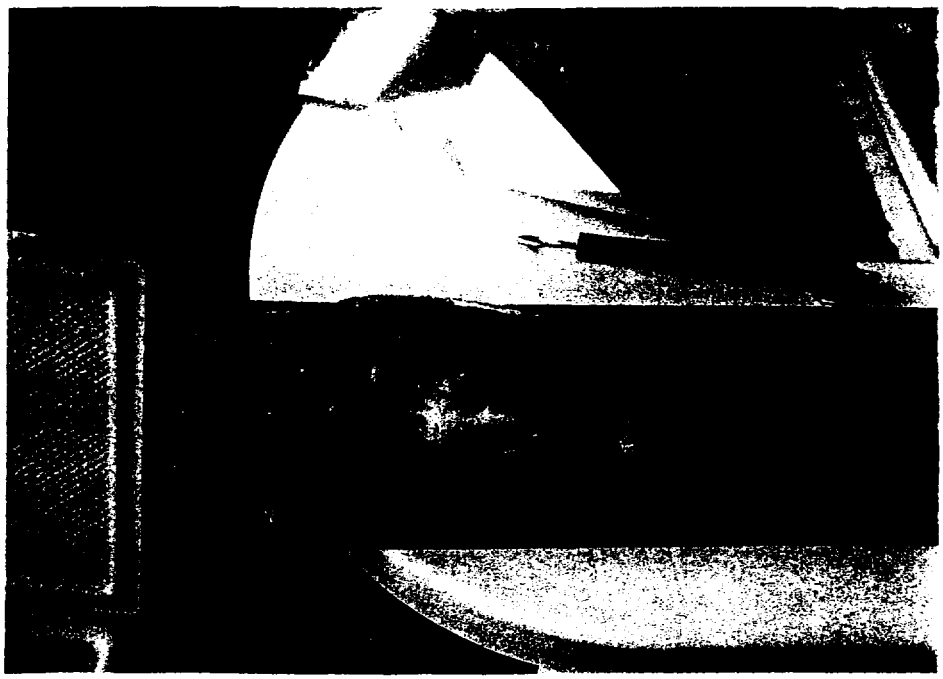
K40003



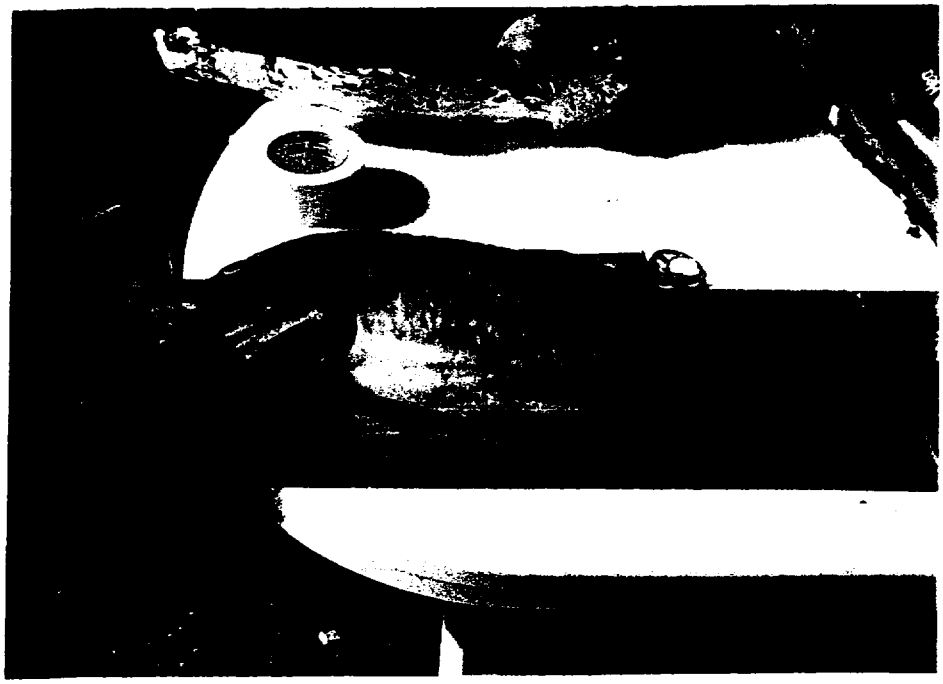
K40004



K40005

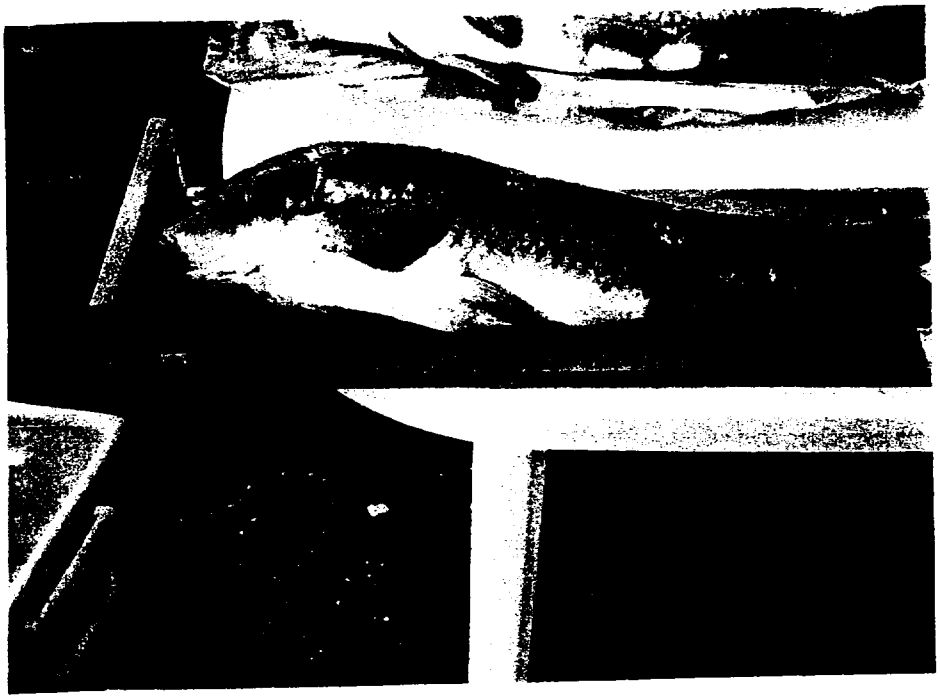


K40006

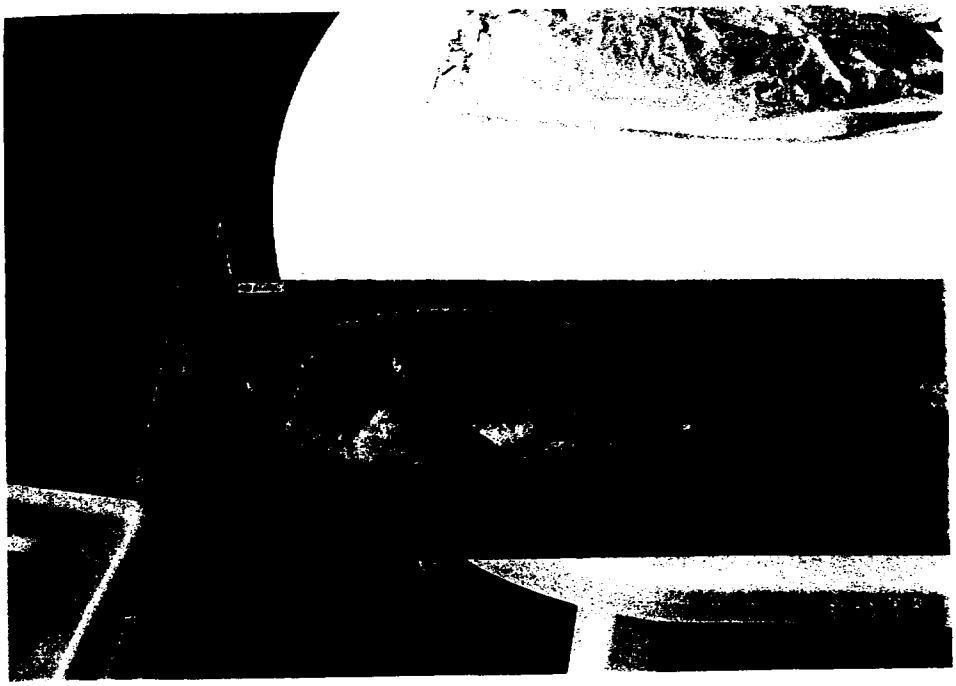


K40007

K40008



K40009



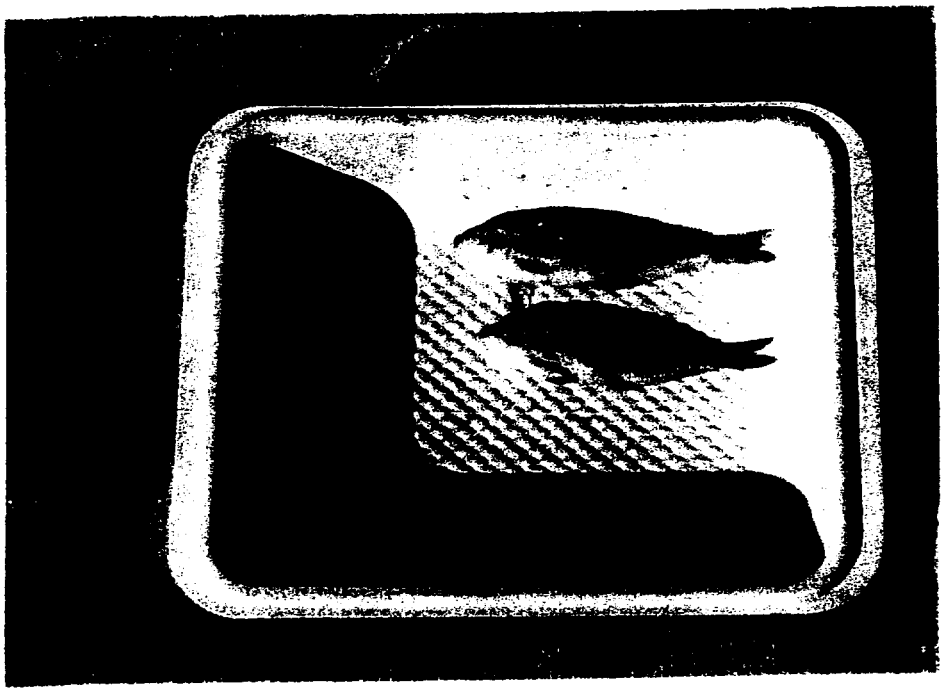
K40010

K40011

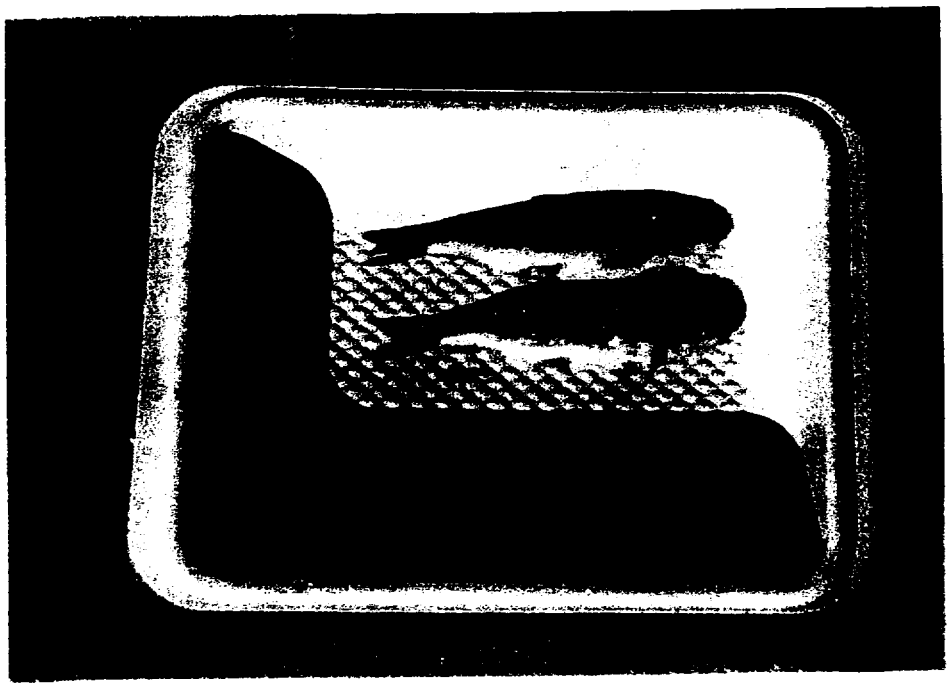
6/16/94
494912F

Golden Redhorse
(*Moxostoma erythrurum*)

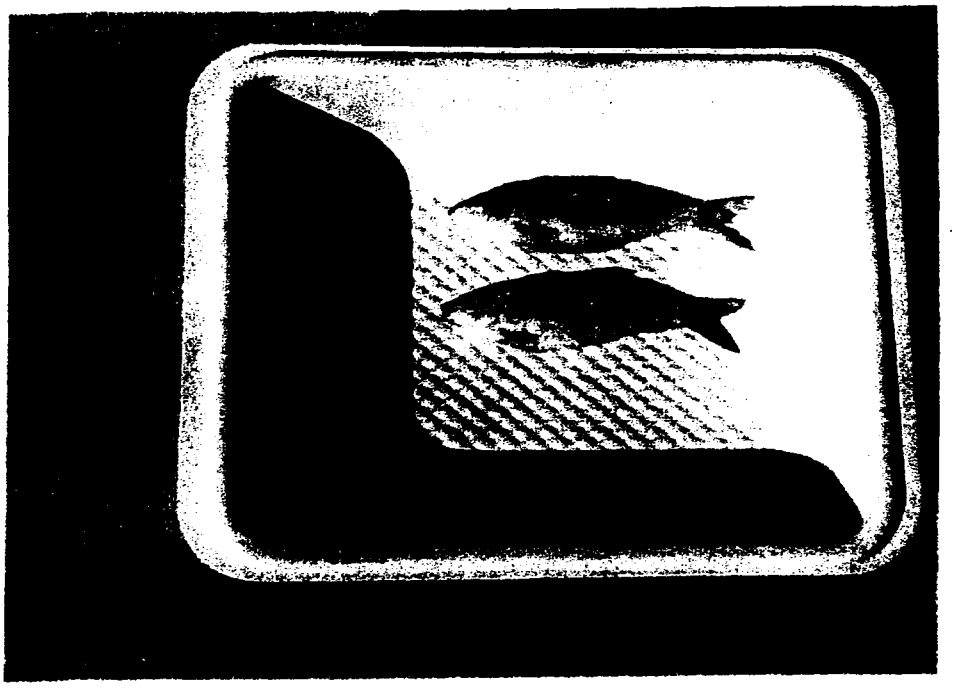
6/20/94
1094912.F



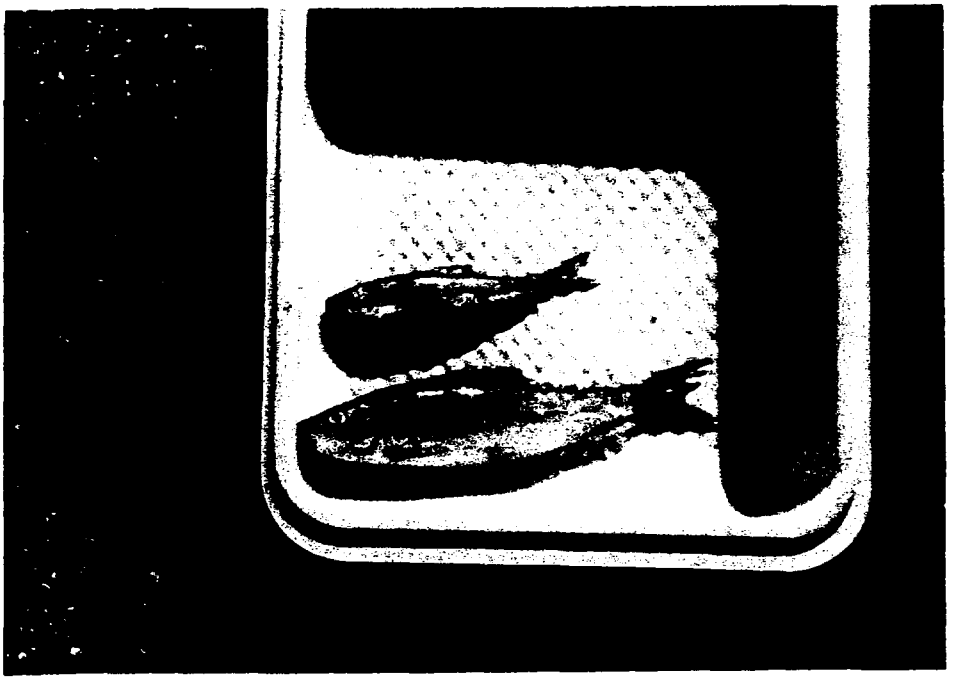
K40016, K40017[1]



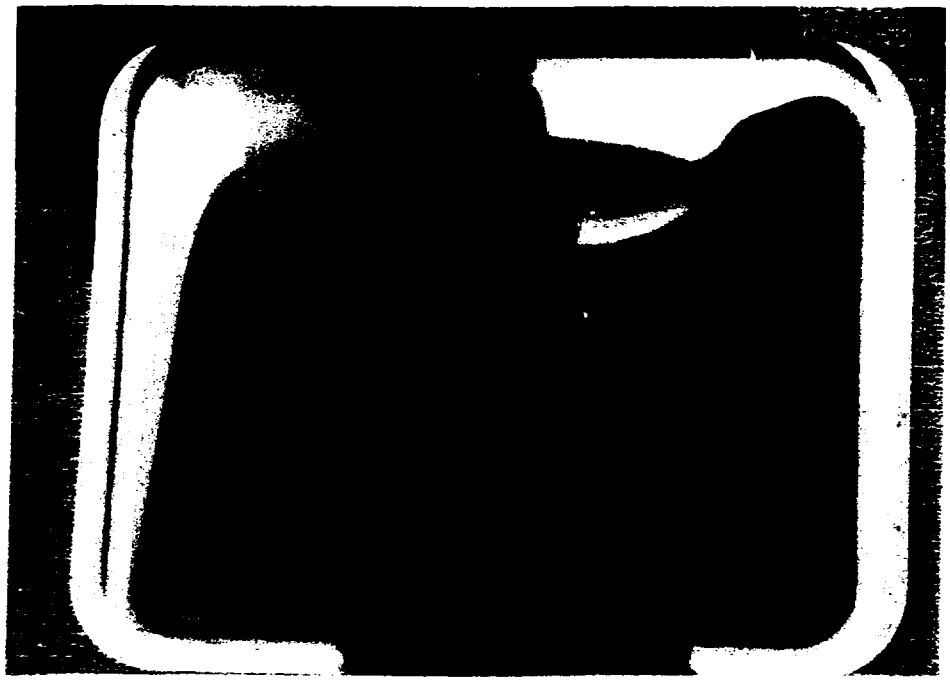
K40018, K40019[2]



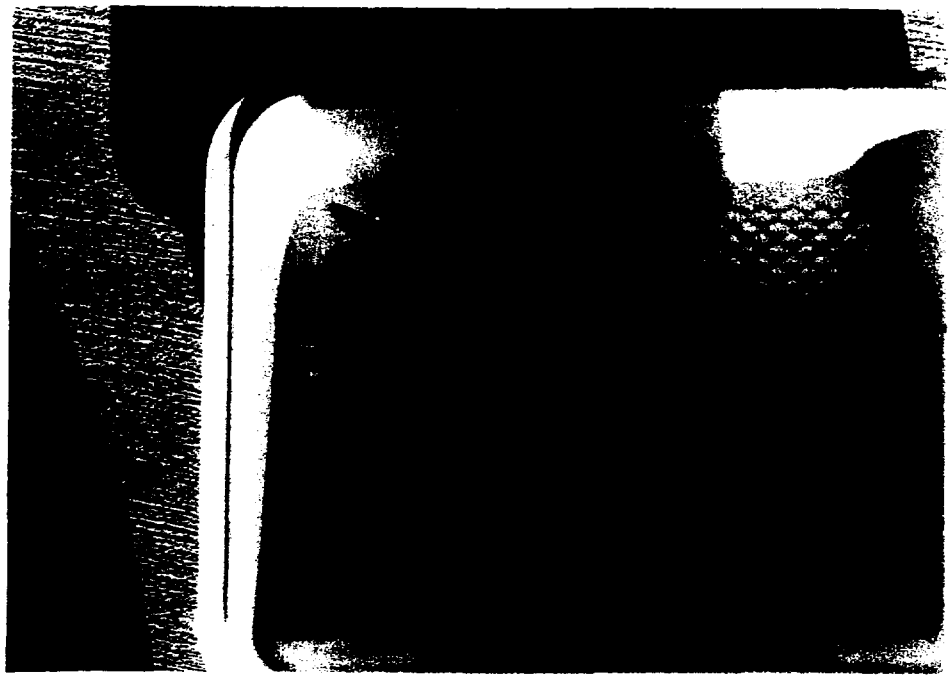
K40020[3]



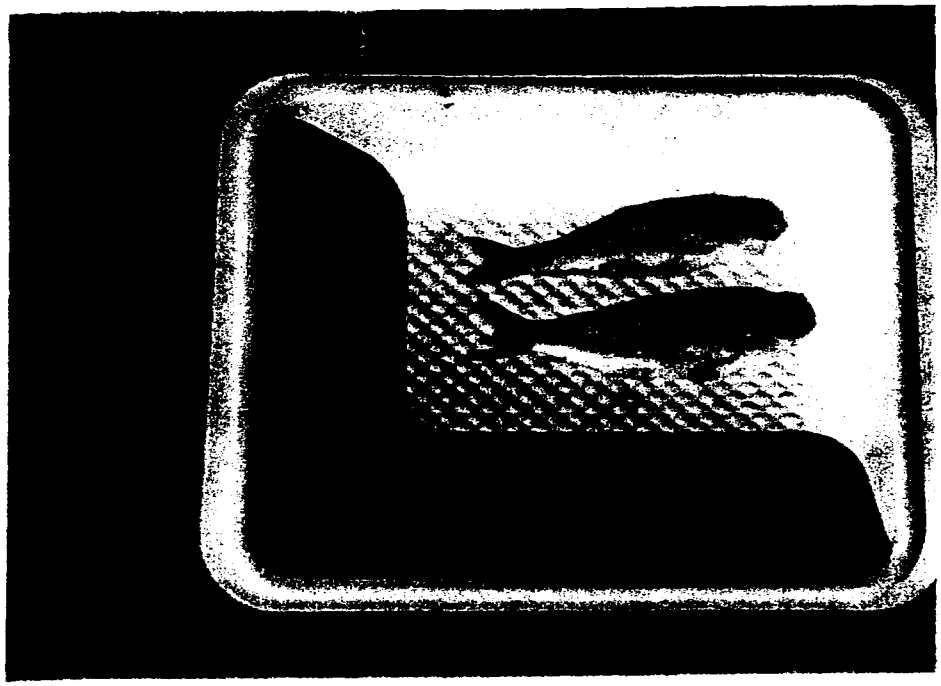
K40021[4]



K40022, K40023[5]



K40024[6]



K40032,K40033[7]

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494912F

Notes:

[1] Samples K40016, K40017 taken from original composite sample K40020
[2] Samples K40018, K40019 taken from original composite sample K40022
[3] Sample K40020 taken from original composite sample K40016
[4] Sample K40021 taken from original composite sample K40024
[5] Samples K40022, K40023 taken from original composite sample K40032
[6] Sample K40024 taken from original composite sample K40033
[7] Samples K40032, K40033 taken from original composite sample K40018

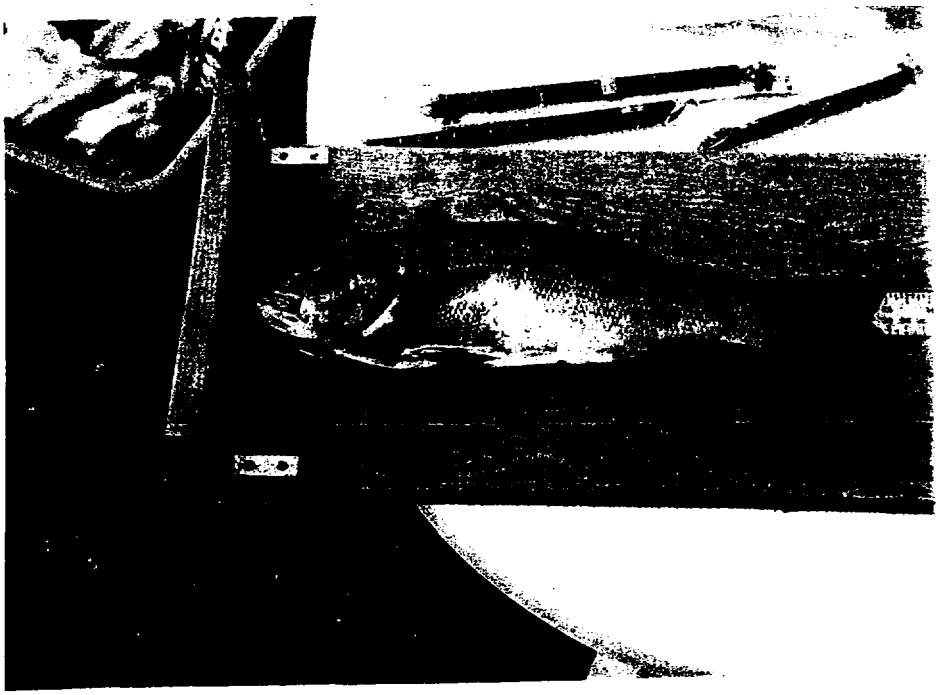
ABSA #3
Kalamazoo River Below Morrow Dam

Carp	Smallmouth Bass	Northern Hog Sucker
K40034	K40045	K40057
K40035	K40046	K40058
K40036	K40047	K40059
K40037	K40048	K40060
K40038	K40049	K40061
K40039	K40050	K40062
K40040	K40051	K40063
K40041	K40052	K40432
K40042	K40053	K40433
K40043	K40054	K40434
K40044	K40055	K40435

6/20/94
1094912.F

Smallmouth Bass
(*Micropterus dolomieui*)

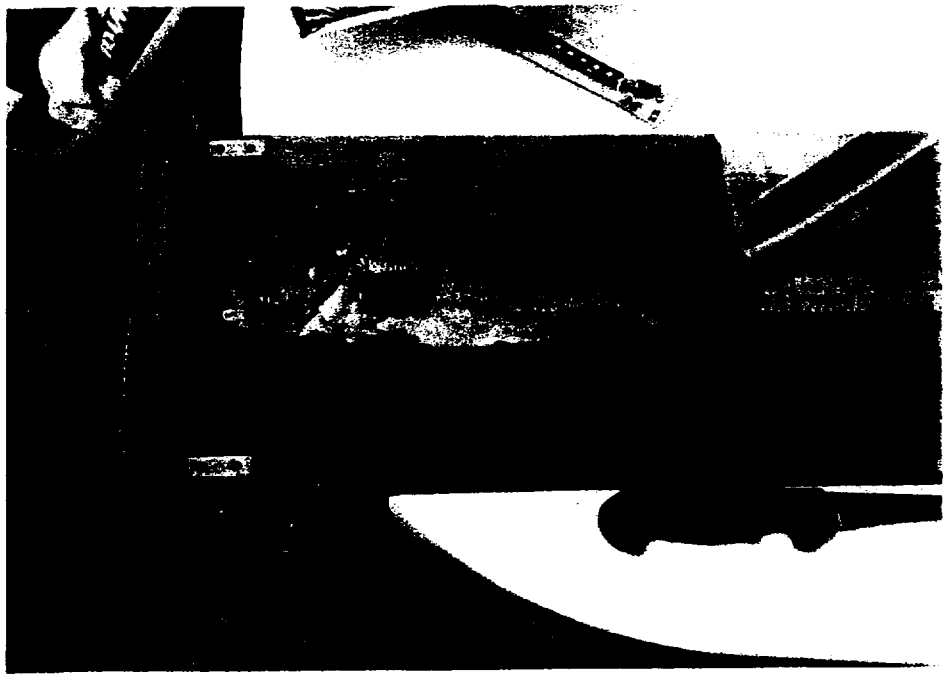
6/20/94
1094912.F



K40045

K40046

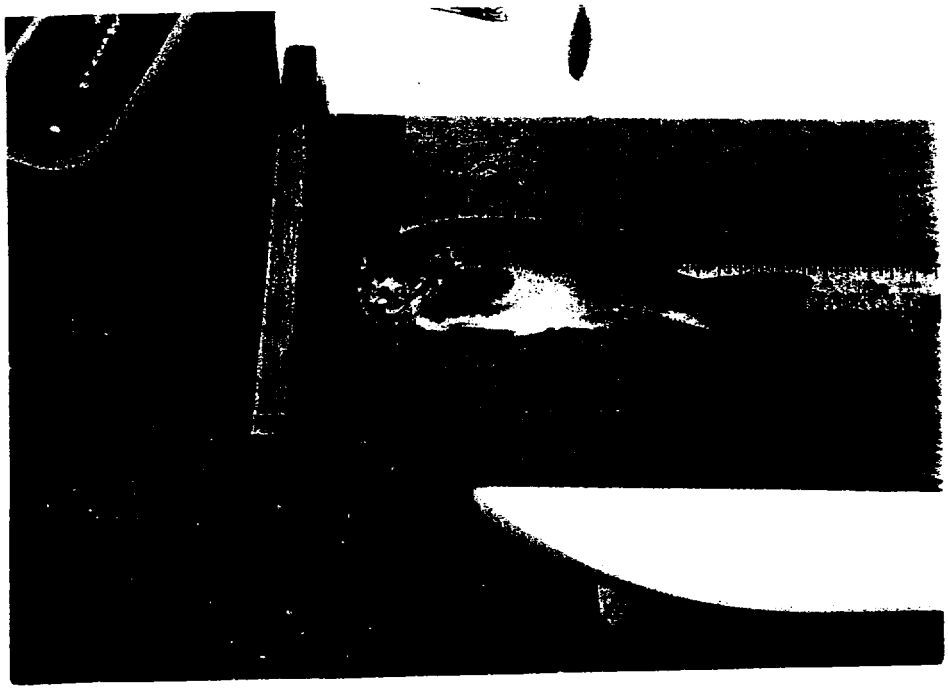
K40047



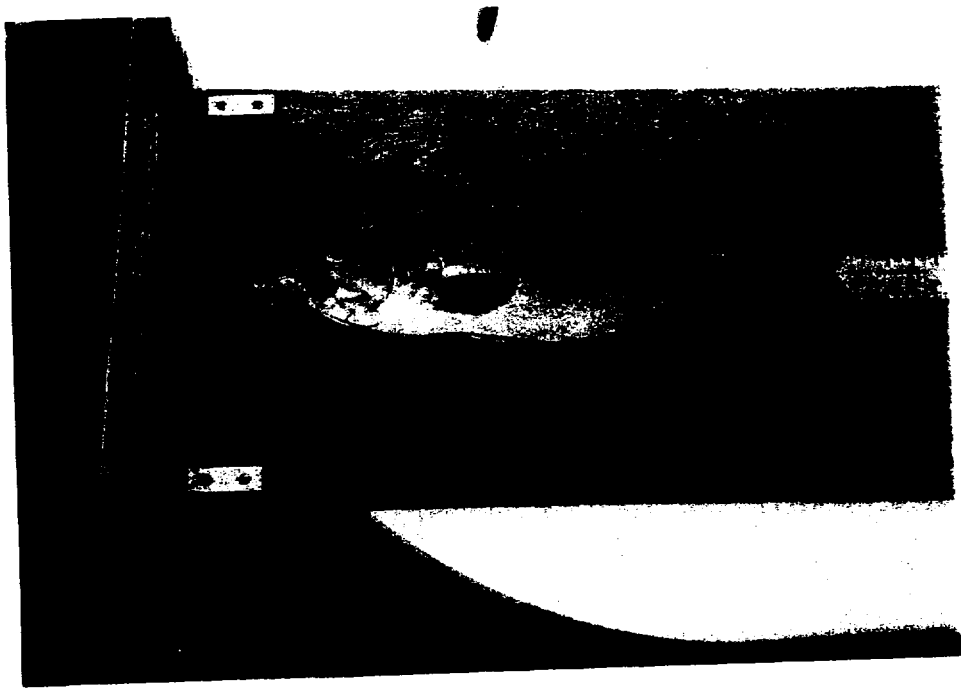
K40048

K40049

K40050

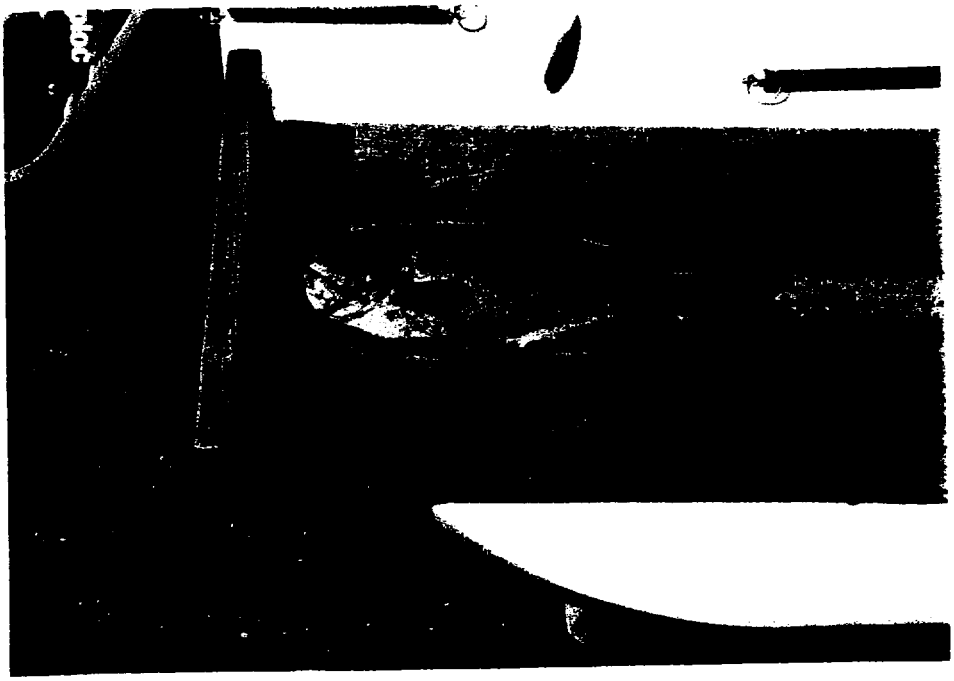


K40051

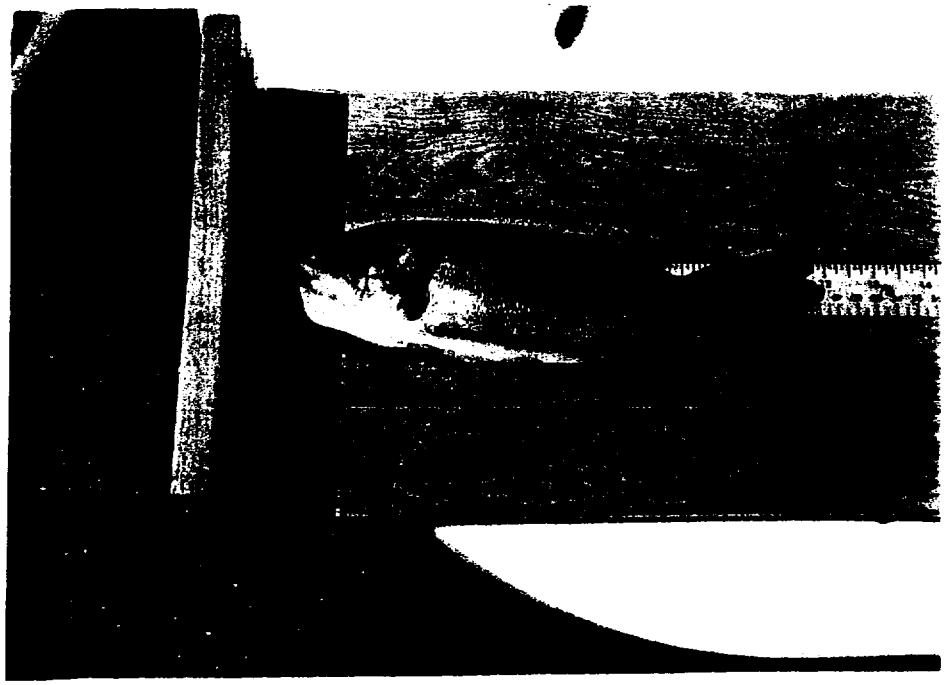


K40052

K40053



K40054

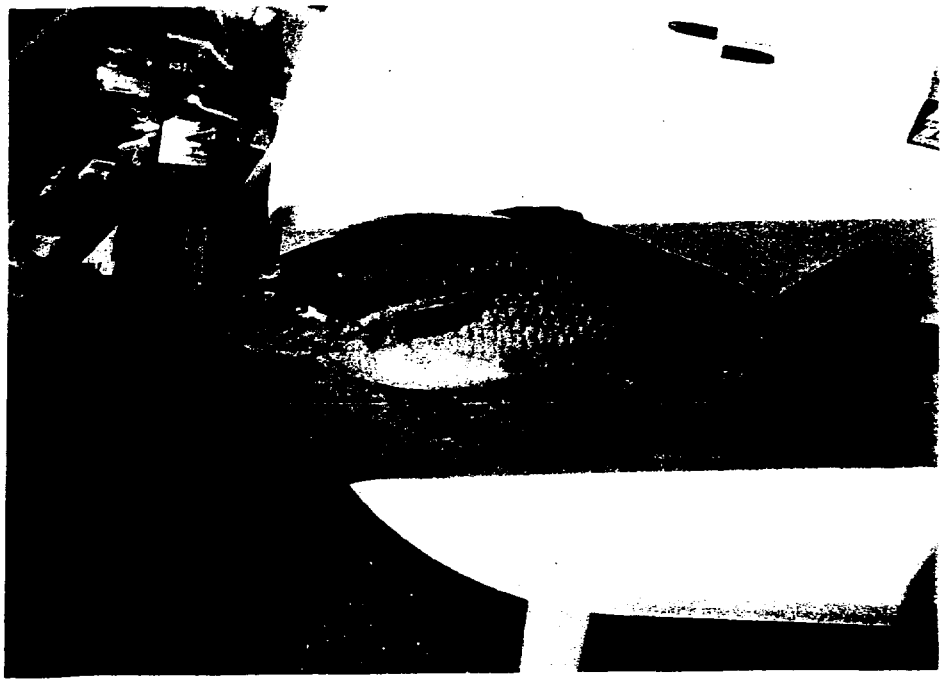


K40055

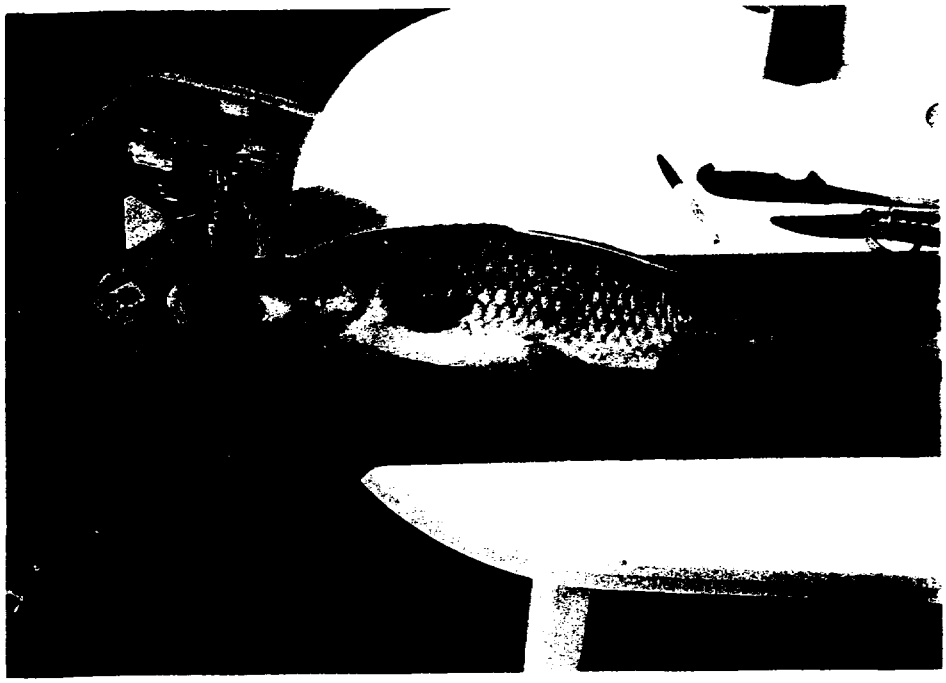
6/16/94
594912F

Carp
(*Cyprinus carpio*)

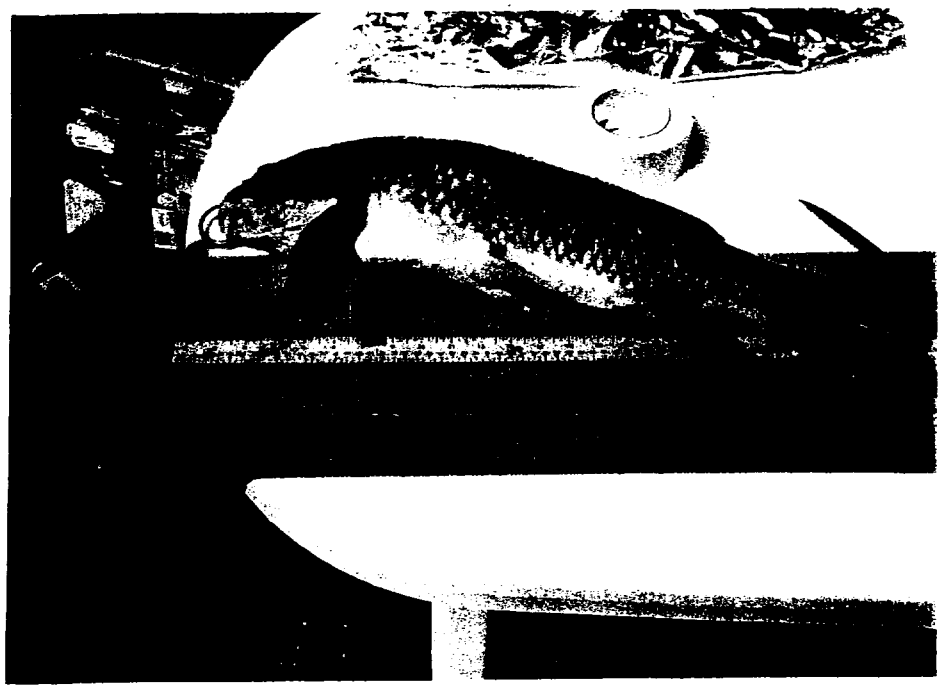
6/20/94
1094912.F



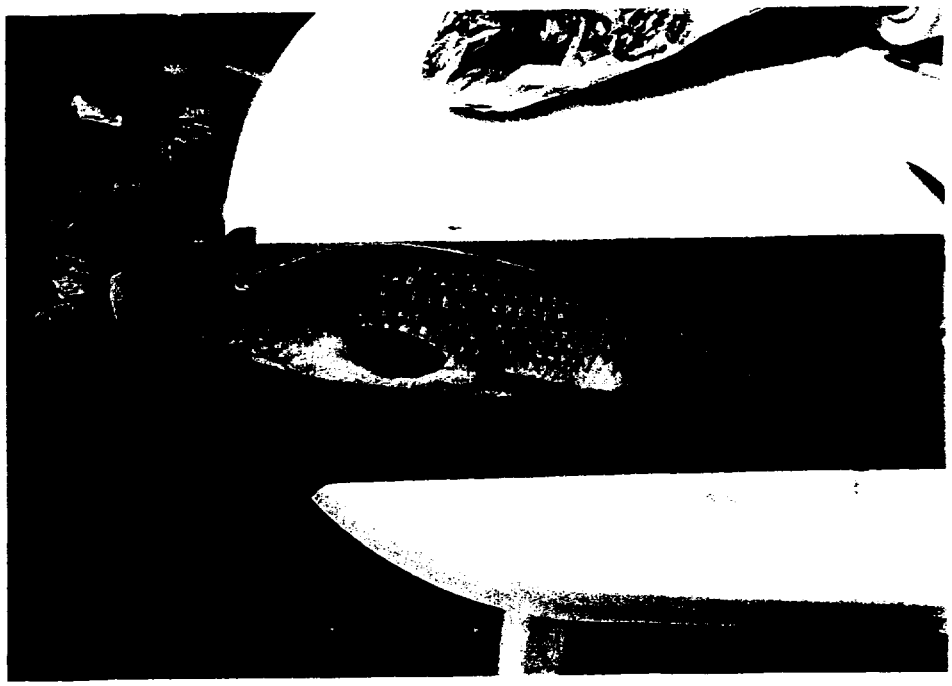
K40034



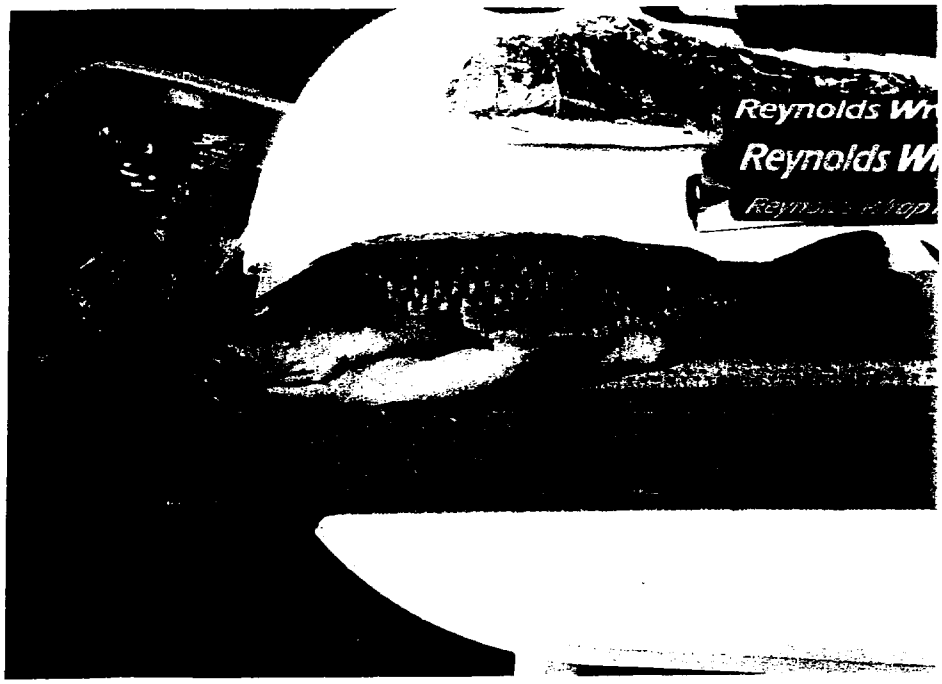
K40035



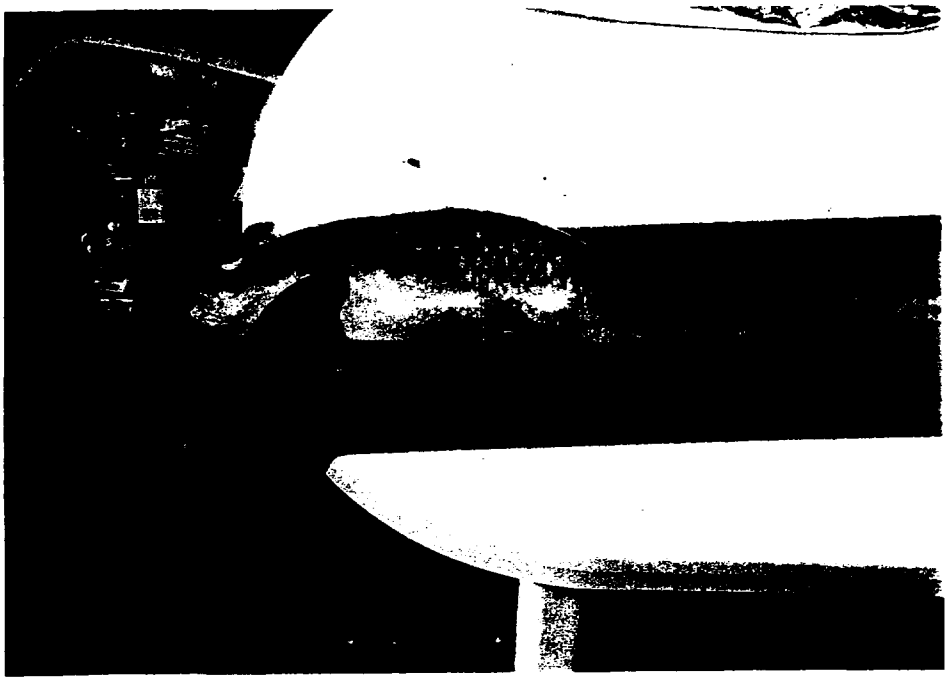
K40036



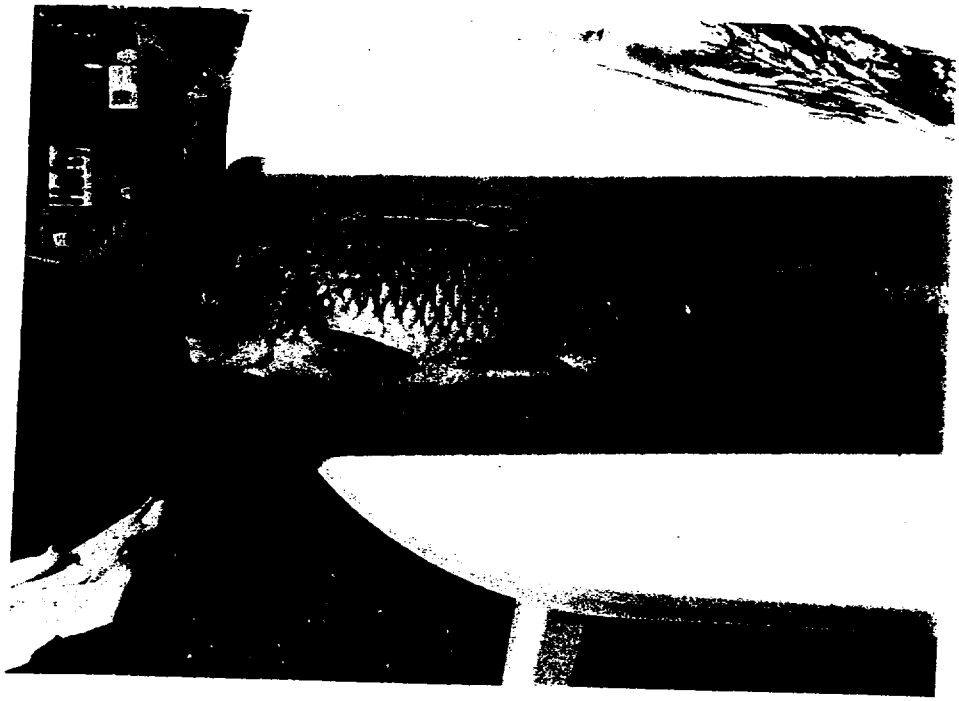
K40037



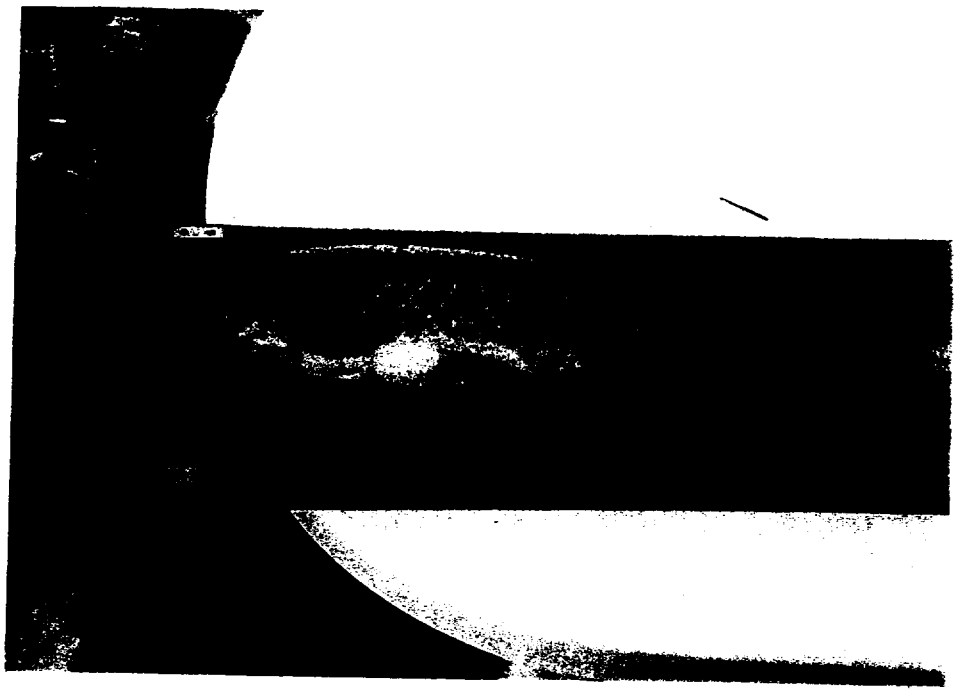
K40038



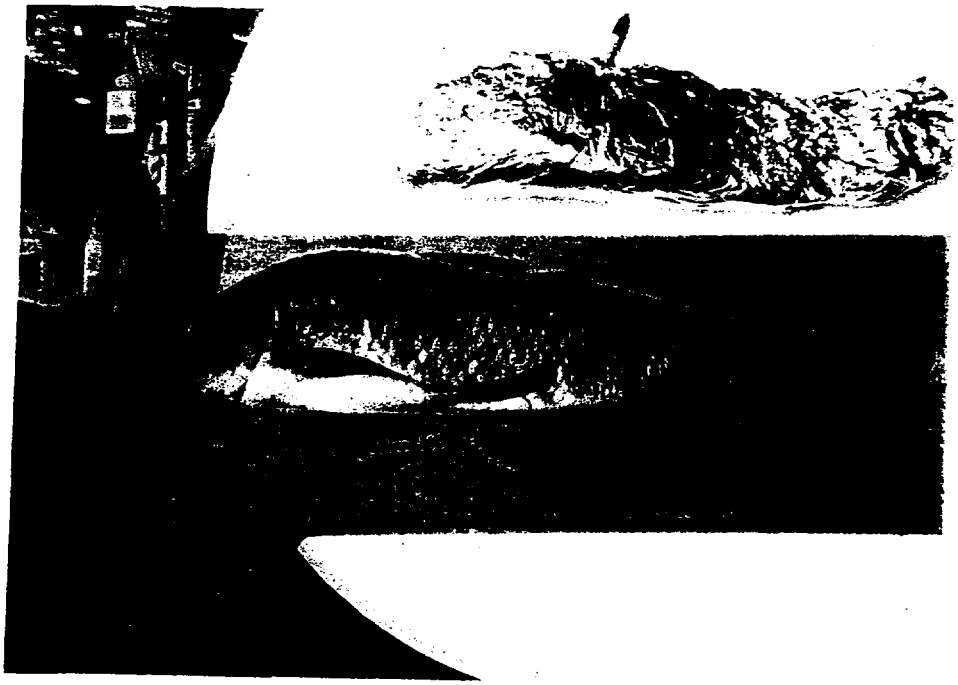
K40039



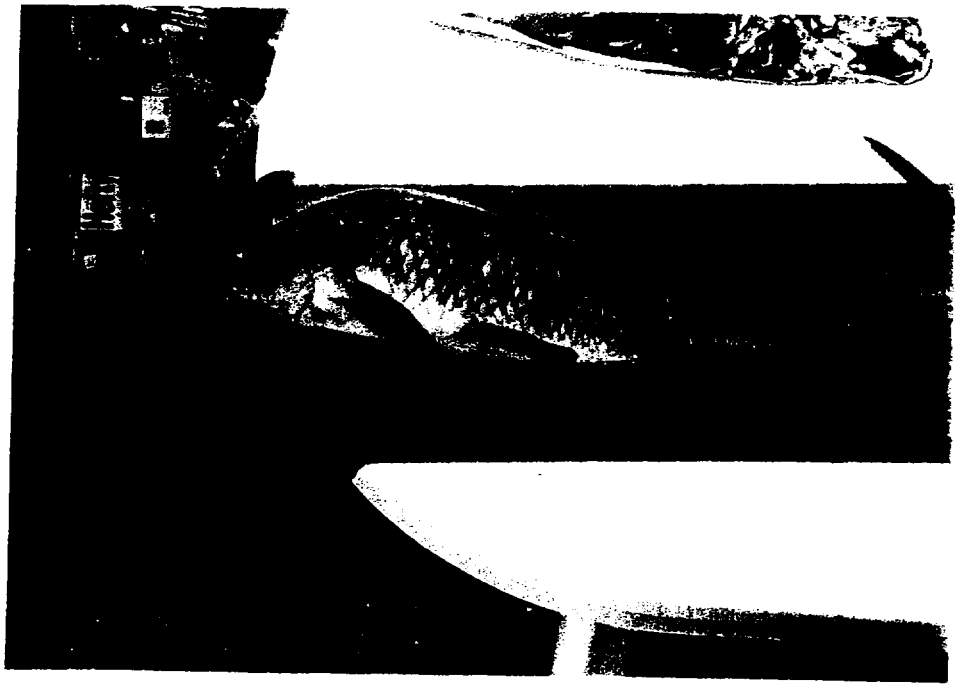
K40040



K40041



K40042



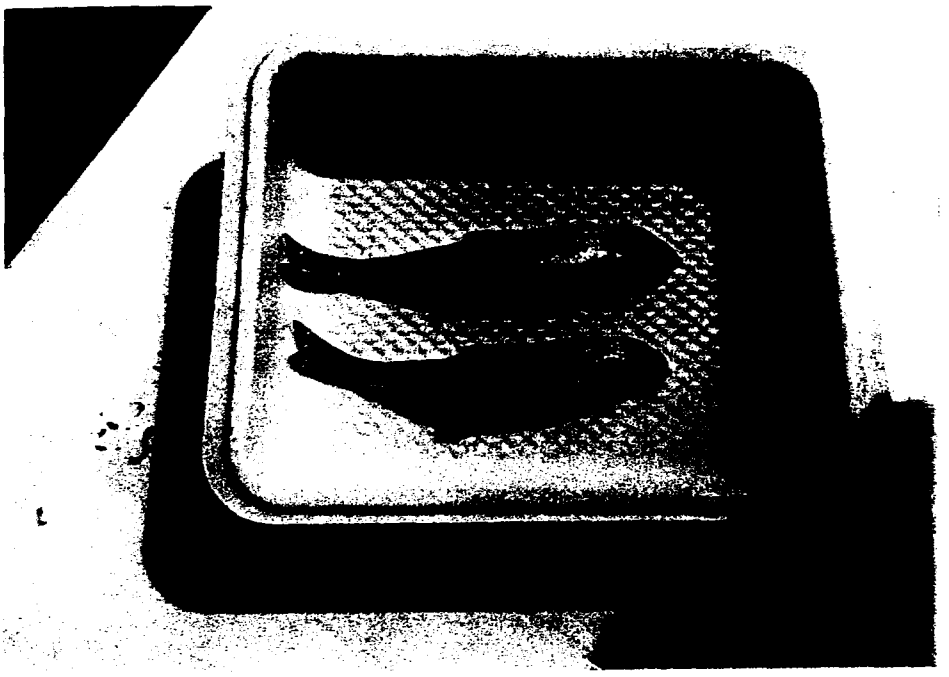
K40043

K40044

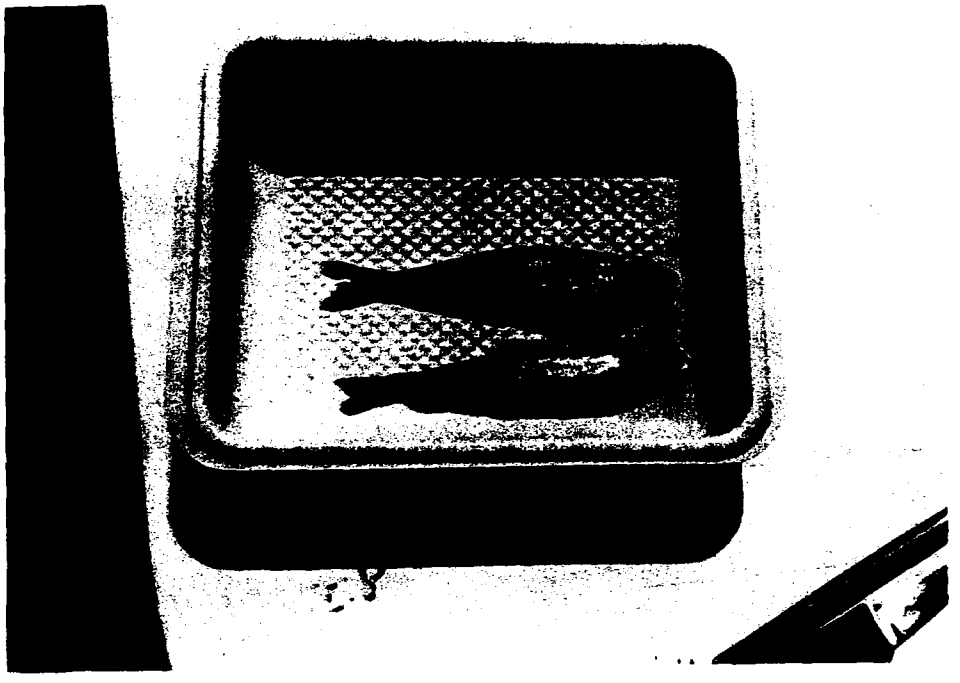
6/16/94
594912F

Northern Hog Sucker
(*Hypentelium nigricans*)

6/20/94
1094912.F



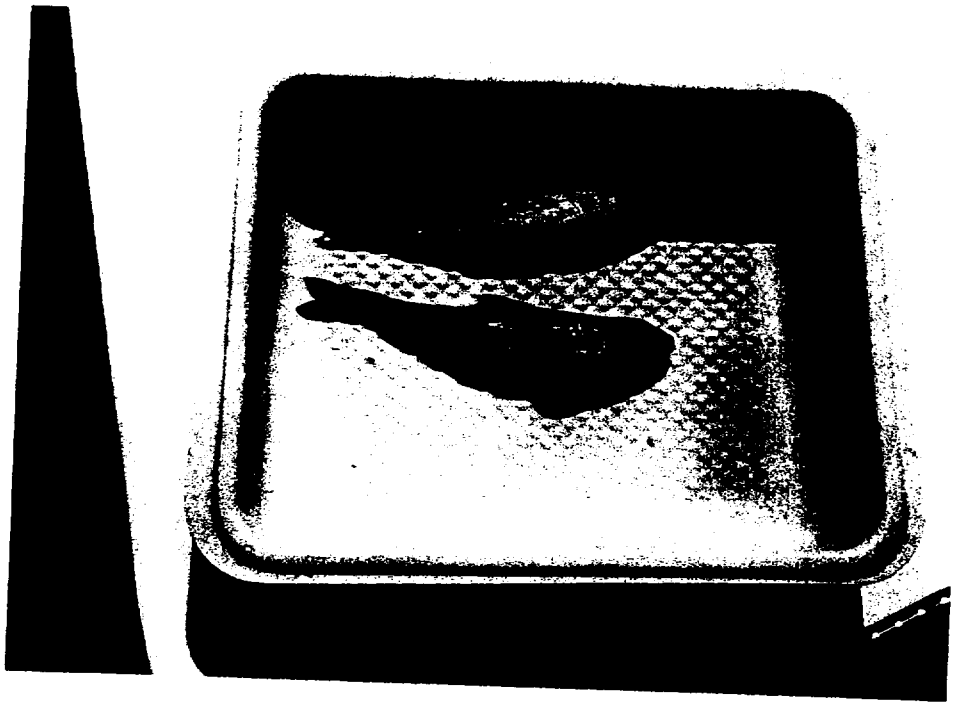
K40057, K40058[1]



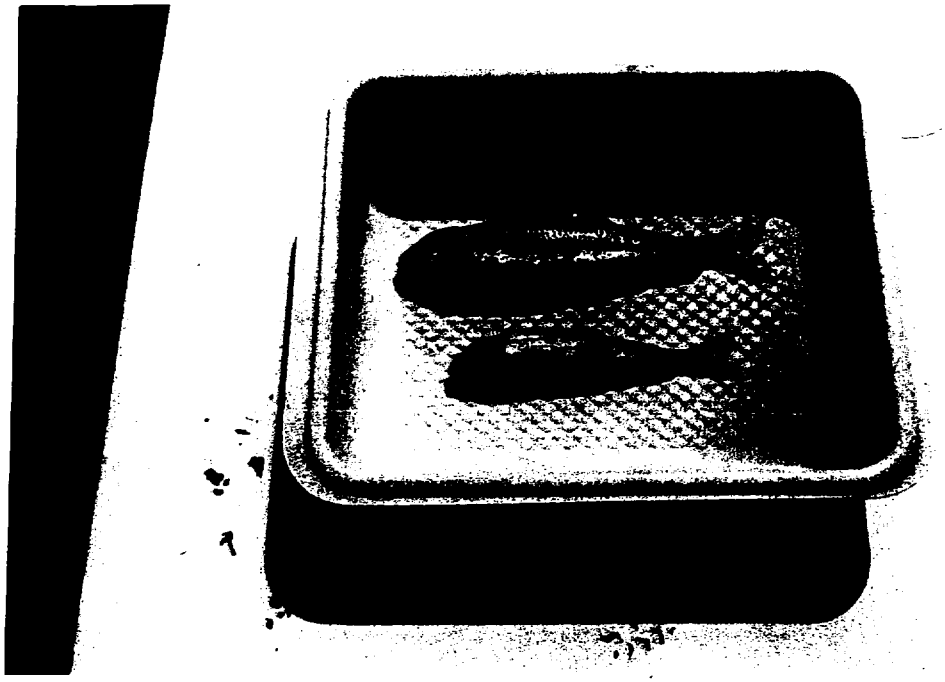
K40059,K40060[2]

6/16/94
594912F

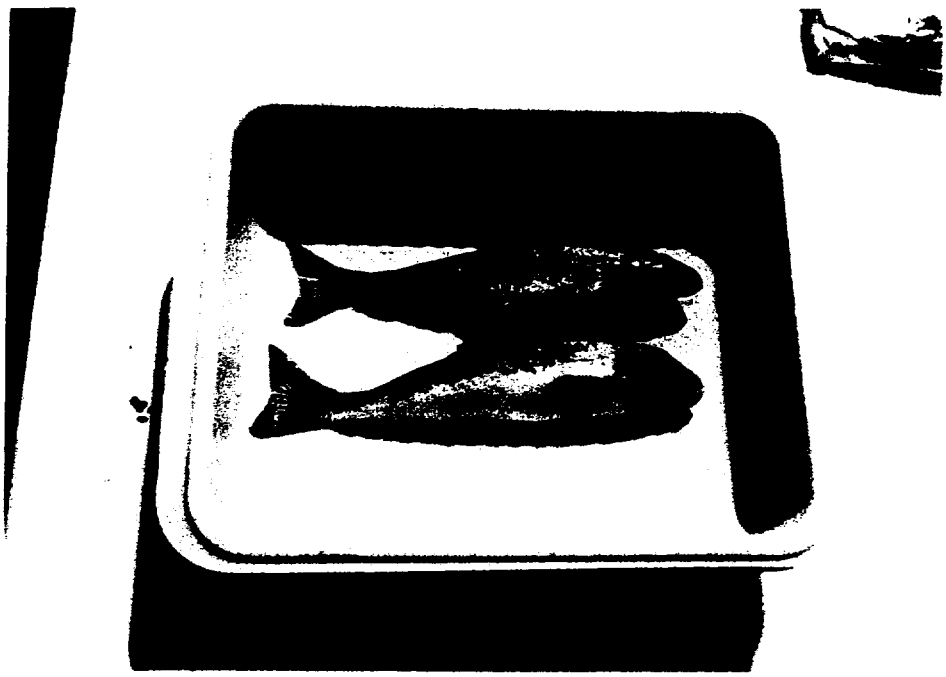
K40061, K40062[3]



K40063, K40432[4]



K40433, K40434[5]



K40435[6]

Notes:

[1] Samples K40057, K40058 taken from original composite sample K40057

[2] Samples K40059, K40060 taken from original composite sample K40058

[3] Samples K40061, K40062 taken from original composite sample K40059

[4] Samples K40063, K40432 taken from original composite sample K40060

[5] Samples K40433, K40434 taken from original composite sample K40061

[6] Sample K40435 taken from original composite sample K40062

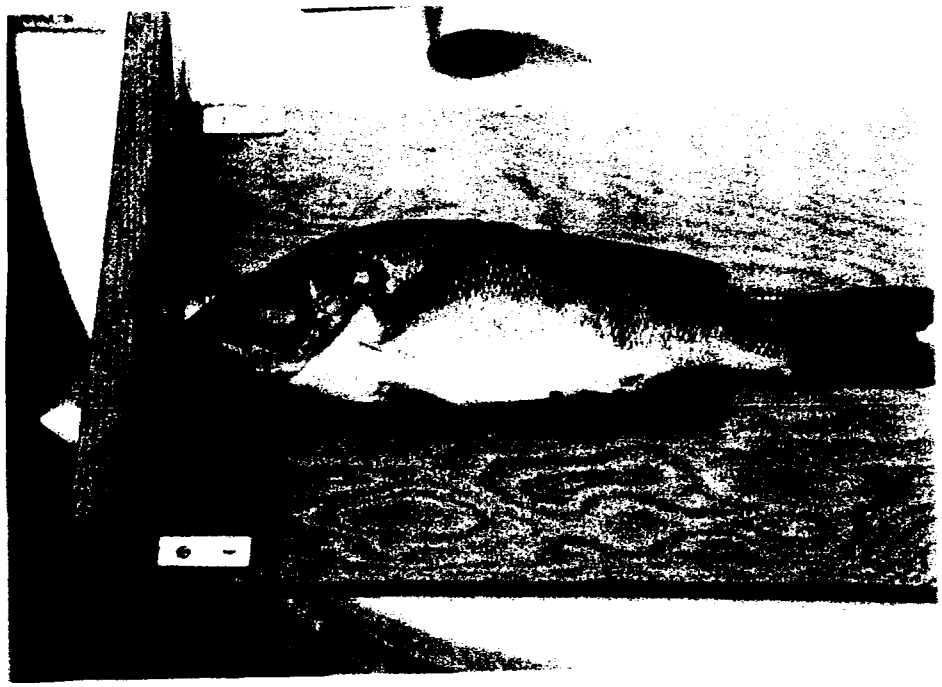
ABSA #4
Kalamazoo River Near Mosel Avenue

Carp	Smallmouth Bass	Golden Redhorse
K40092	K40103	K40114
K40093	K40104	K40115
K40094	K40105	K40116
K40095	K40106	K40117
K40096	K40107	K40392
K40097	K40108	K40393
K40099	K40109	K40394
K40100	K40110	K40395
K40101	K40111	K40396
K40102	K40112	K40397
K40391	K40113	K40398

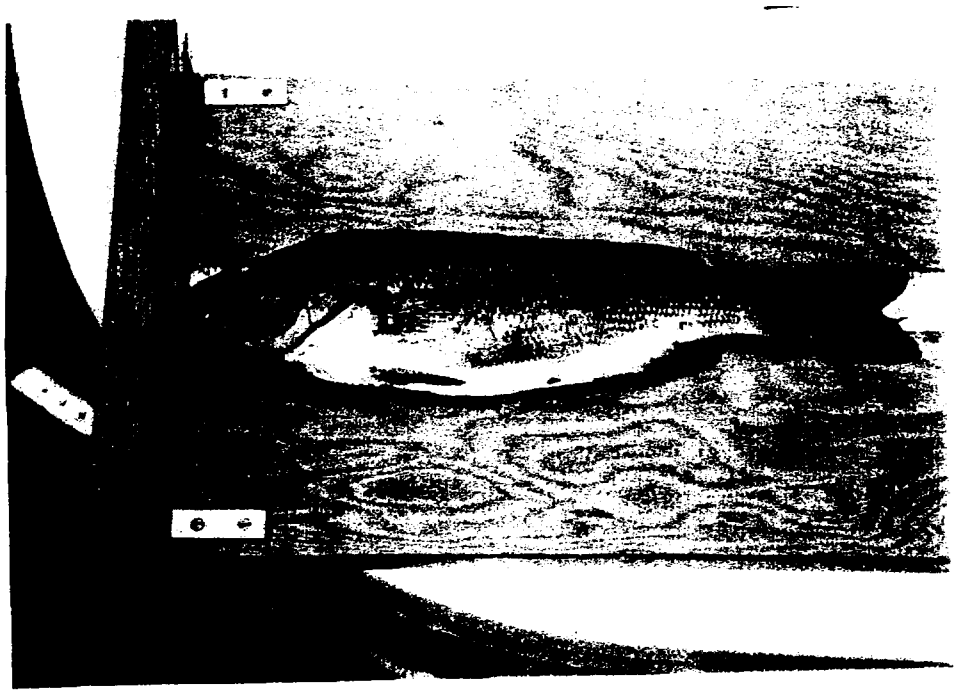
6/20/94
1094912.F

Smallmouth Bass
(*Micropterus dolomieui*)

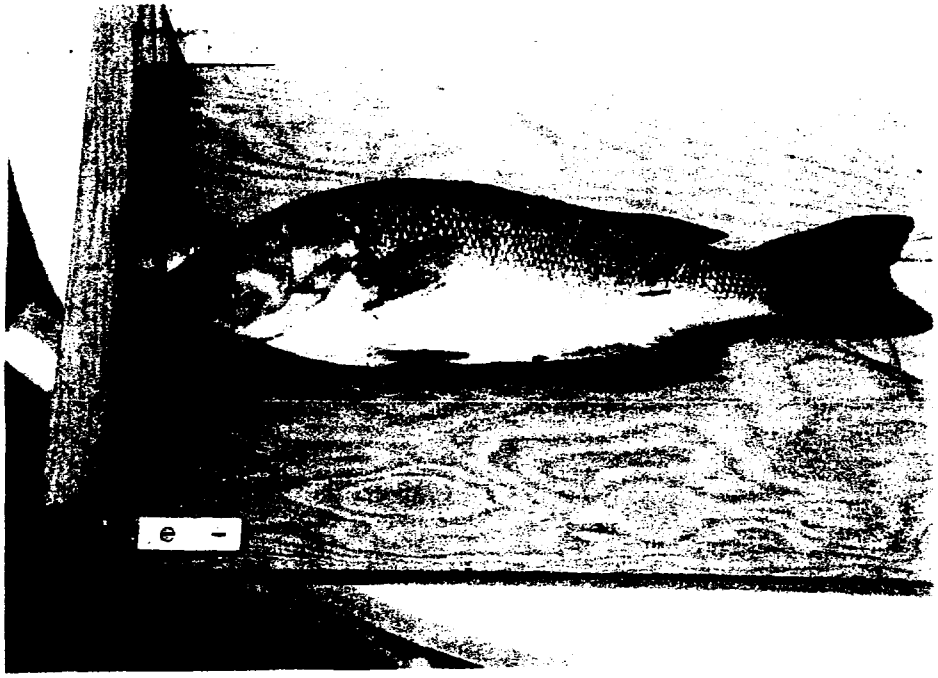
6/20/94
1094912.F



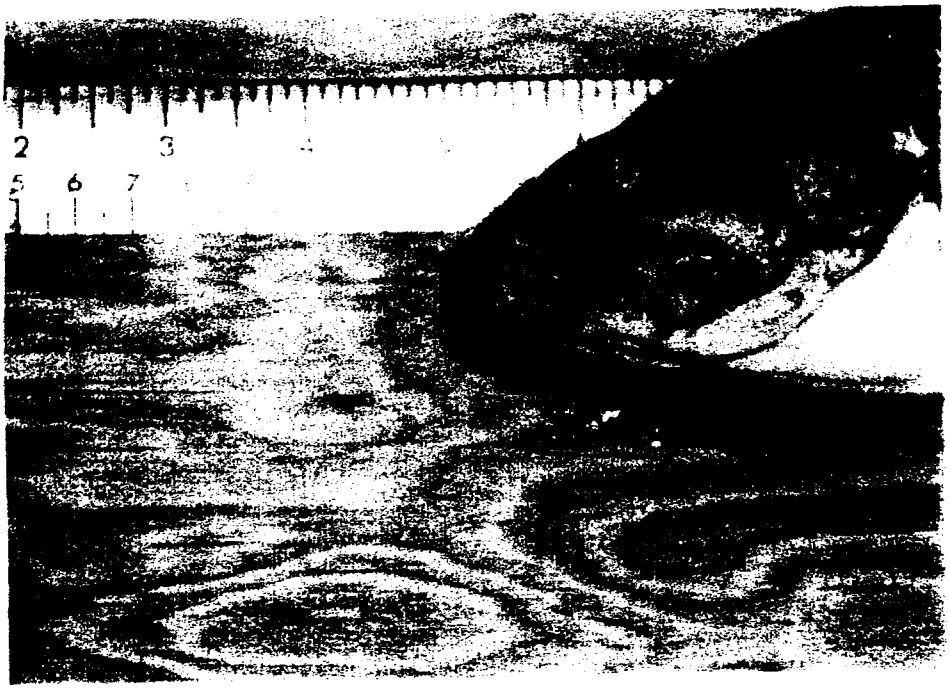
K40103



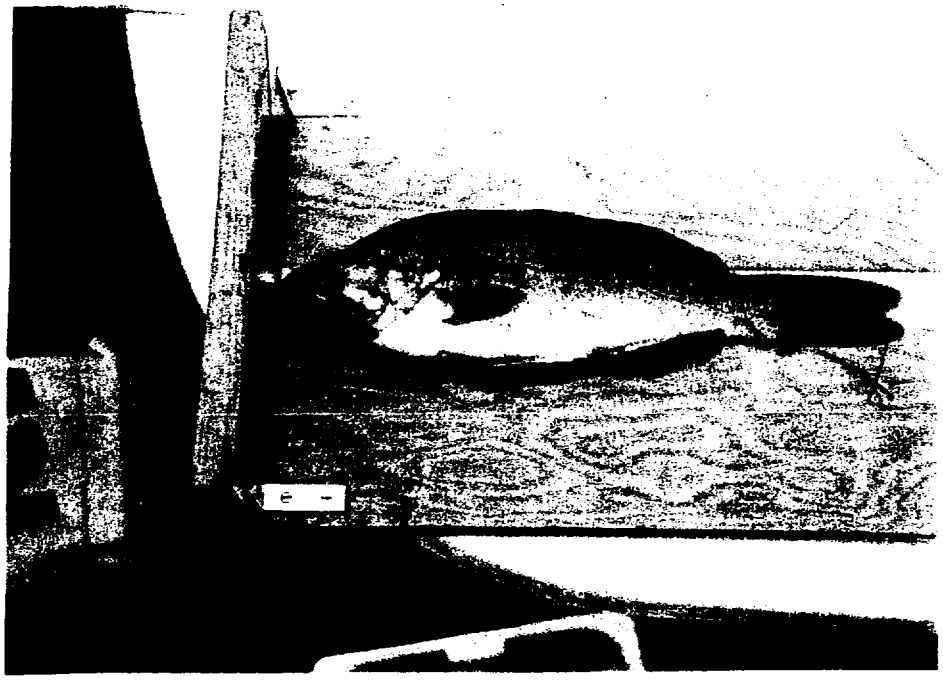
K40104



K40105

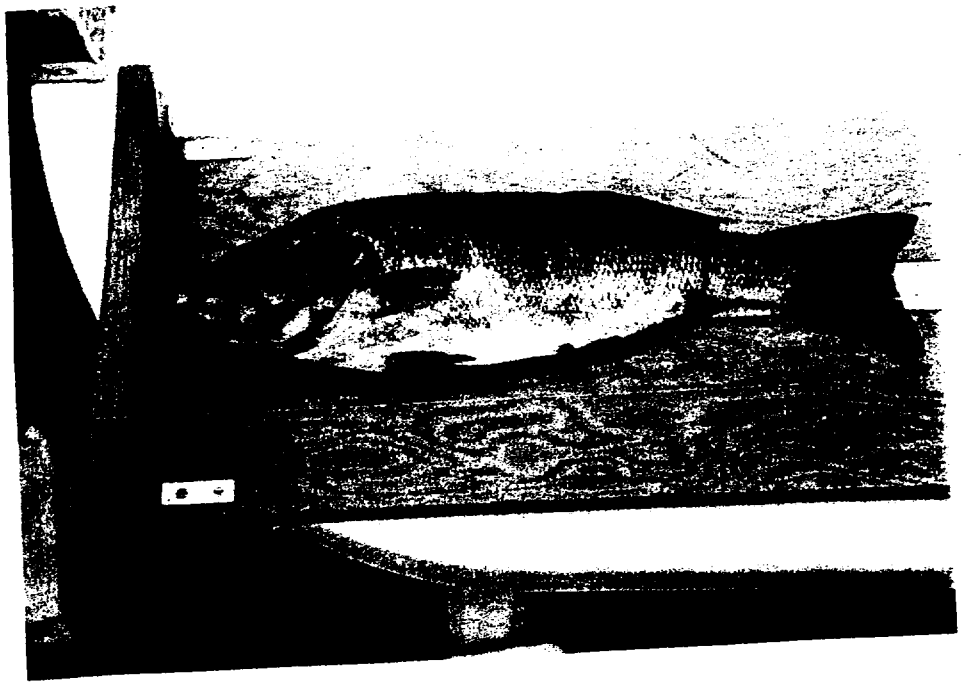


K40105 (Lesion left maxillary/operculum)

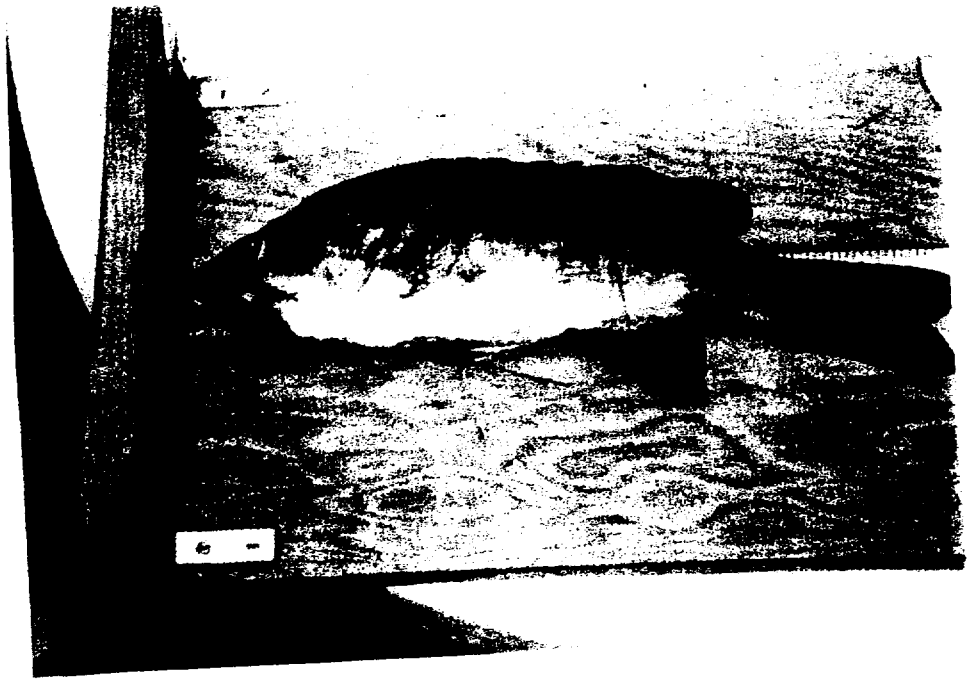


K40106

K40107



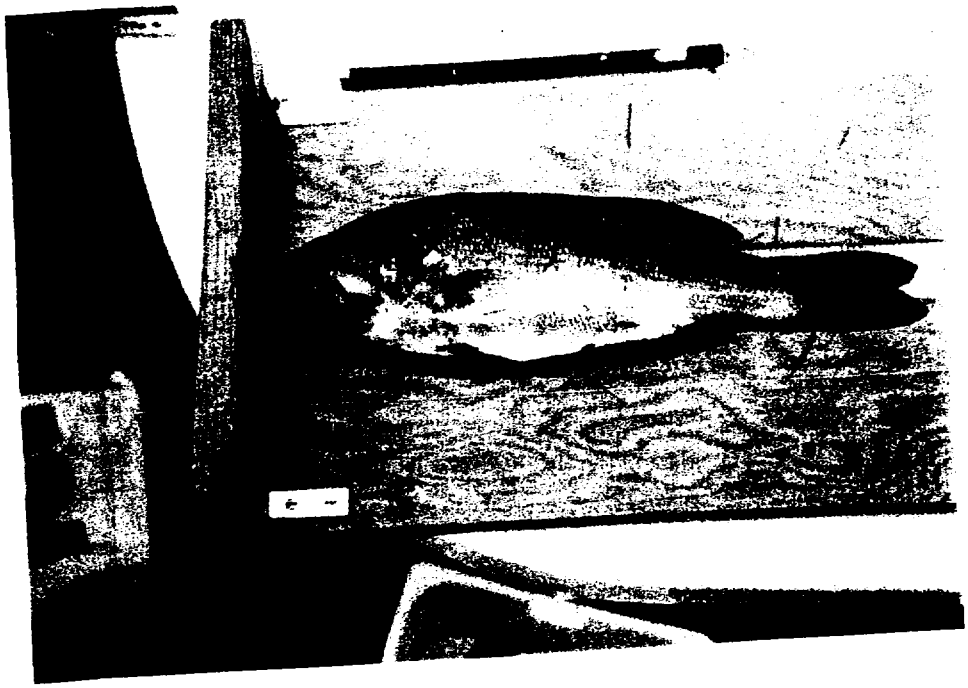
K40108



K40109

K40110

K40110 (Missing cornea on left eye)



K40111

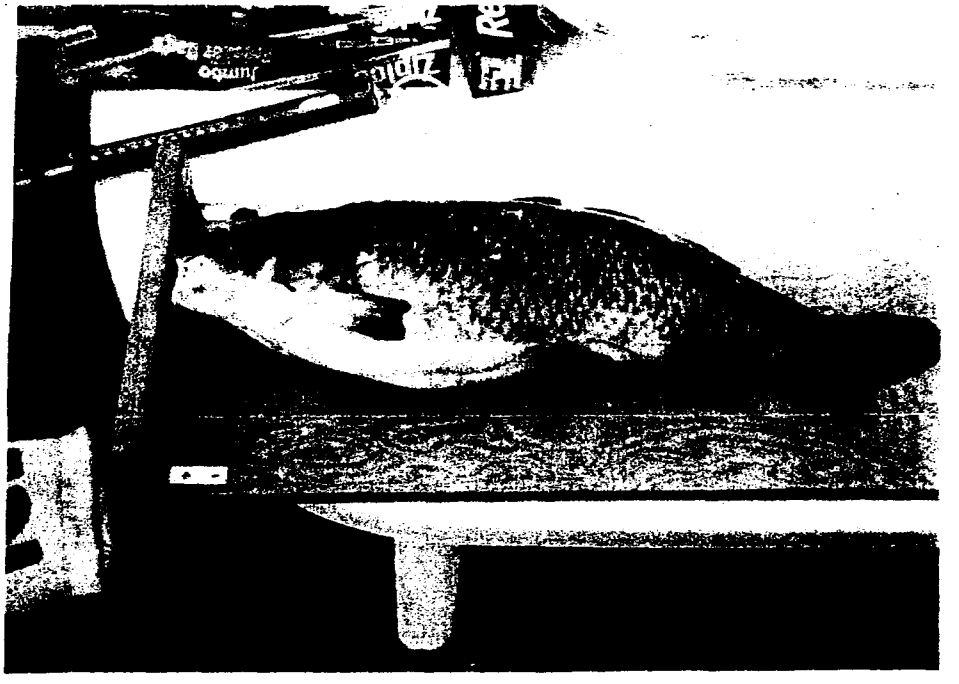
K40112

K40113

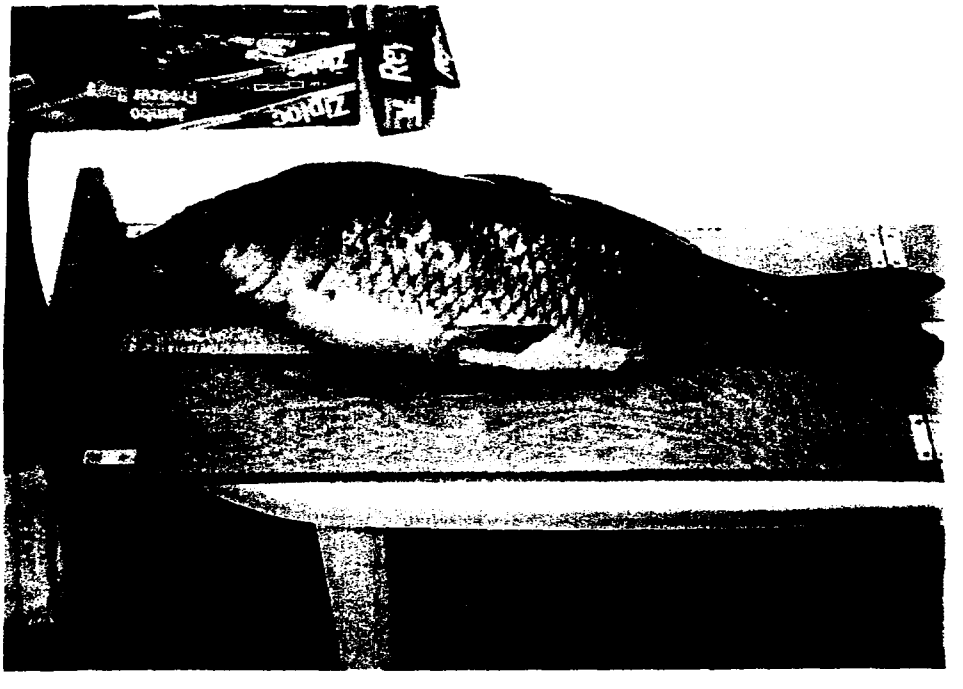
6/16/94
694912F

Carp
(*Cyprinus carpio*)

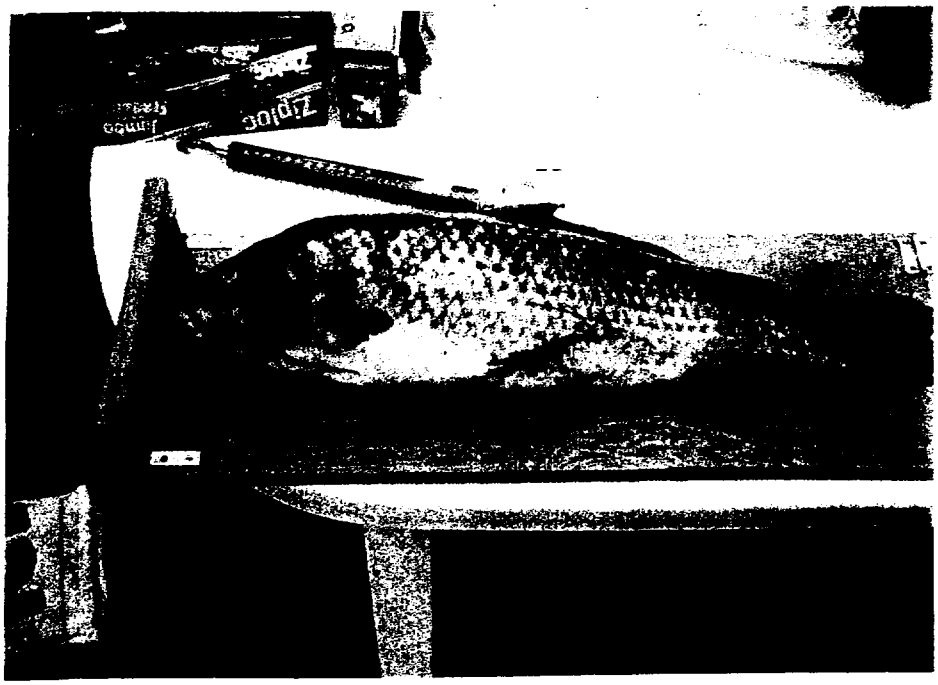
6/20/94
1094912.F



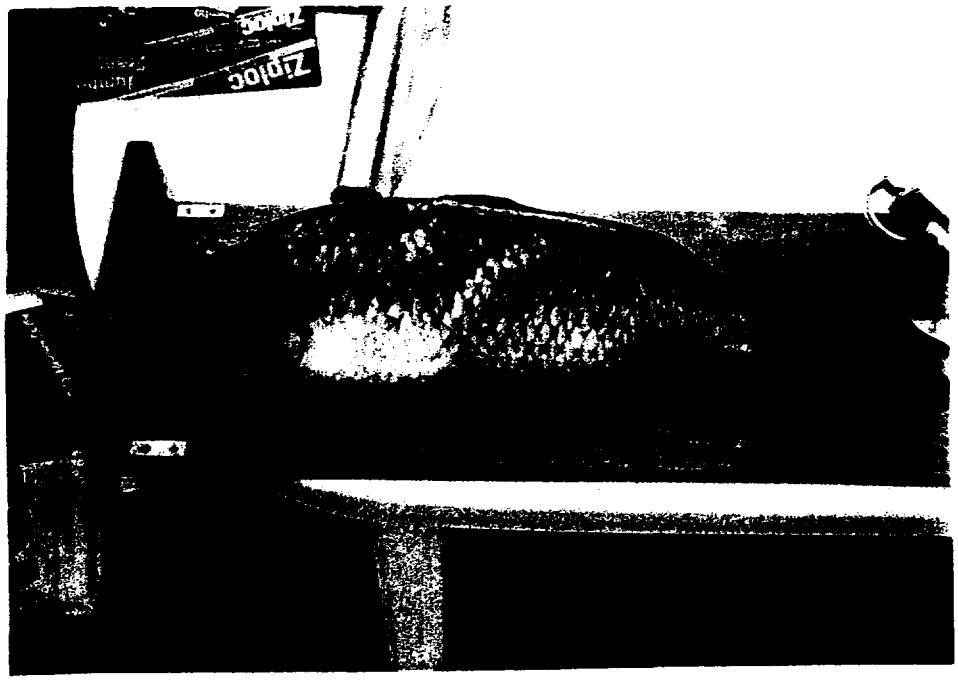
K40092



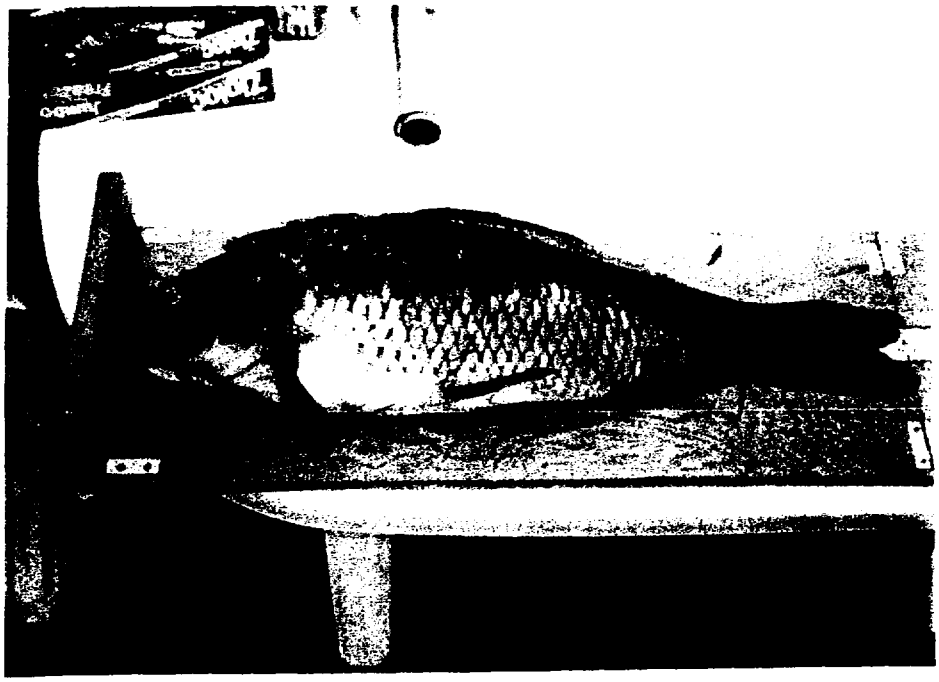
K40093



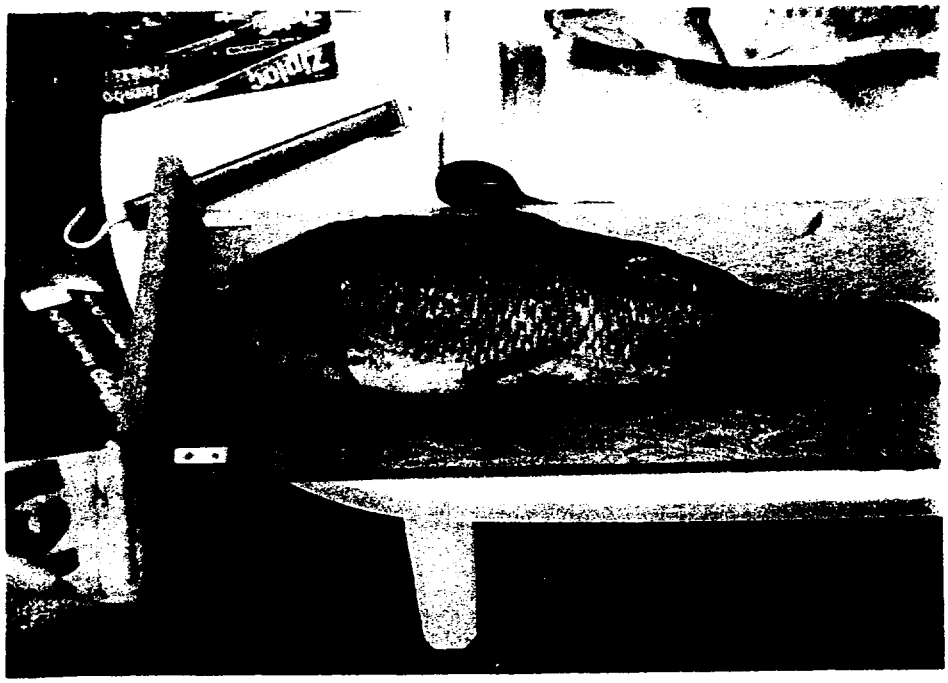
K40094



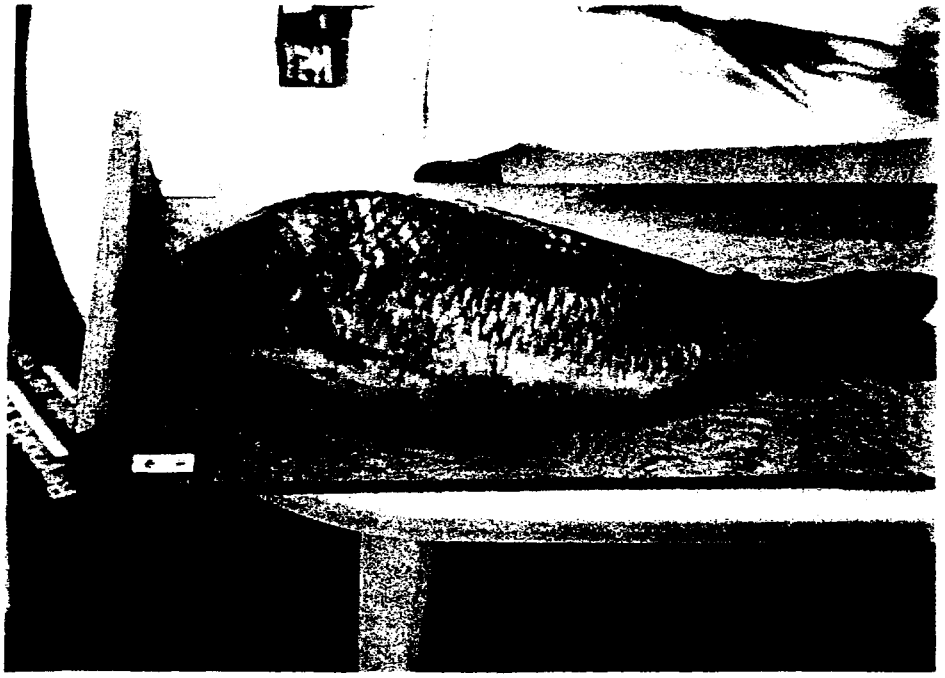
K40095



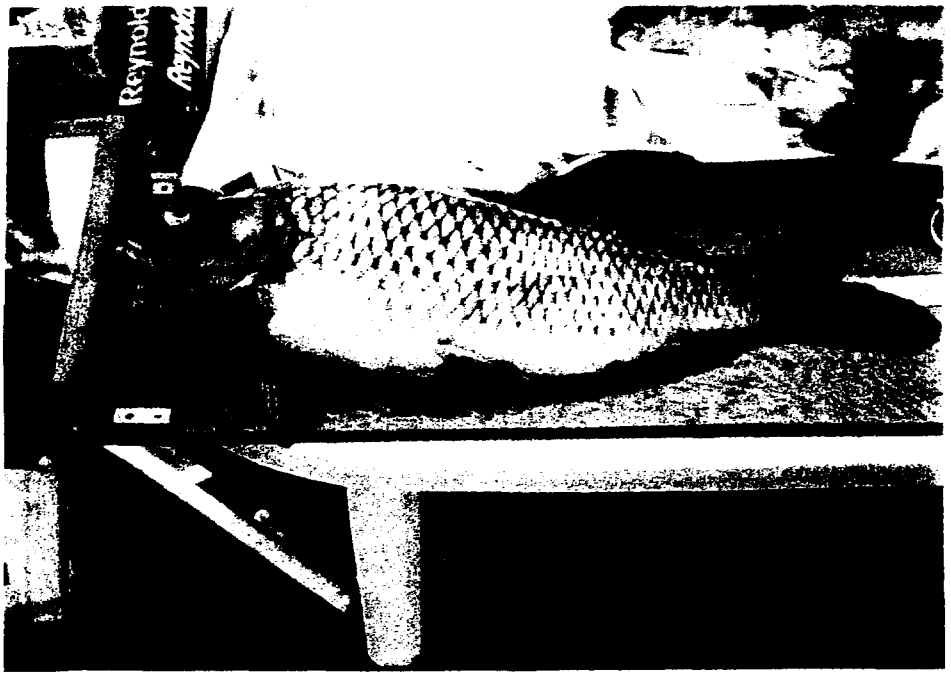
K40096



K40097

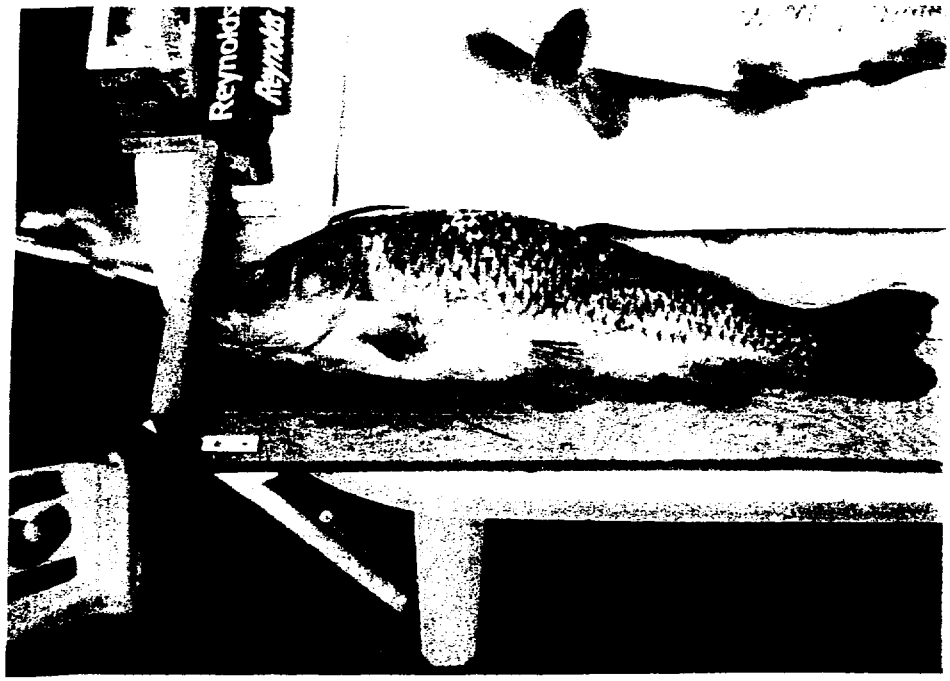


K40099

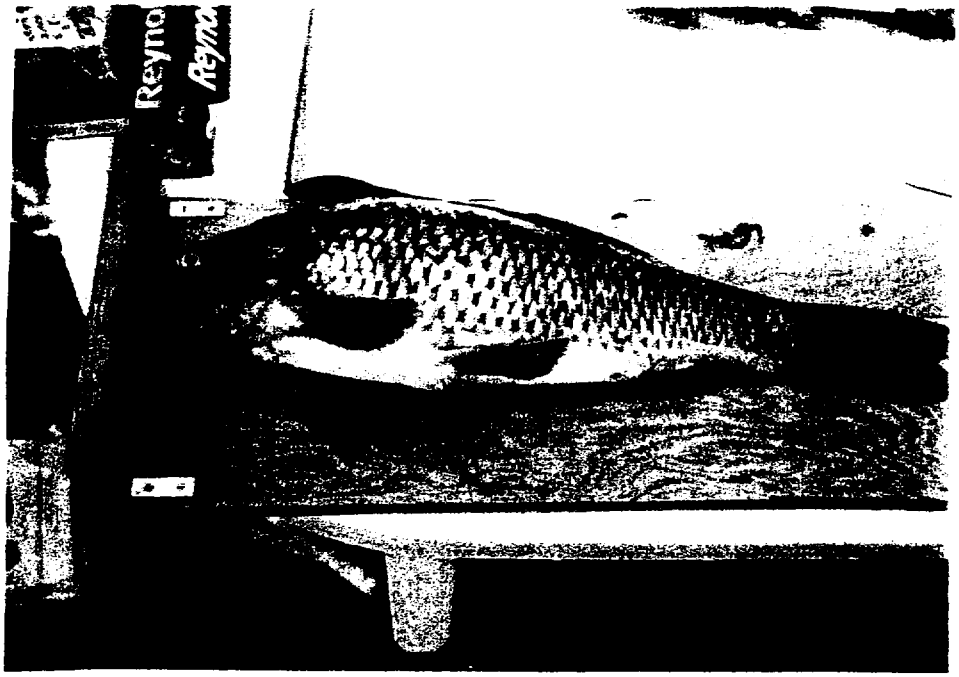


K40100

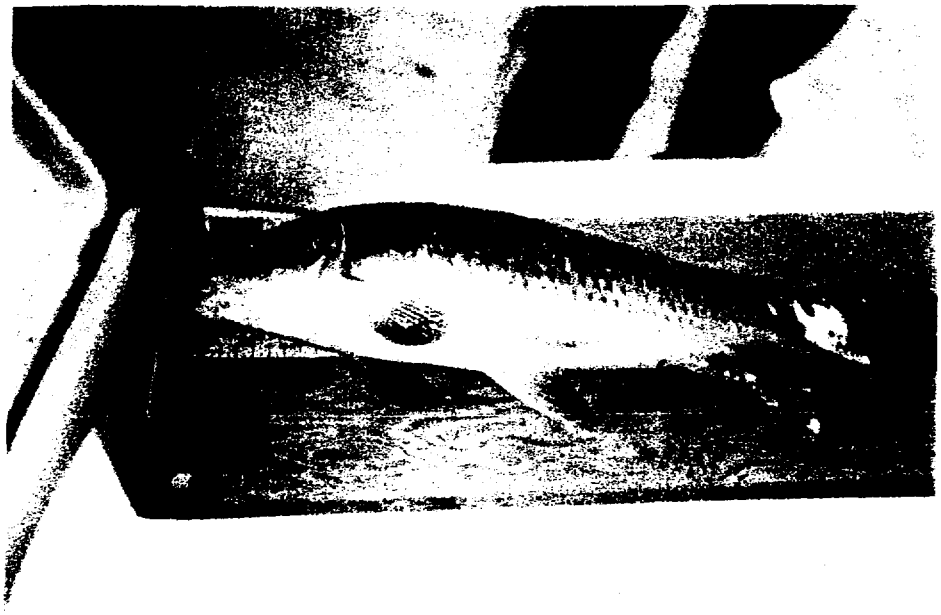
6/16/94
694912F



K40101



K40102

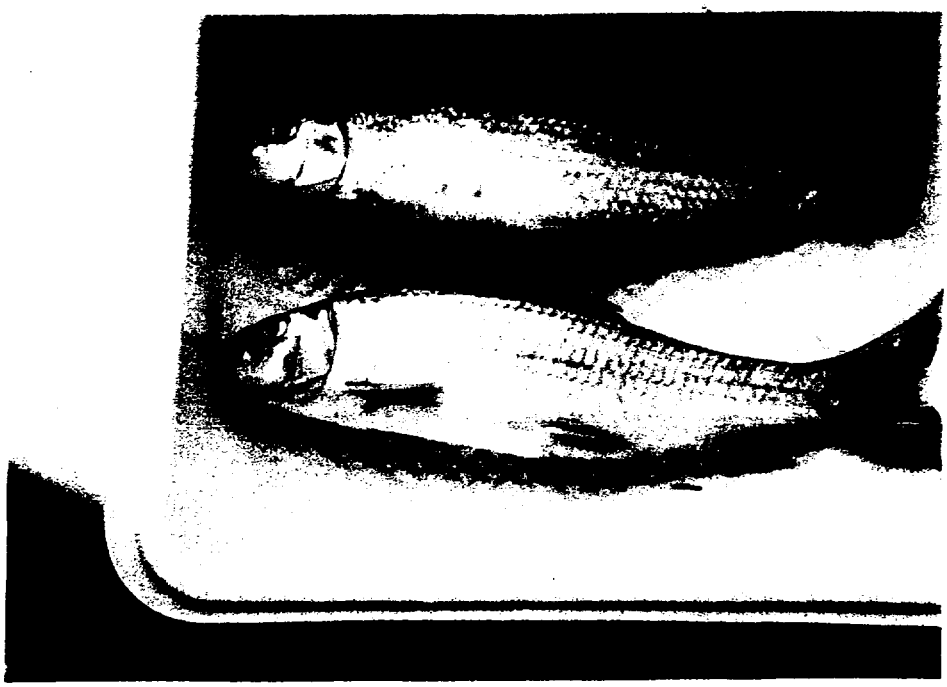


K40391

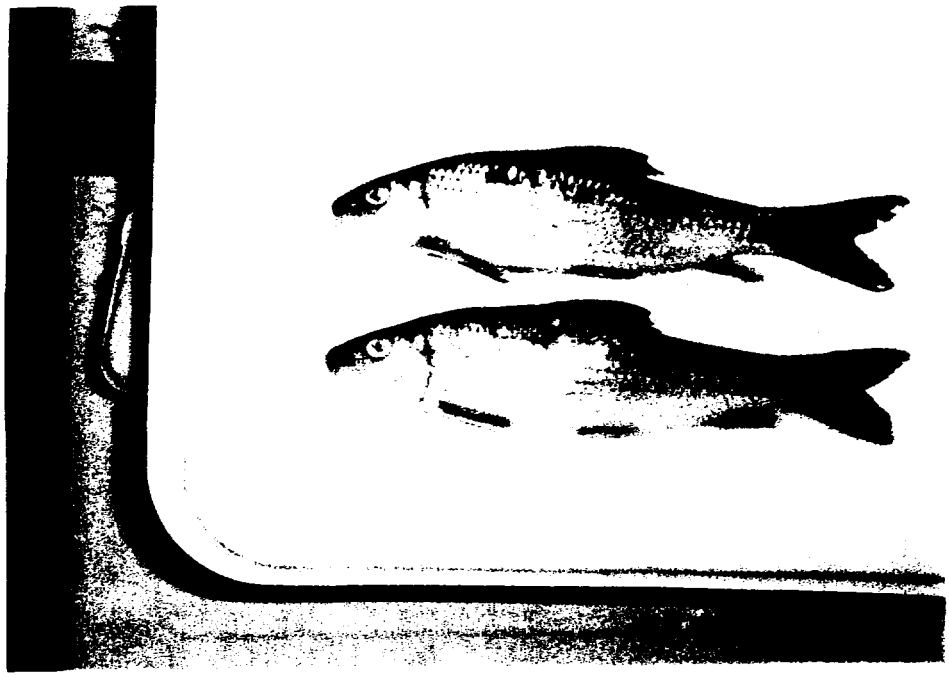
6/16/94
694912F

Golden Redhorse
(*Moxostoma erythrurum*)

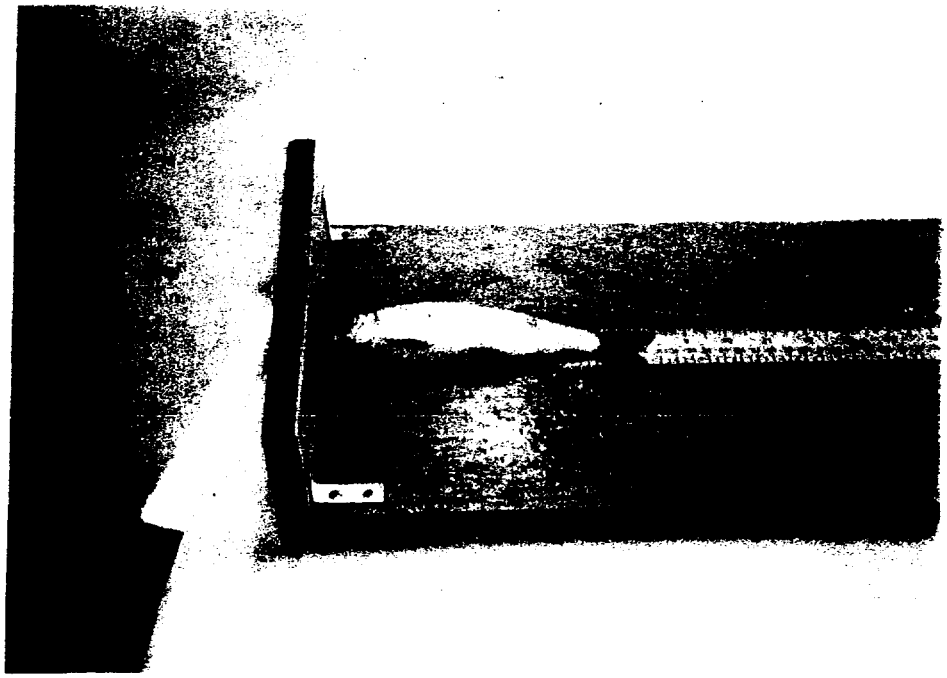
6/20/94
1094912.F



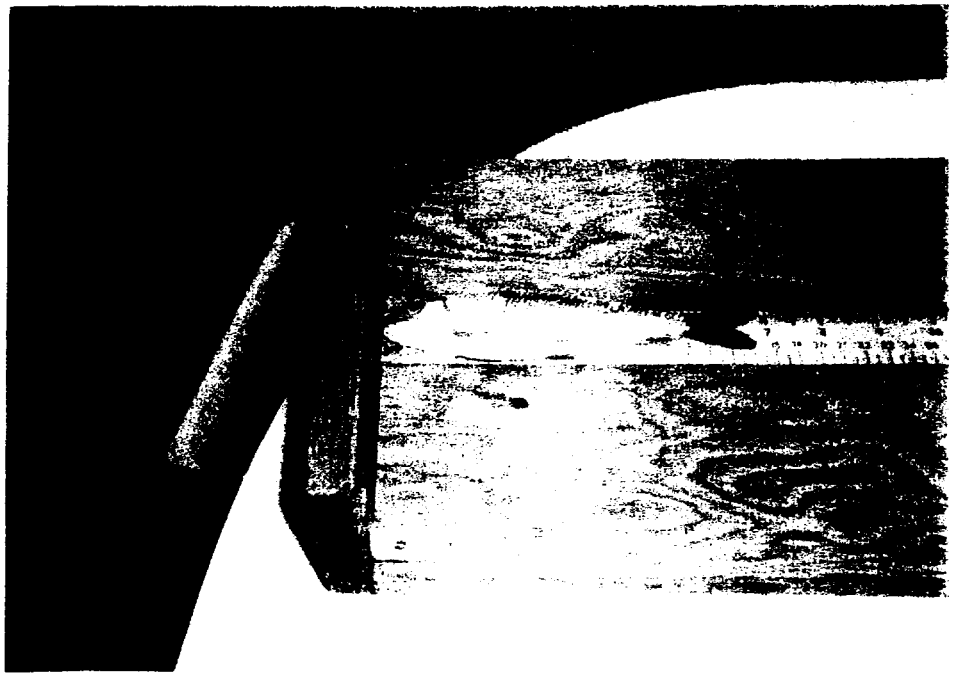
K40114, K40115[1]



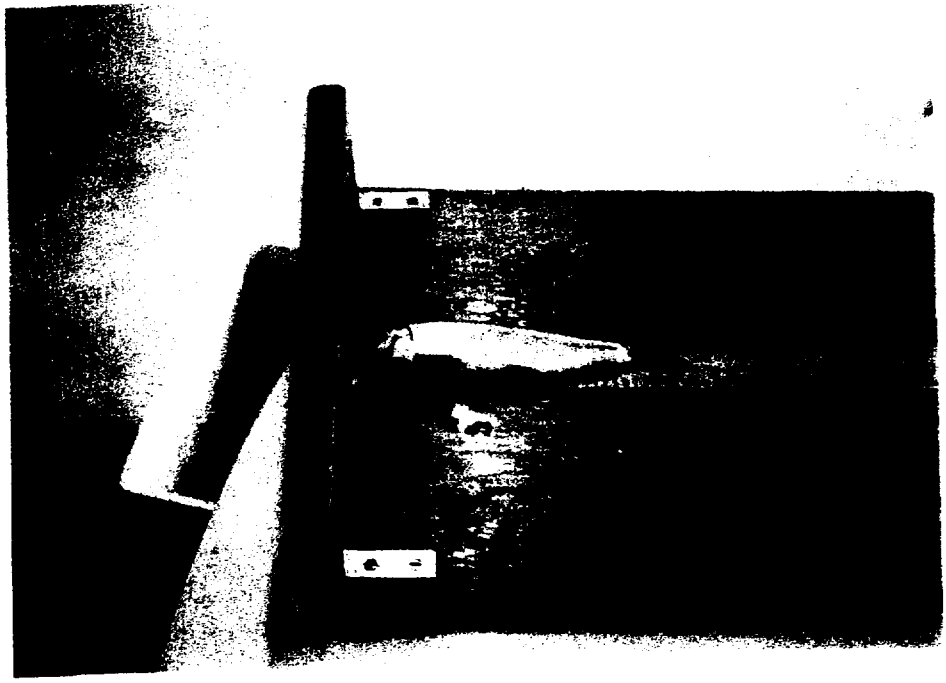
K40116, K40117[2]



K40392

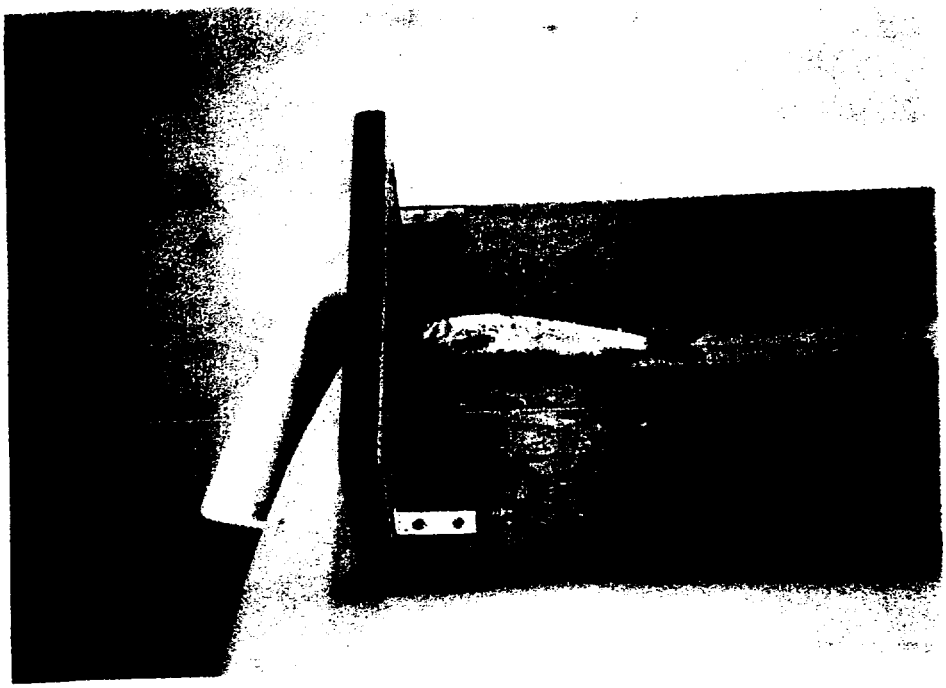


K40393



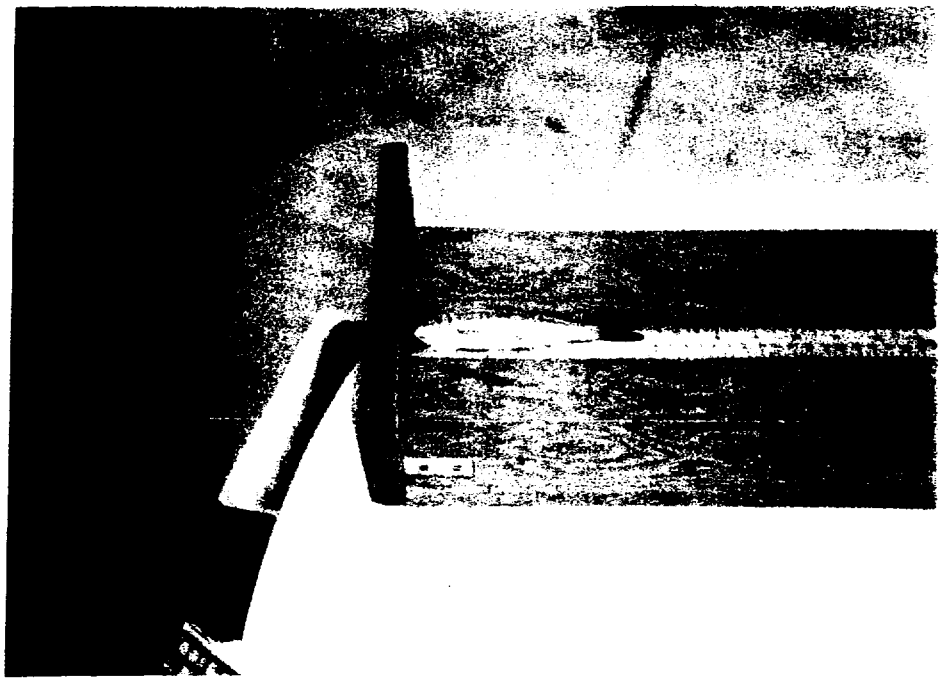
K40394

K40395



K40396

K40397



K40398

Notes:

[1] Samples K40114, K40115 taken from original composite sample K40118

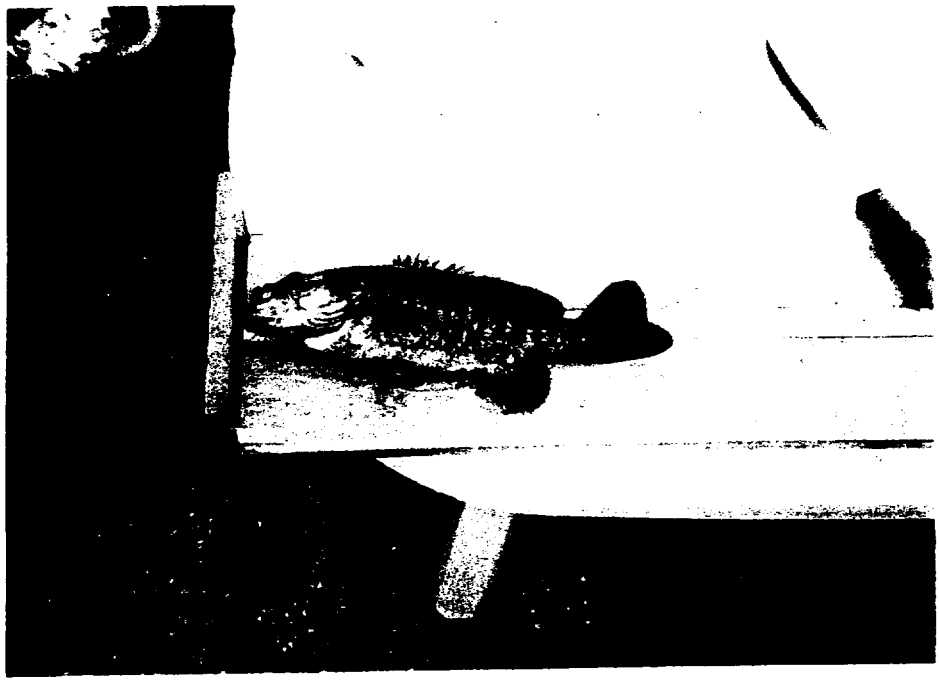
[2] Samples K40116, K40117 taken from original composite sample K40114

ABSA #5
Kalamazoo River Upstream of Plainwell Dam

Carp	Smallmouth Bass	Golden Redhorse	Snapping Turtle
K40350	K40351	K40376	K42001
K40359	K40352	K40377	K42002
K40360	K40353	K40378	K42003
K40361	K40354	K40379	K42004
K40362	K40369	K40380	K42005
K40363	K40370	K40381	K42006
K40364	K40371	K40382	K42007
K40365	K40372	K40383	K42008
K40366	K40373	K40384	K42009
K40367	K40374	K40385	K42010
K40368	K40375	K40386	K42030

Smallmouth Bass
(*Micropterus dolomieui*)

6/20/94
1094912.F

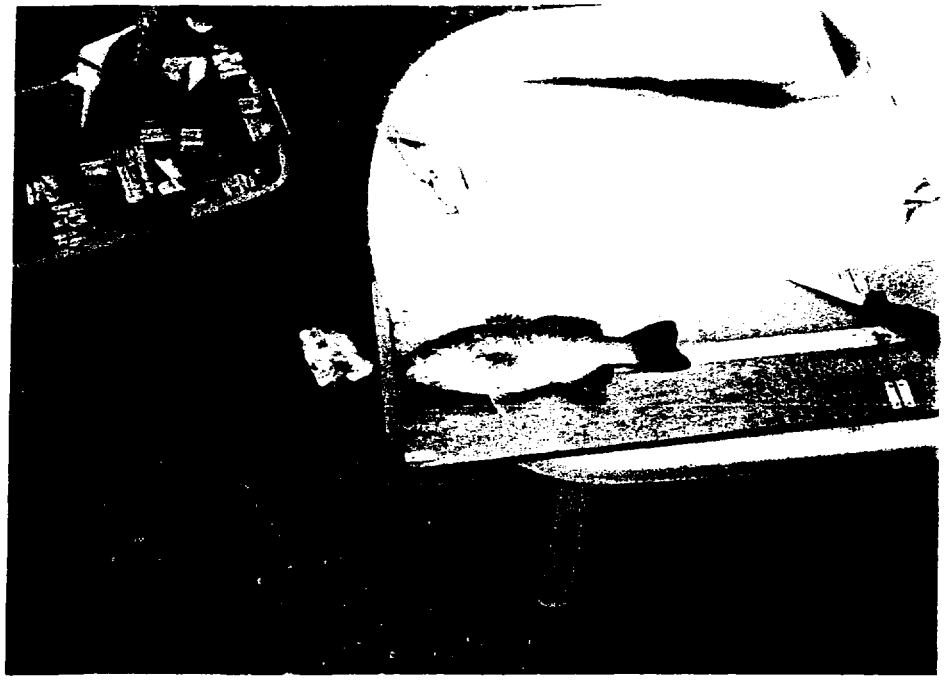


K40351

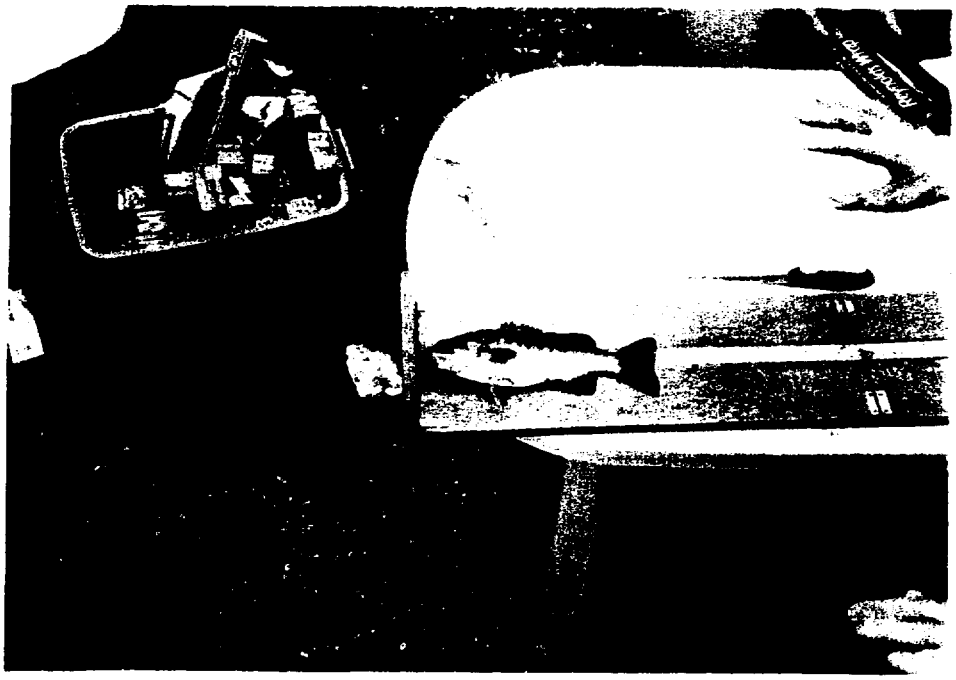
K40352

K40353

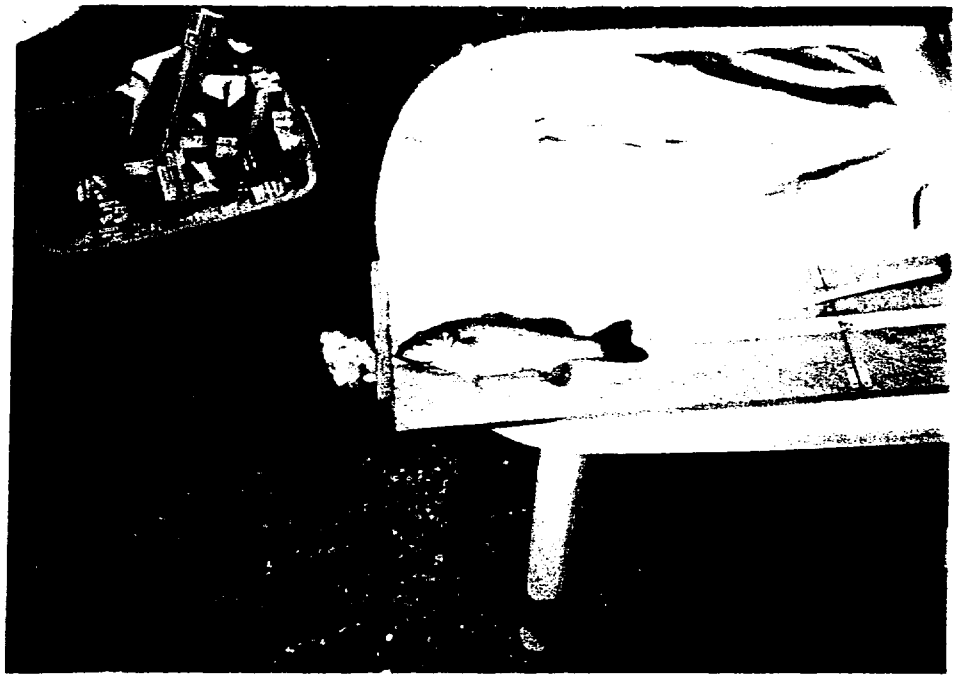
K40354



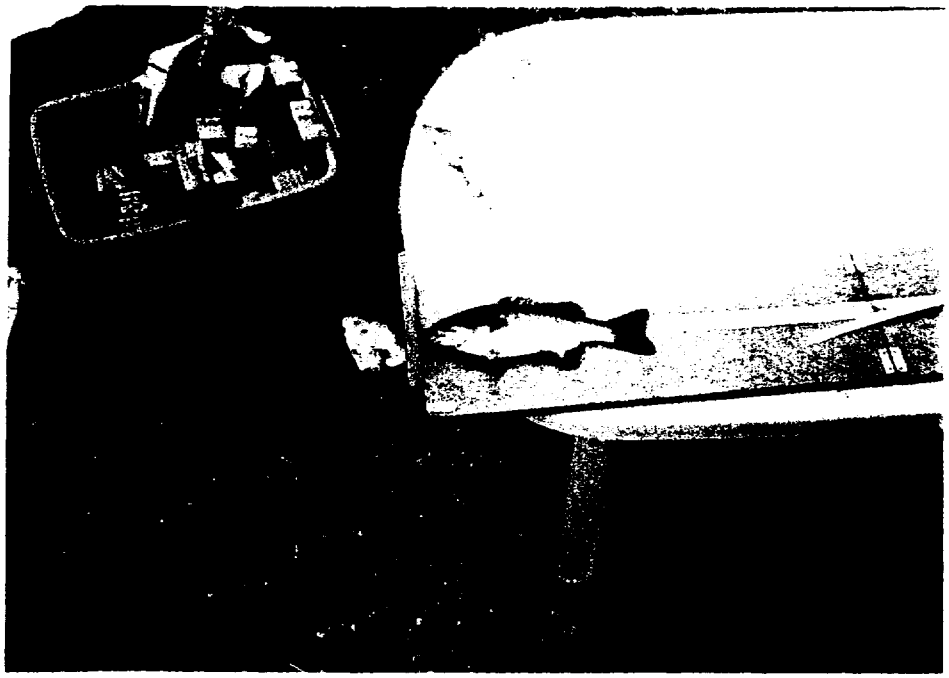
K40369



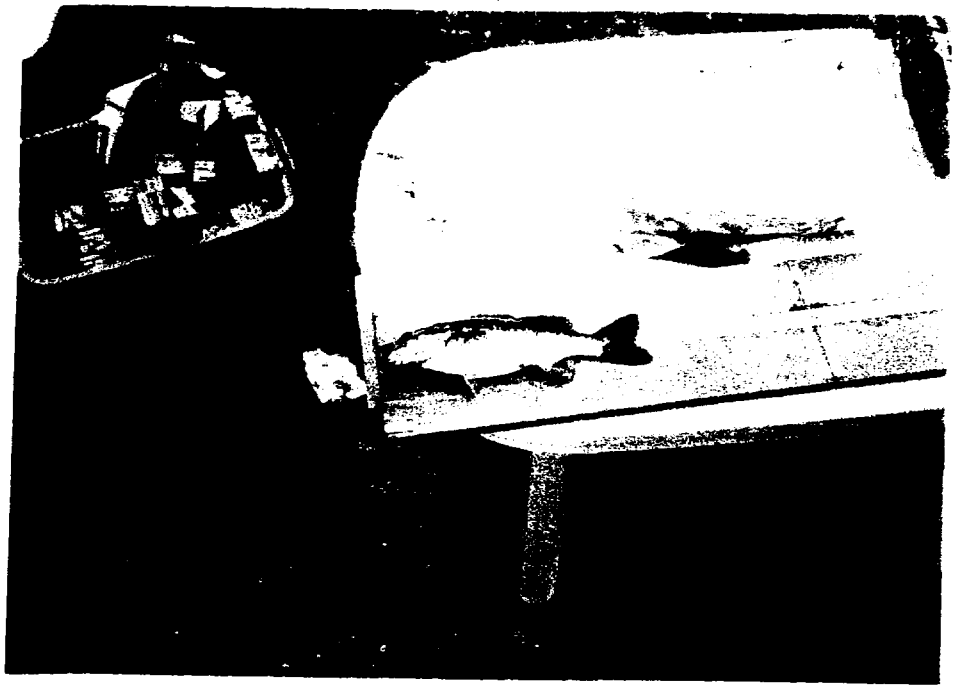
K40370



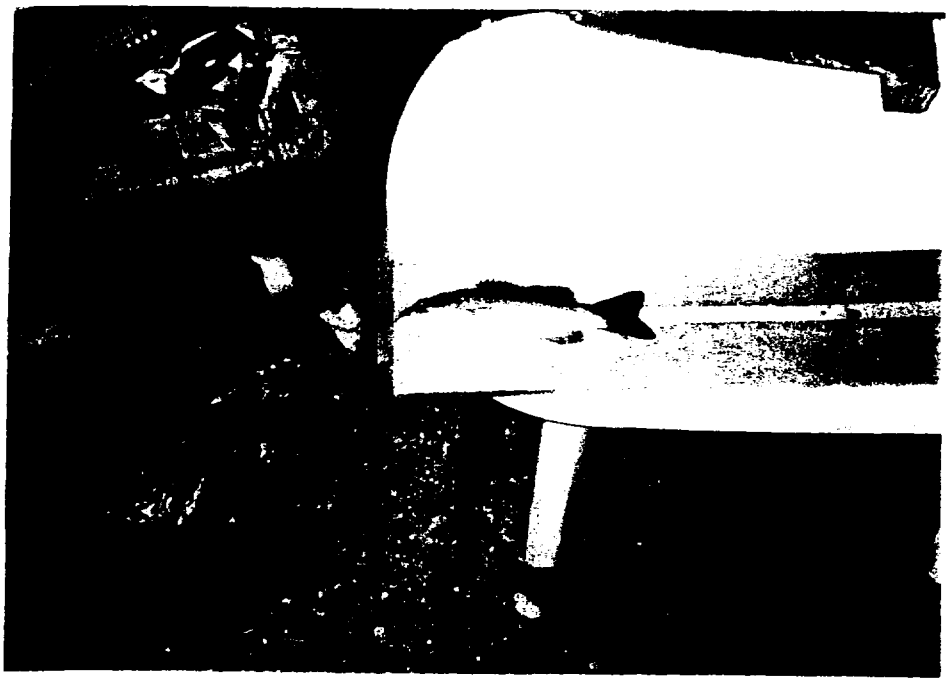
K40371



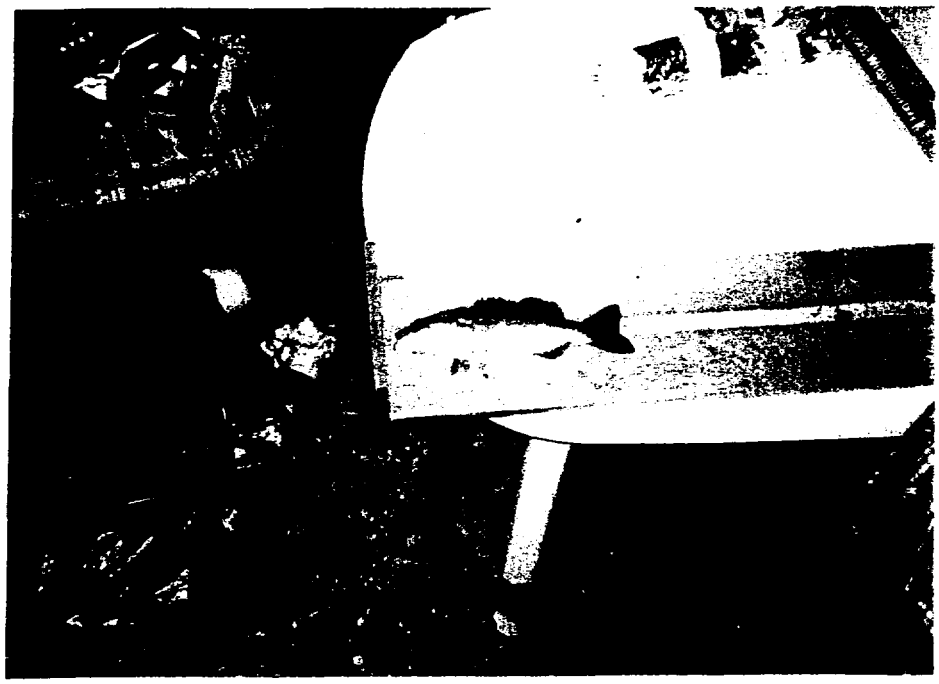
K40372



K40373



K40374

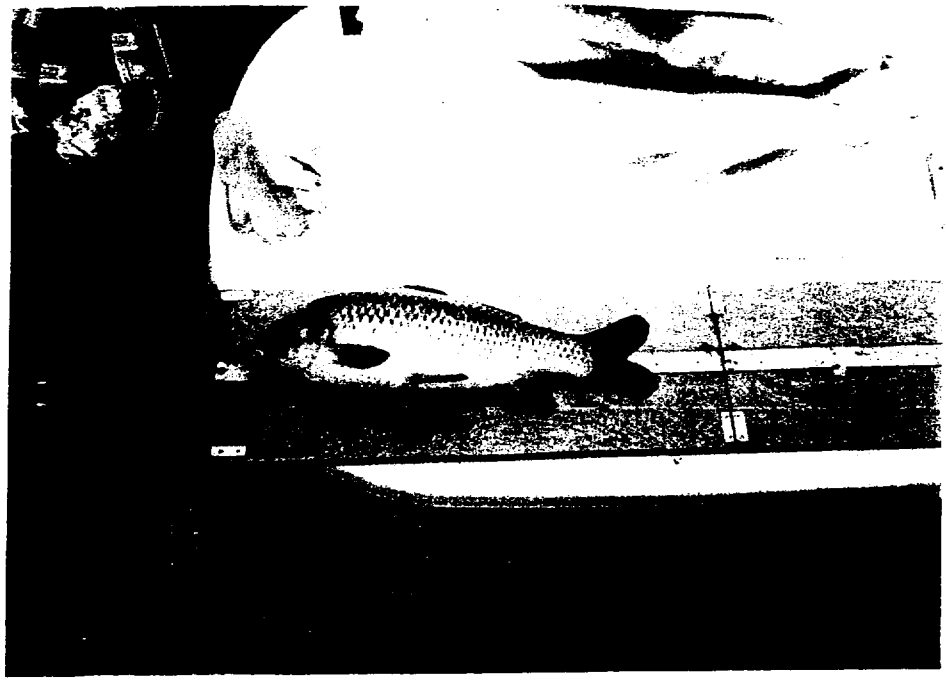


K40375

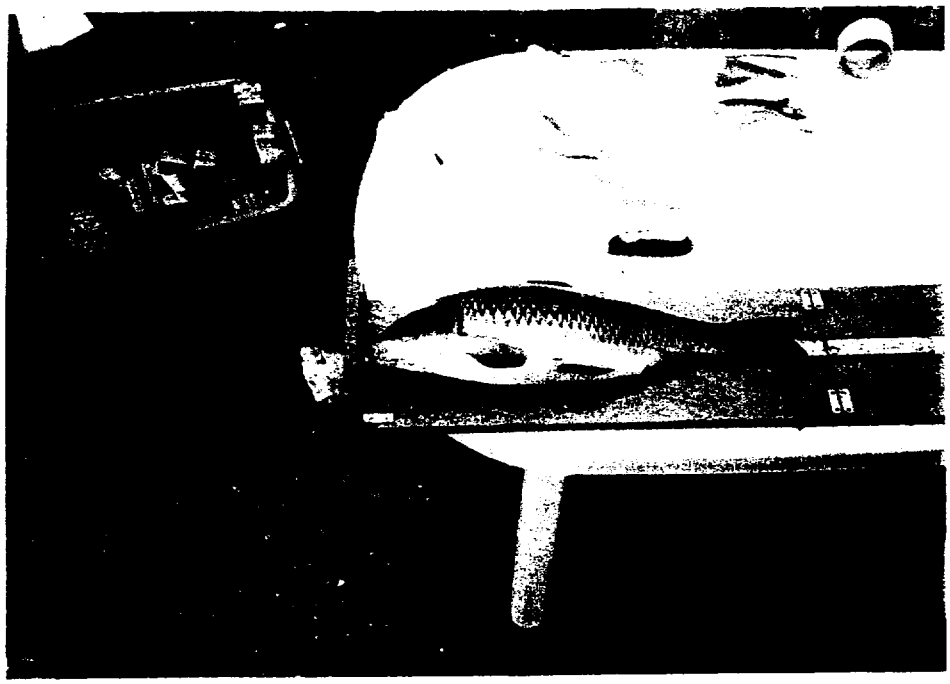
6/16/94
794912F

Carp
(*Cyprinus carpio*)

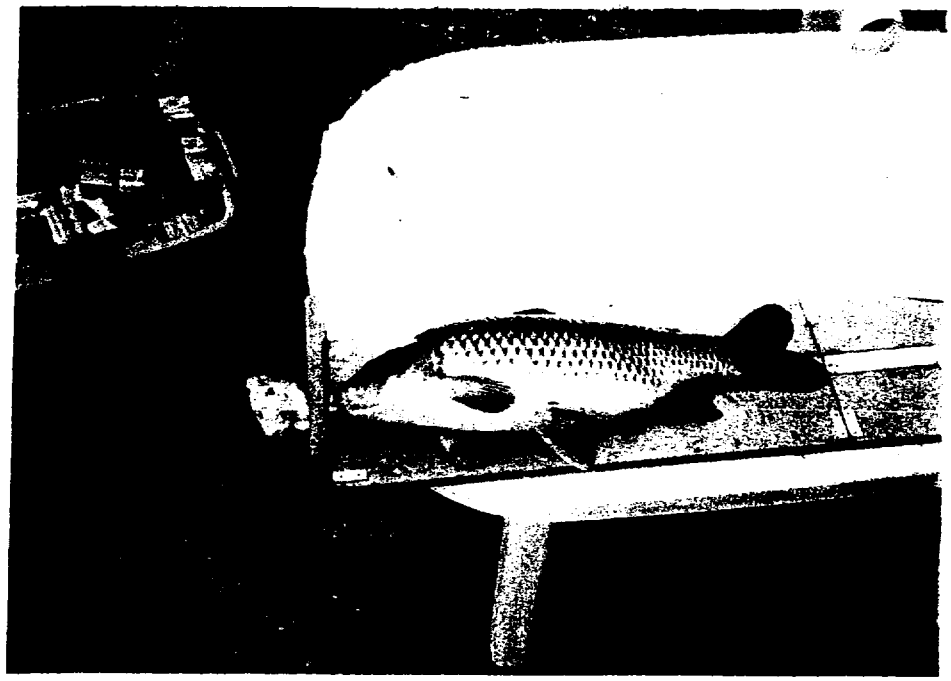
6/20/94
1094912.F



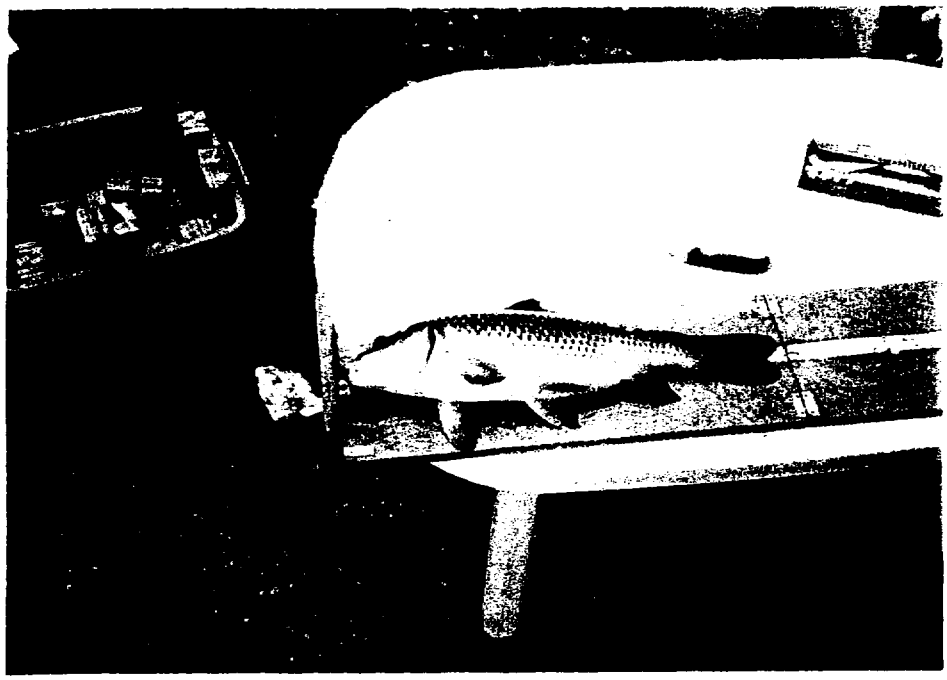
K40350



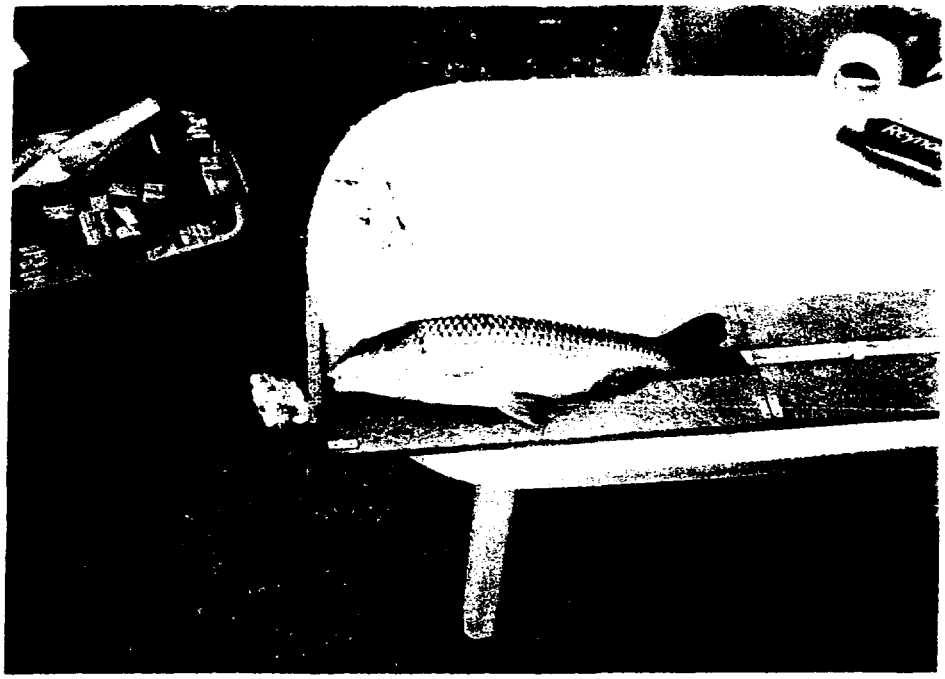
K40359



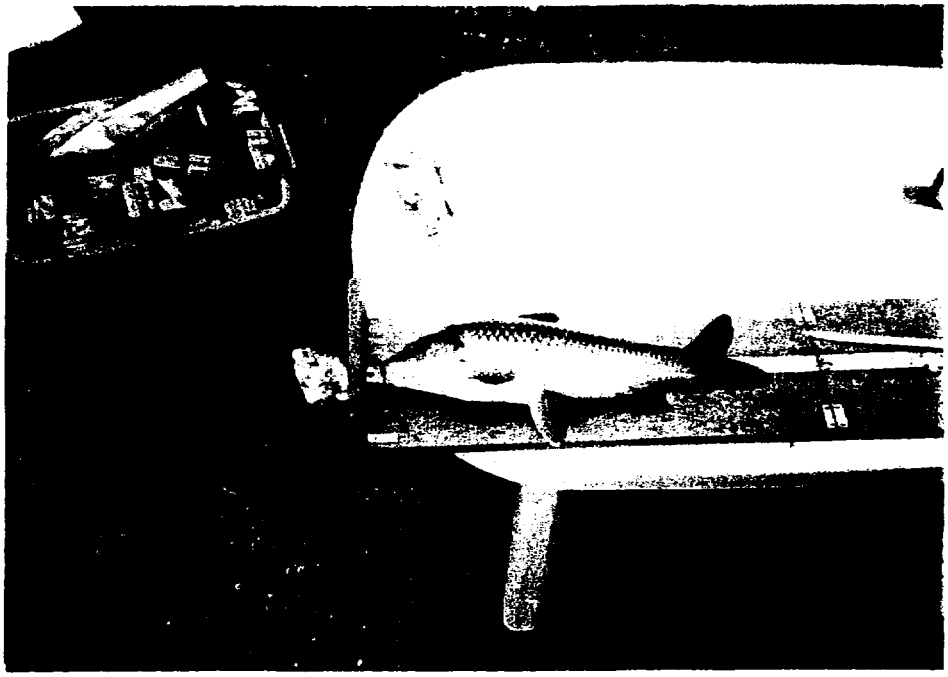
K40360



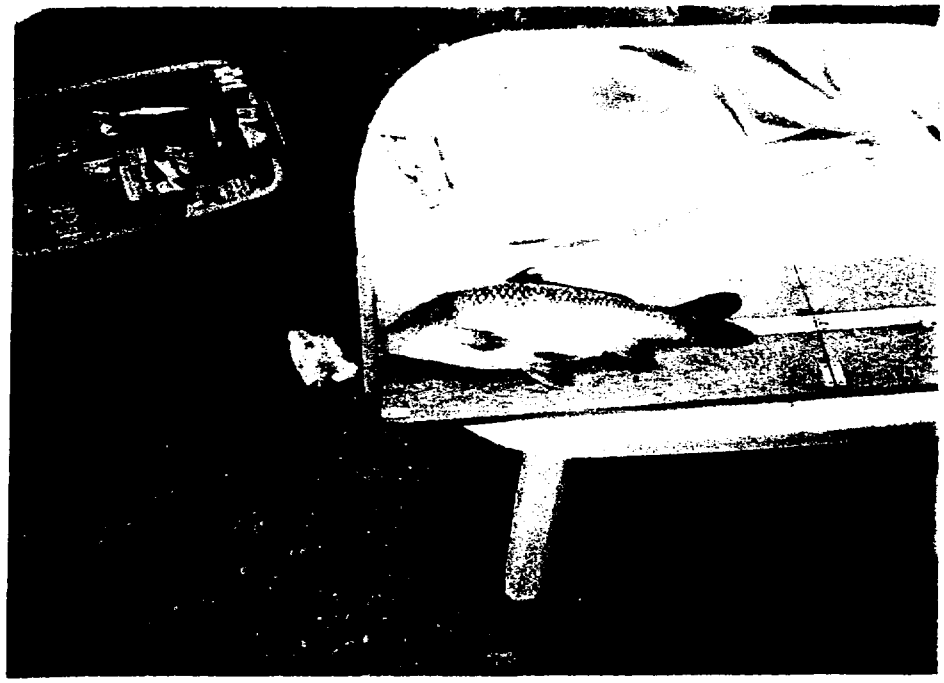
K40361



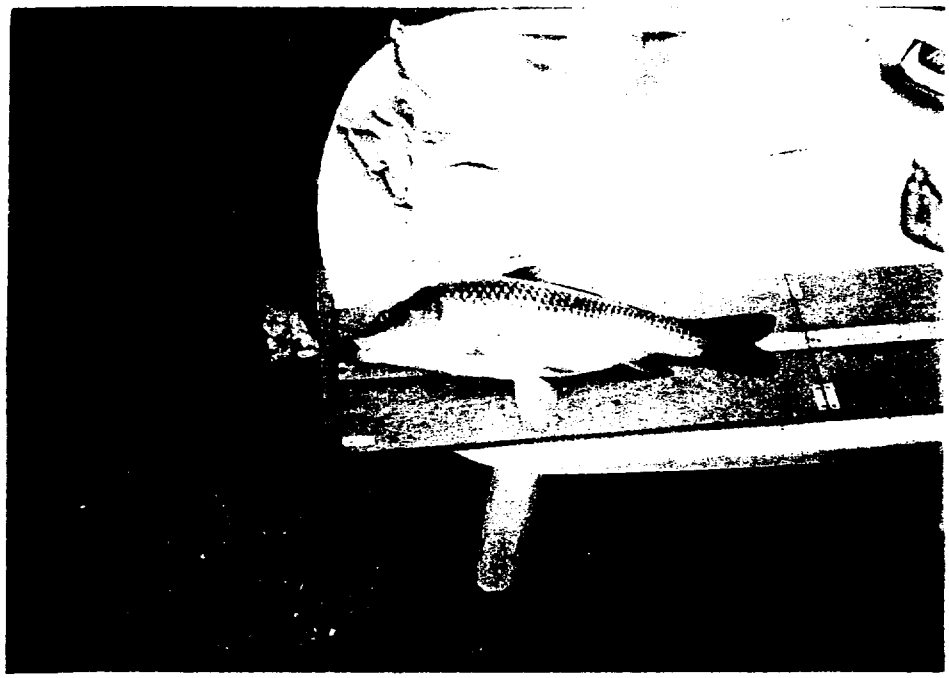
K40362



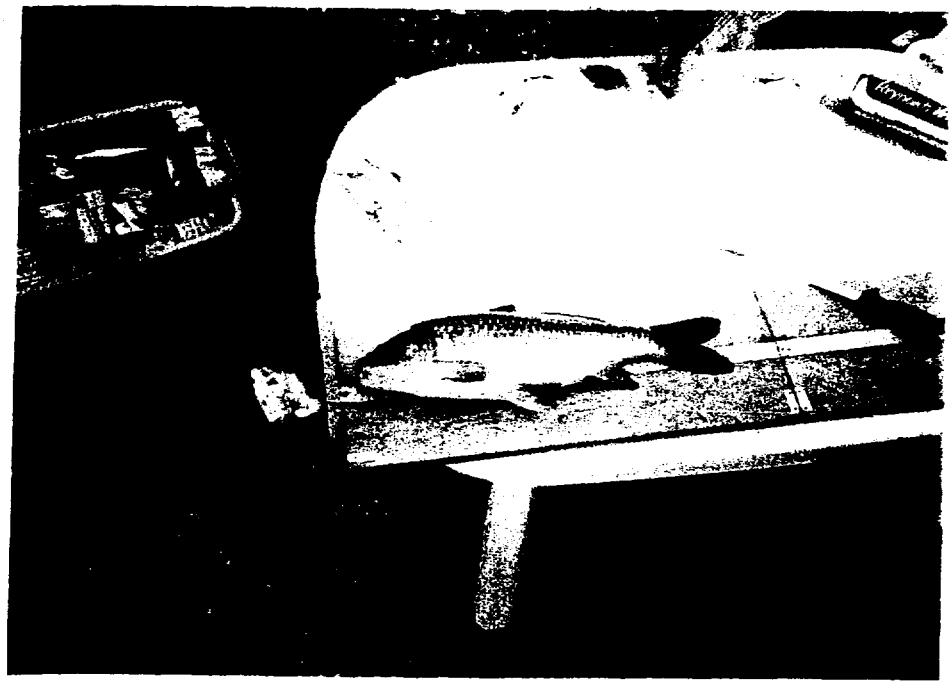
K40363



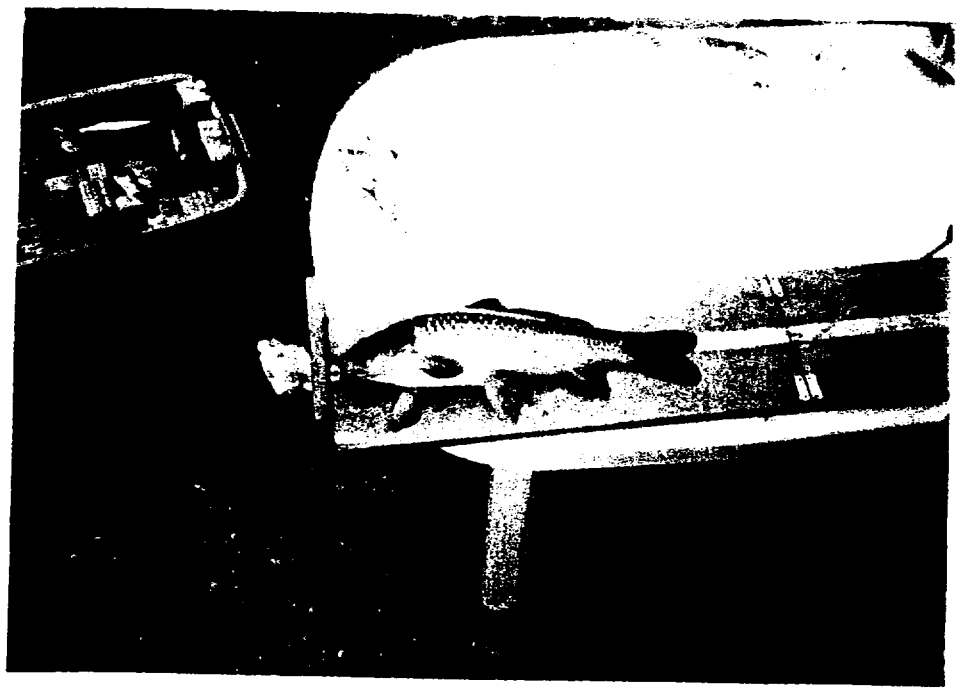
K40364



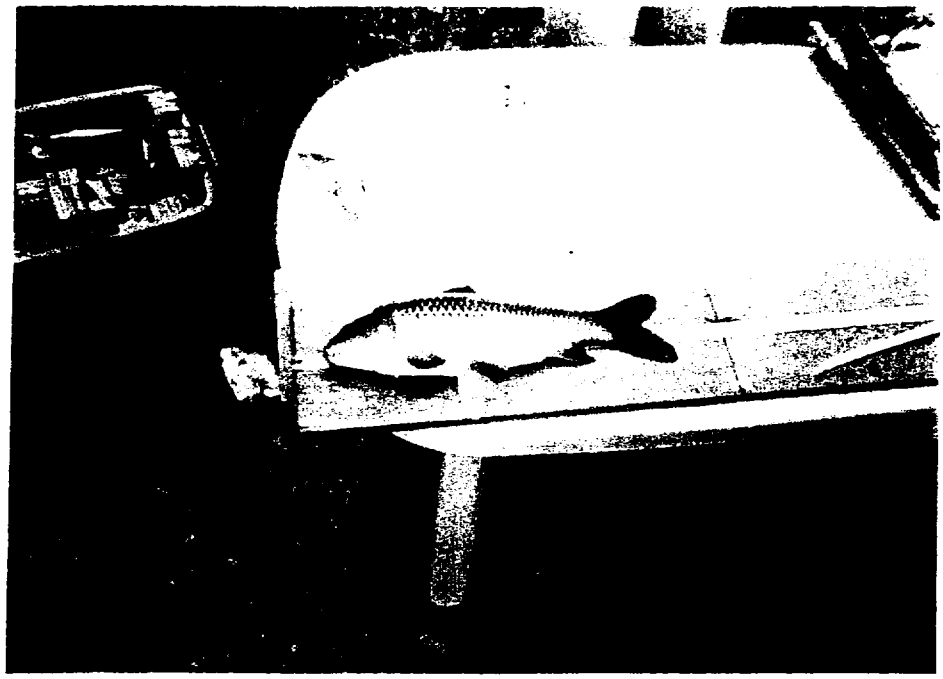
K40365



K40366



K40367

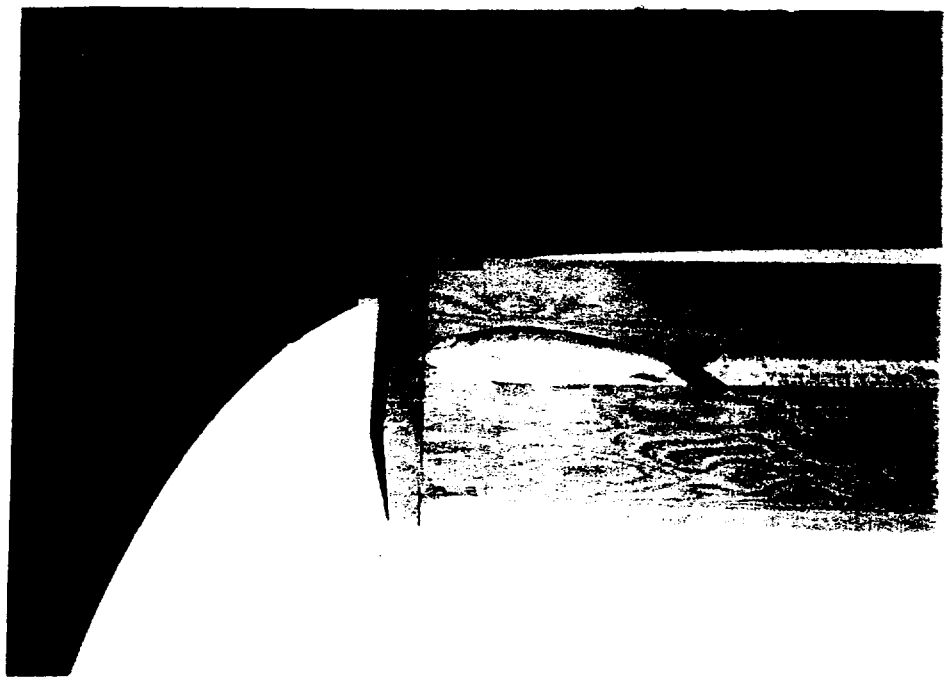


K40368

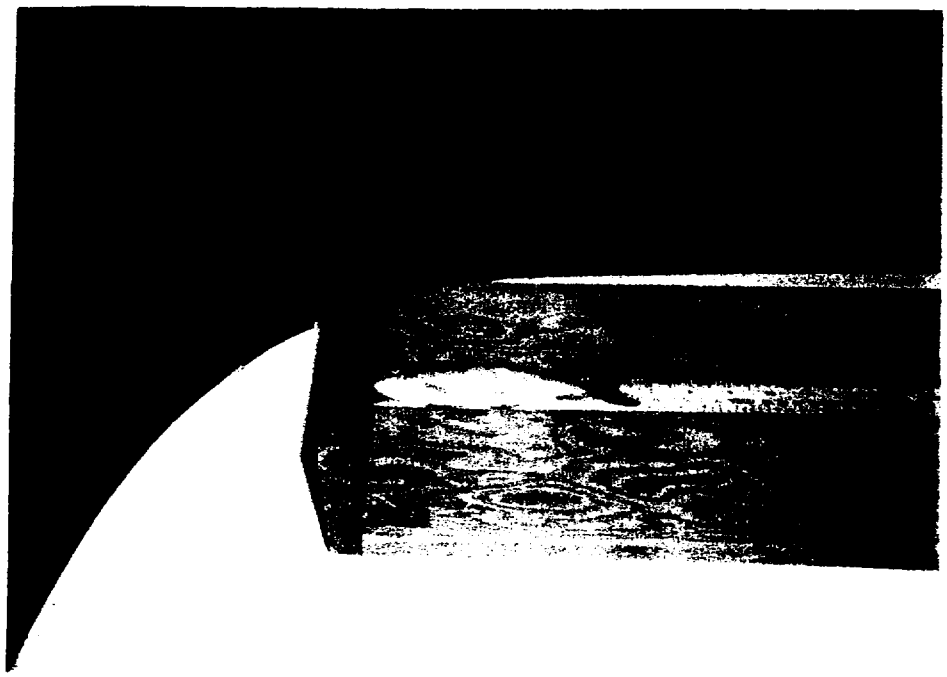
6/16/94
794912F

Golden Redhorse
(*Moxostoma erythrurum*)

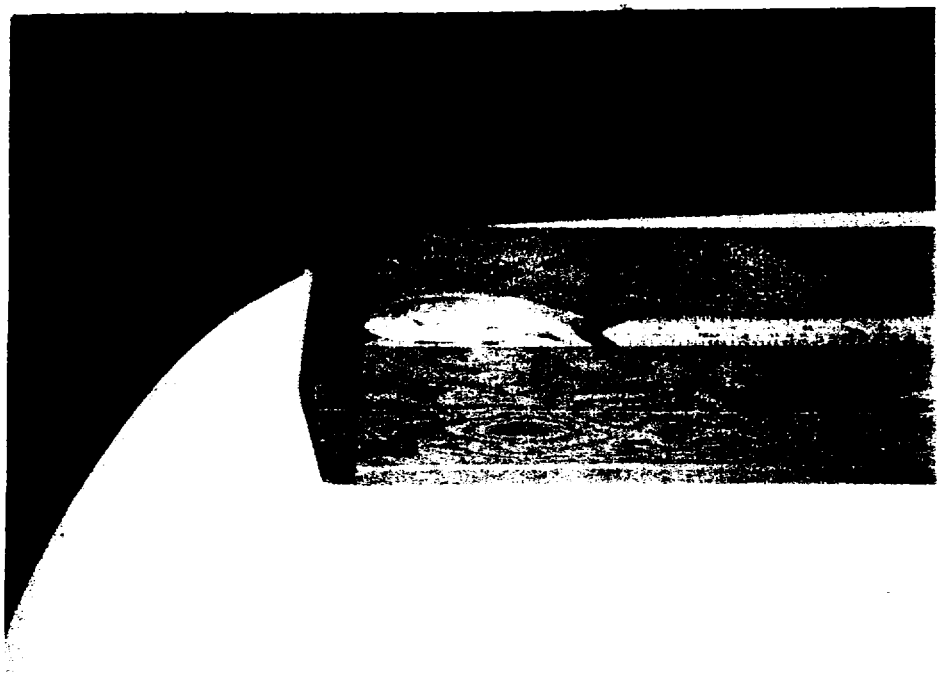
6/20/94
1094912.F



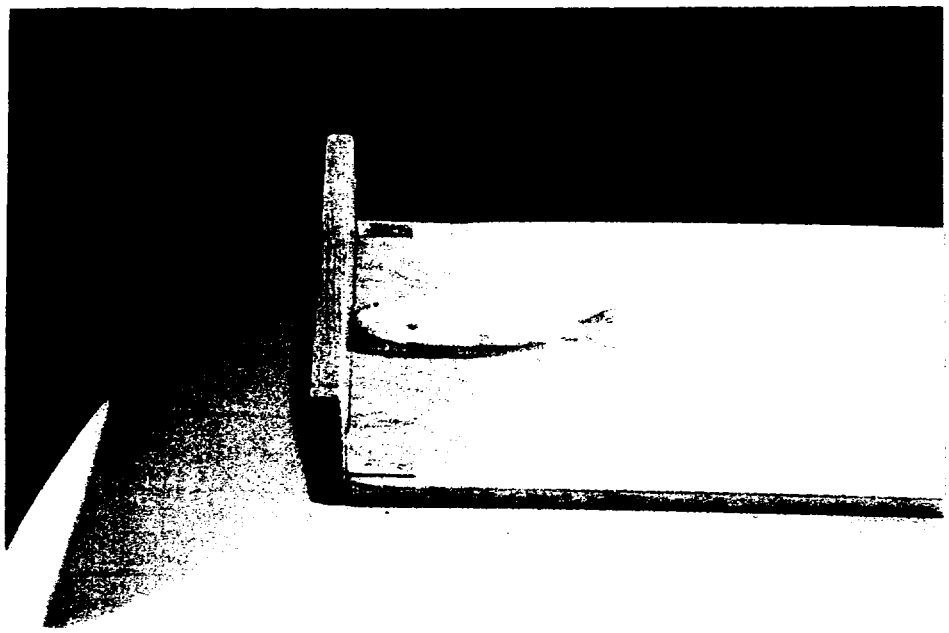
K40376



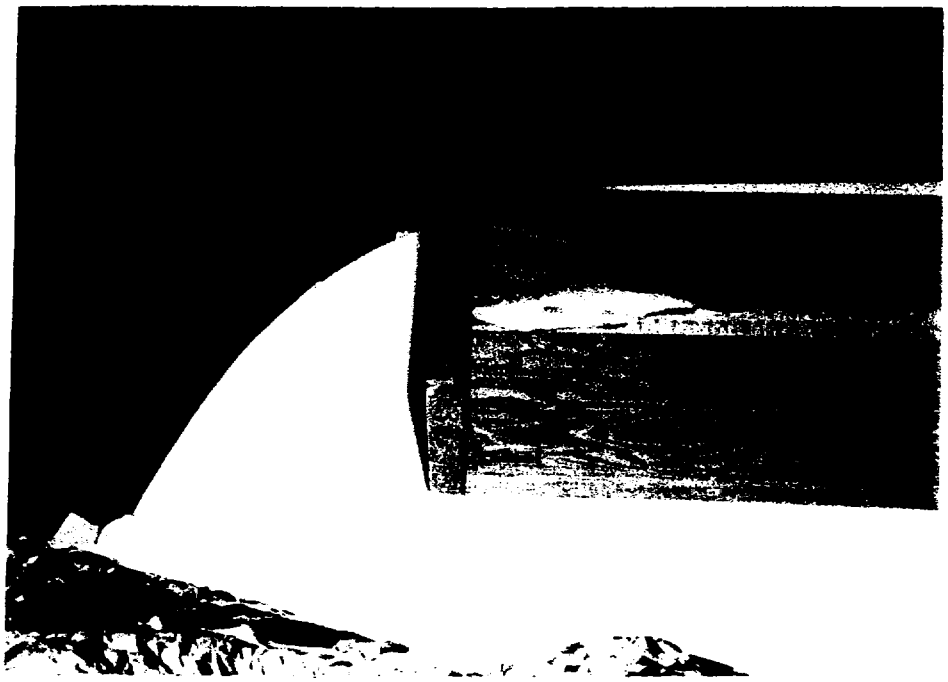
K40377



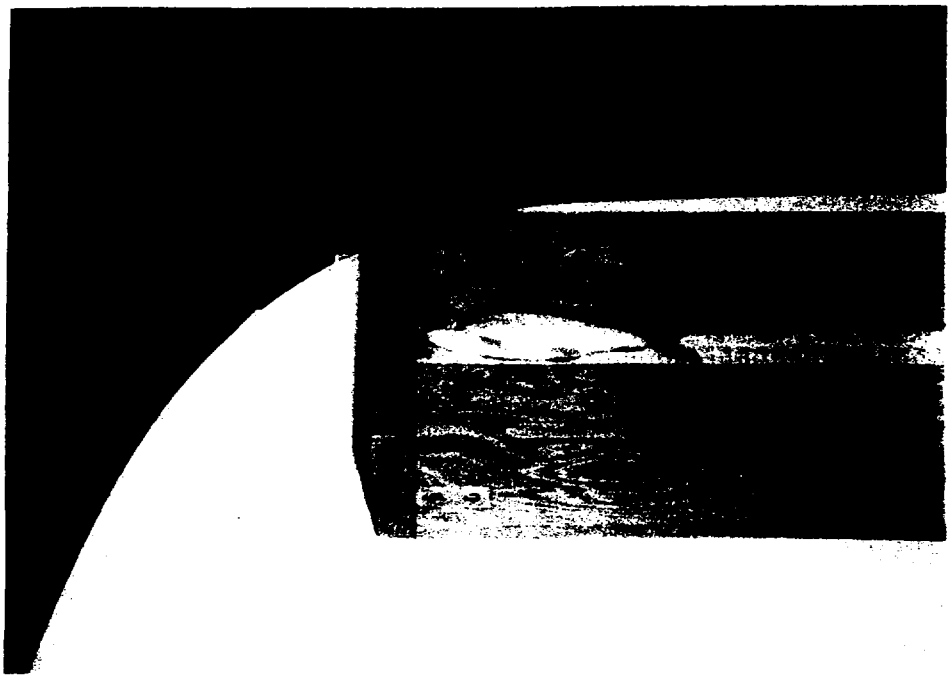
K40378



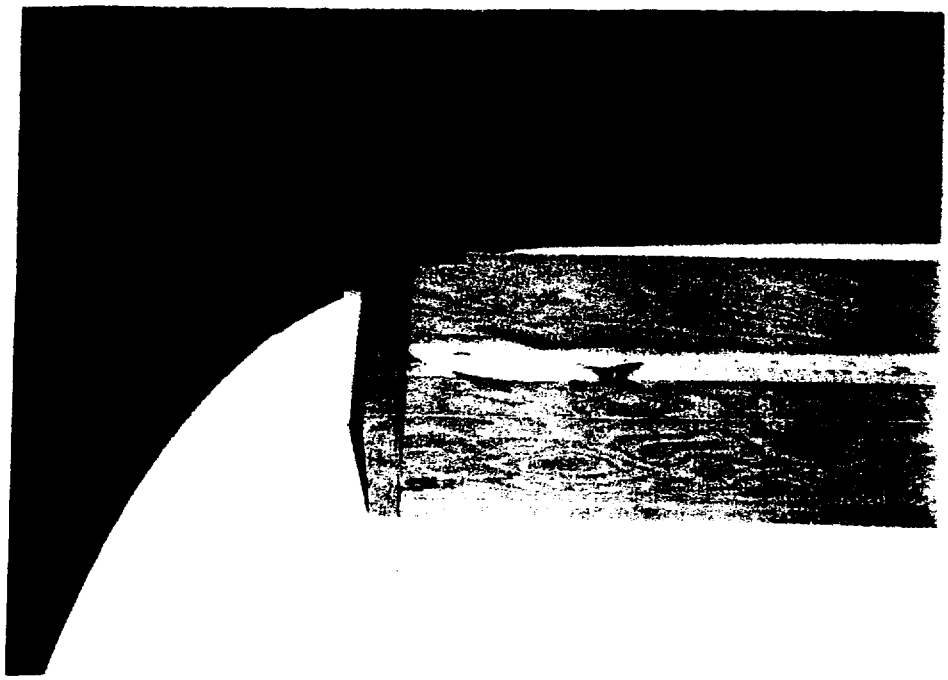
K40379



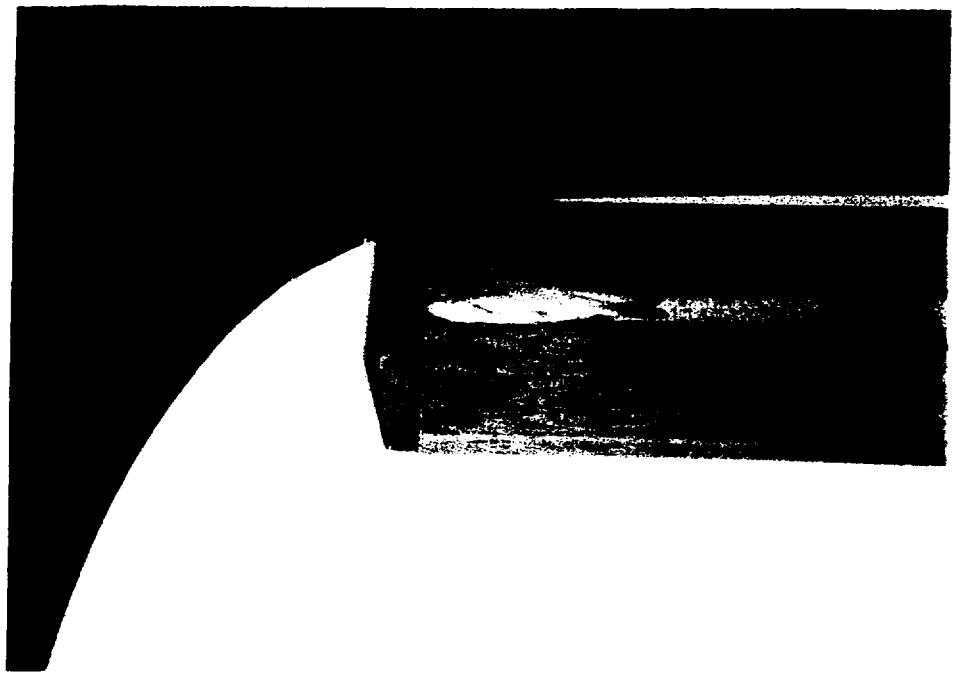
K40380



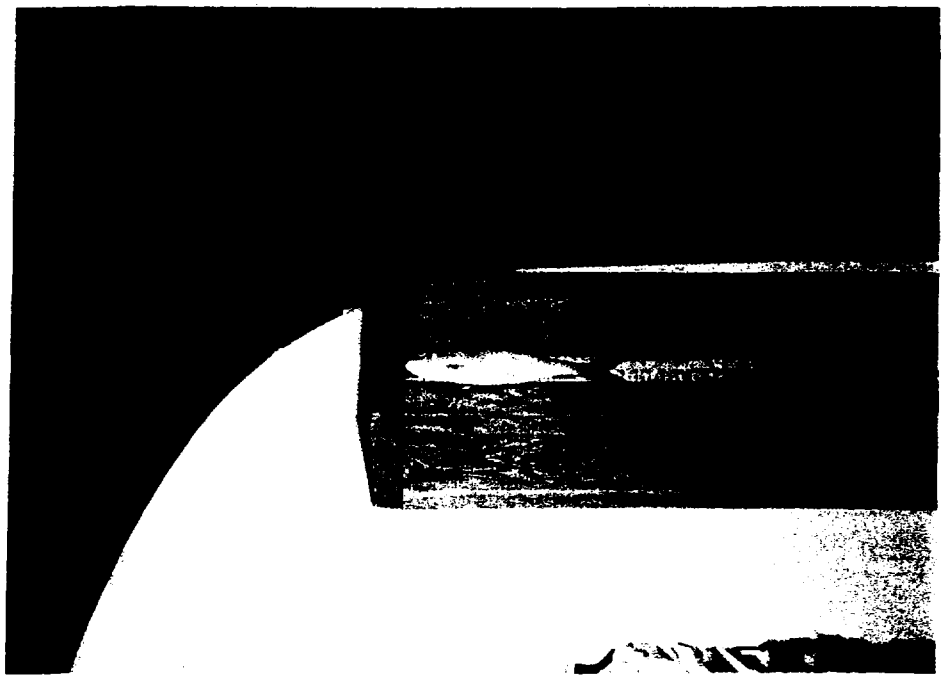
K40381



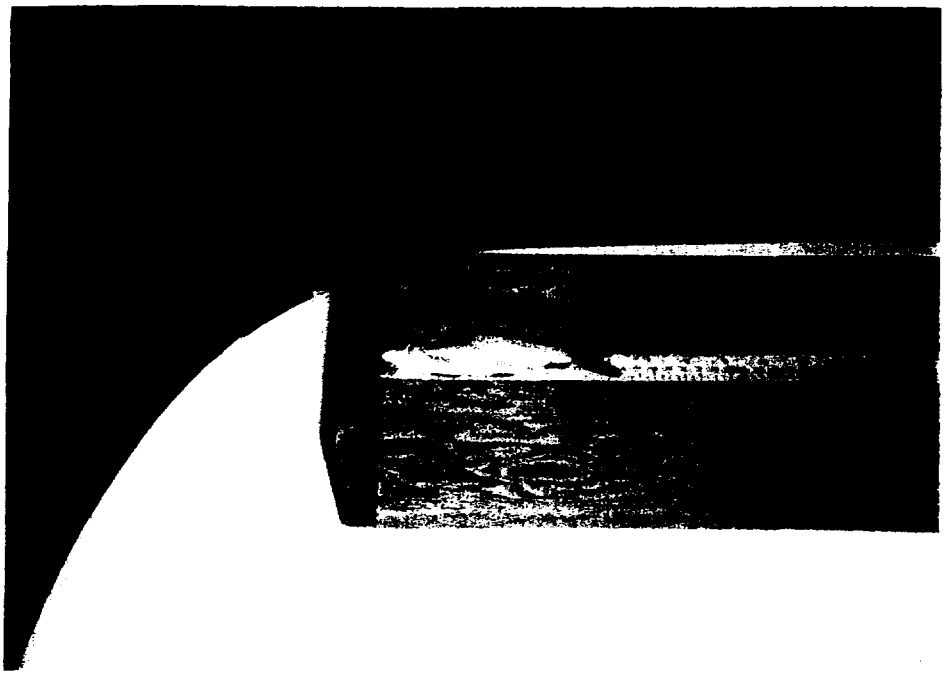
K40382



K40383



K40384



K40385

Snapping Turtle
(*Chelydra serpentina*)

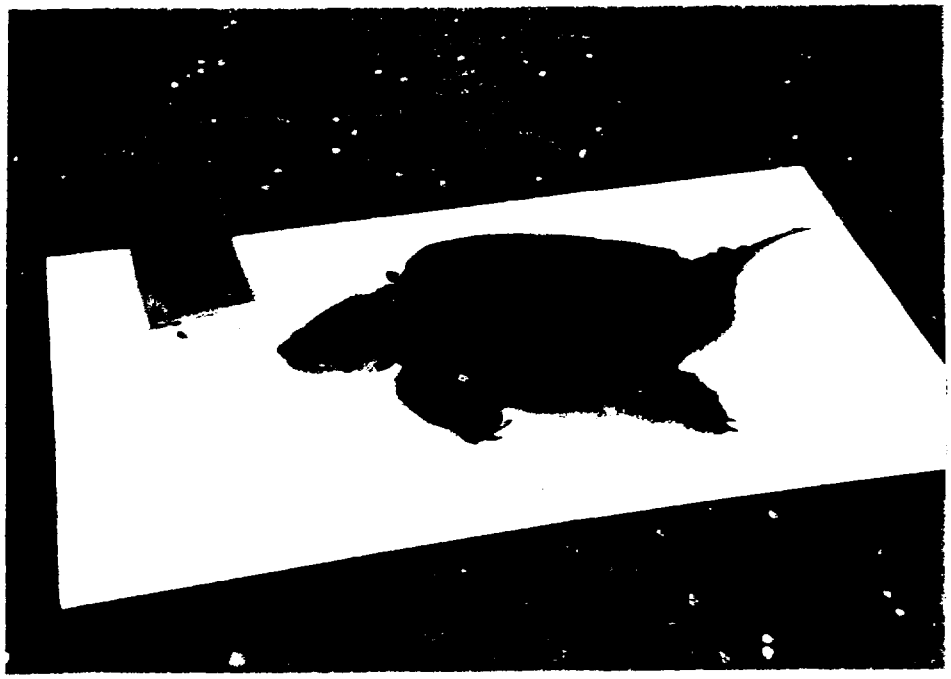
6/20/94
1094912.F

K42001

K42002

6/17/94
1494912F

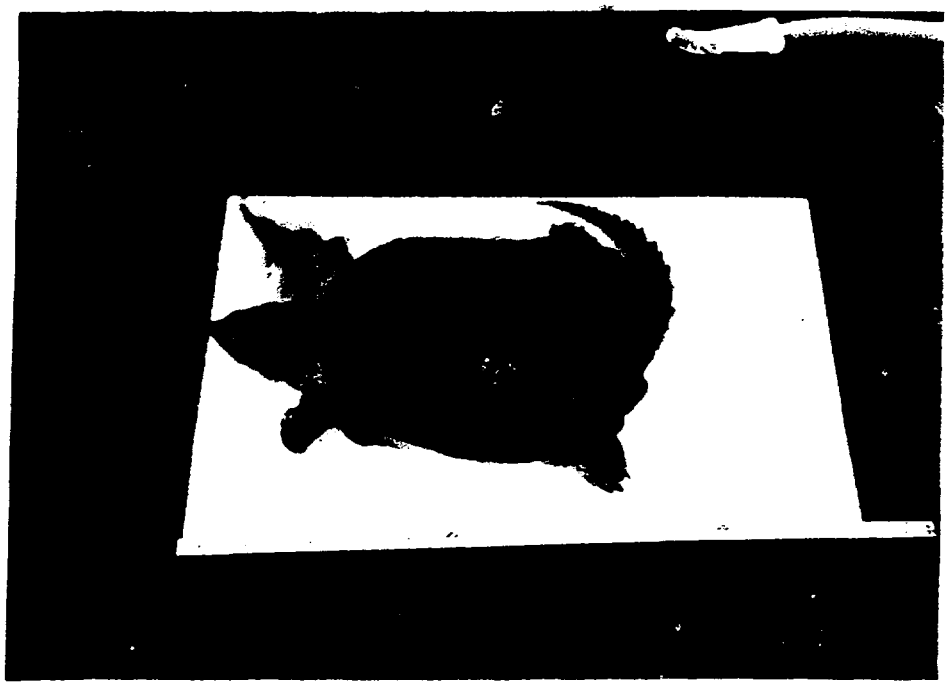
K42003



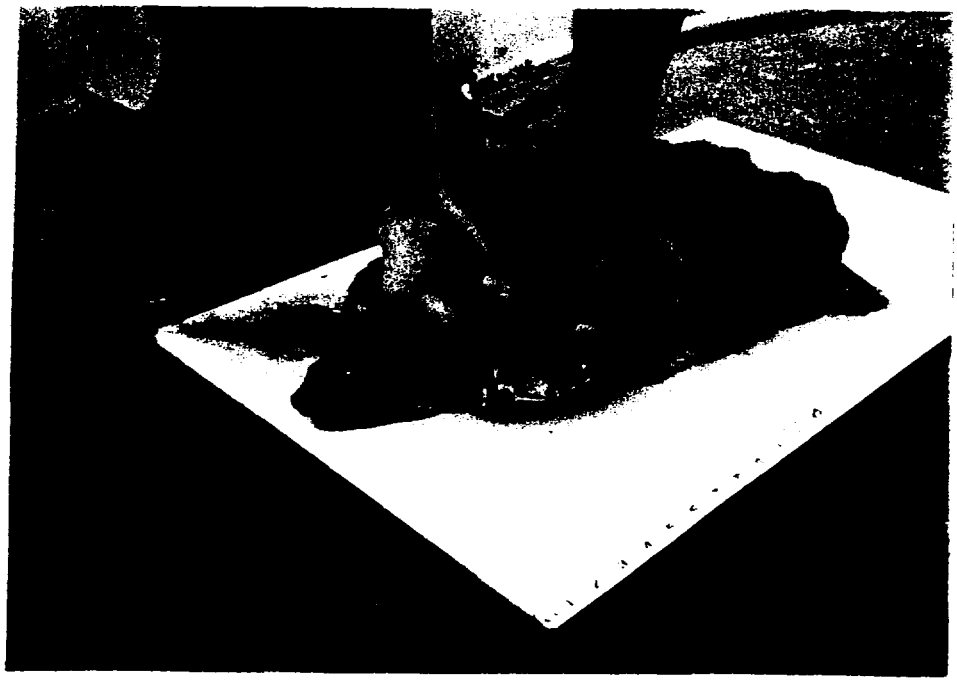
K42004

K42005

K42006



K42007

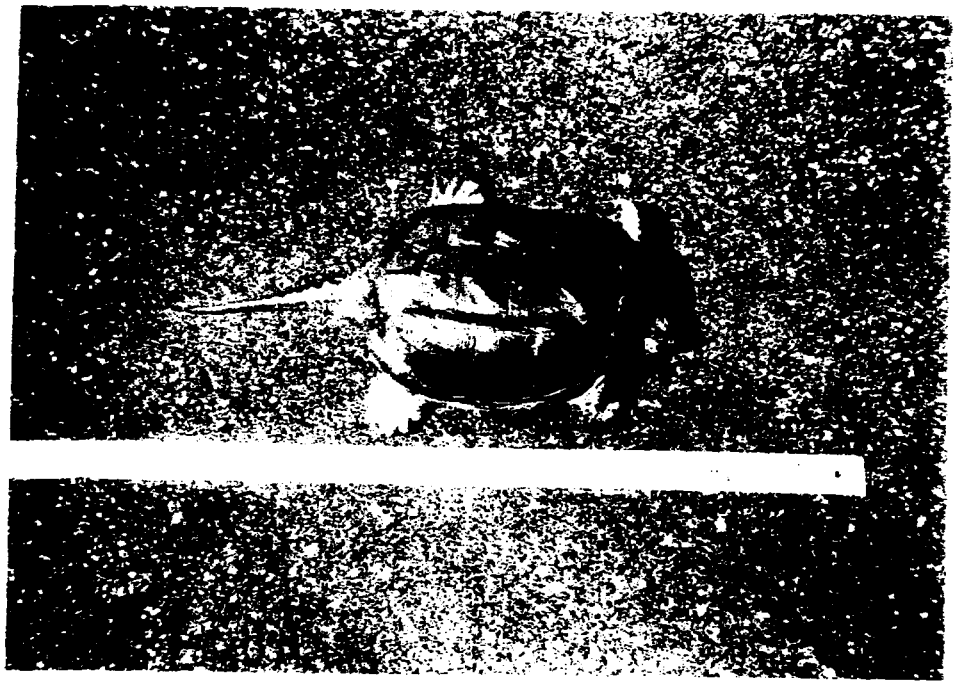


K42007 (Missing claw)

K42008

K42009

K42010



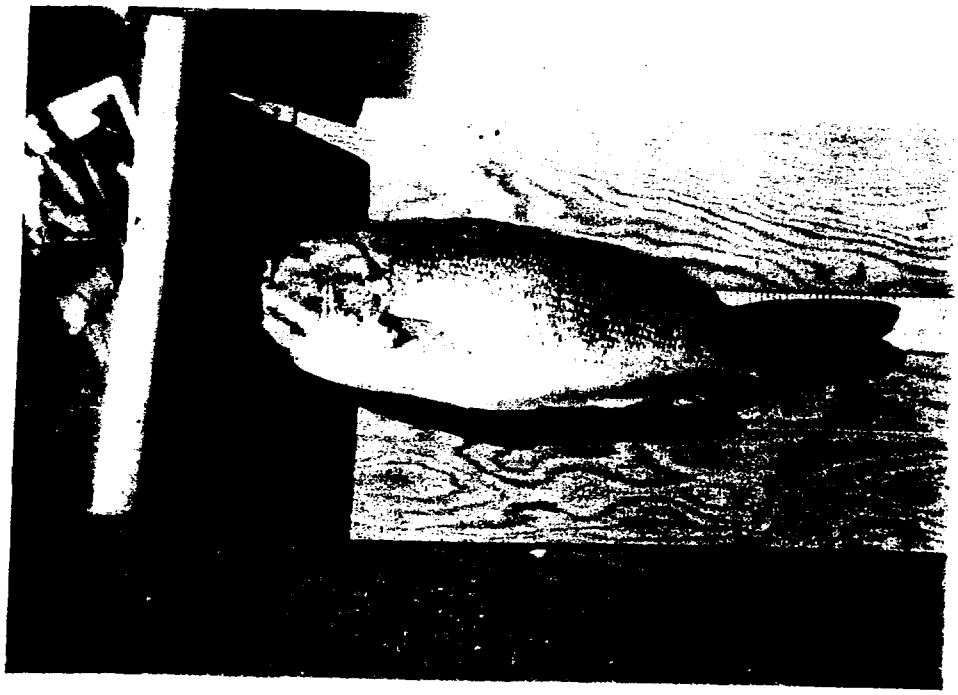
K42030

ABSA #6
Kalamazoo River Upstream of Otsego City Dam

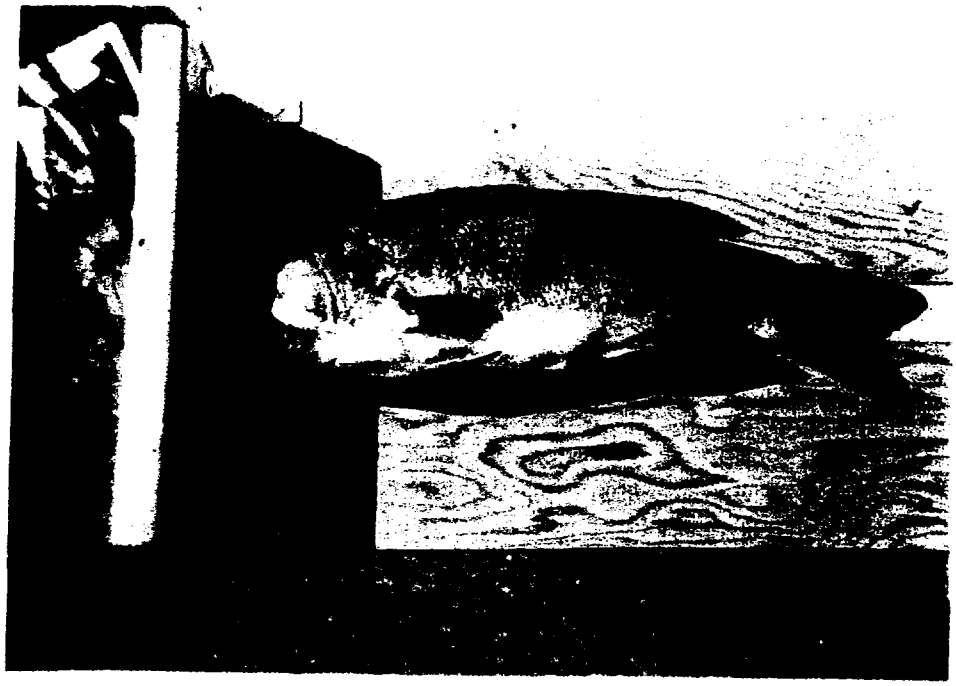
Carp	Smallmouth Bass	Golden Redhorse
K40064	K40070	K40075
K40065	K40071	K40076
K40066	K40072	K40077
K40067	K40073	K40078
K40068	K40074	K40079
K40069	K40252	K40080
K40258	K40253	K40081
K40259	K40254	K40264
K40260	K40255	K40065
K40261	K40256	K40266
K40262	K40257	K40267

Smallmouth Bass
(*Micropterus dolomieui*)

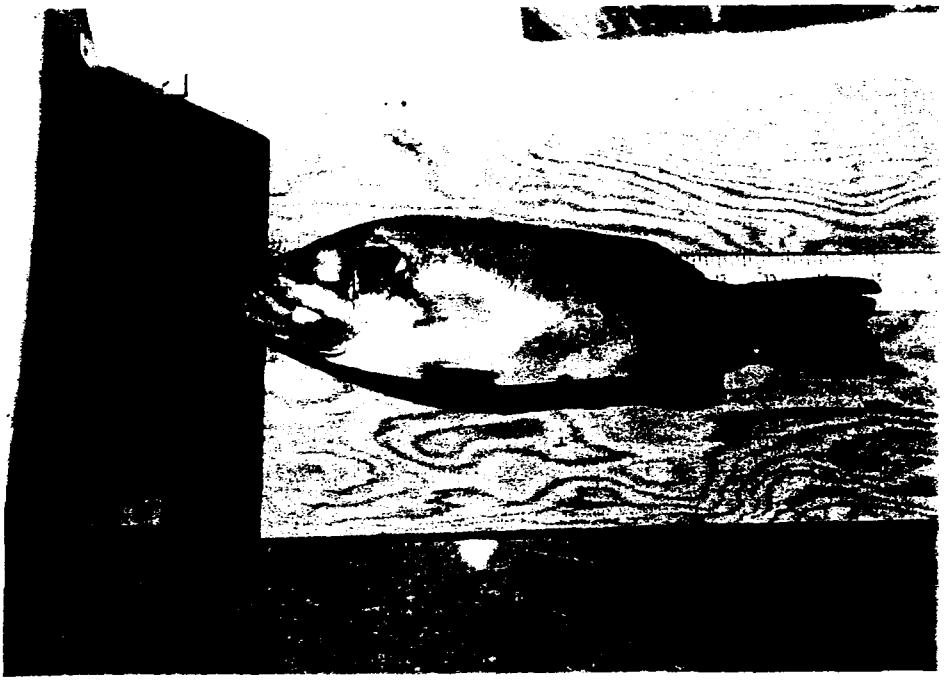
6/20/94
1094912.F



K40070

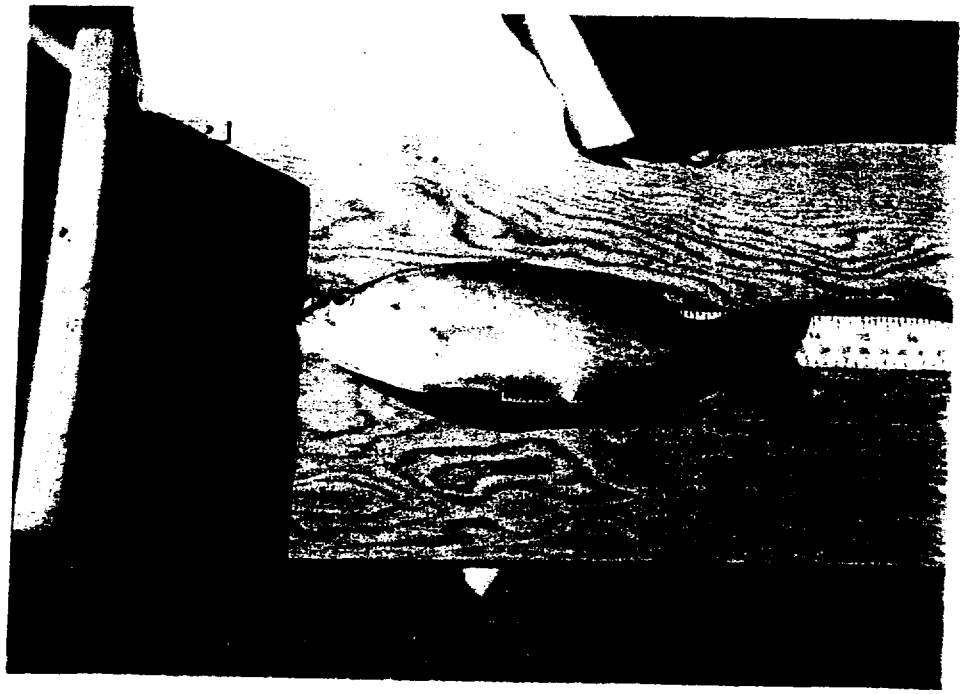


K40071



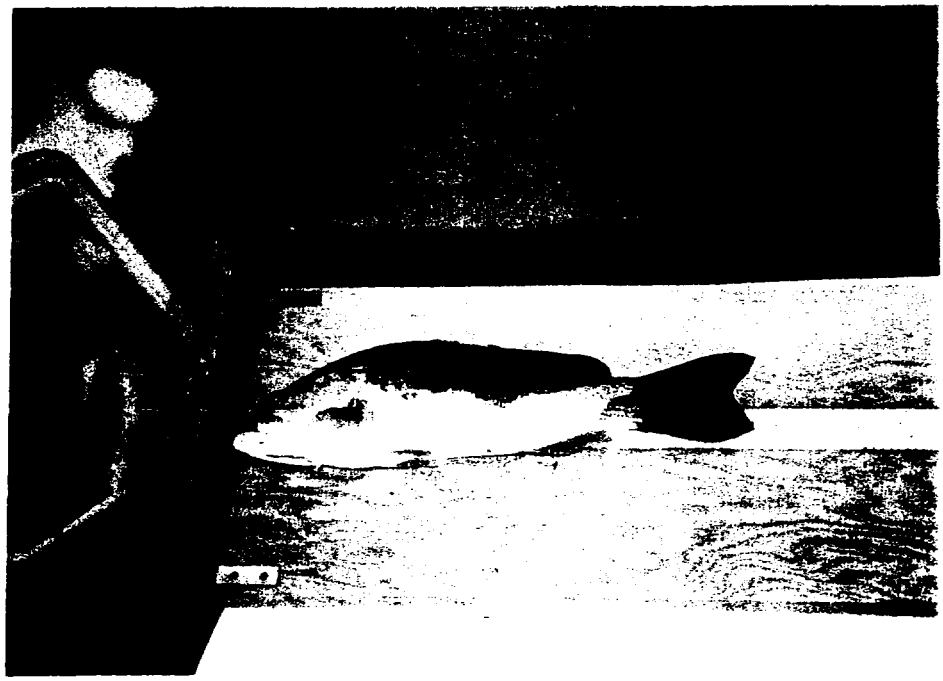
K40072

K40073

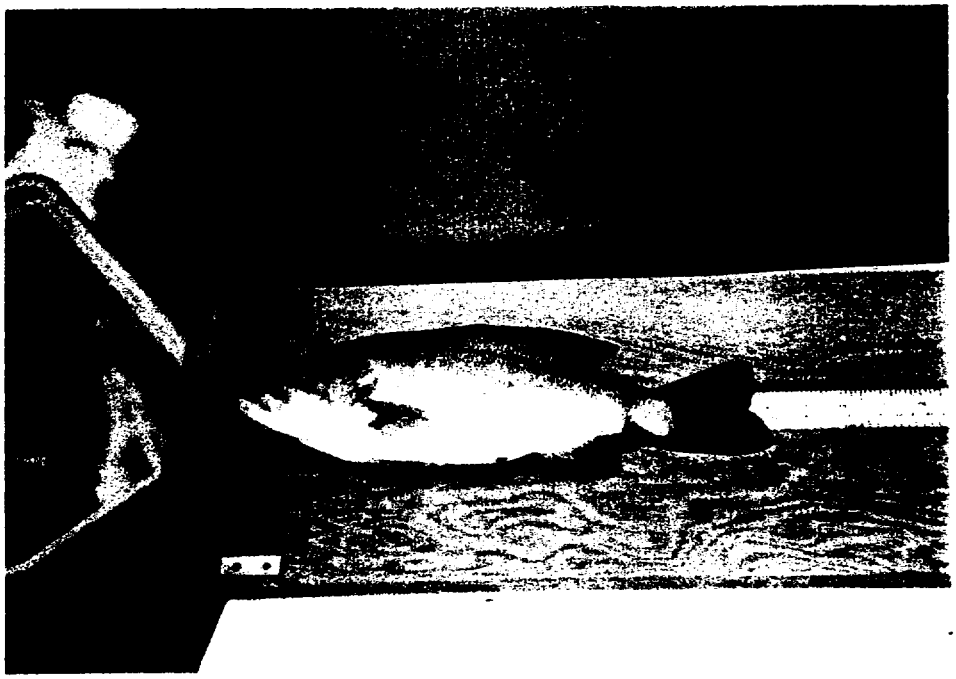


K40074

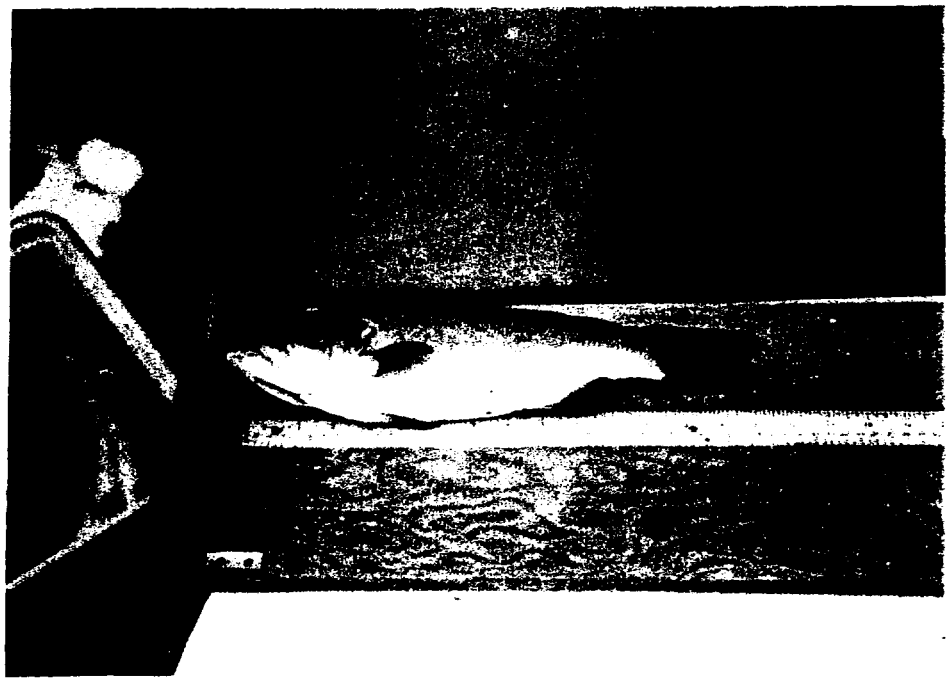
K40252



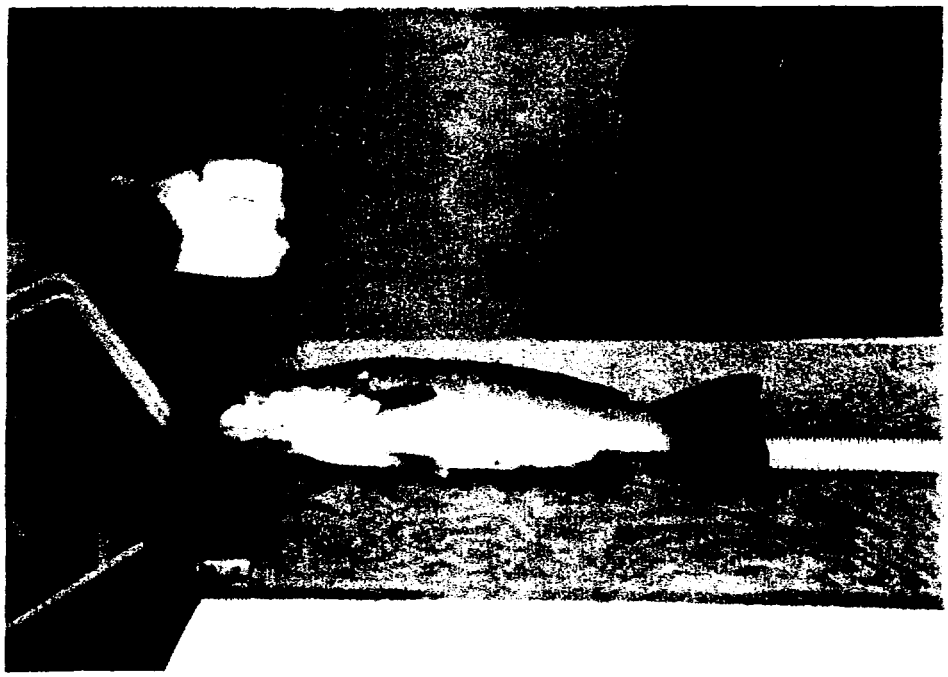
K40253



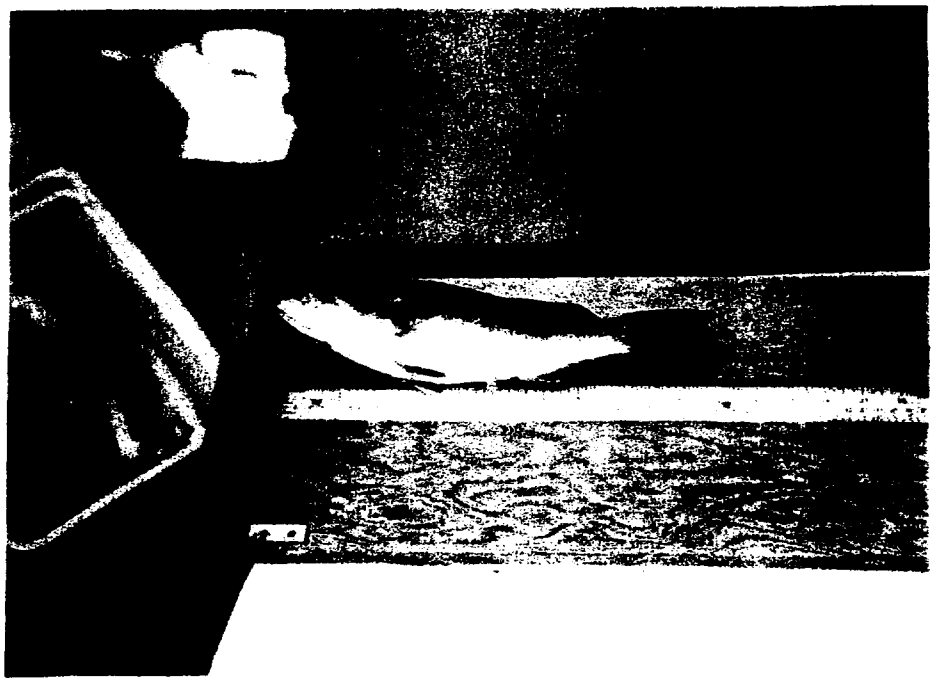
K40254



K40255



K40256

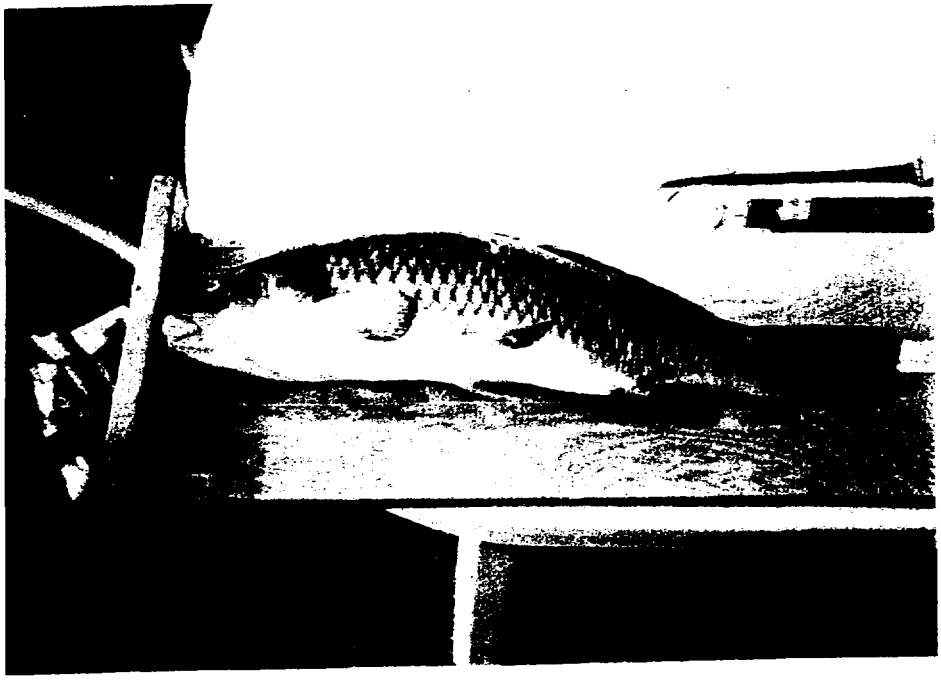


K40257

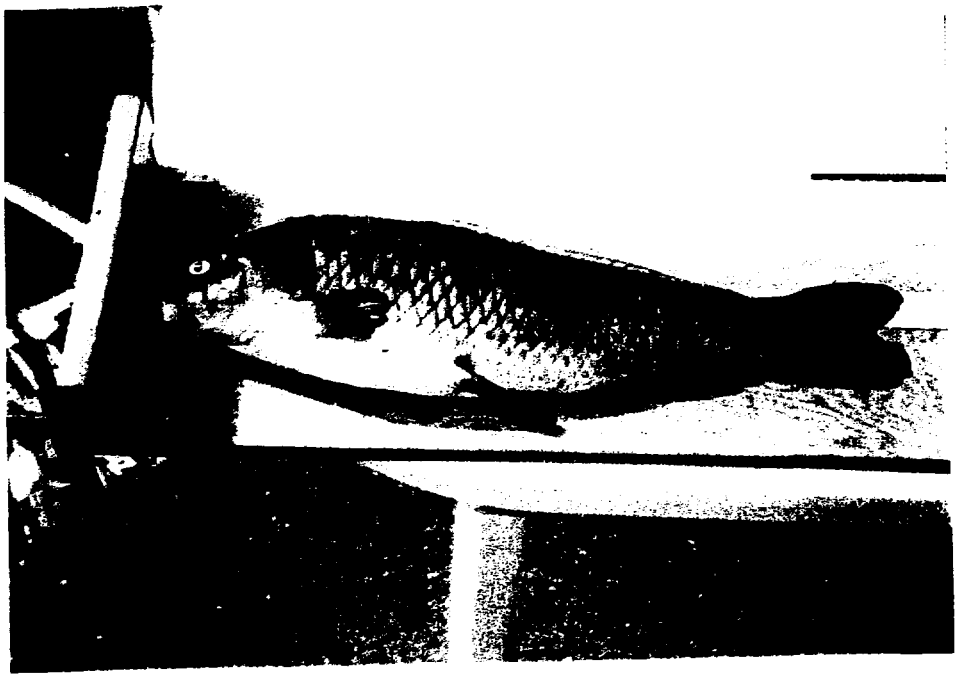
6/16/94
794912F

Carp
(*Cyprinus carpio*)

6/20/94
1094912.F

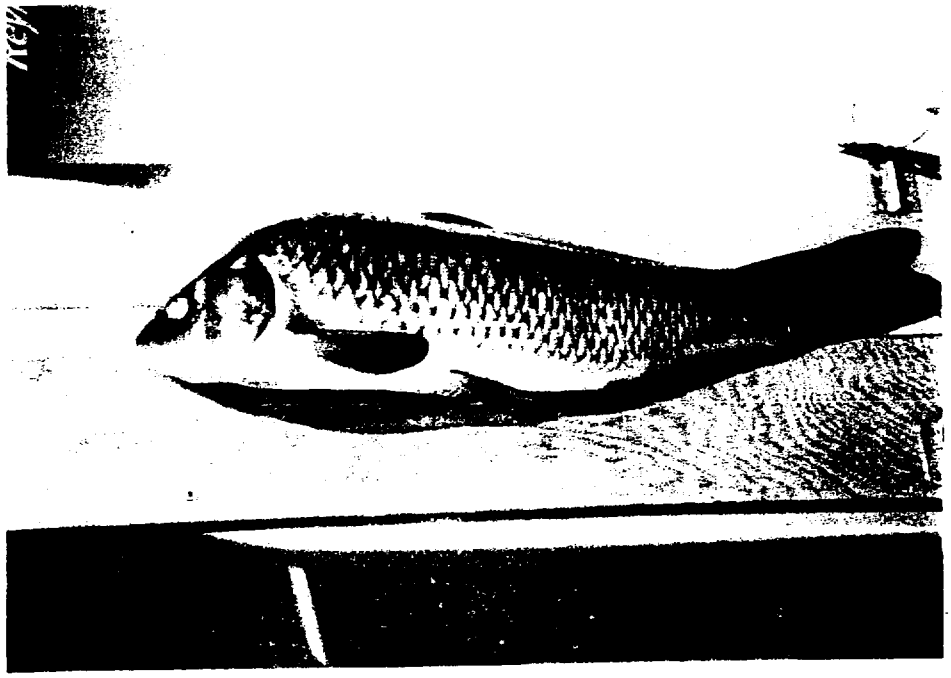


K40064

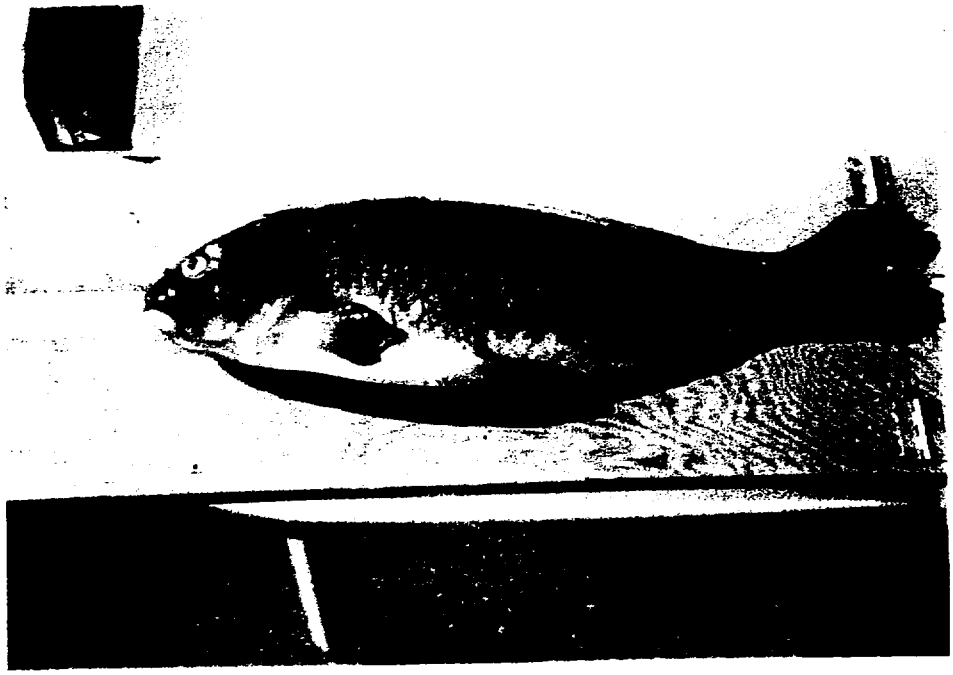


K40065

6/16/94
794912F



K40066

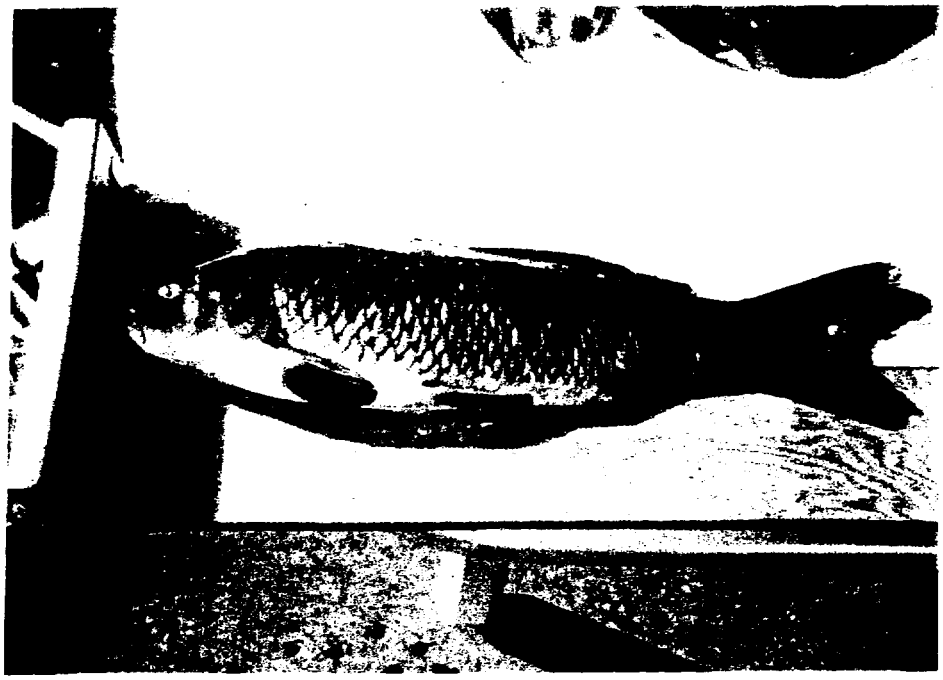


K40067

6/16/94
794912F

K40067 (Eroded right pectoral fin)

K40068



K40069

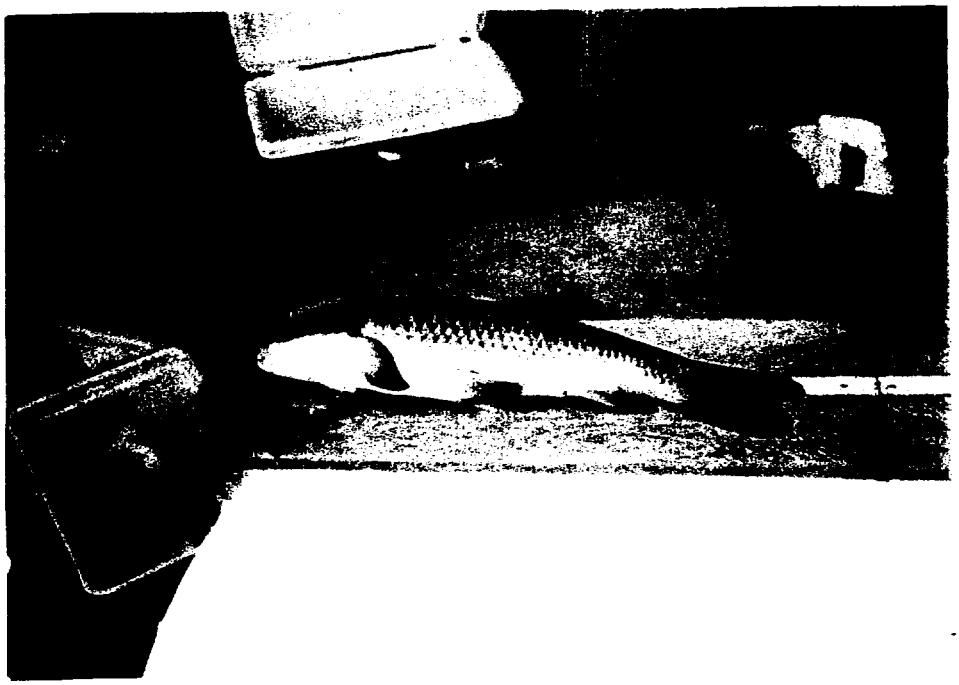
K40258

K40259

K40260

6/16/94
794912F

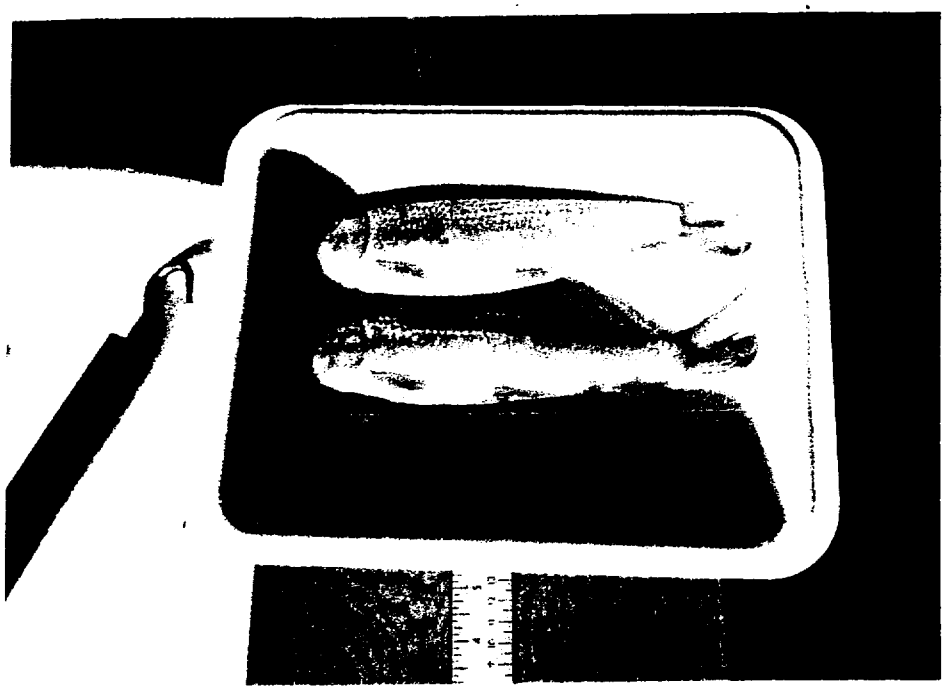
K40261



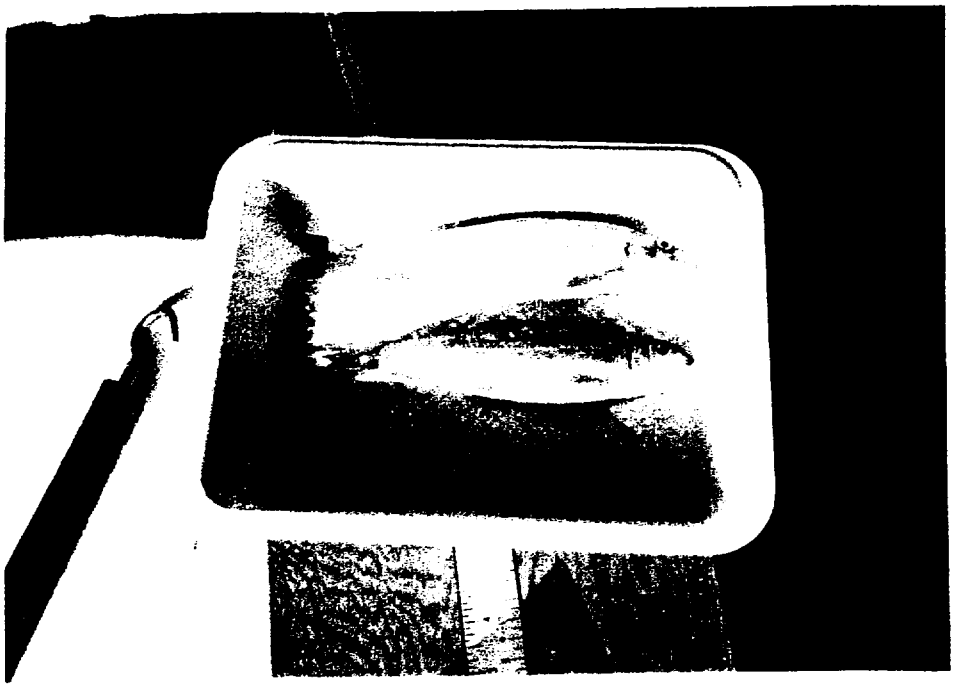
K40262

Golden Redhorse
(*Moxostoma erythrurum*)

6/20/94
1094912.F



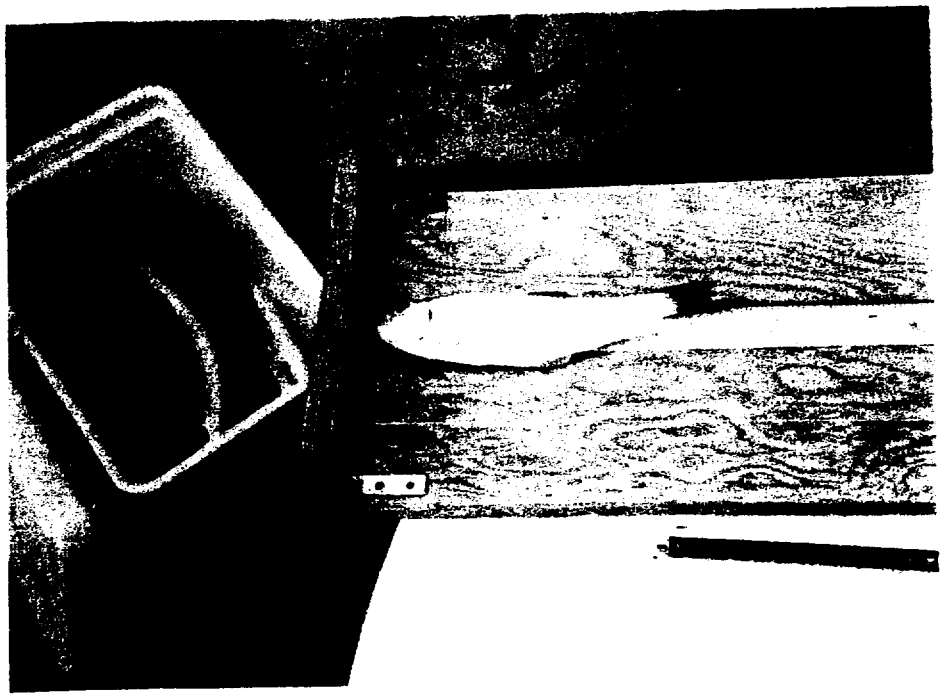
K40075, K40076[1]



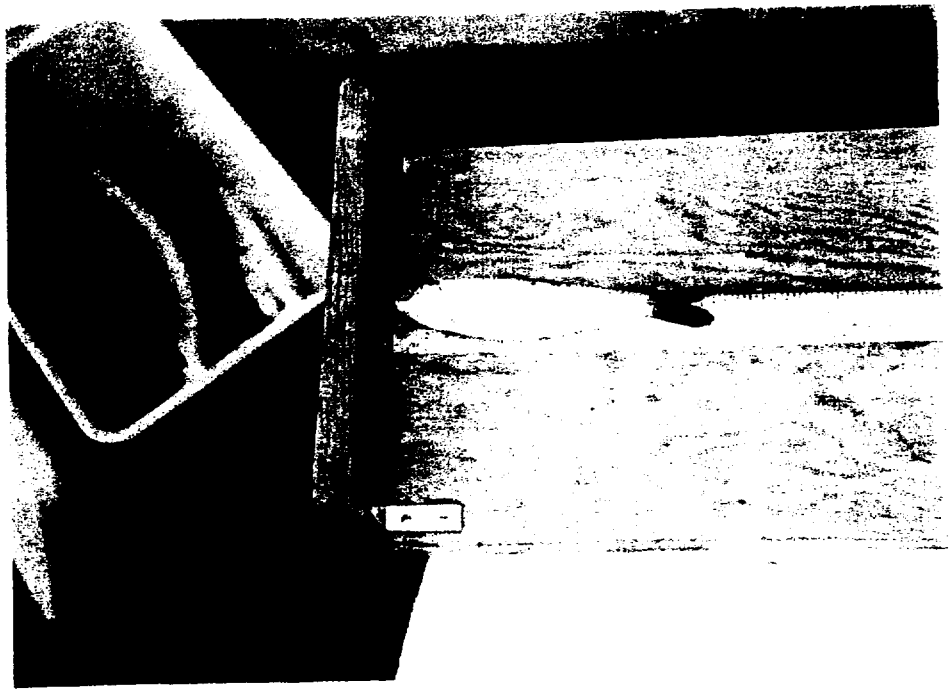
K40077, K40078[2]

K40079, K40080[3]

K40081[4]

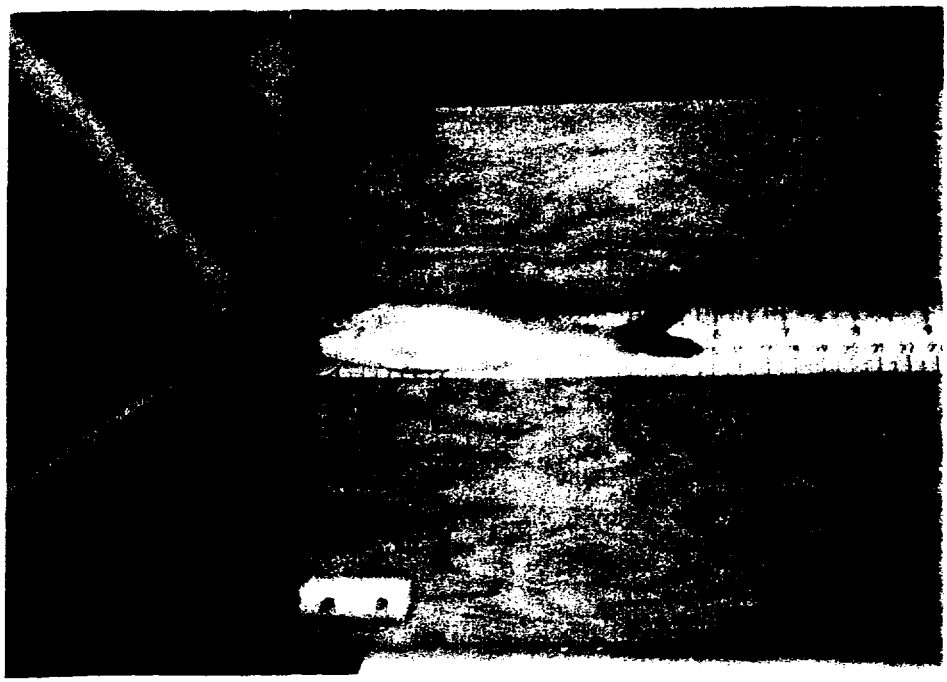


K40264



K40265

K40266



K40267

Notes:

[1] Samples K40075, K40076 taken from original composite sample K40082

[2] Samples K40077, K40078 taken from original composite sample K40081

[3] Samples K40079, K40080 taken from original composite sample K40080

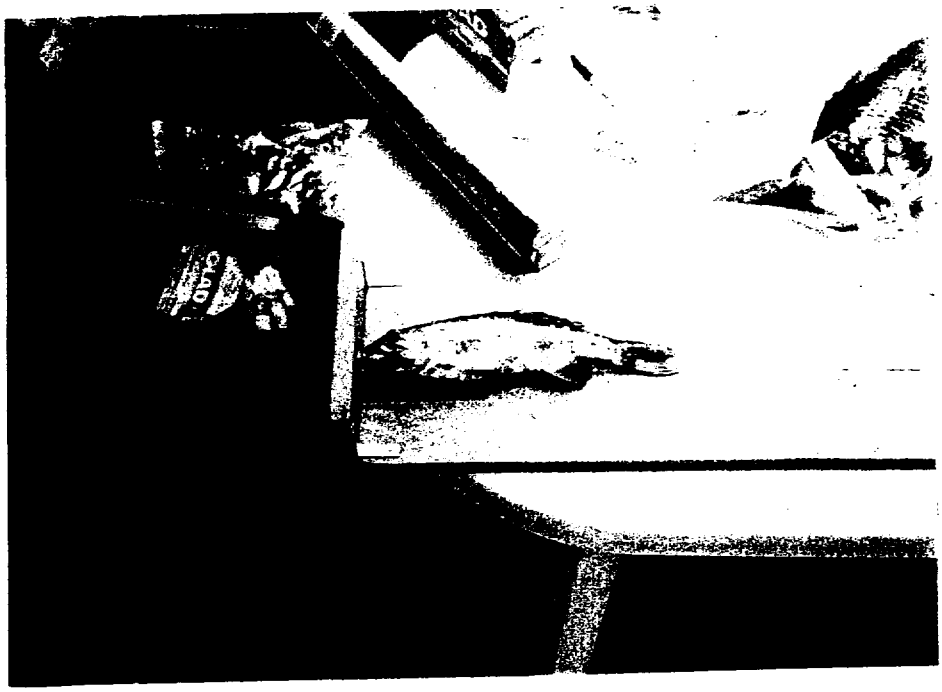
[4] Sample K40081 taken from original composite sample K40079

ABSA #7
Kalamazoo River Upstream of Otsego Dam

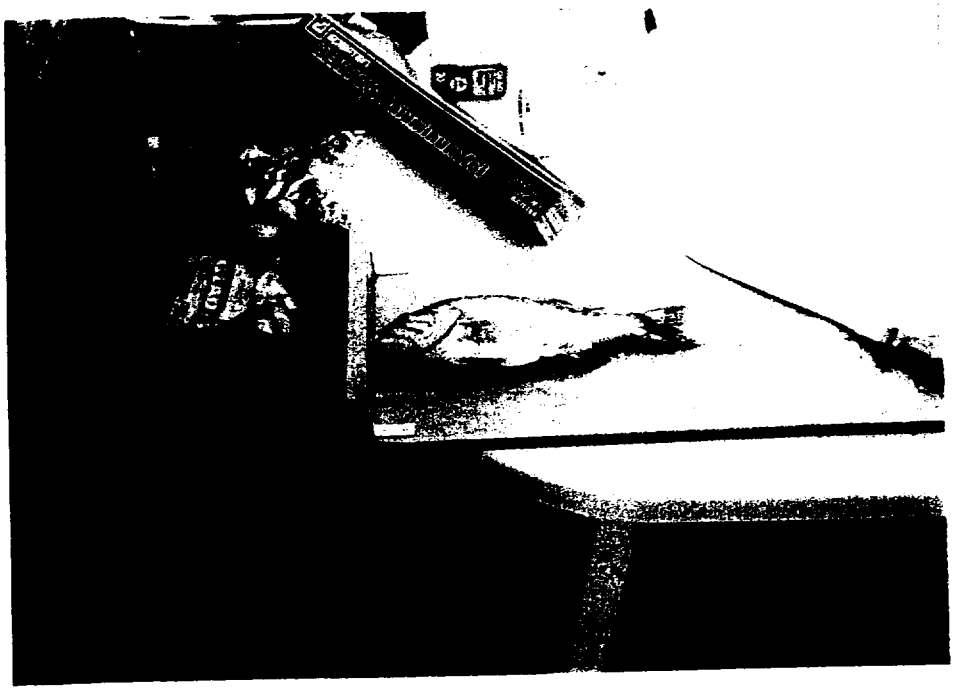
Carp	Smallmouth Bass	Golden Redhorse
K40268		
K40269	K40276	K40291
K40270	K40277	K40292
K40271	K40278	K40293
K40272	K40279	K40294
K40273	K40280	K40295
K40274	K40281	K40296
K40275	K40282	K40297
K40284	K40287	K40298
K40285	K40288	K40299
K40286	K40289	K40300
	K40290	K40301

Smallmouth Bass
(*Micropterus dolomieui*)

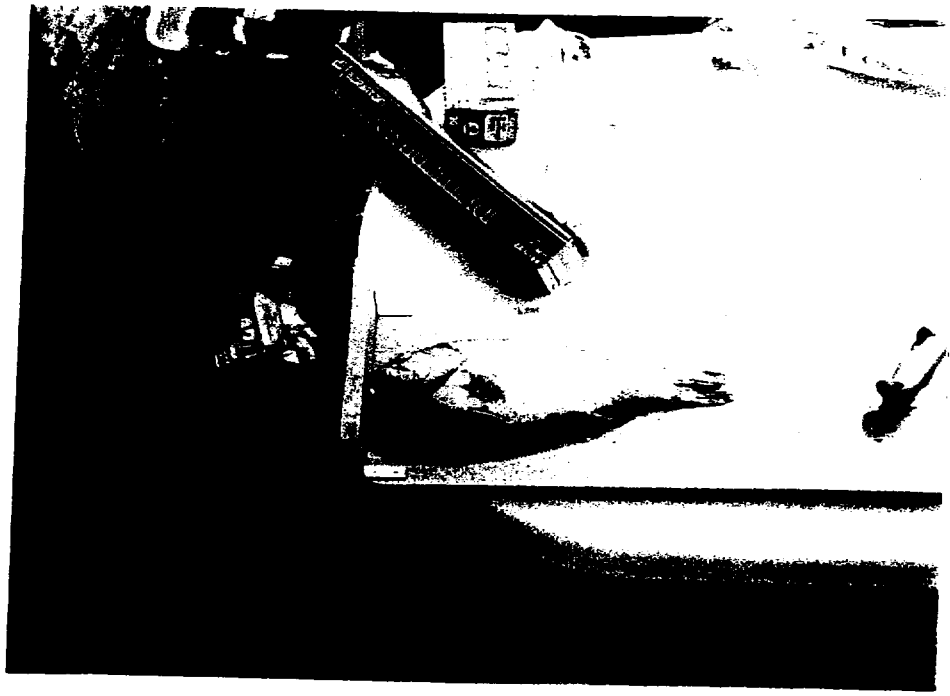
6/20/94
1094912.F



K40276

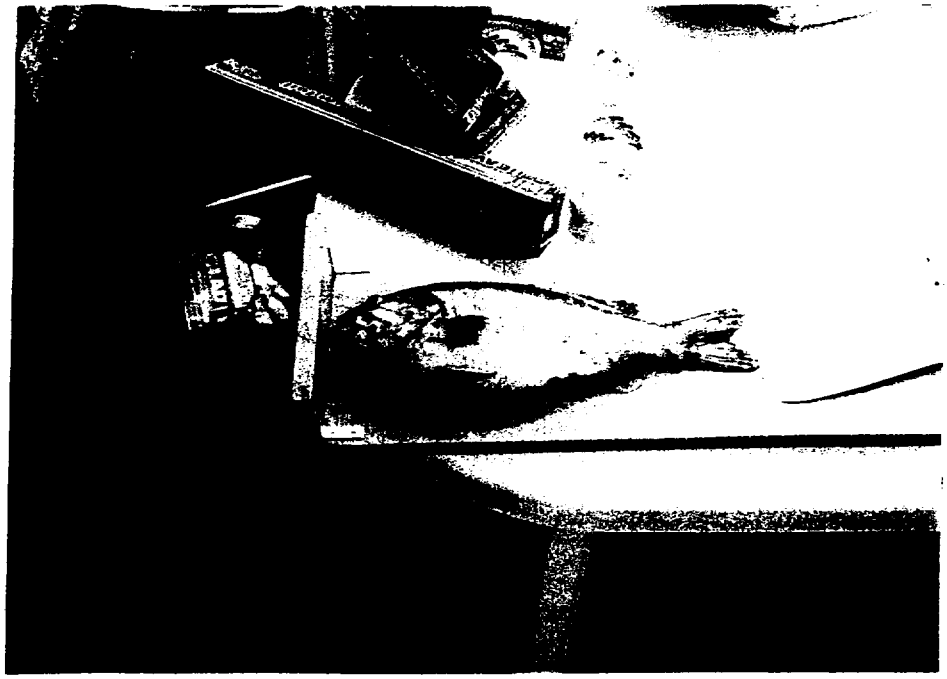


K40277

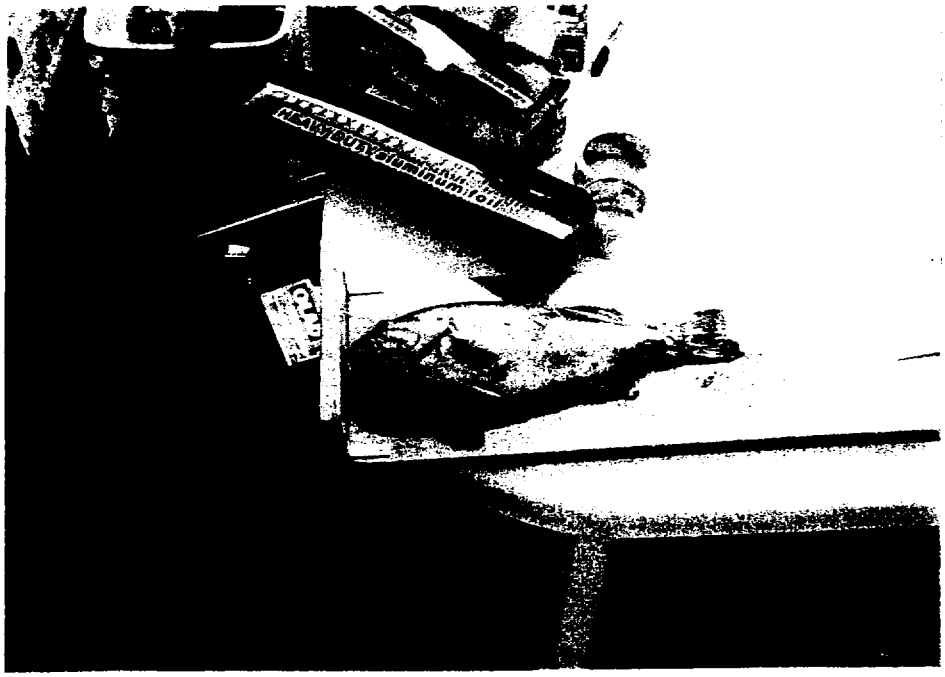


K40278

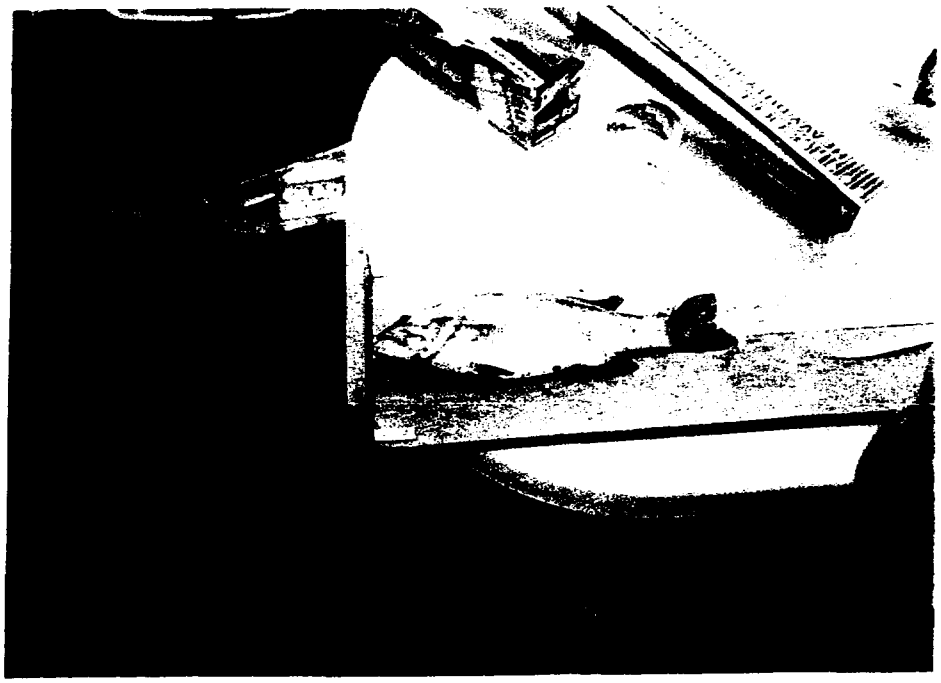
K40279



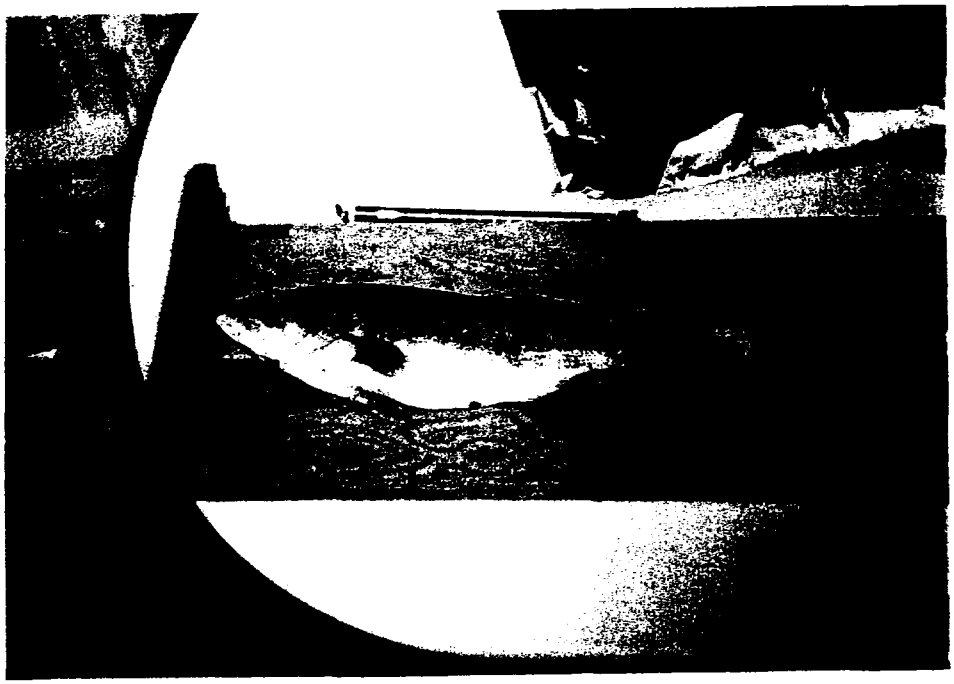
K40280



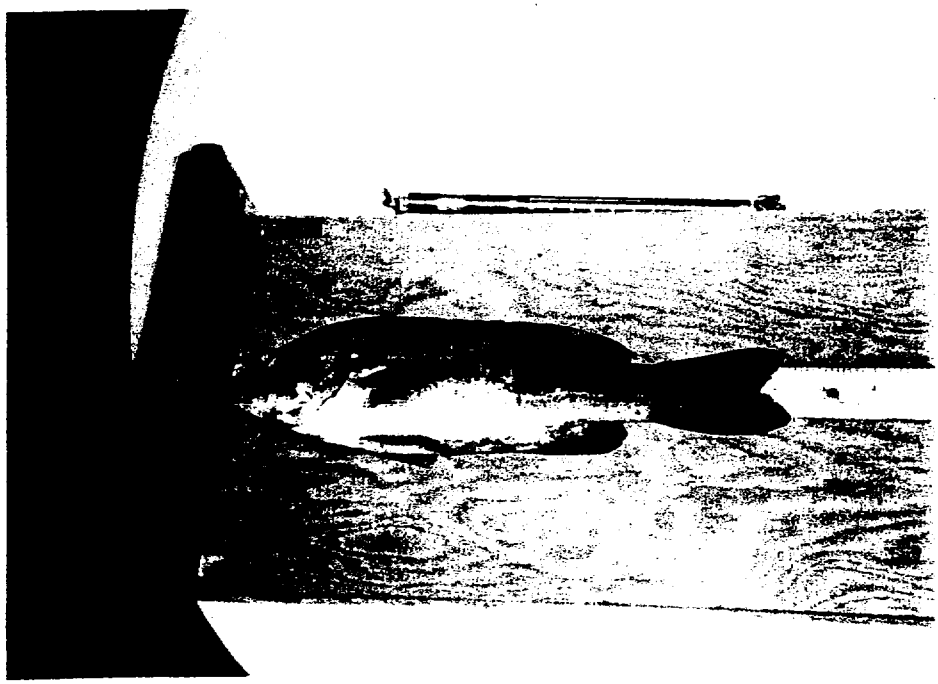
K40281



K40282

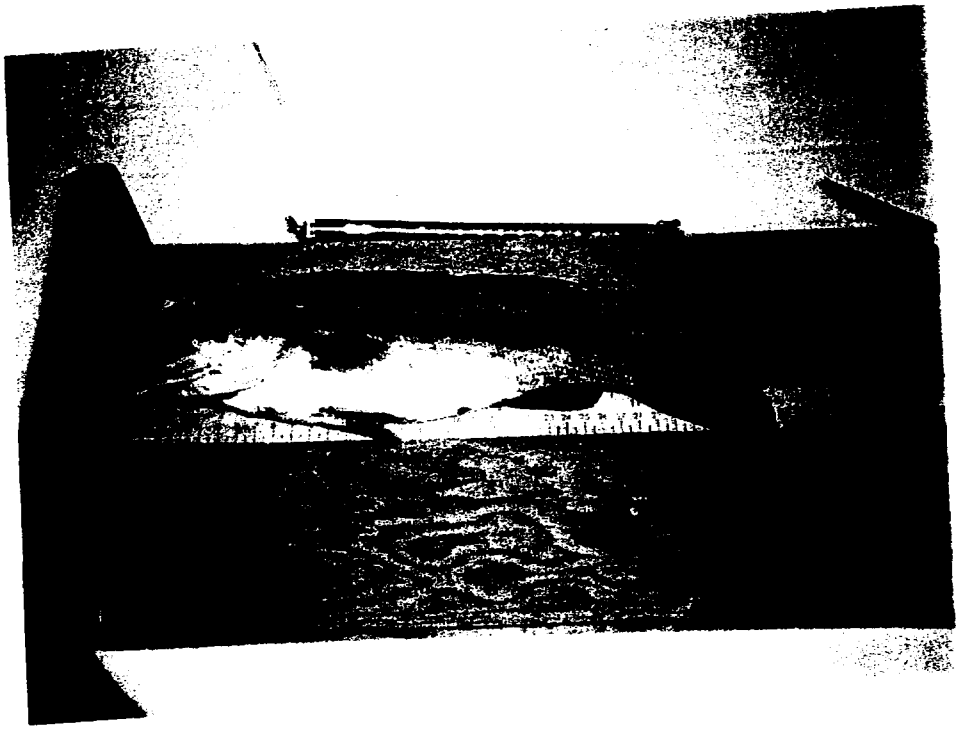


K40287



K40288

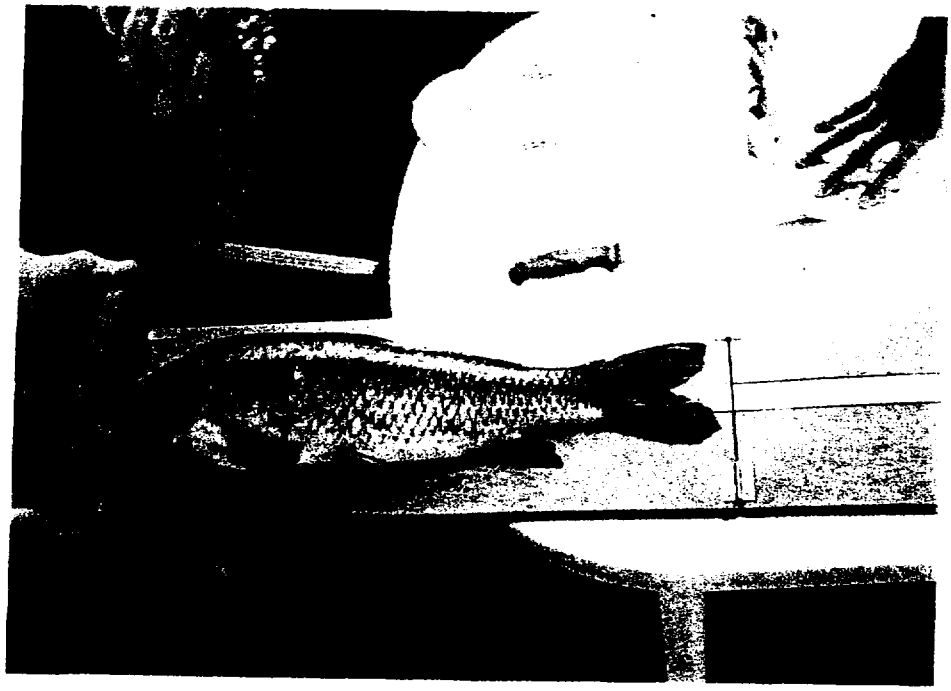
K40289



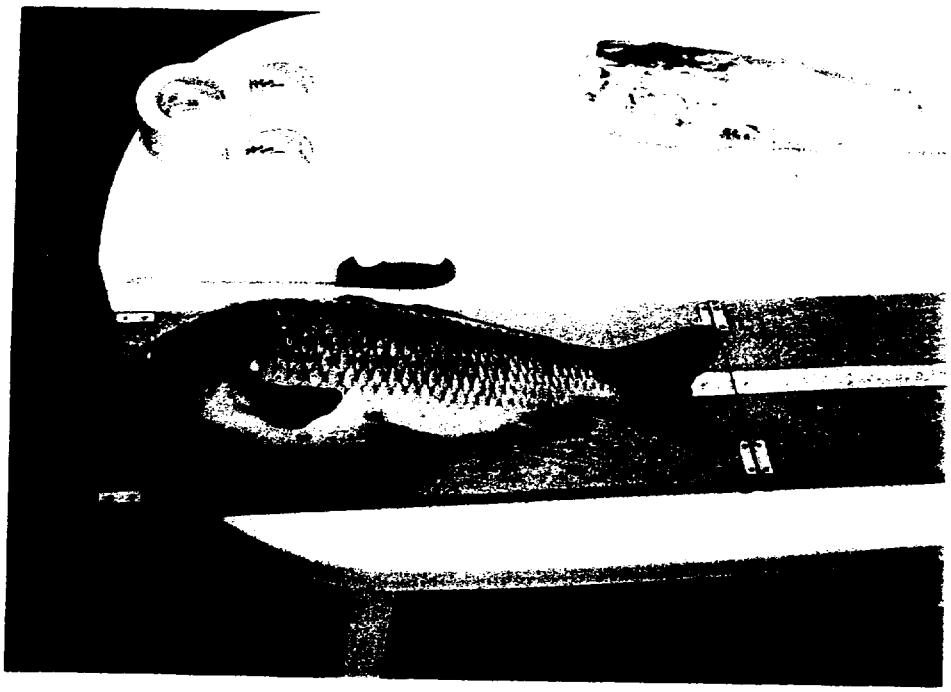
K40290

Carp
(*Cyprinus carpio*)

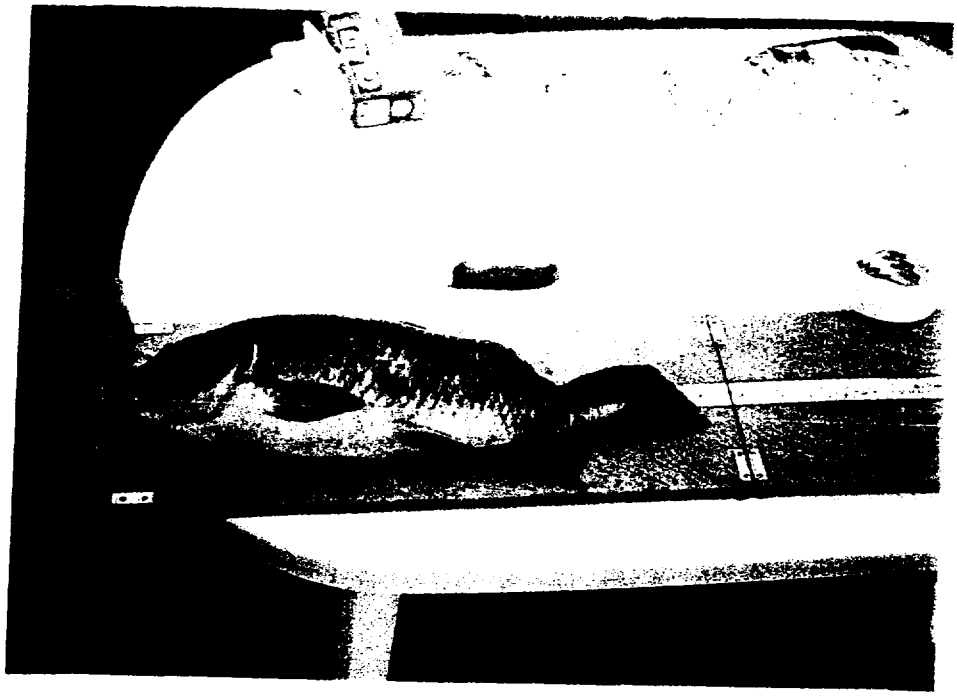
6/20/94
1094912.F



K40268

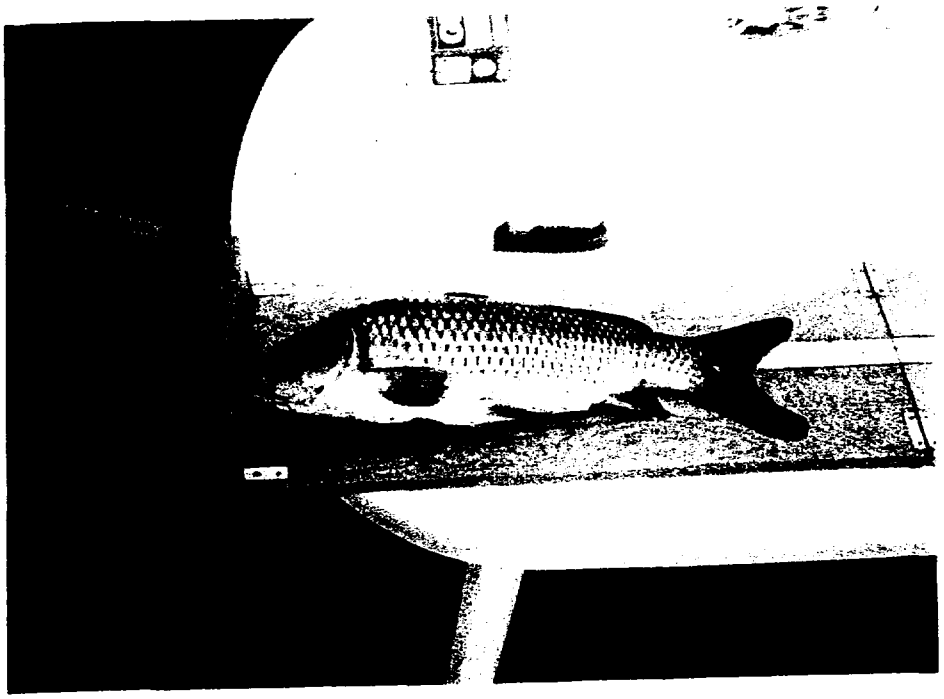


K40269

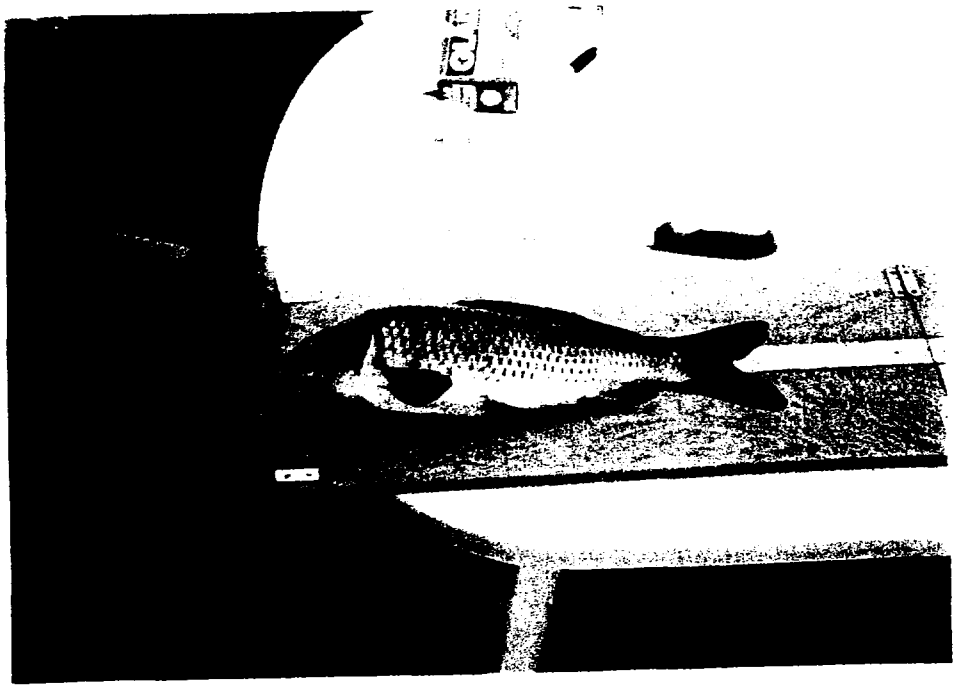


K40270

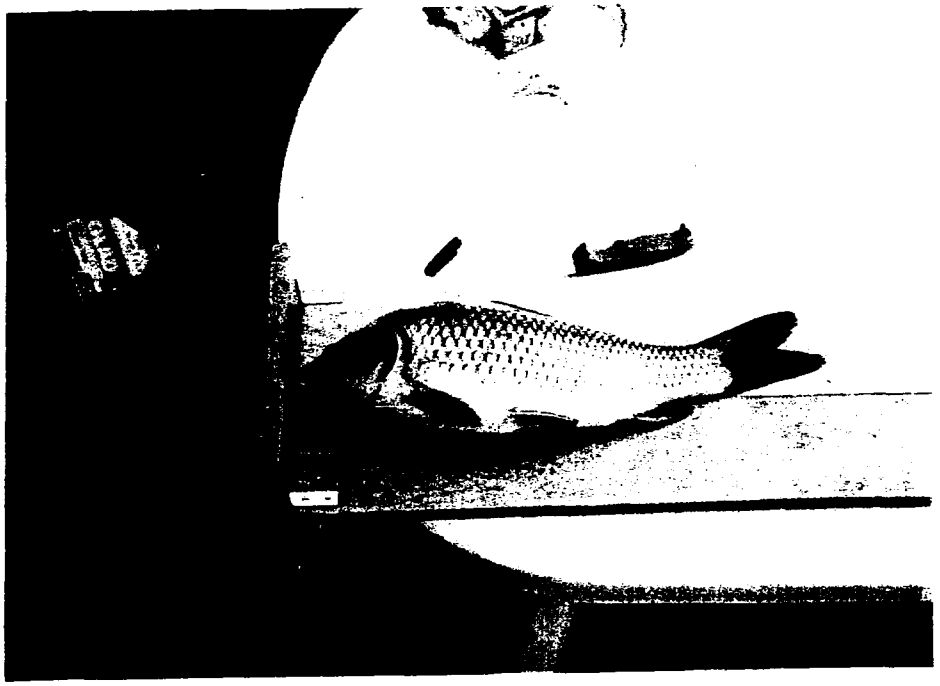
K40270 (Spinal deformities, lesion near tail)



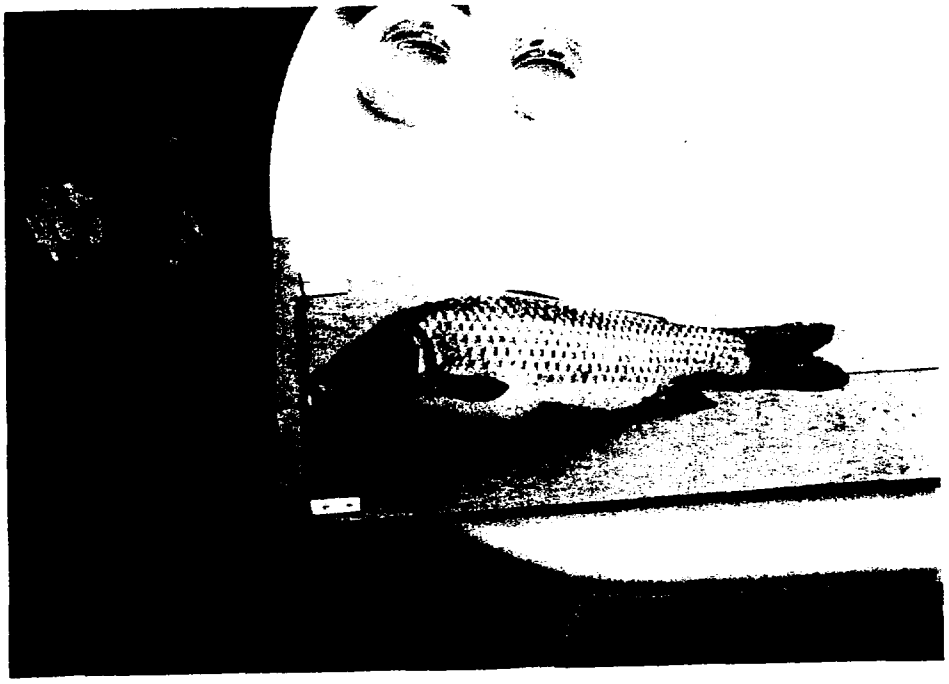
K40271



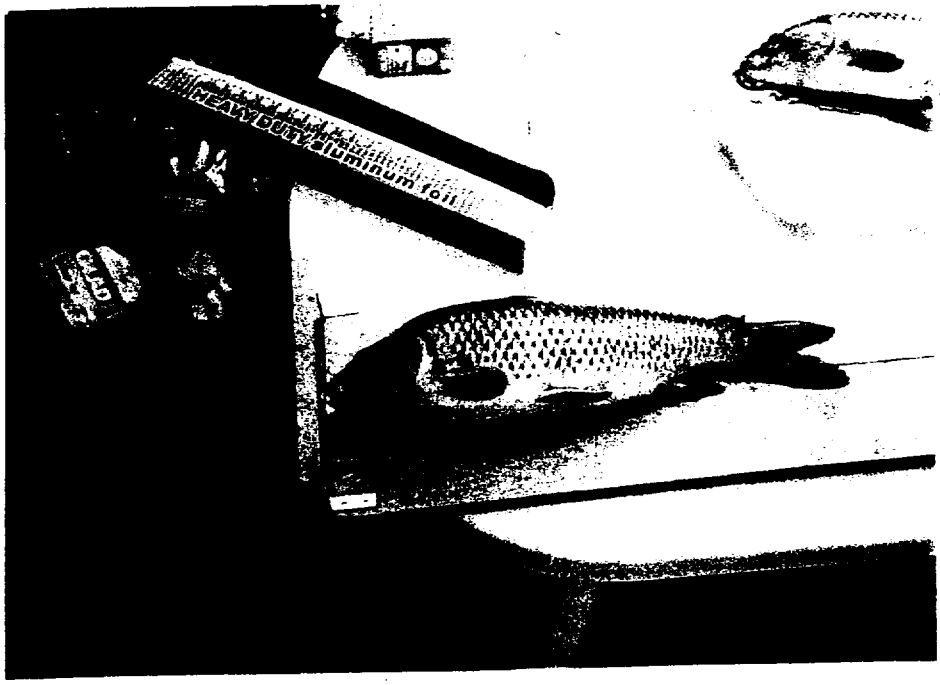
K40272



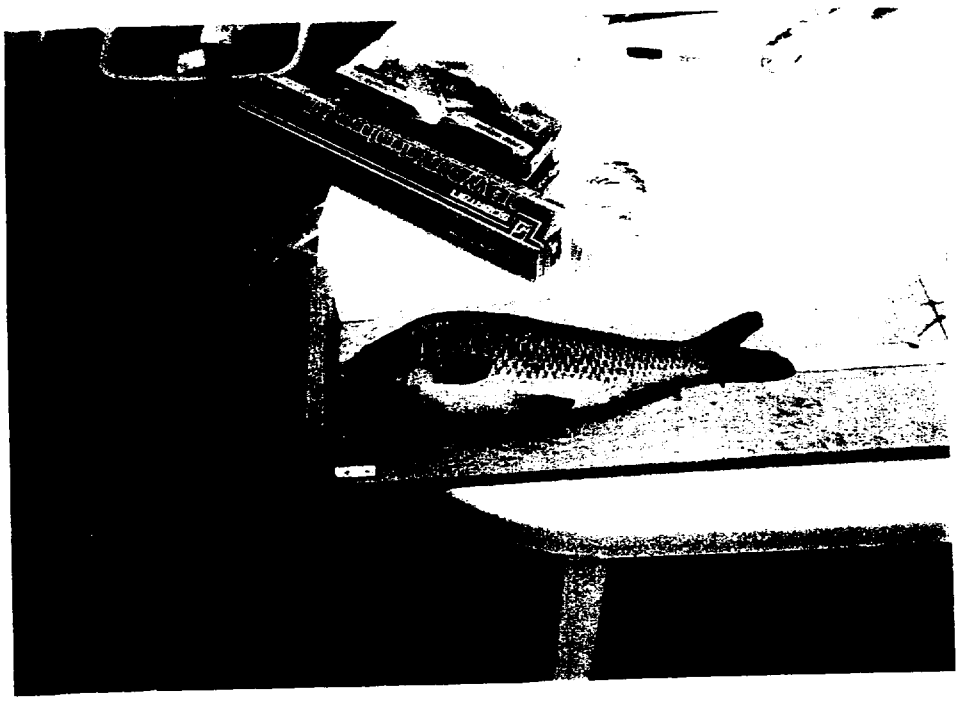
K40273



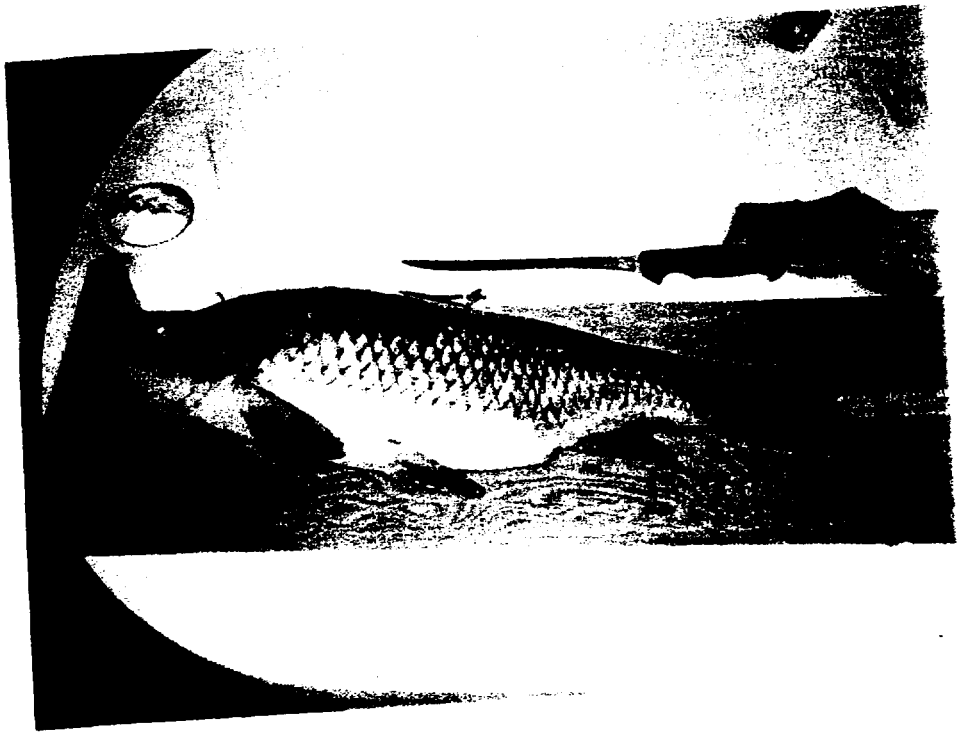
K40274



K40275



K40284

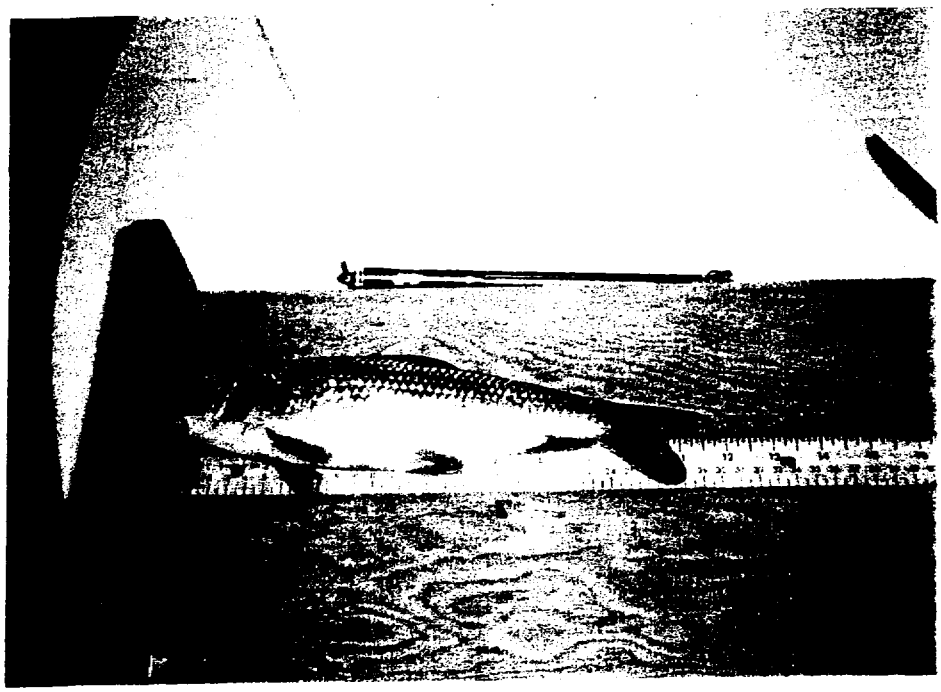


K40285

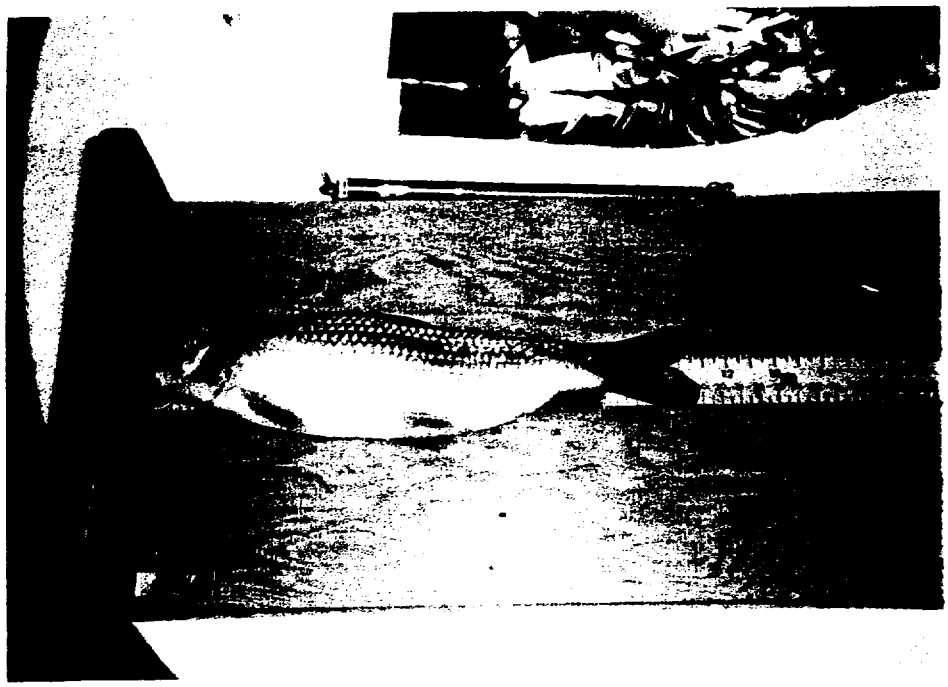
K40286

Golden Redhorse
(*Moxostoma erythrurum*)

6/20/94
1094912.F

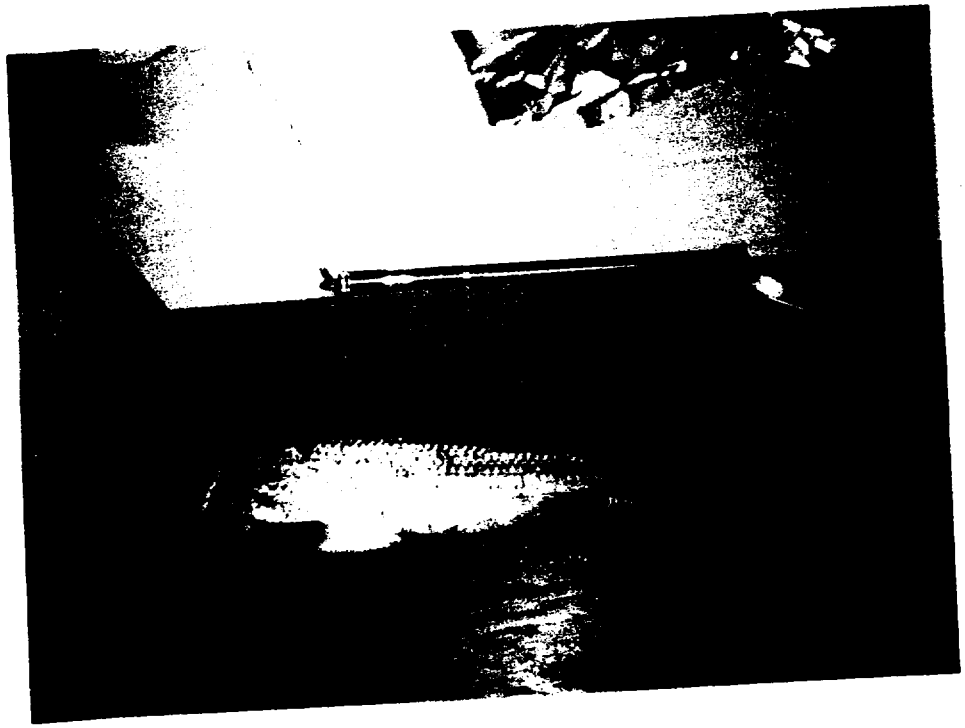


K40291



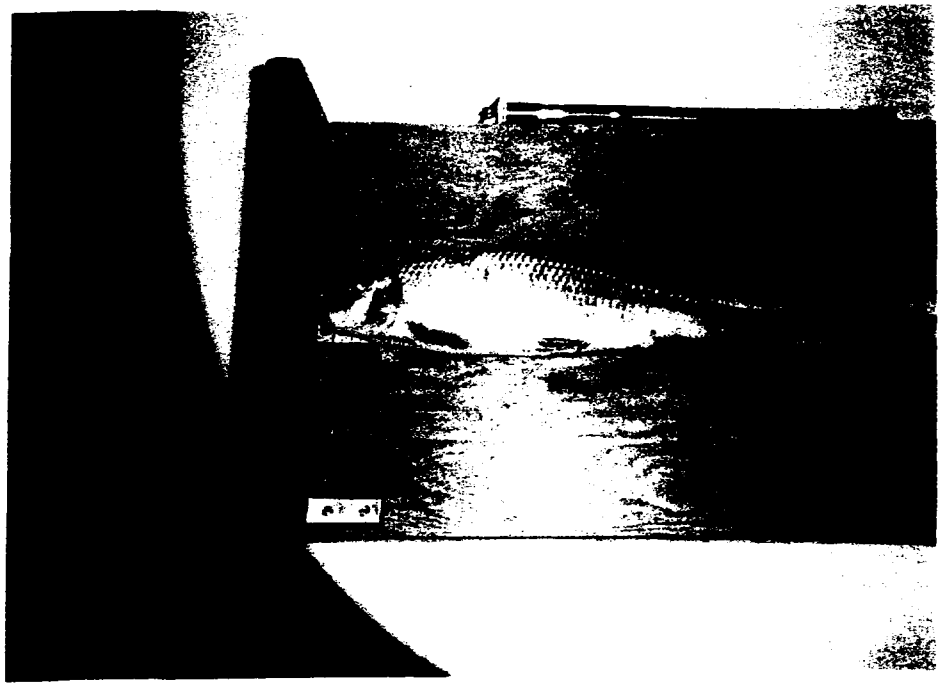
K40292

7/11/94
894912G

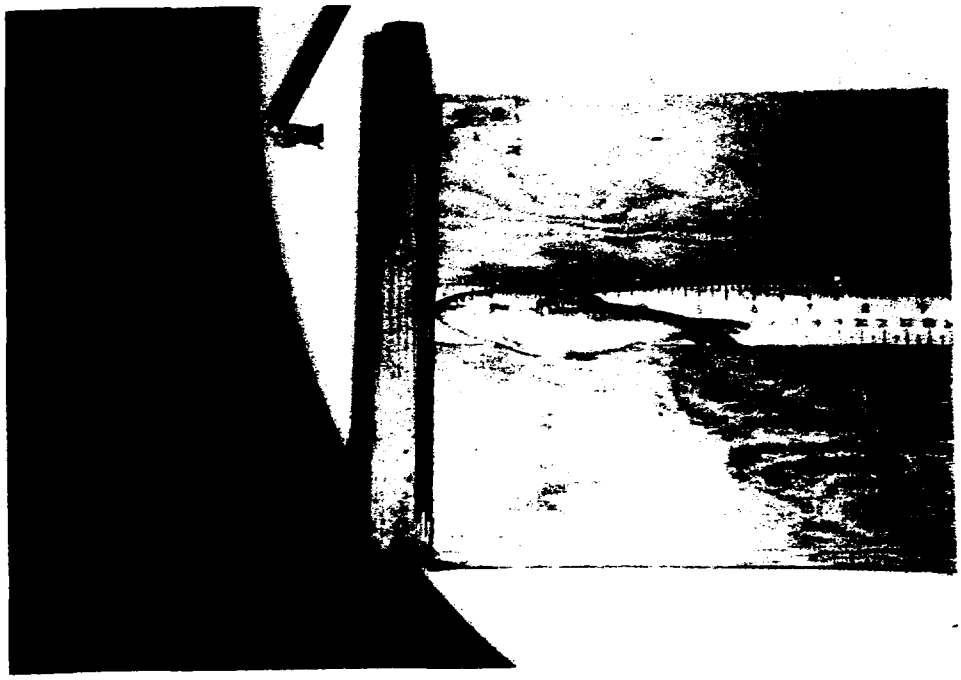


K40293

K40294



K40295



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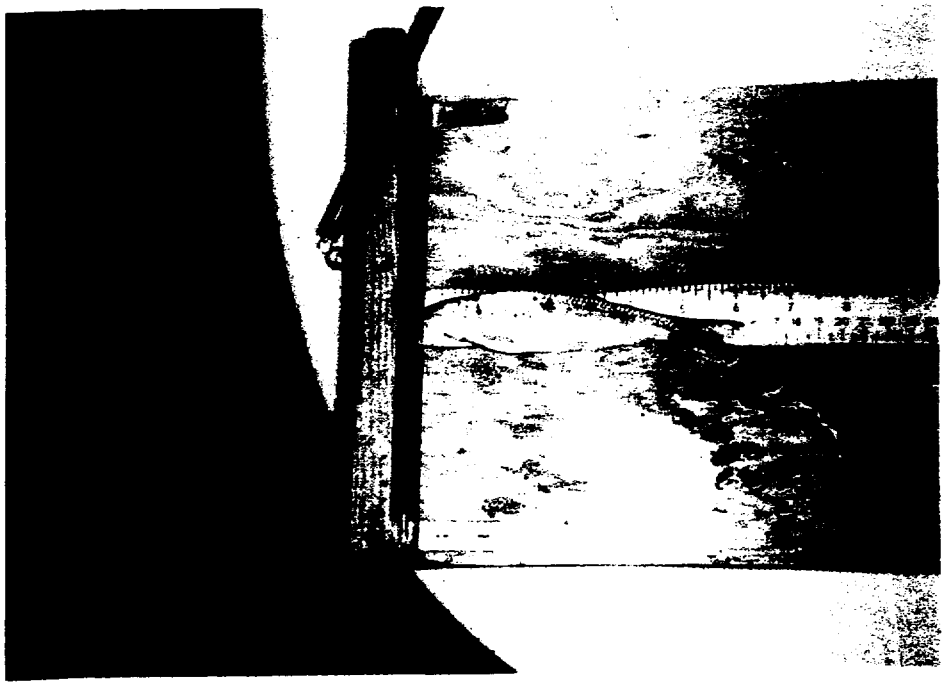

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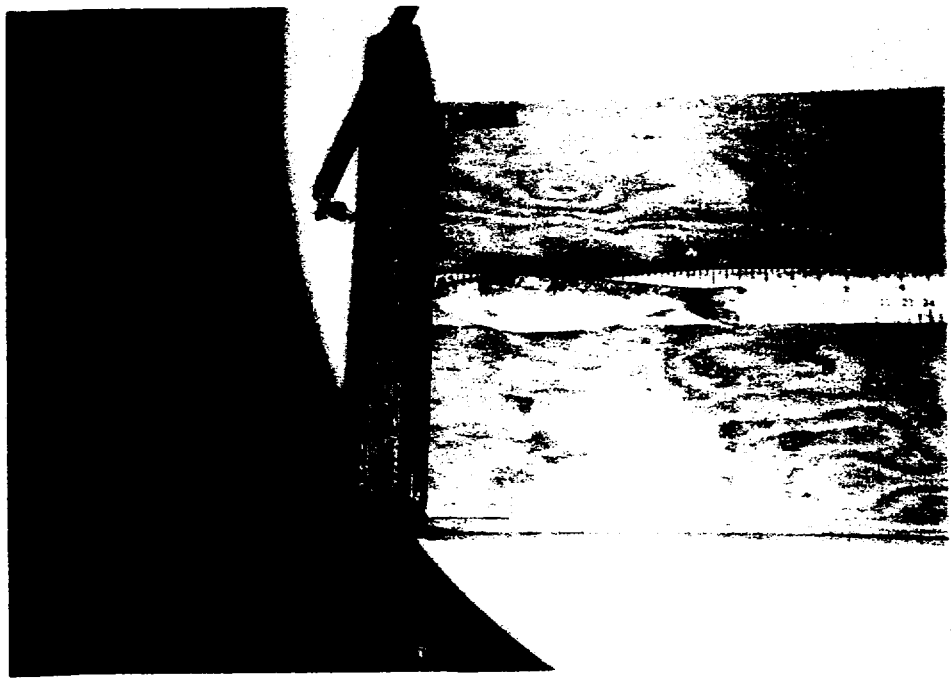

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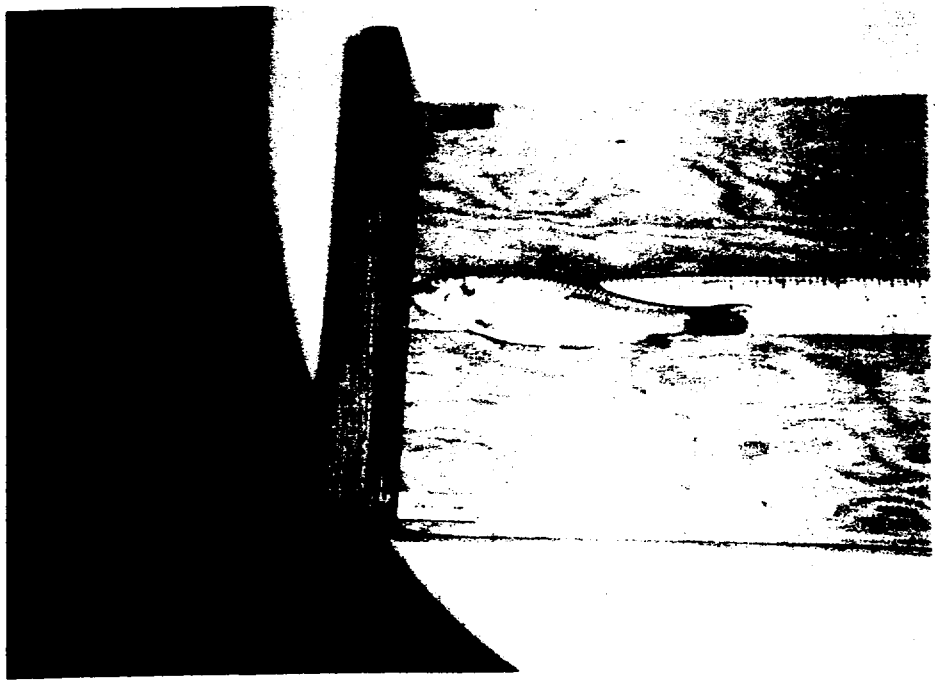

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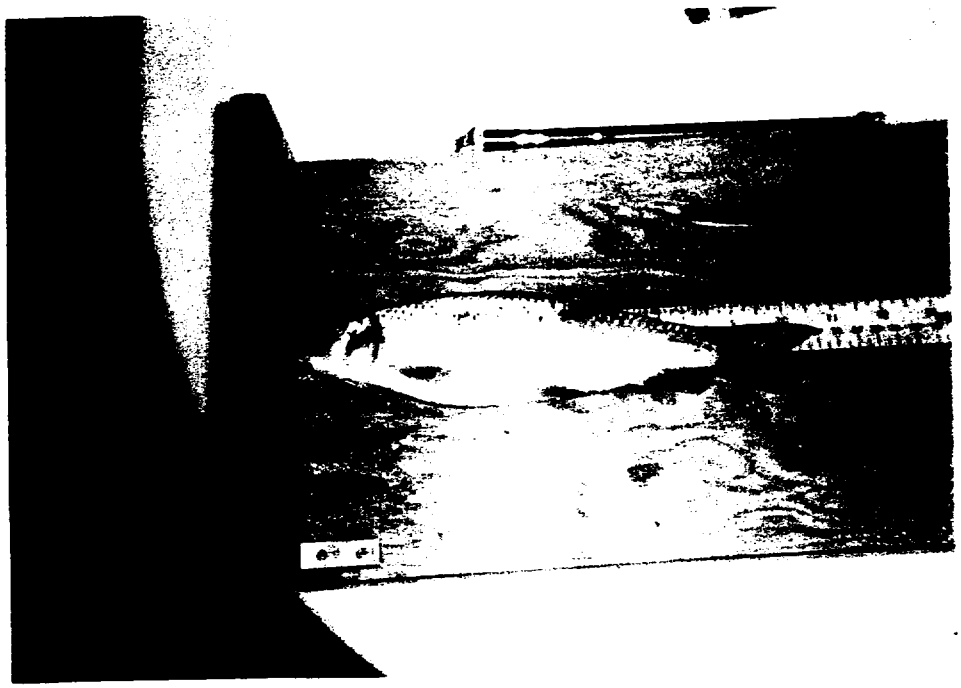
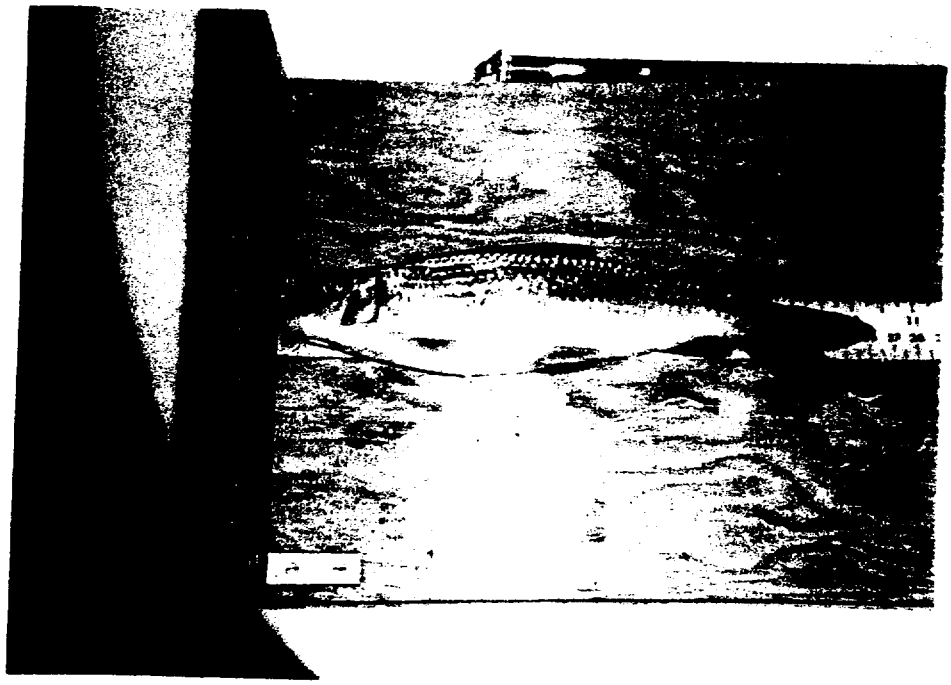


K40300



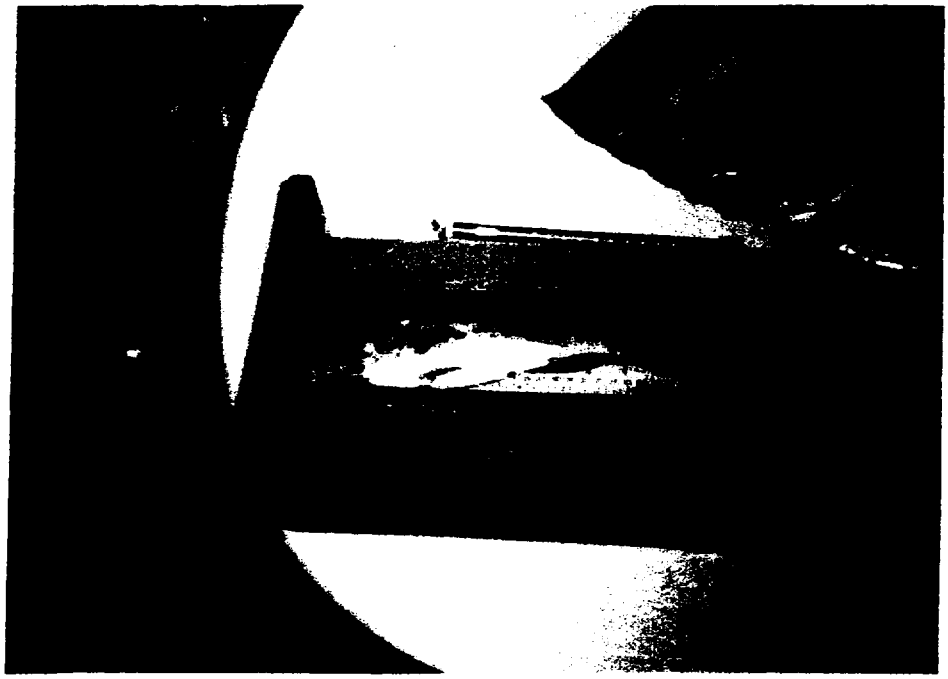
K40301

ABSA #8
Kalamazoo River Upstream of Trowbridge Dam

Carp	Smallmouth Bass	White Sucker
K40315	K40302	K40328
K40316	K40303	K40329
K40317	K40304	K40330
K40318	K40305	K40331
K40319	K40306	K40332
K40320	K40307	K40333
K40321	K40308	K40334
K40322	K40309	K40335
K40325	K40310	K40336
K40326	K40323	K40337
K40327	K40324	K40338

Smallmouth Bass
(*Micropterus dolomieui*)

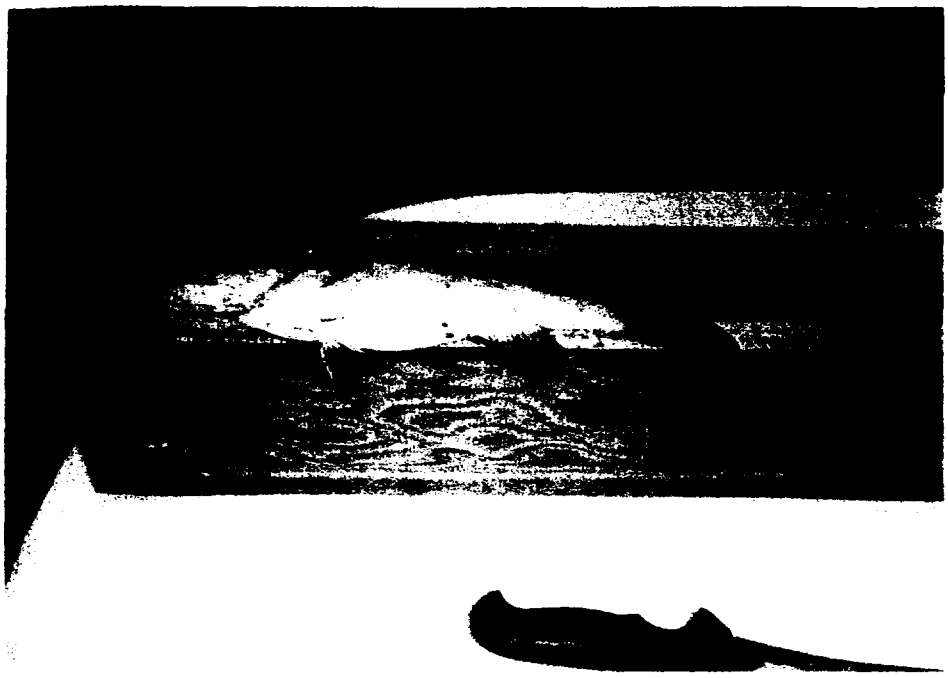
6/20/94
1094912.F



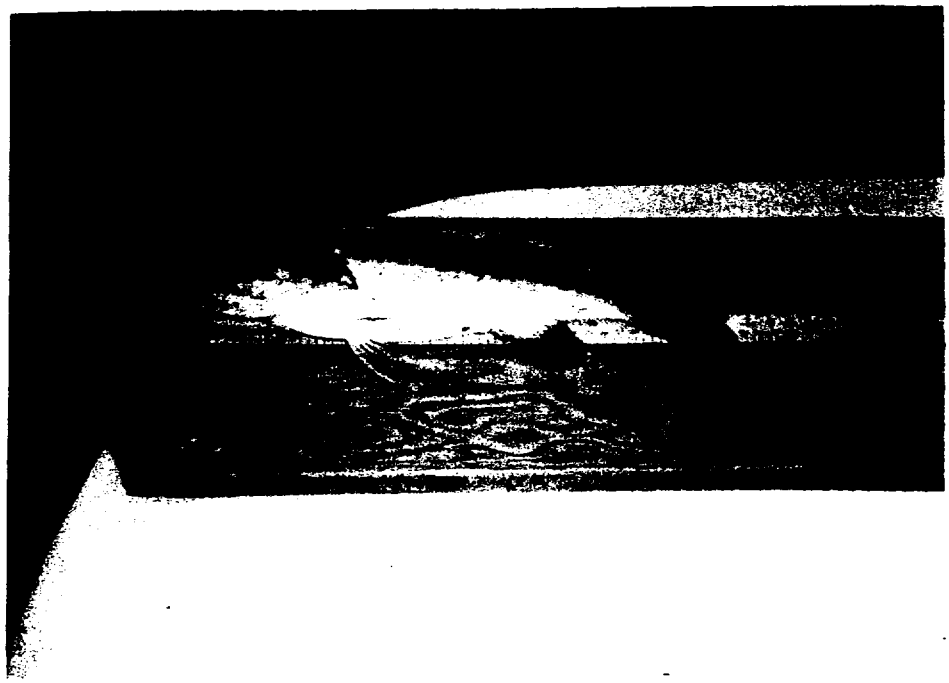
K40302

K40303

K40304



K40305



K40306

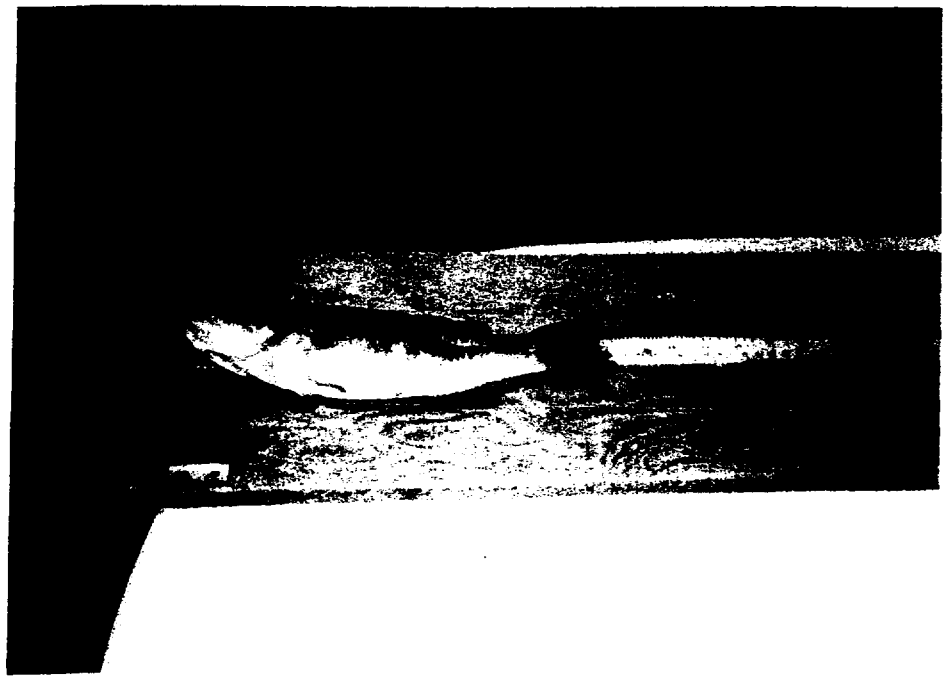
K40307

K40308

K40309

K40310

K40323



K40324

Carp
(*Cyprinus carpio*)

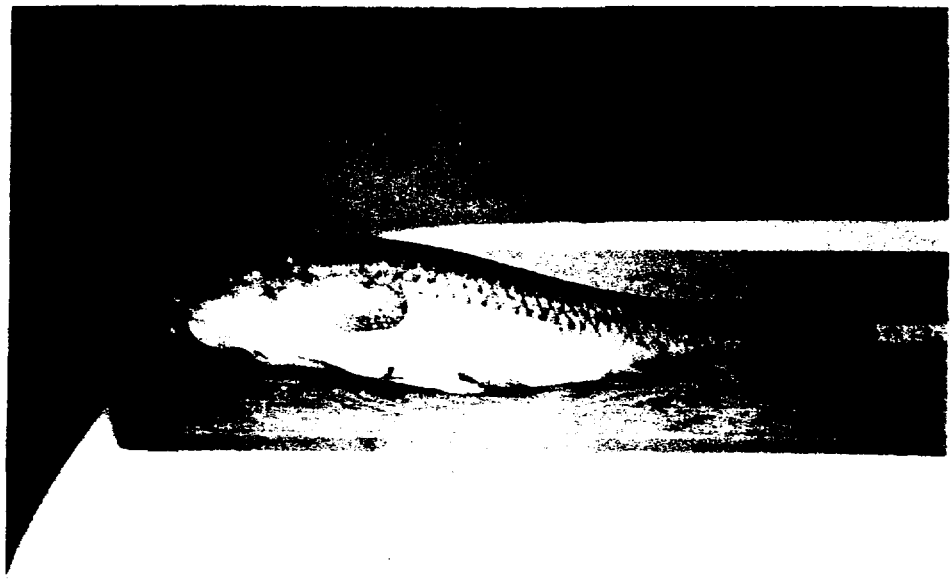
6/20/94
1094912.F

K40315

K40316

K40317

K40318



K40319

K40320

6/16/94
794912F

K40321

K40322

6/16/94
794912F

K40325

K40326

6/16/94
794912F

K40327

White Sucker
(*Catostomus commersoni*)

6/20/94
1094912.F

K40328

K40329

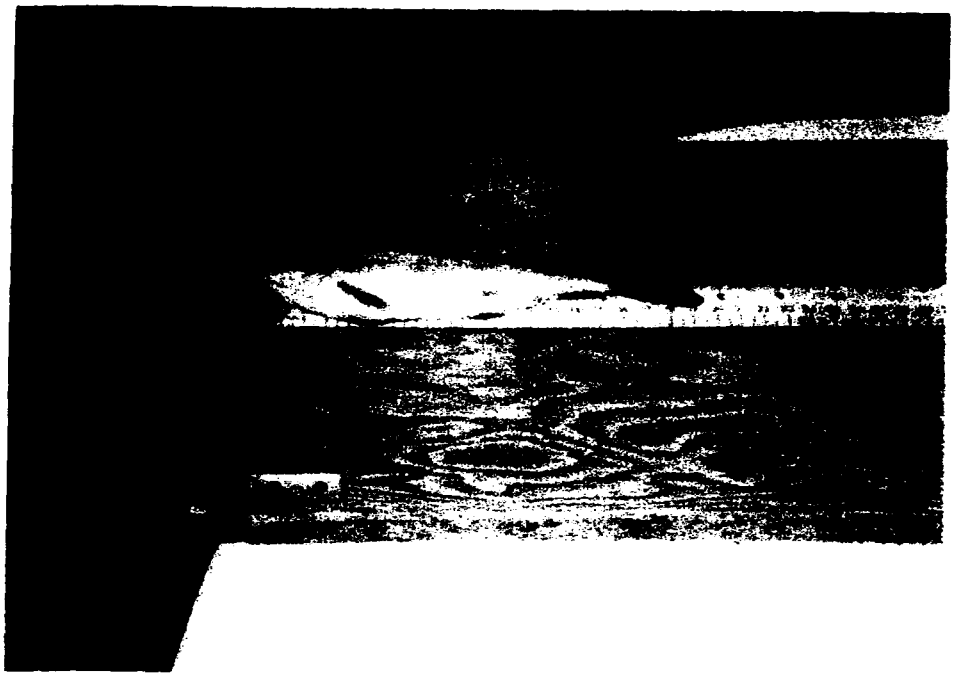
K40330

K40331

K40332

K40333

K40334



K40335

6/16/94
794912F

K40336

K40337

K40338

6/16/94
794912F

ABSA 9#
Lake Allegan

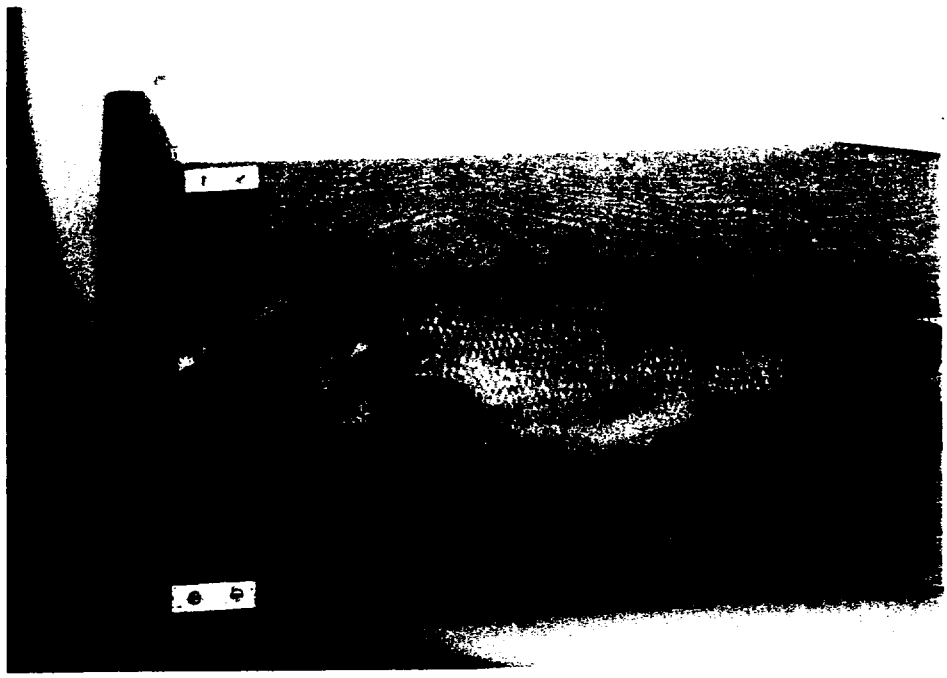
Carp	Smallmouth Bass	White Sucker
K40119	K40130	K40141
K40120	K40131	K40142
K40121	K40132	K40143
K40122	K40133	K40144
K40123	K40134	K40145
K40124	K40135	K40146
K40125	K40136	K40147
K40126	K40137	K40148
K40127	K40138	K40149
K40128	K40139	K40150
K40129	K40140	K40151

6/20/94
1094912.F

Smallmouth Bass
(*Micropterus dolomieui*)

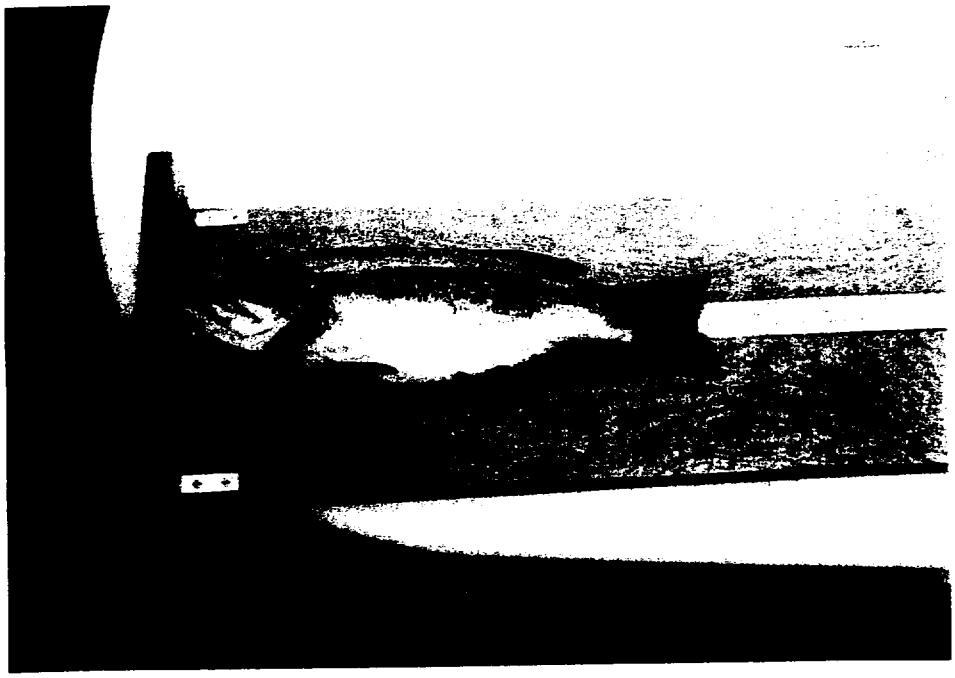
6/20/94
1094912.F

K40130

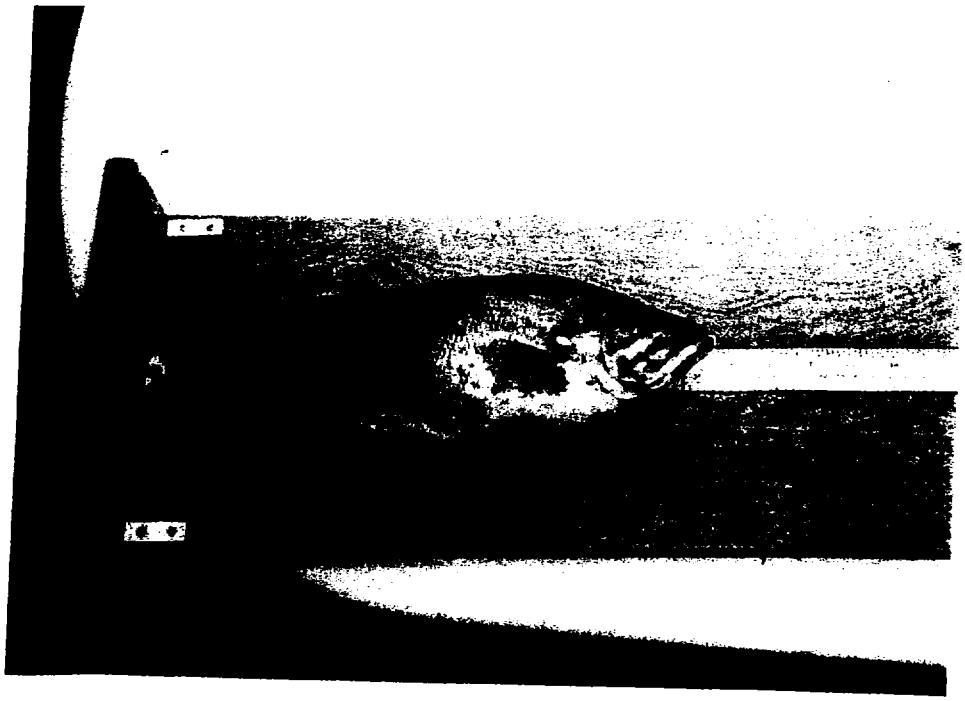


K40131

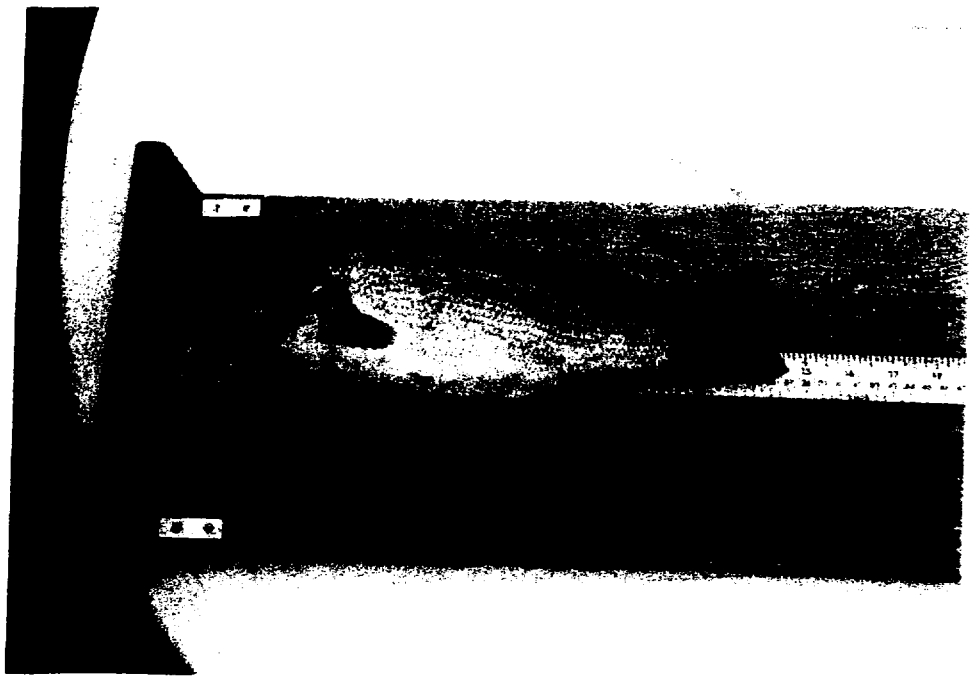
K40132



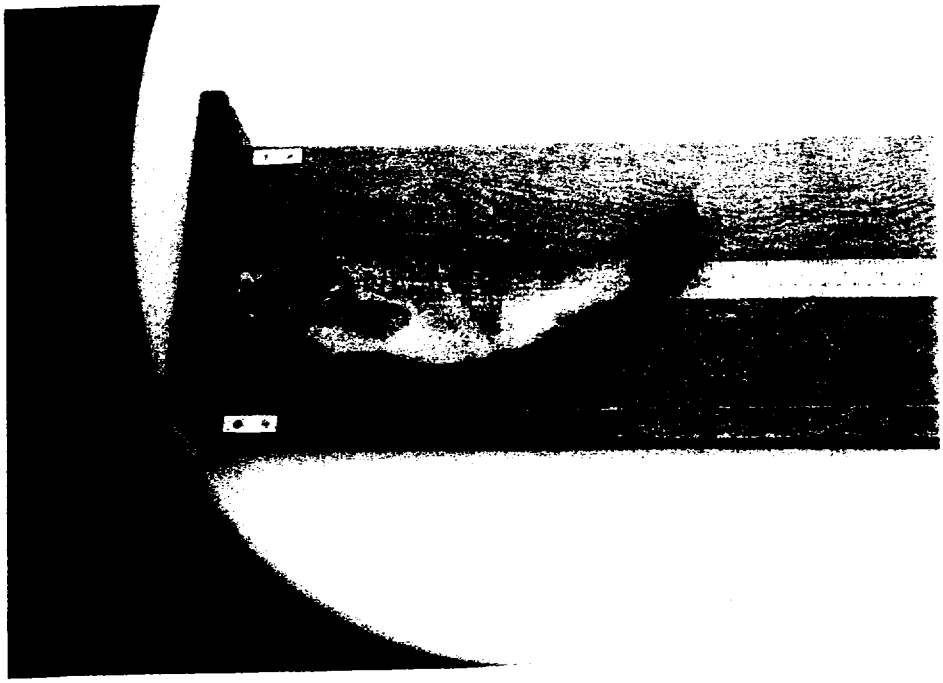
K40133



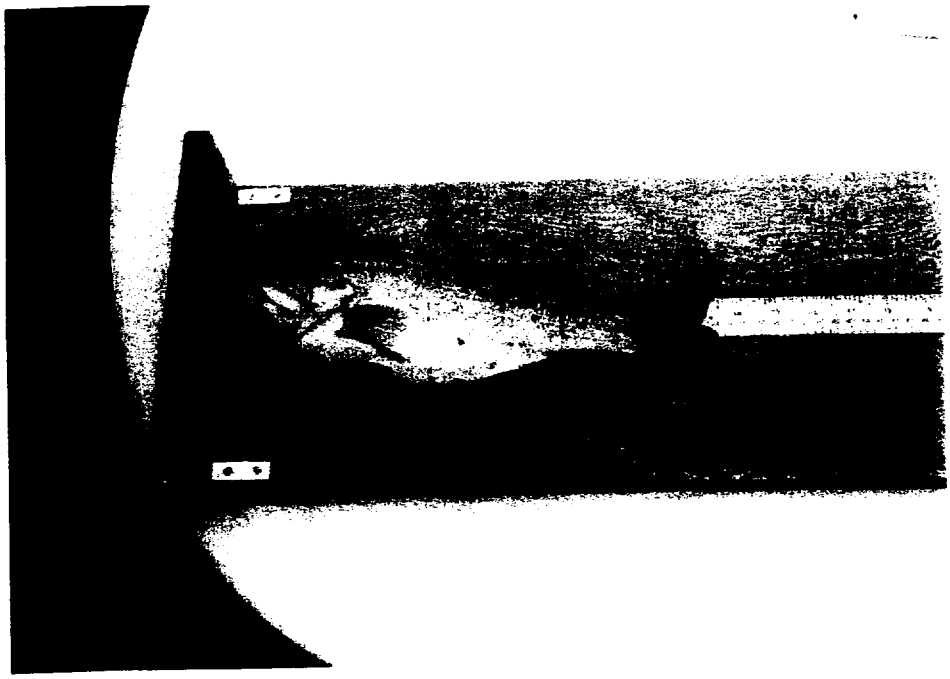
K40134



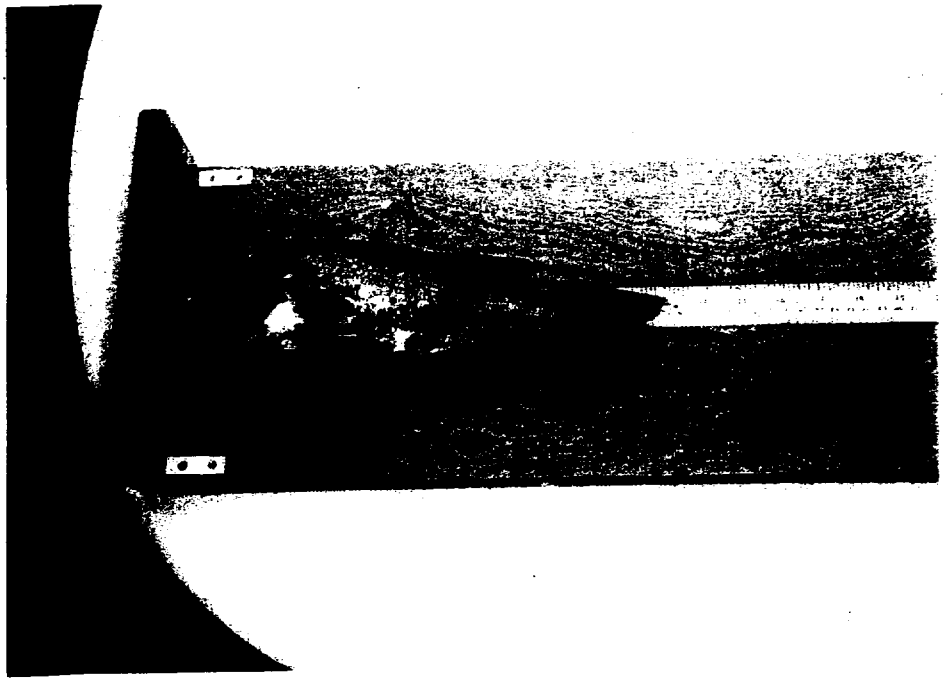
K40135



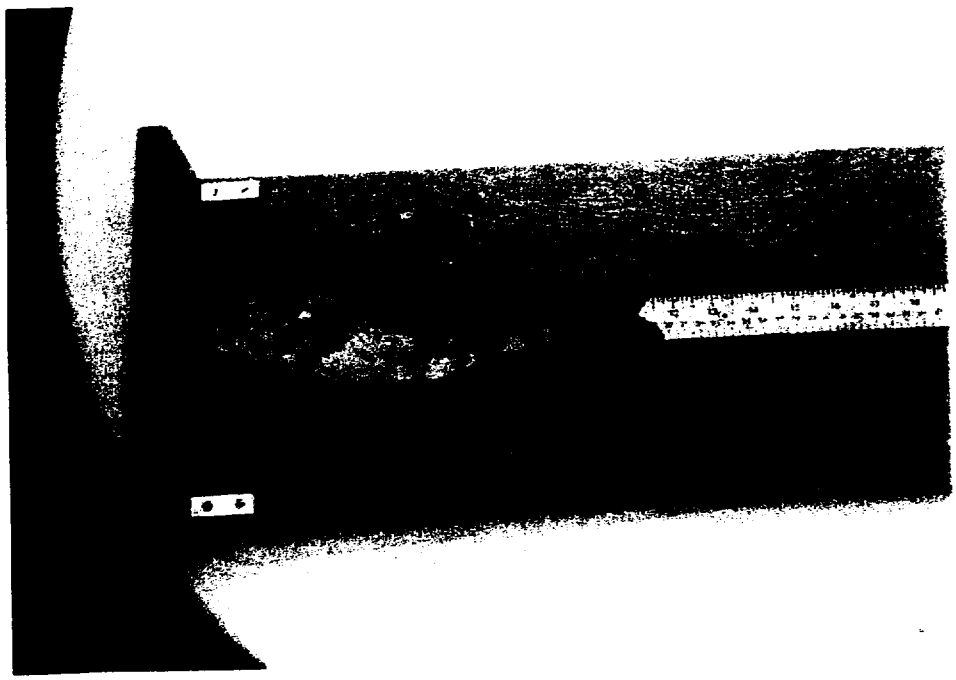
K40136



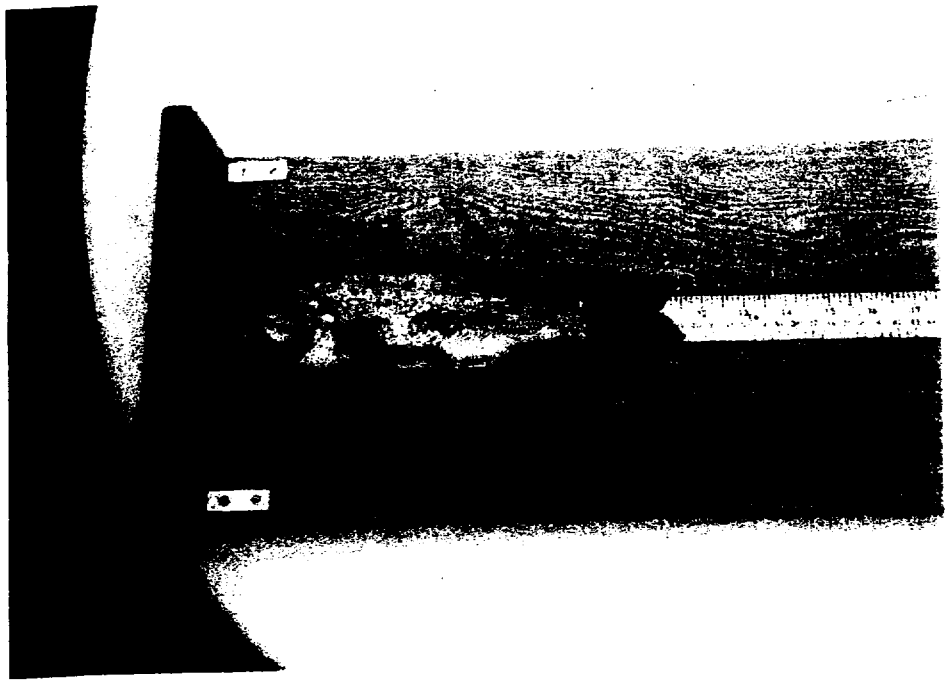
K40137



K40138



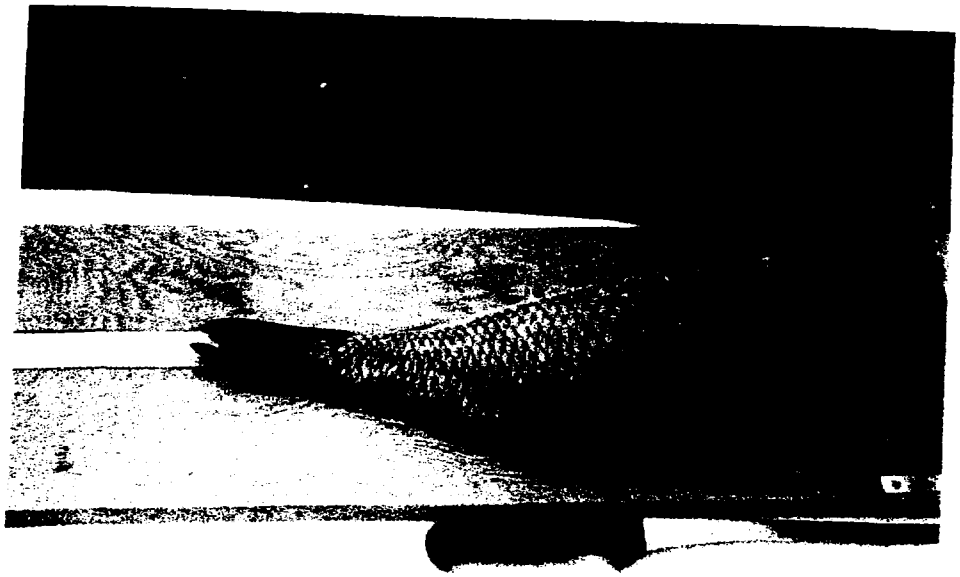
K40139



K40140

Carp
(*Cyprinus carpio*)

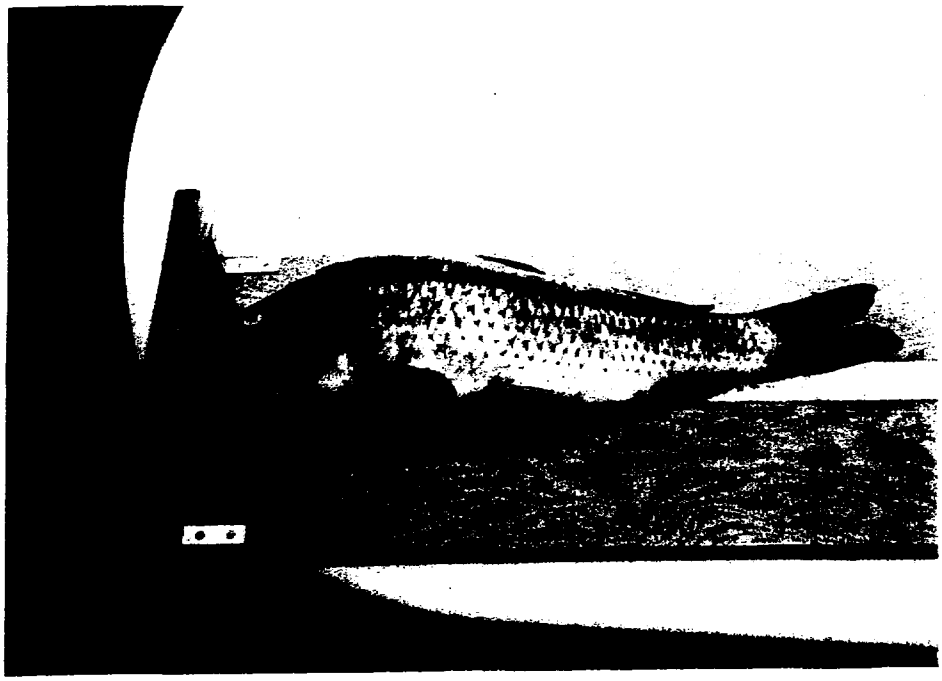
6/20/94
1094912.F



K40119

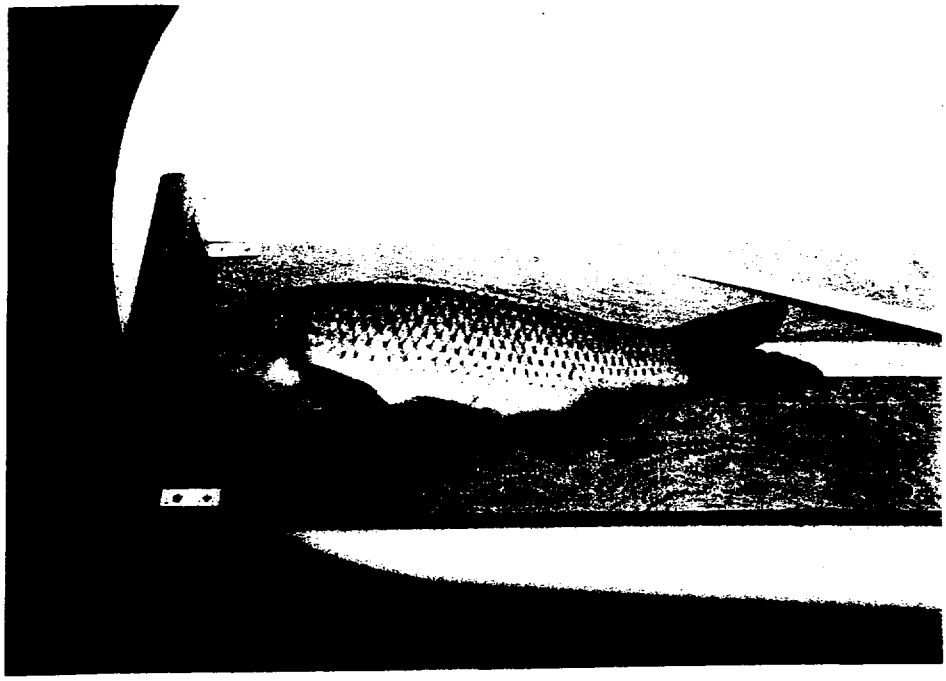
K40120

6/16/94
794912F

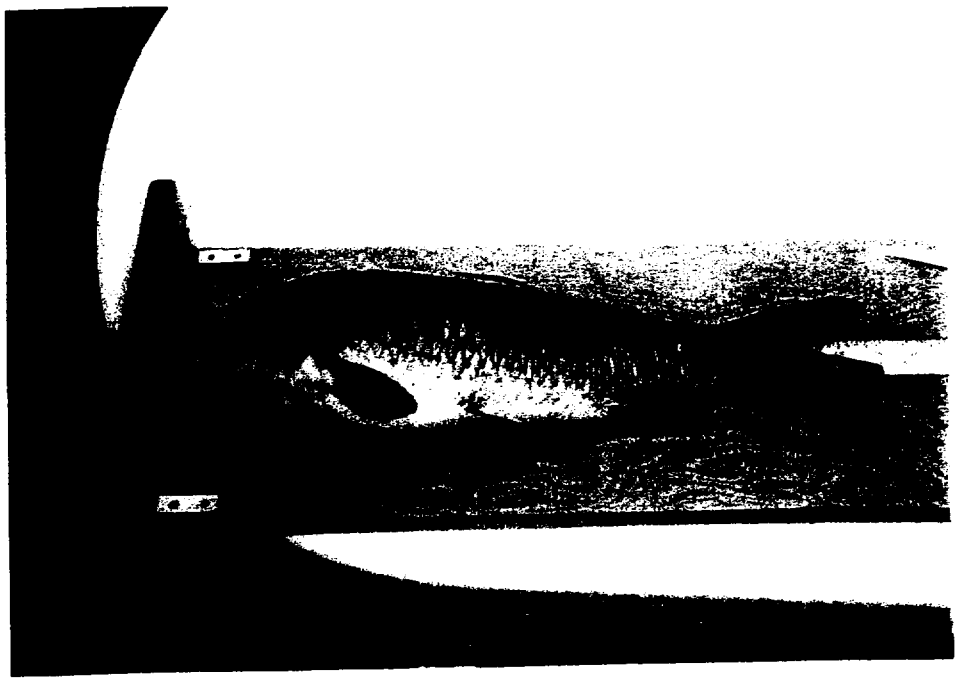


K40121

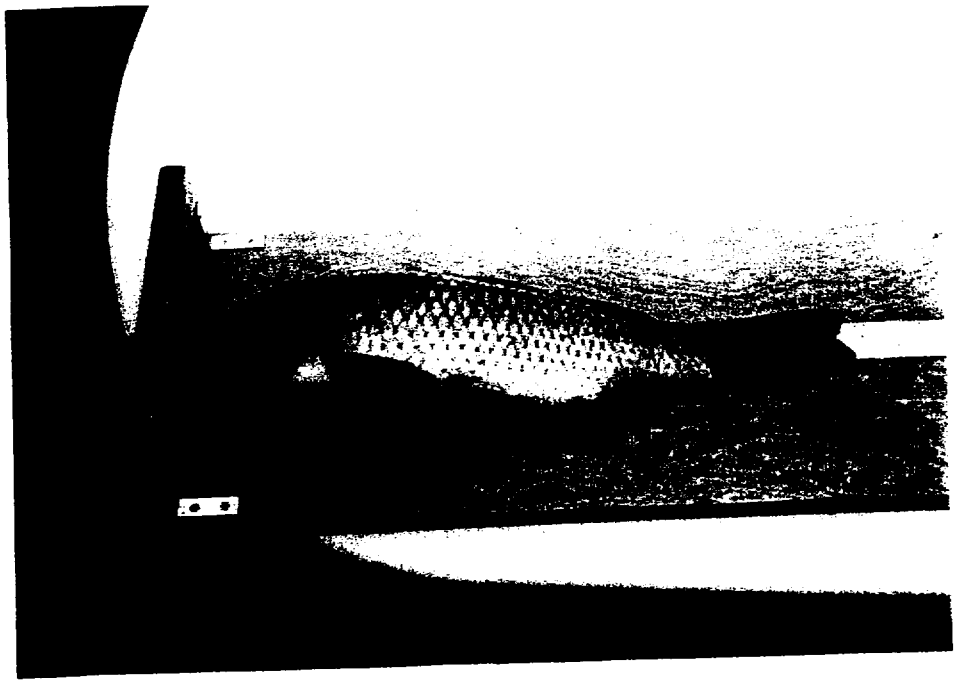
K40122



K40123

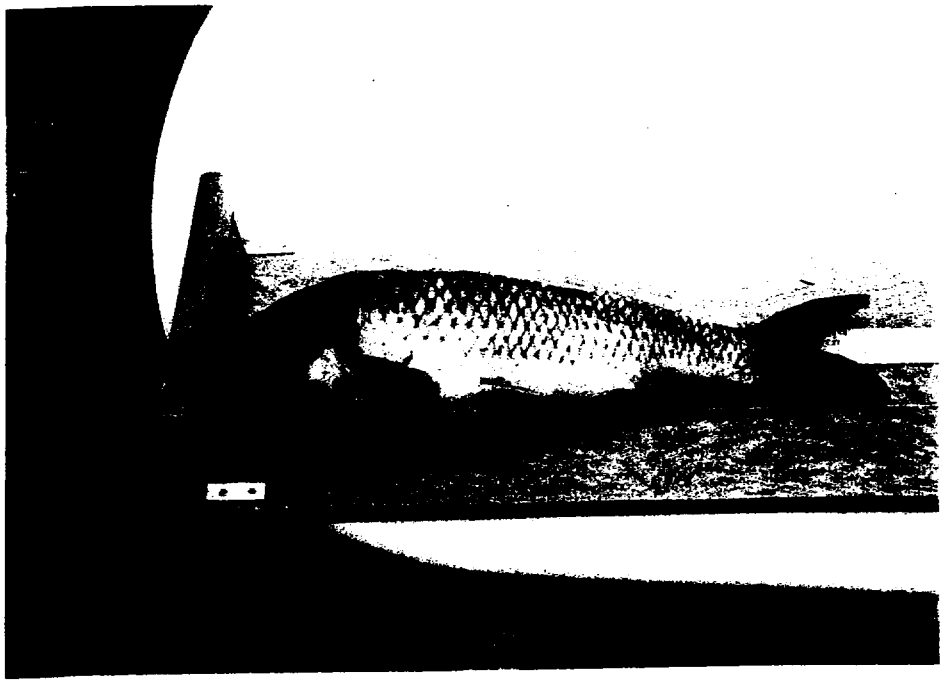


K40124

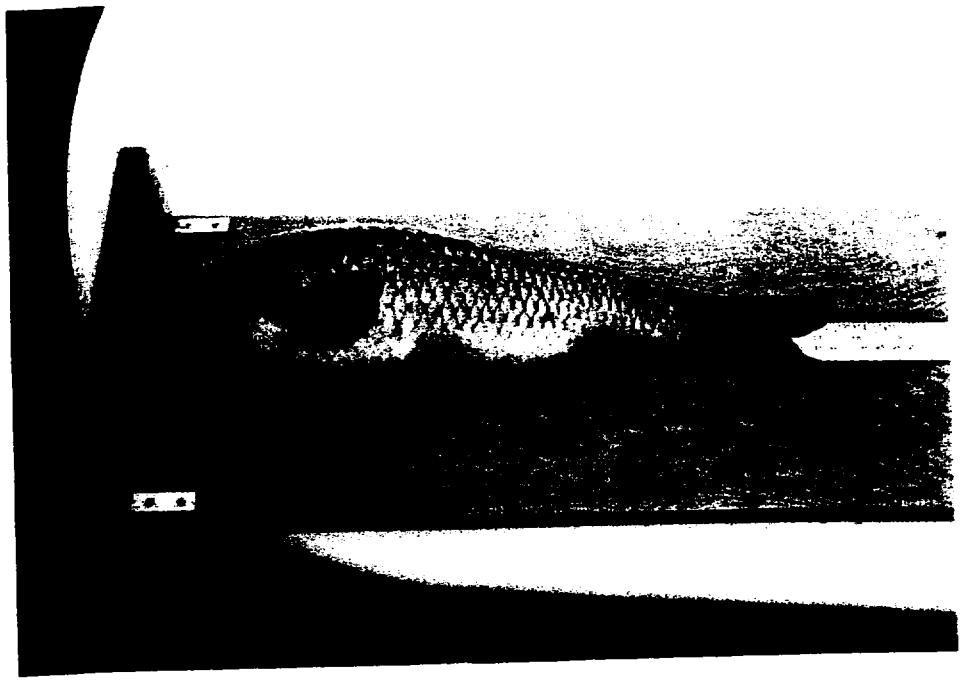


K40125

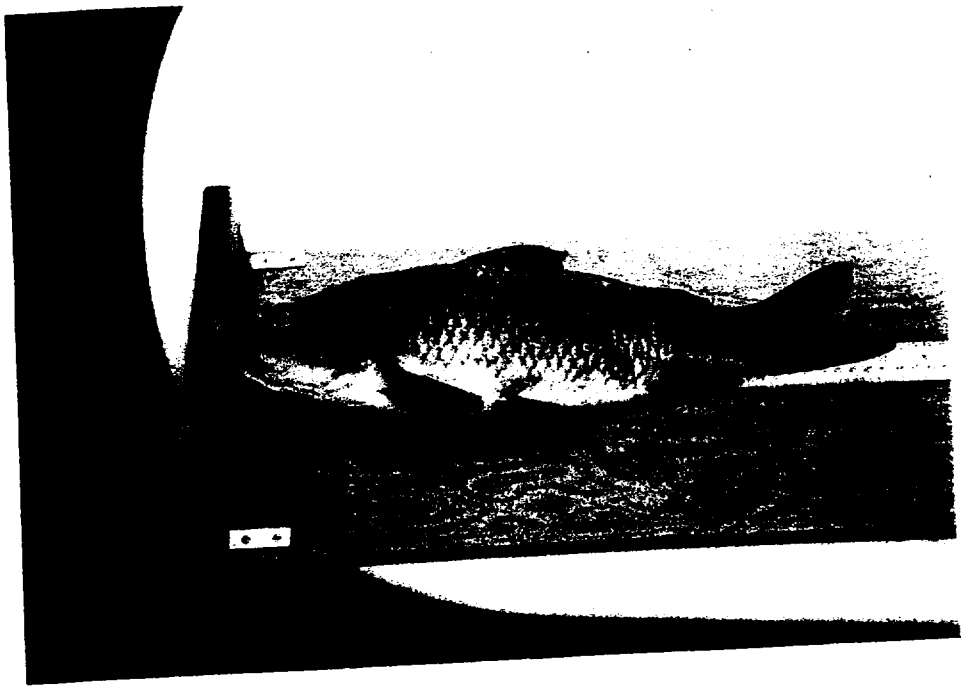
K40126



K40127



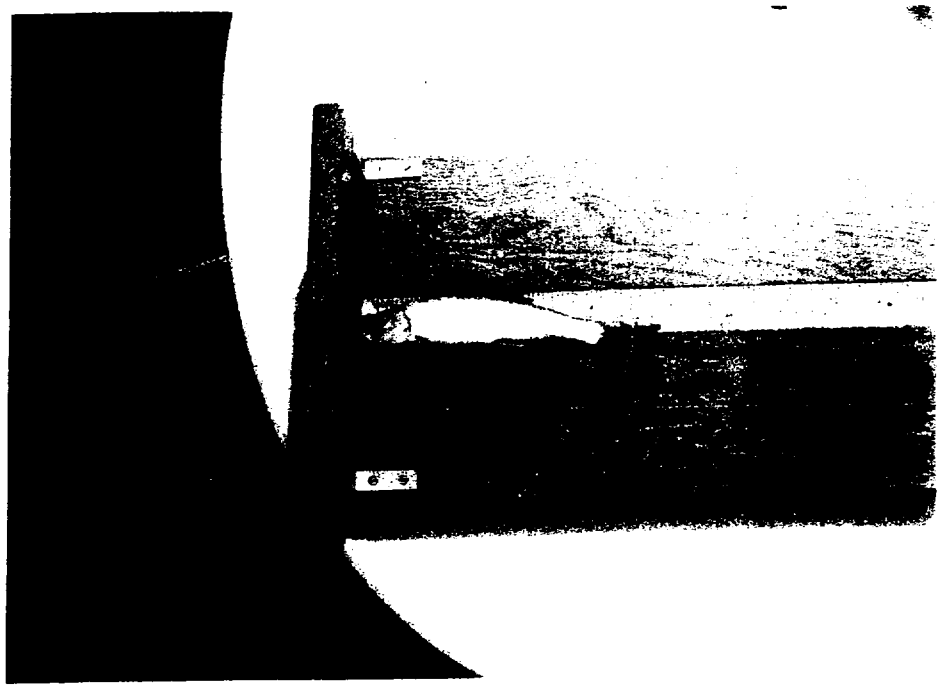
K40128



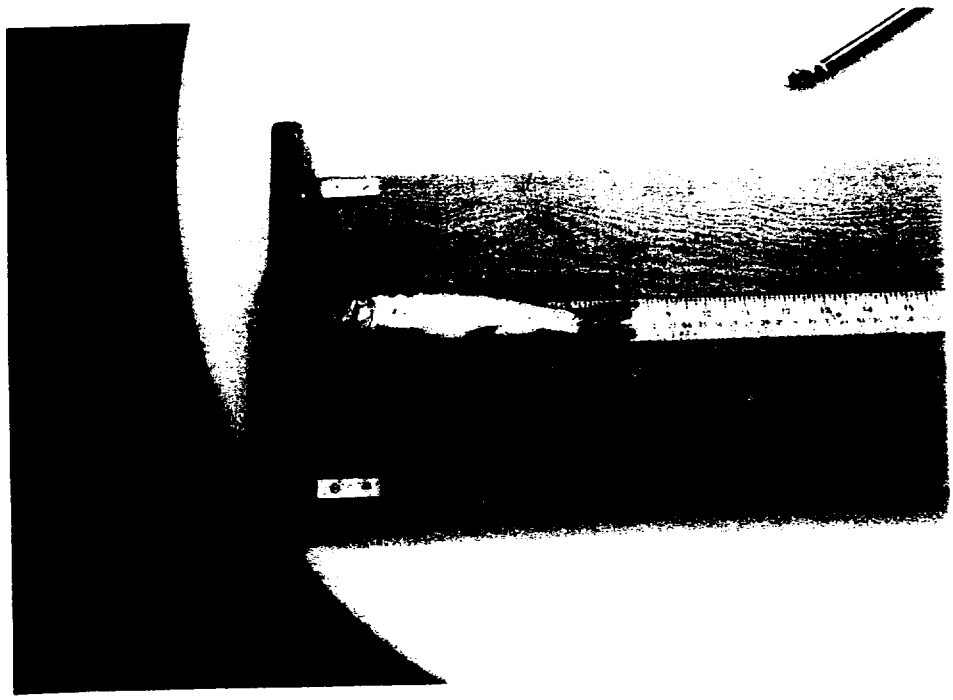
K40129

White Sucker
(*Catostomus commersoni*)

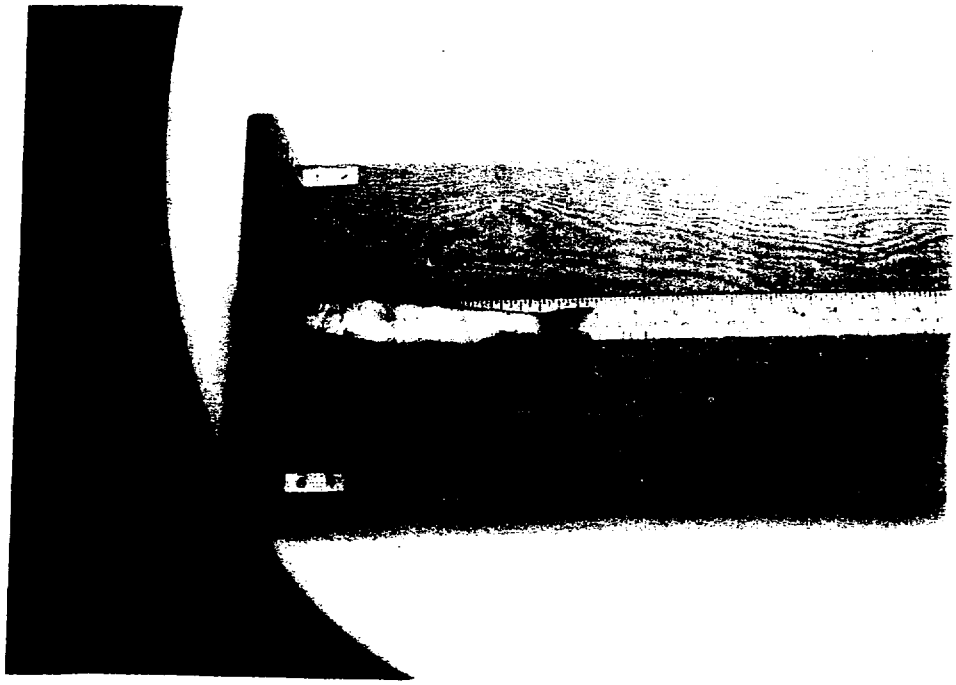
6/20/94
1094912.F



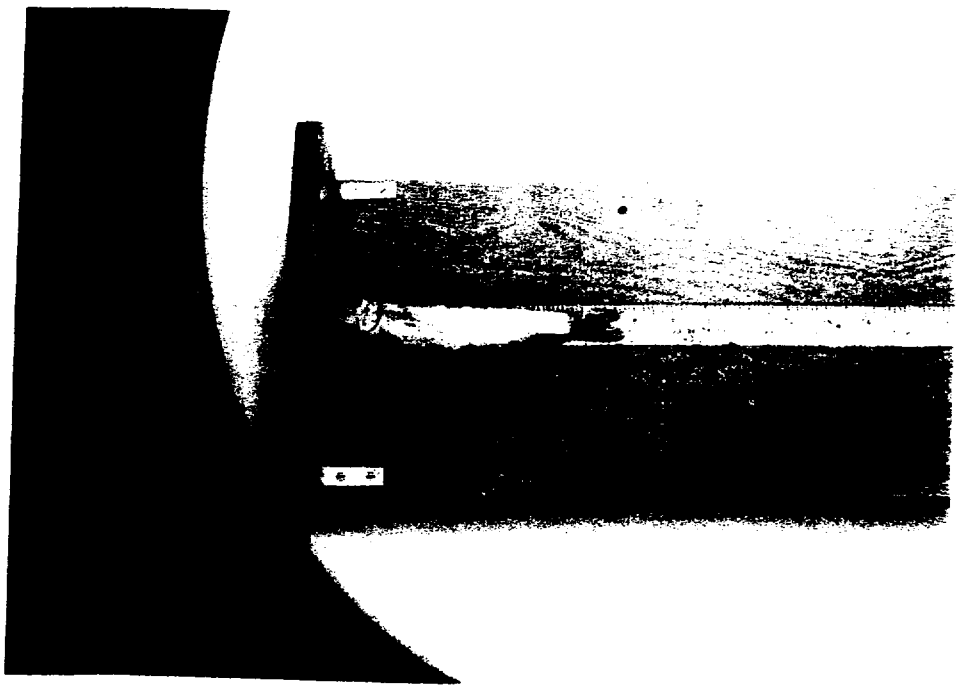
K40141



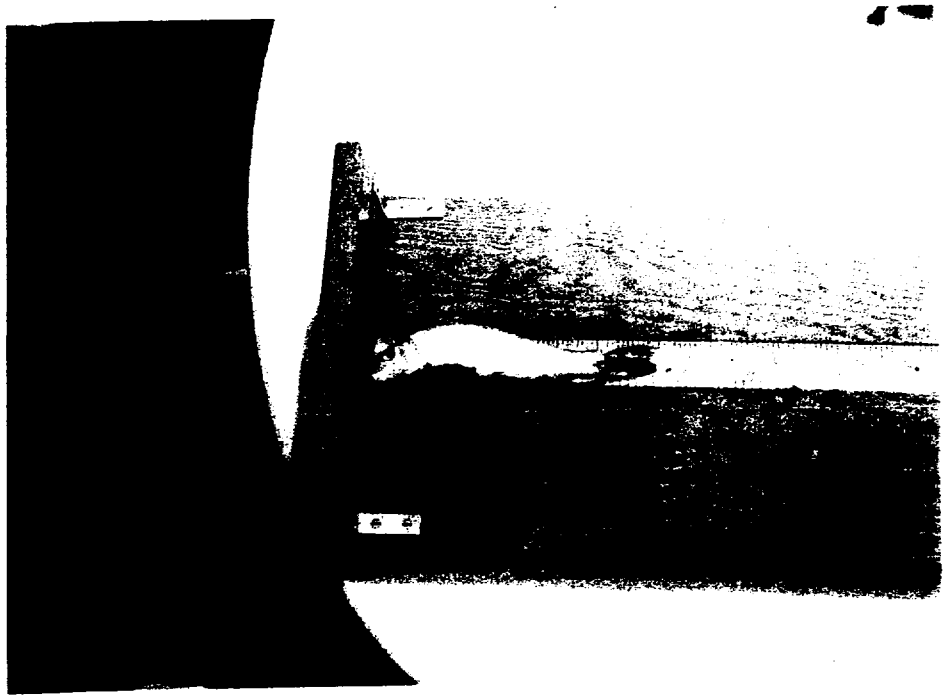
K40142



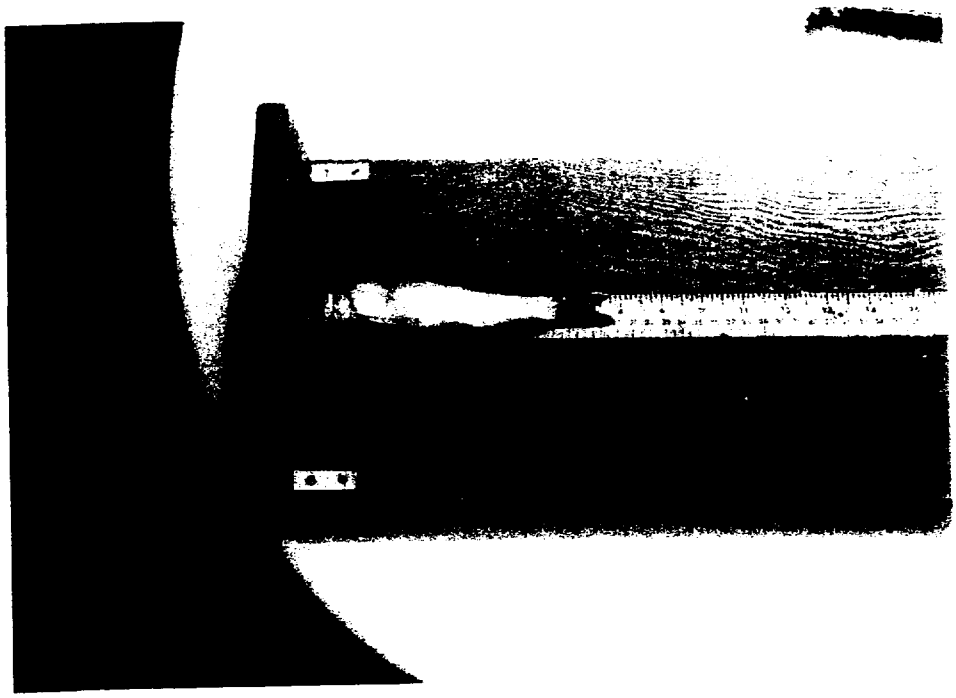
K40143



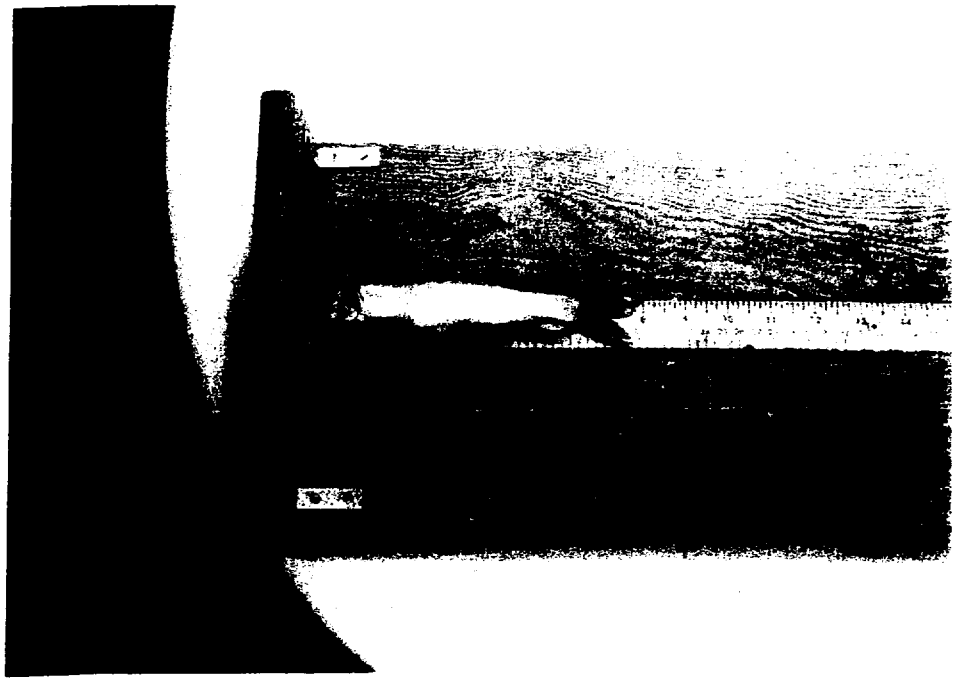
K40144



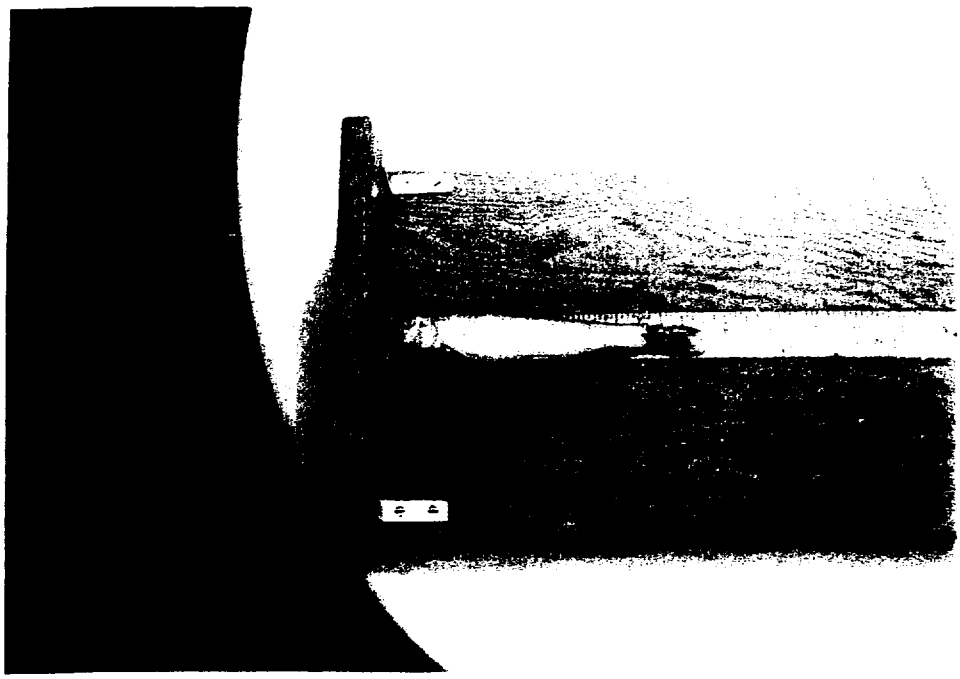
K40145



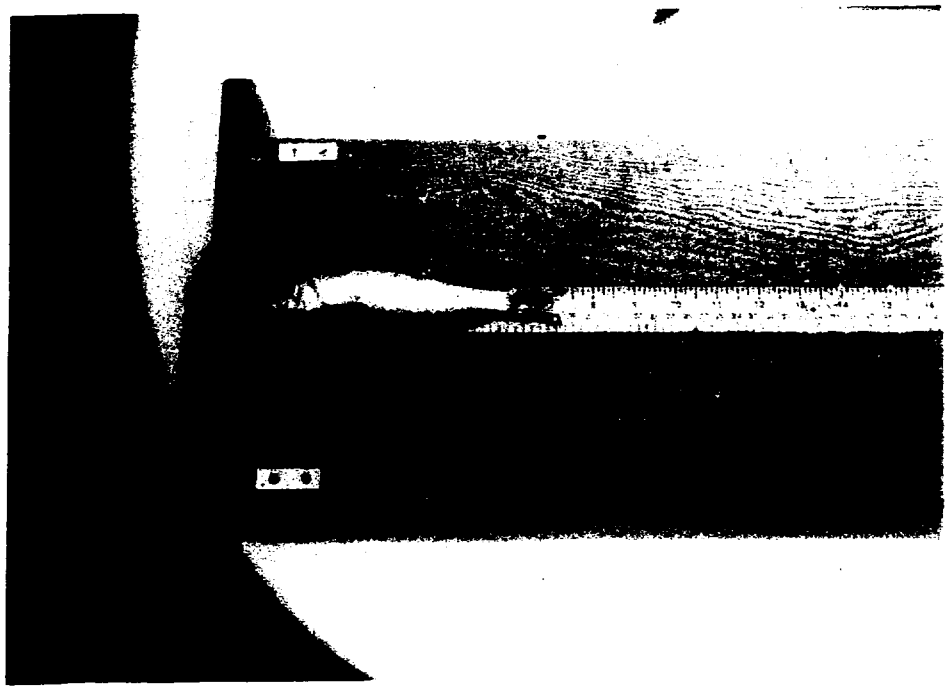
K40146



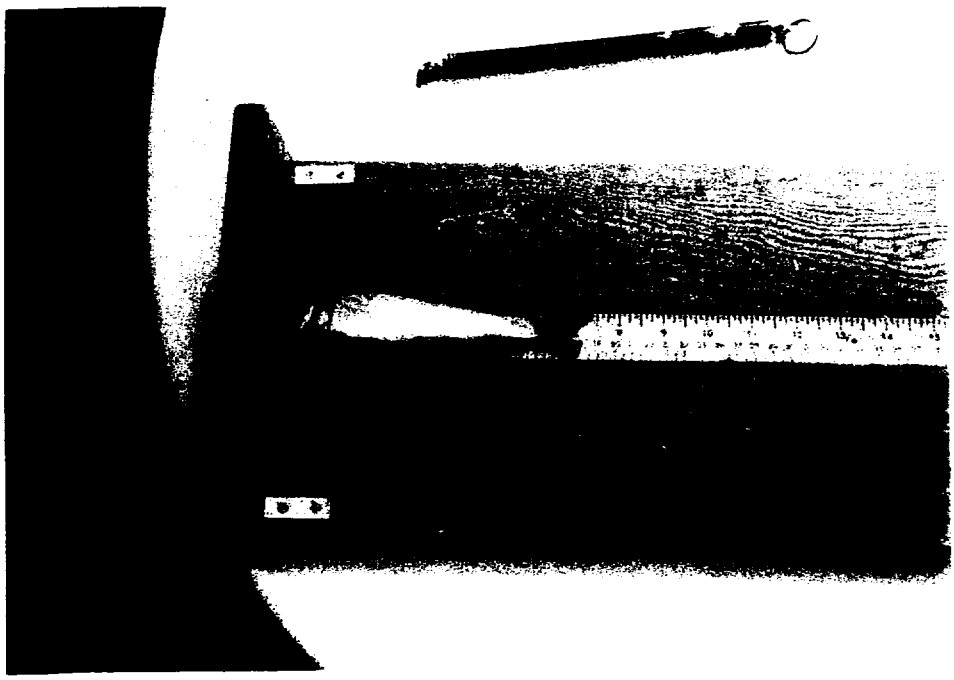
K40147



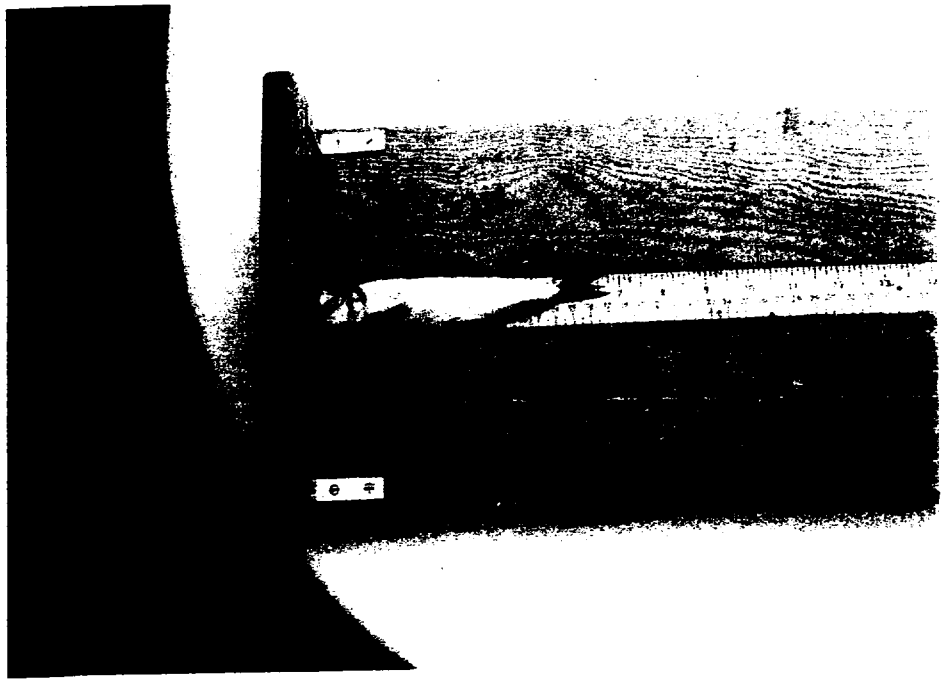
K40148



K40149



K40150



K40151

ABSA #10
Kalamazoo River Below Allegan Dam

Carp	Smallmouth Bass	Spotted Sucker	Snapping Turtle
K40152	K40159	K40217	K42011
K40153	K40160	K40218	K42012
K40154	K40161	K40219	K42014
K40155	K40162	K40220	K42020
K40156	K40163	K40221	K42021
K40157	K40164	K40222	K42028
K40158	K40165	K40223	K42029
K40167	K40166	K40224	K42031
K40168	K40171	K40225	K42032
K40169	K40172	K40226	K42033
K40170	K40173	K40227	K42034

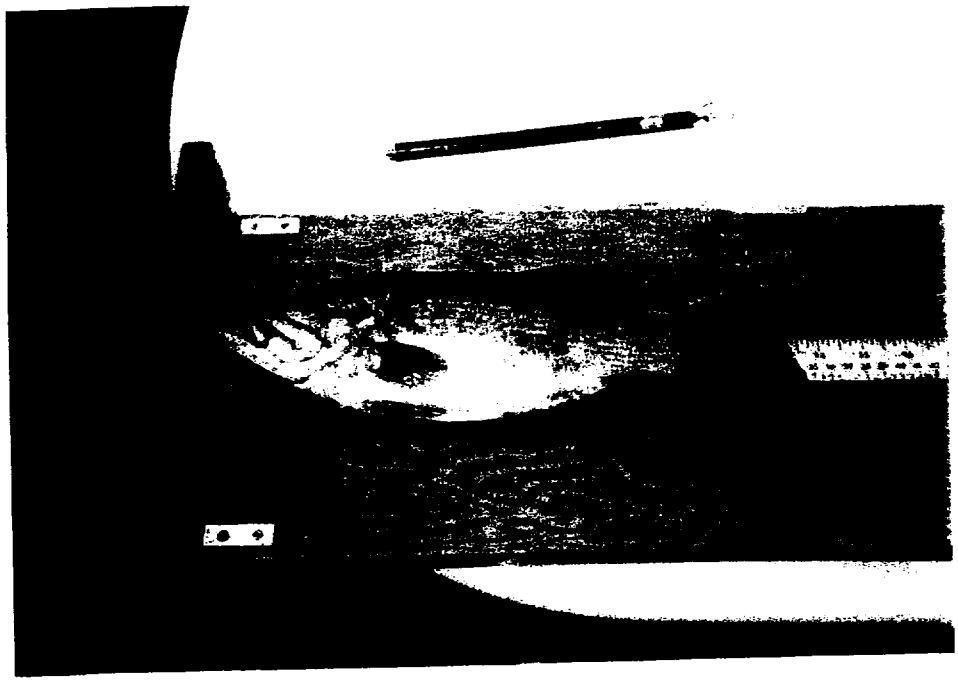
Smallmouth Bass
(*Micropterus dolomieui*)

6/20/94
1094912.F

K40159

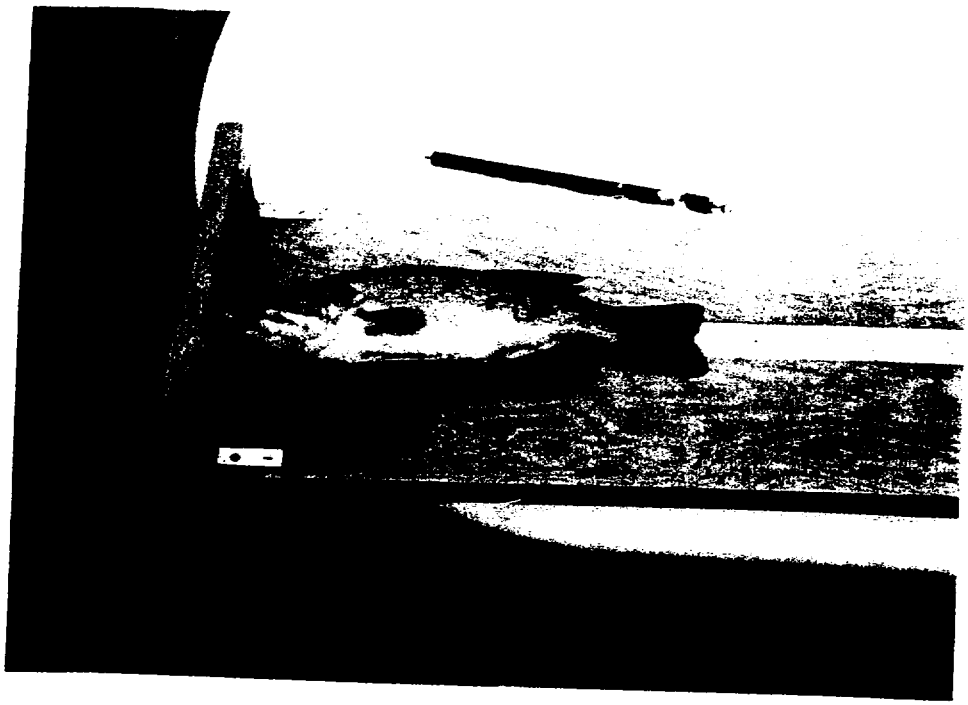
K40160

K40161



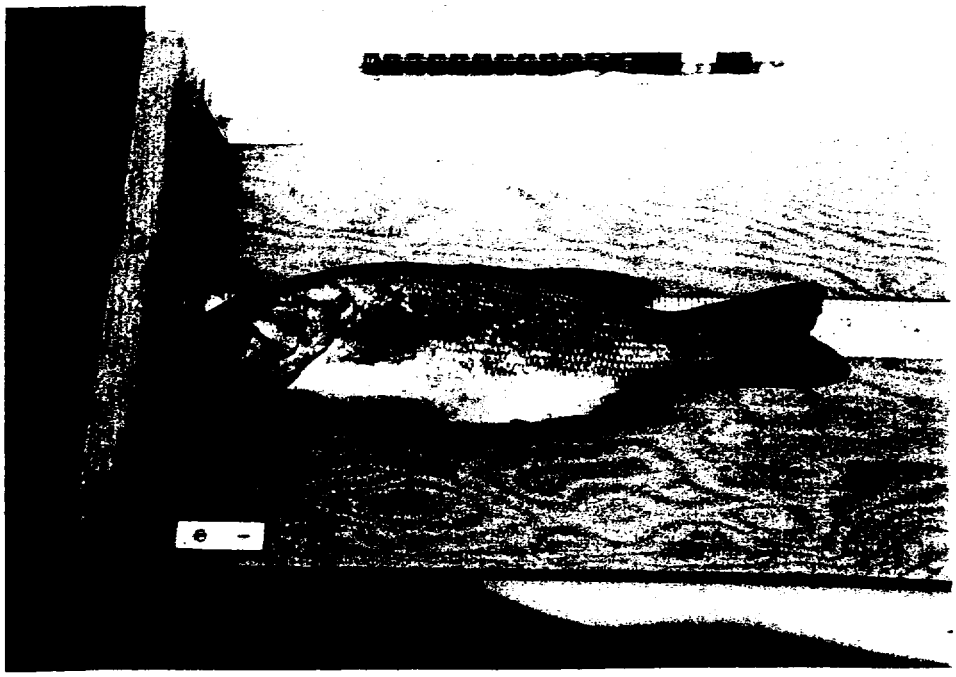
K40162

K40163



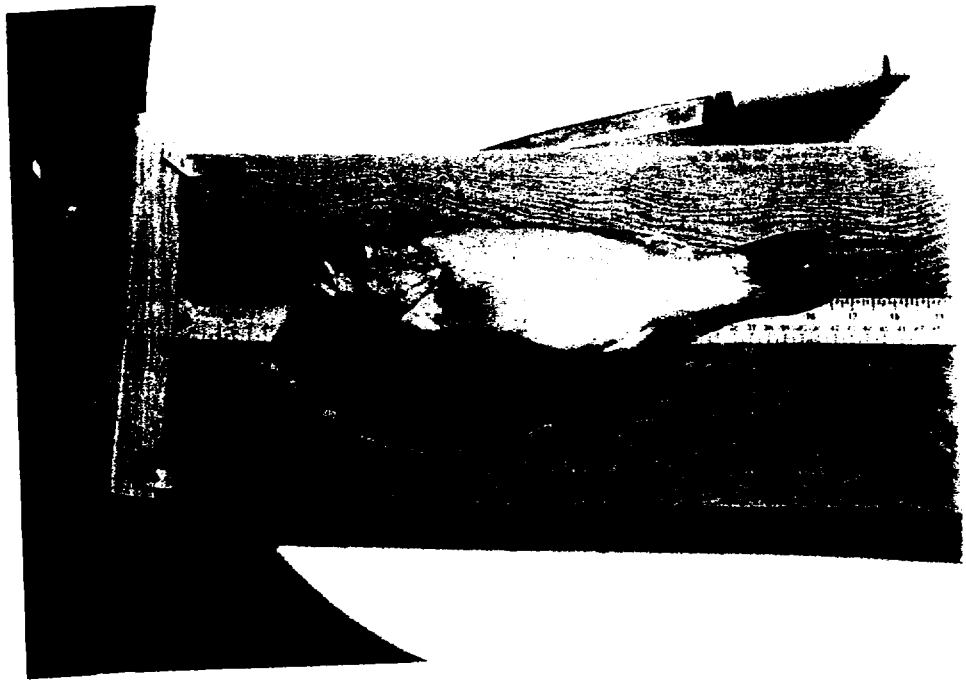
K40164

K40165

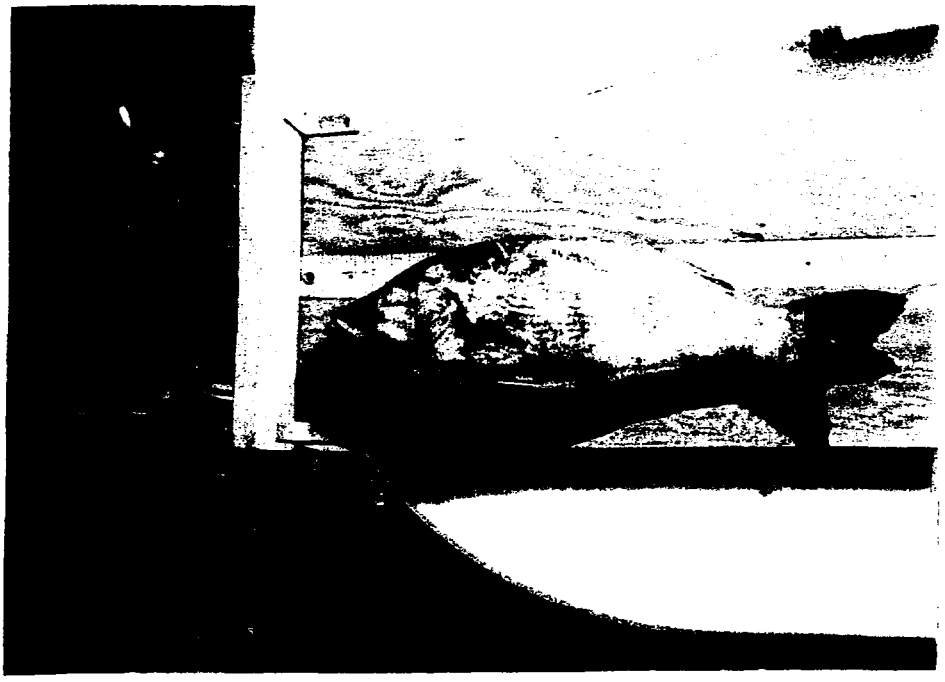


K40166

K40171



K40172



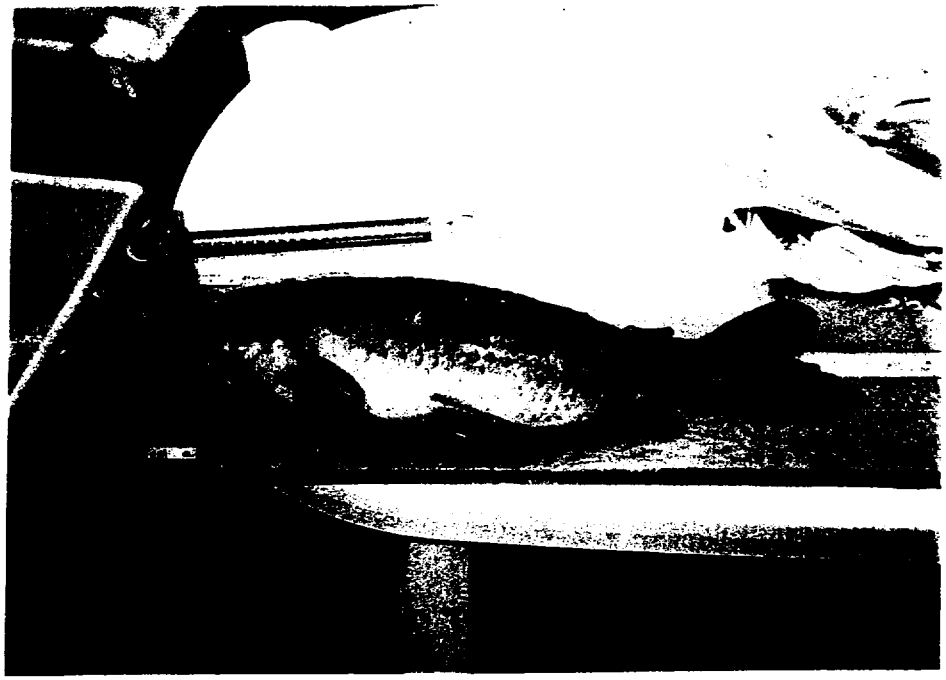
K40173

Carp
(*Cyprinus carpio*)

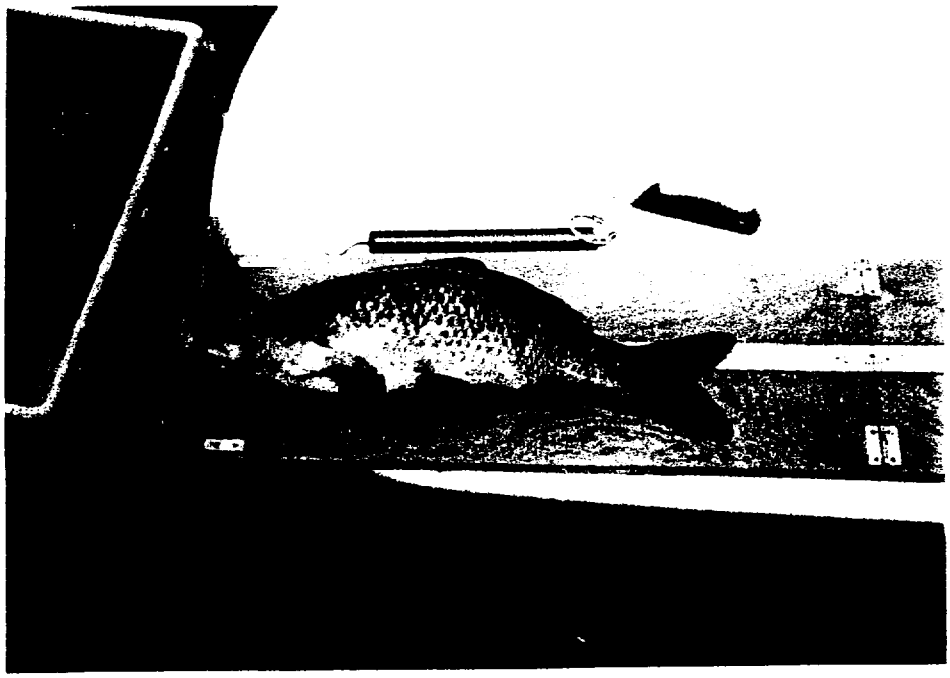
6/20/94
1094912.F

K40152

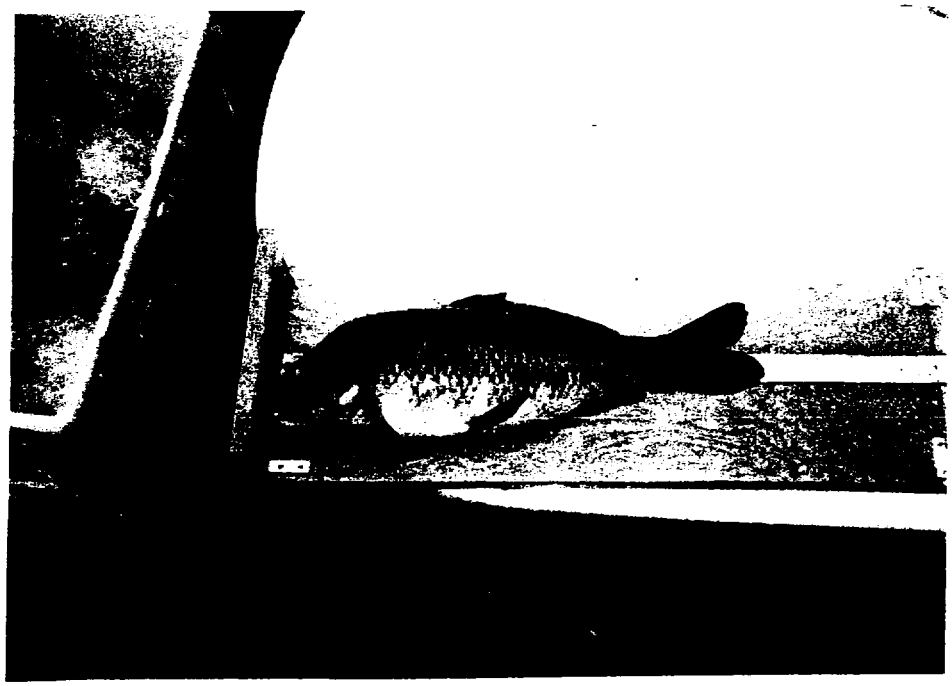
K40153



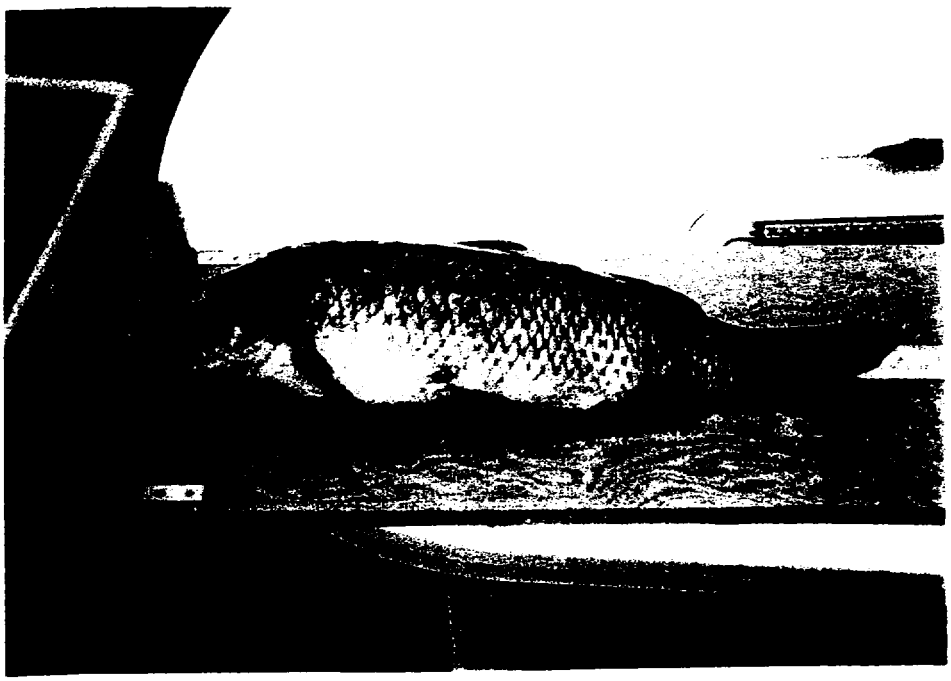
K40154



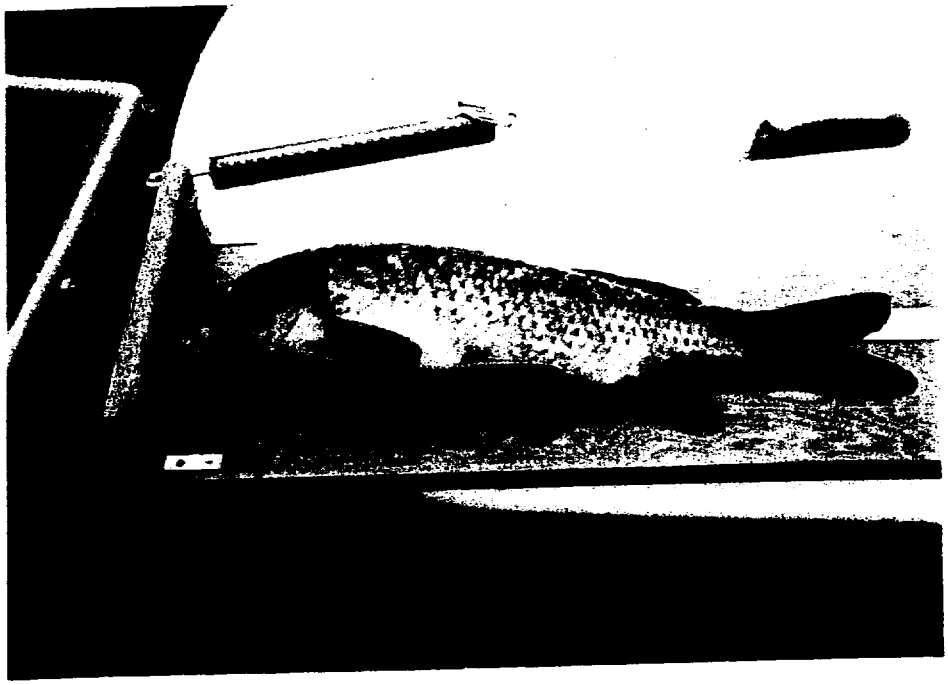
K40155



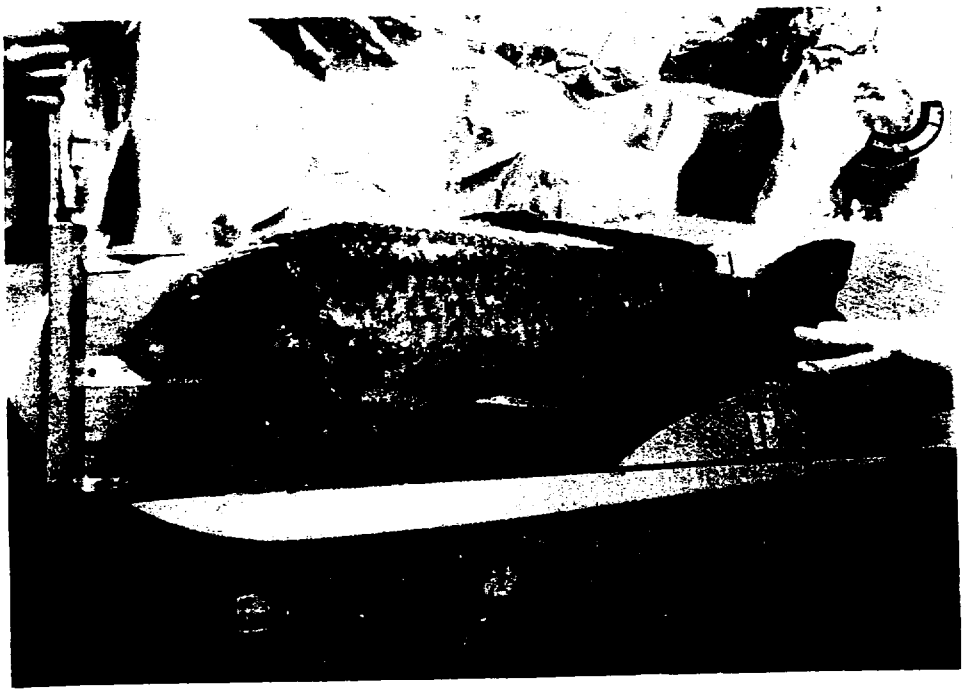
K40156



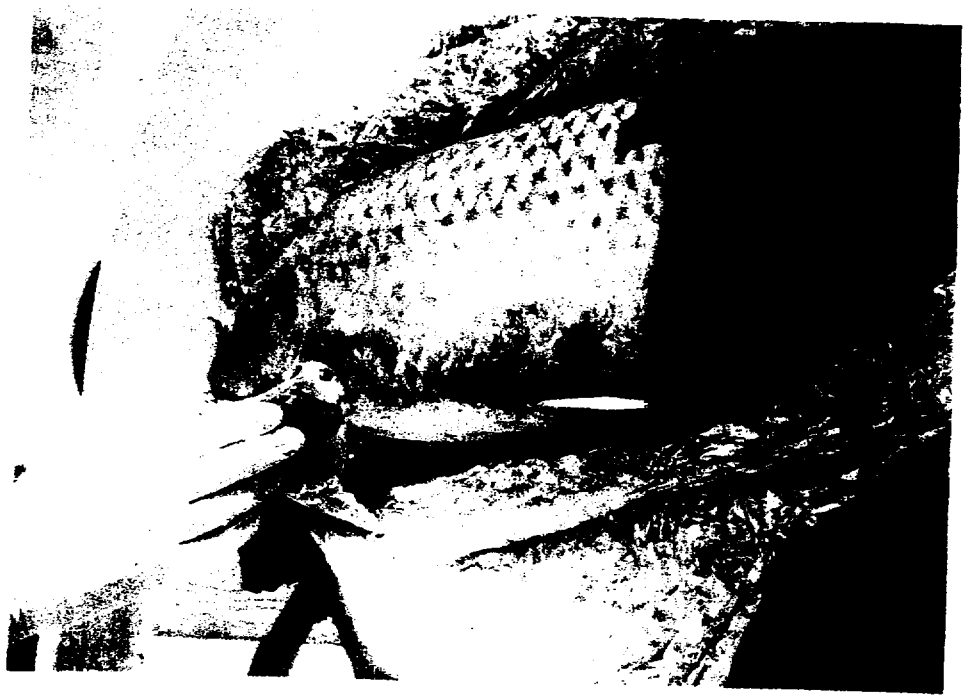
K40157



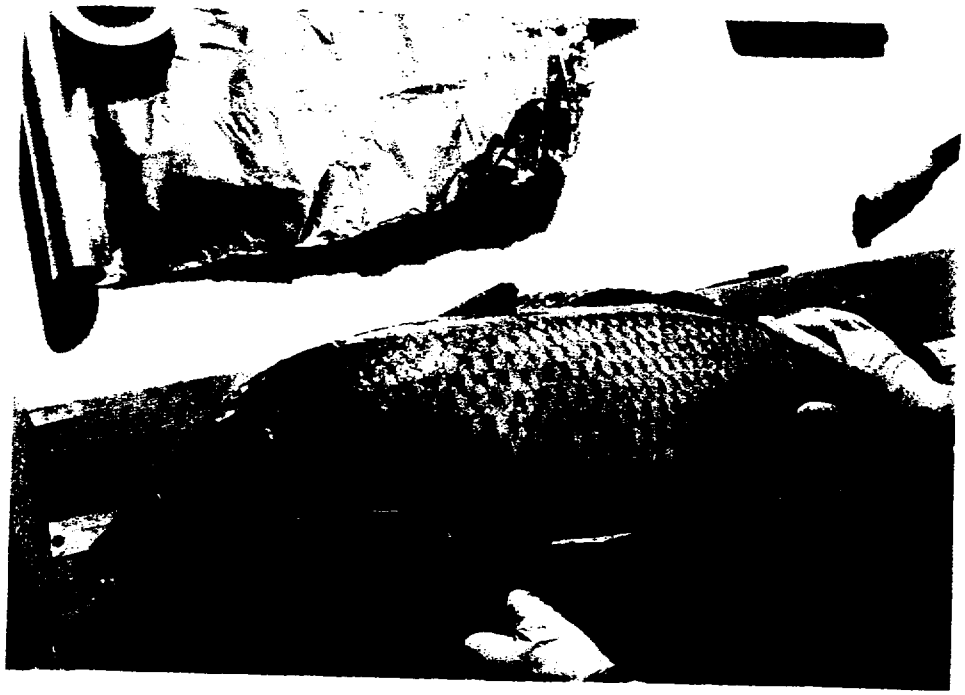
K40158



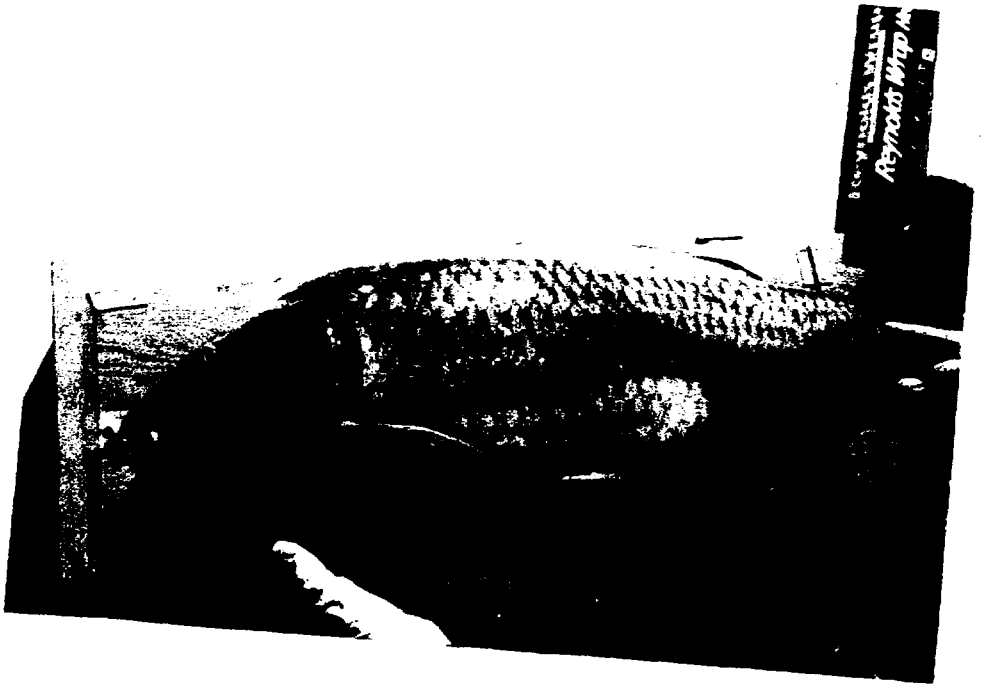
K40167



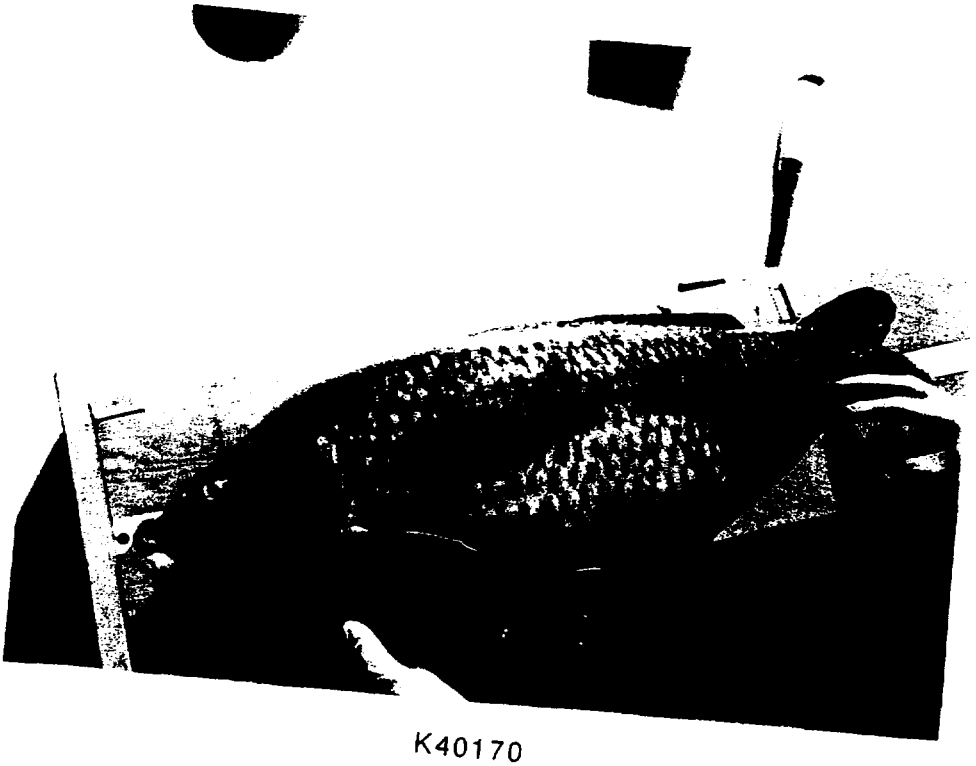
K40167 (Lesions)



K40168



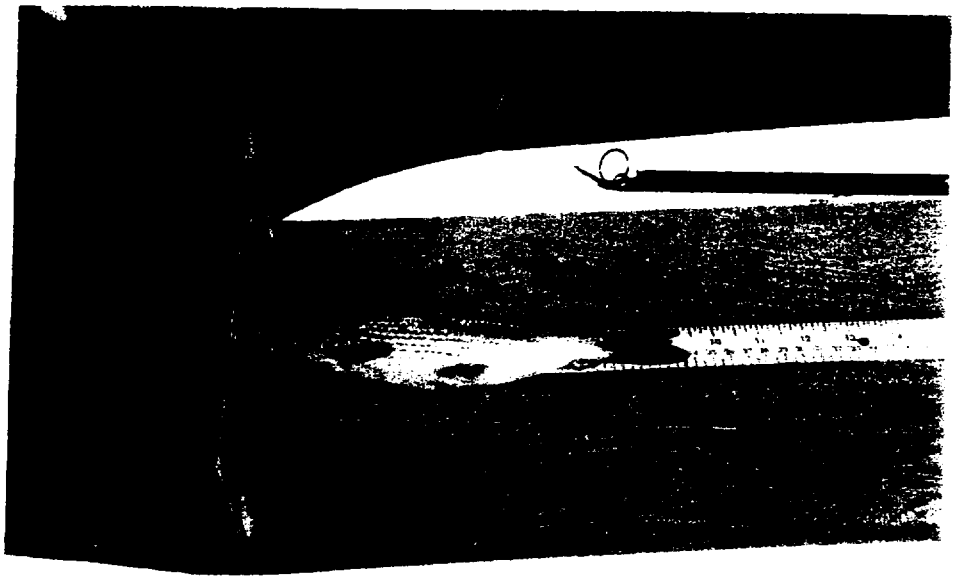
K40169



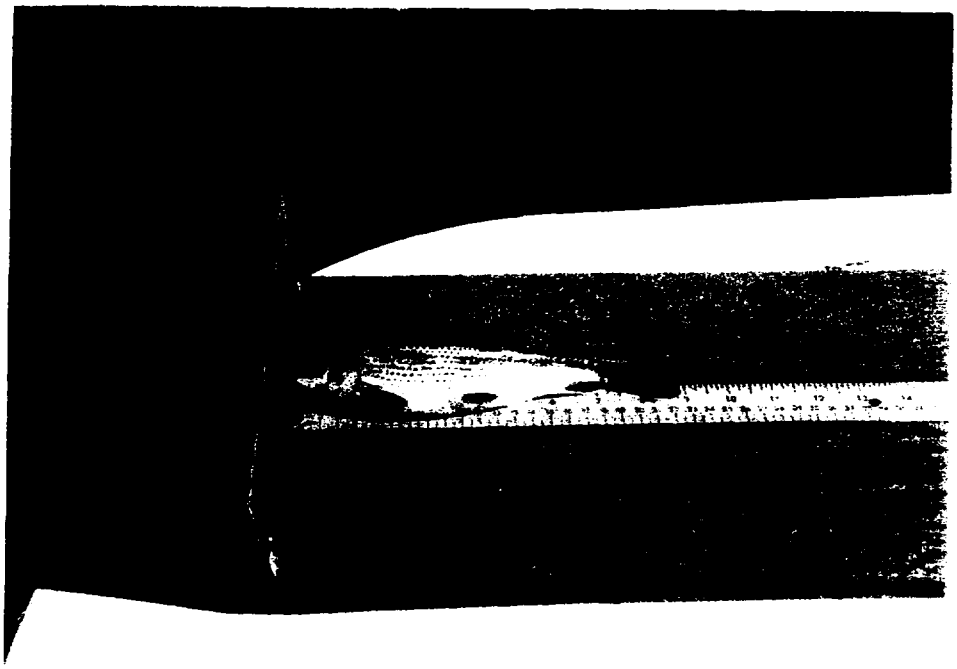
K40170

6/16/94
794912F

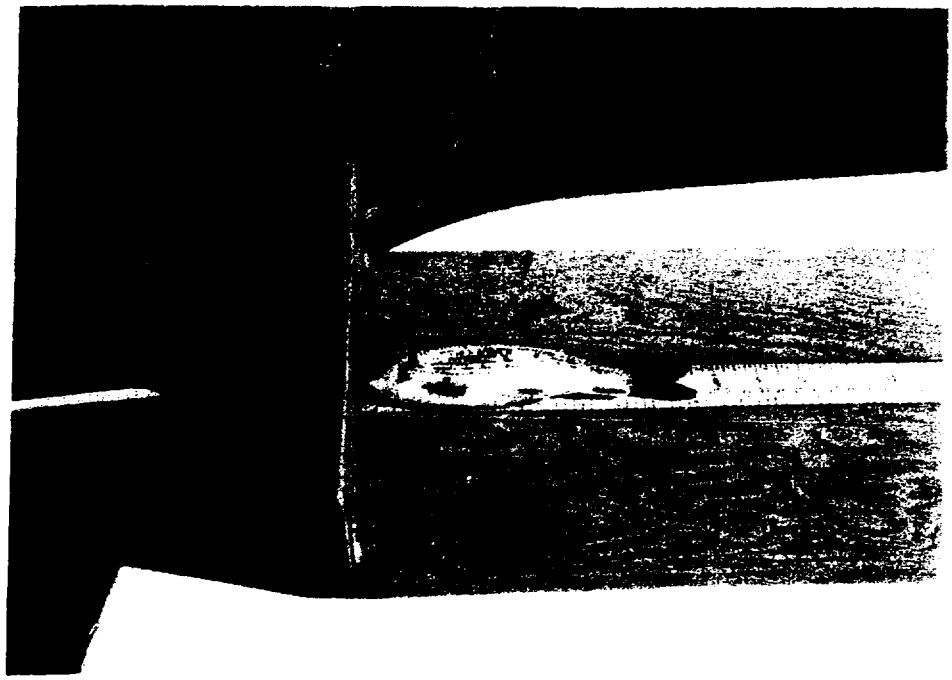
Spotted Sucker
(*Minytrema melanops*)



K40217



K40218



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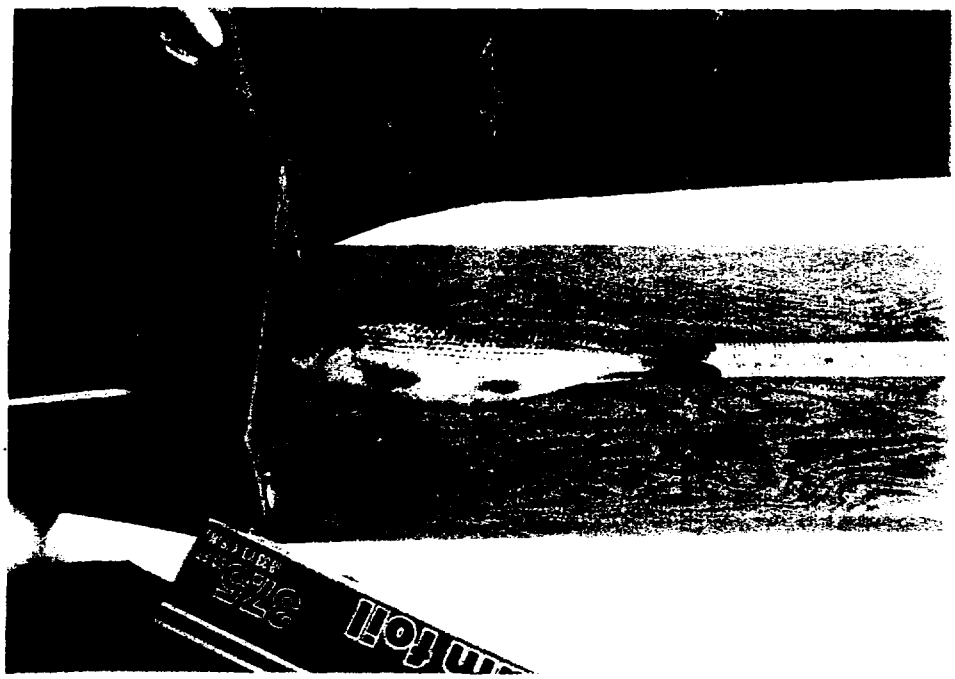
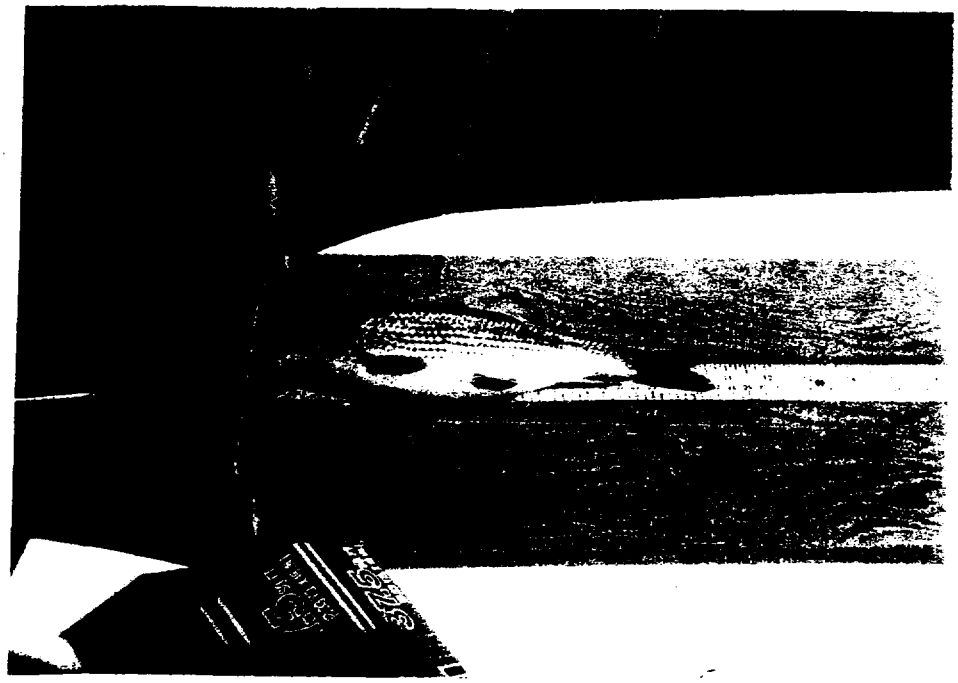
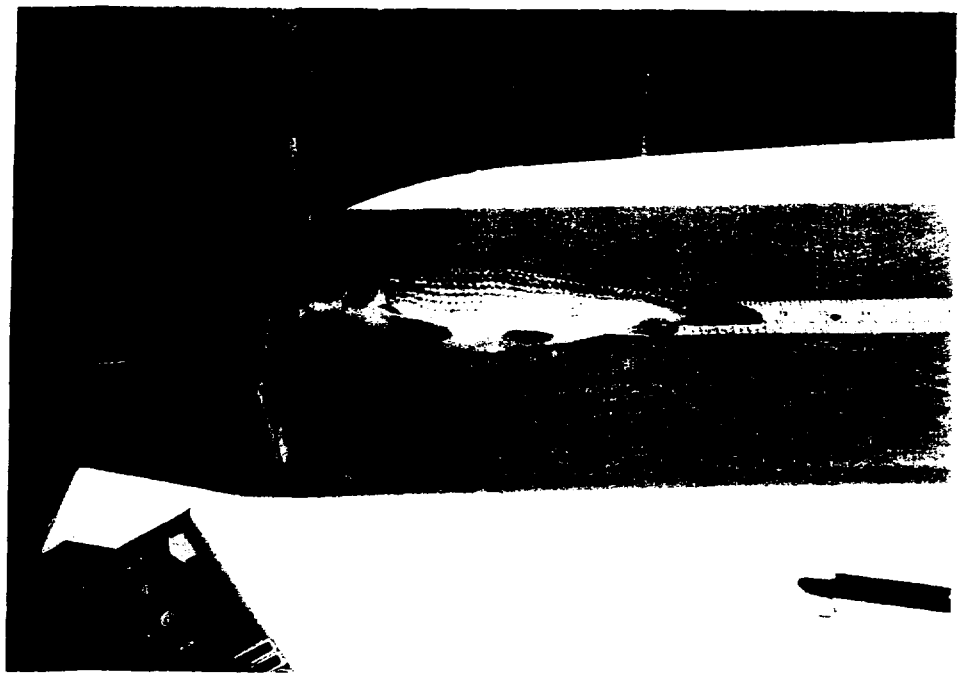


K40220



K40221



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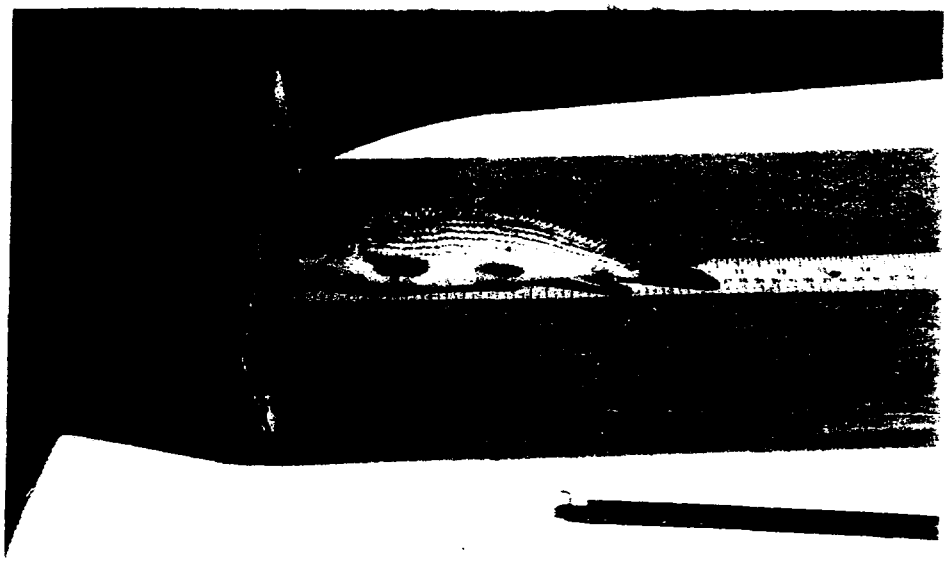

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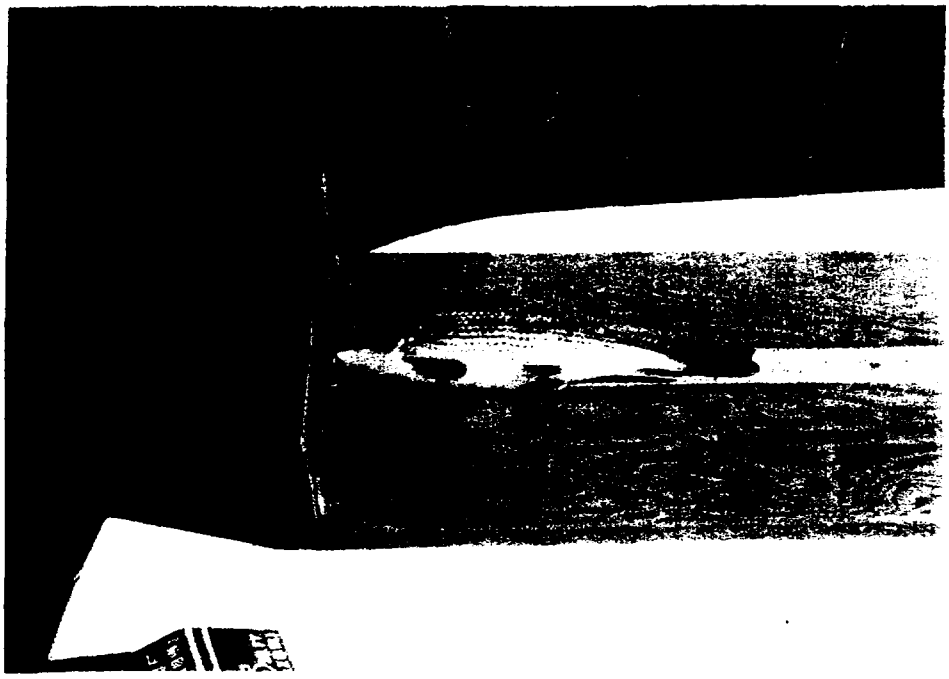
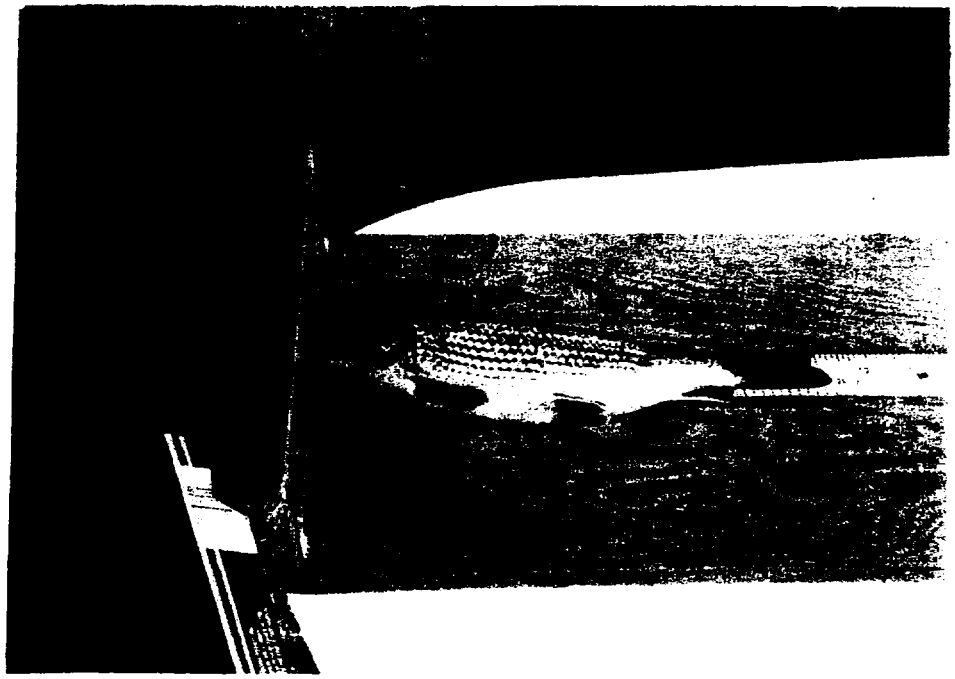
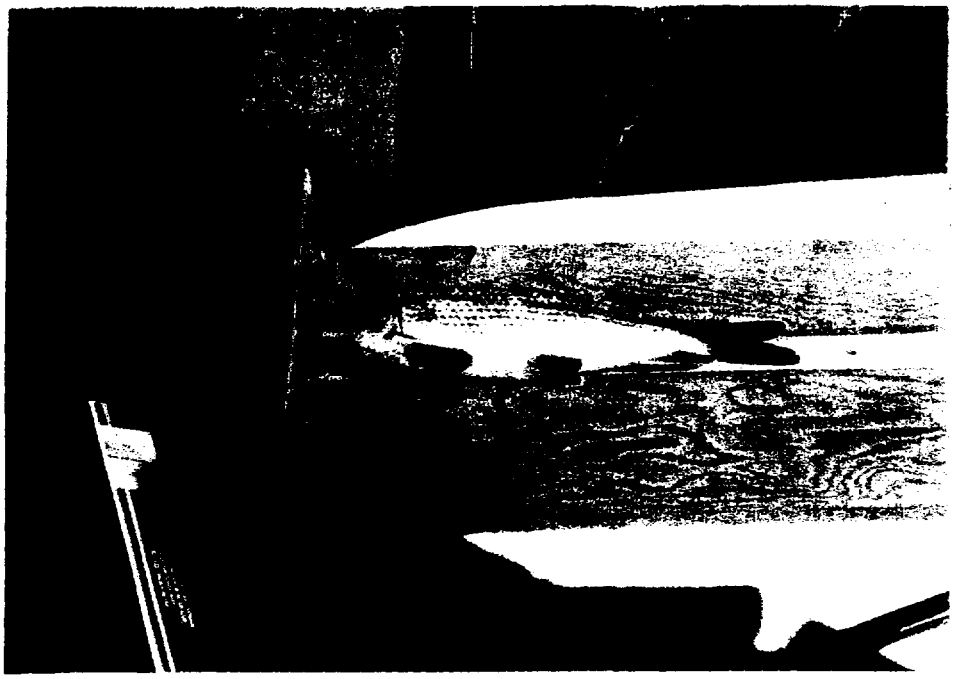


K40224

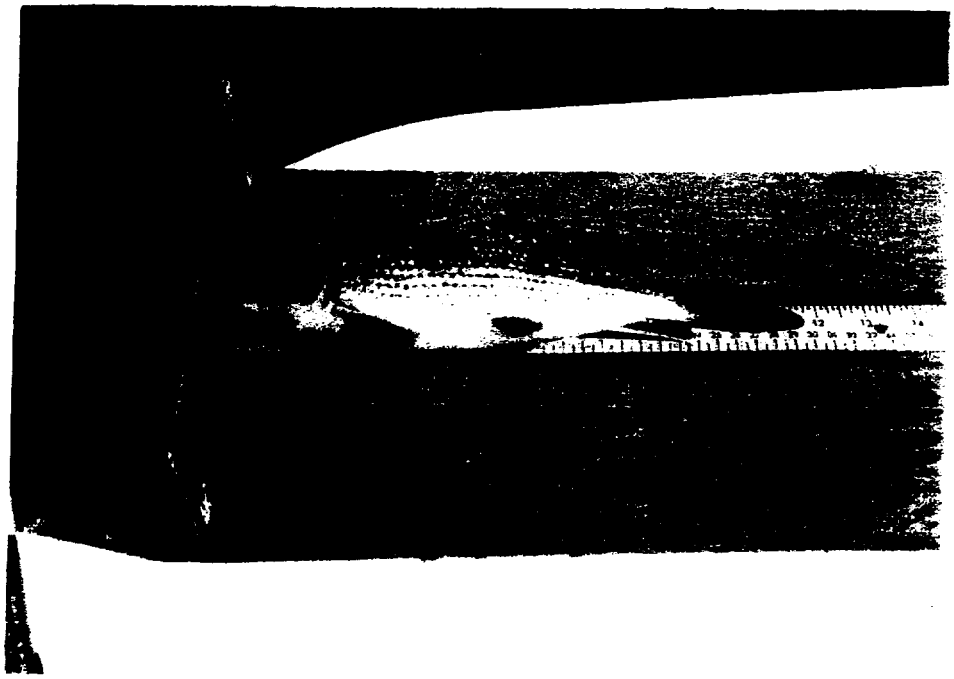
6/16/94
794912F



K40225



K40226

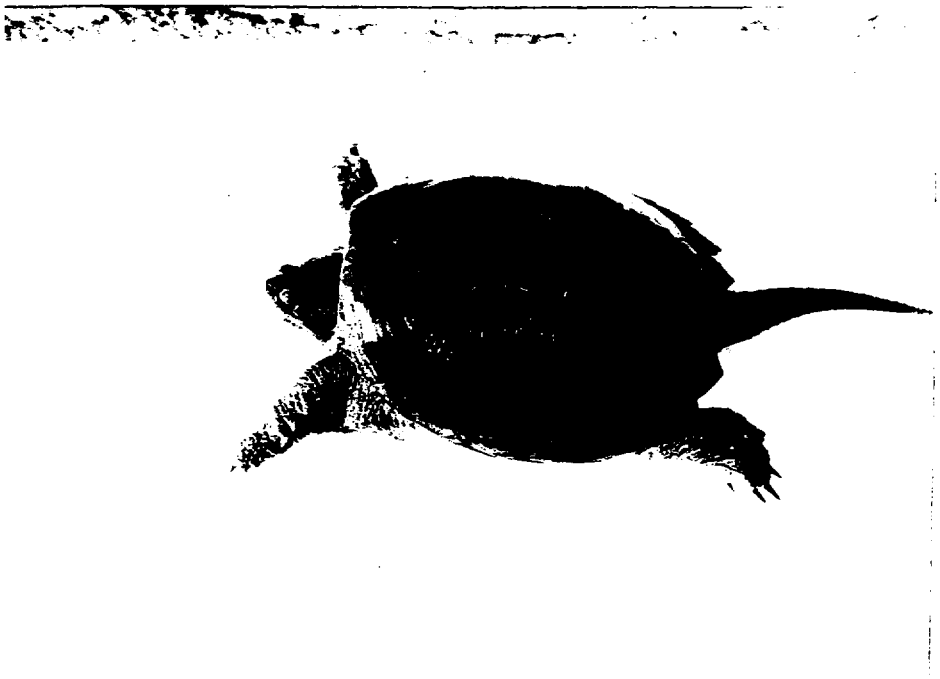


K40227

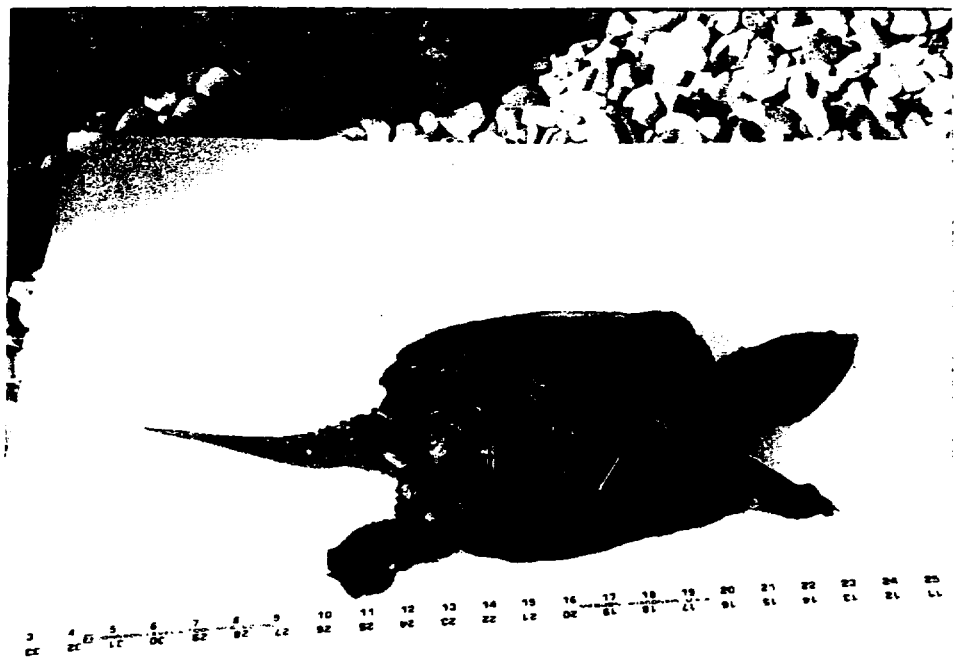
6/16/94
794912F

Snapping Turtle
(*Chelydra serpentina*)

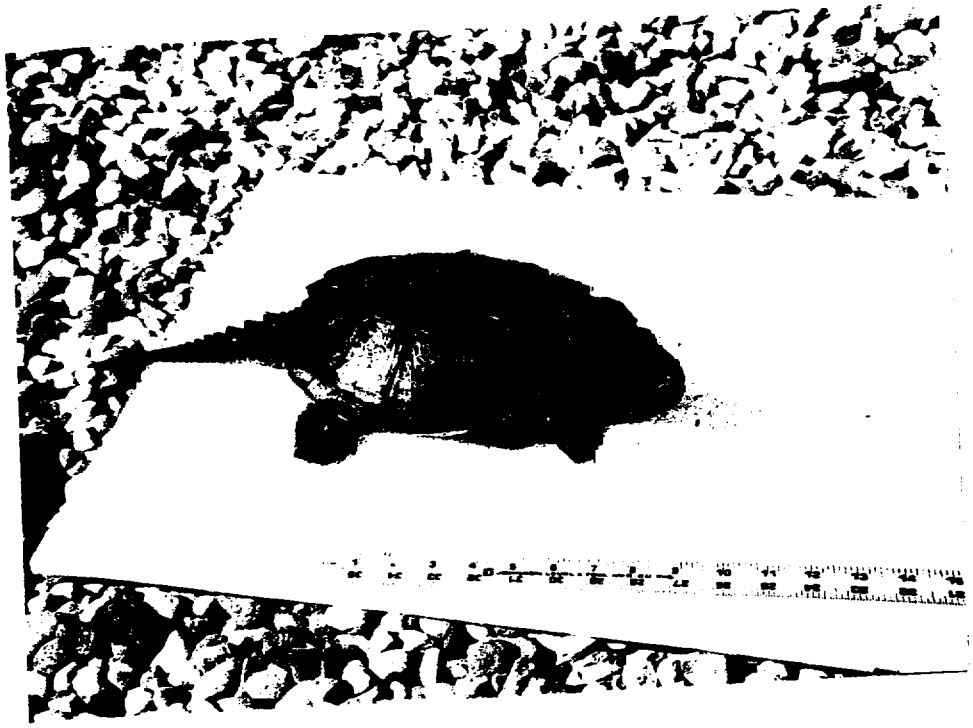
6/20/94
1094912.F



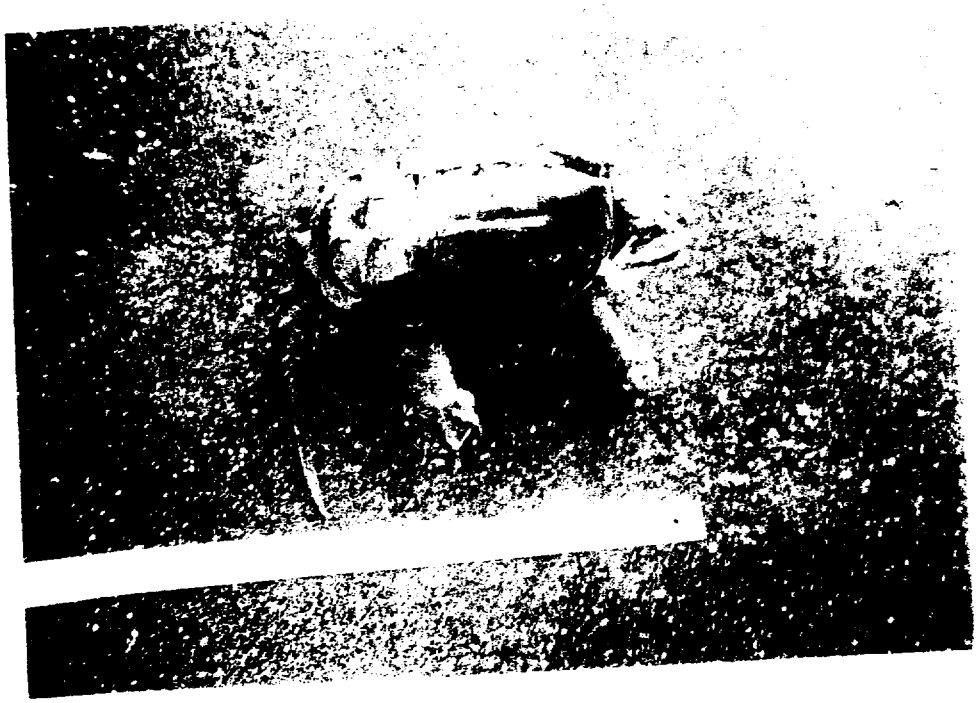
K42011



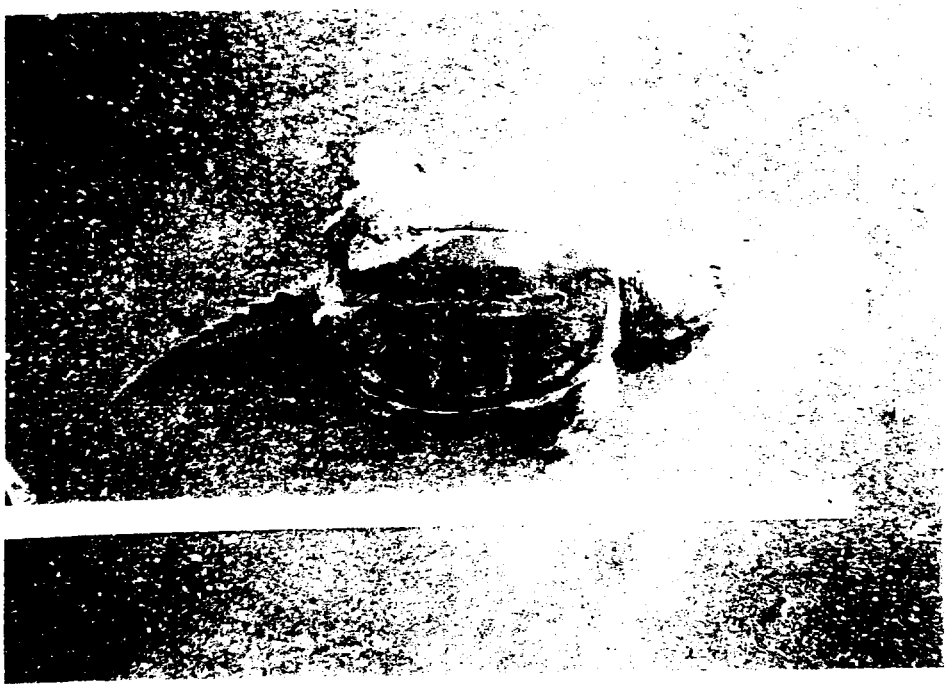
K42012



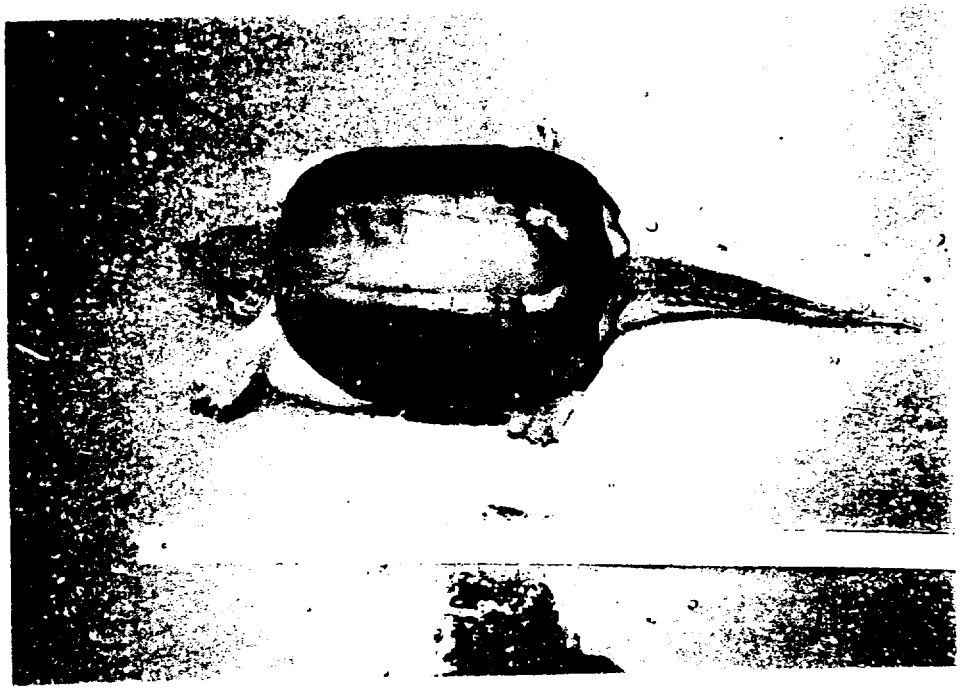
K42014



K42020

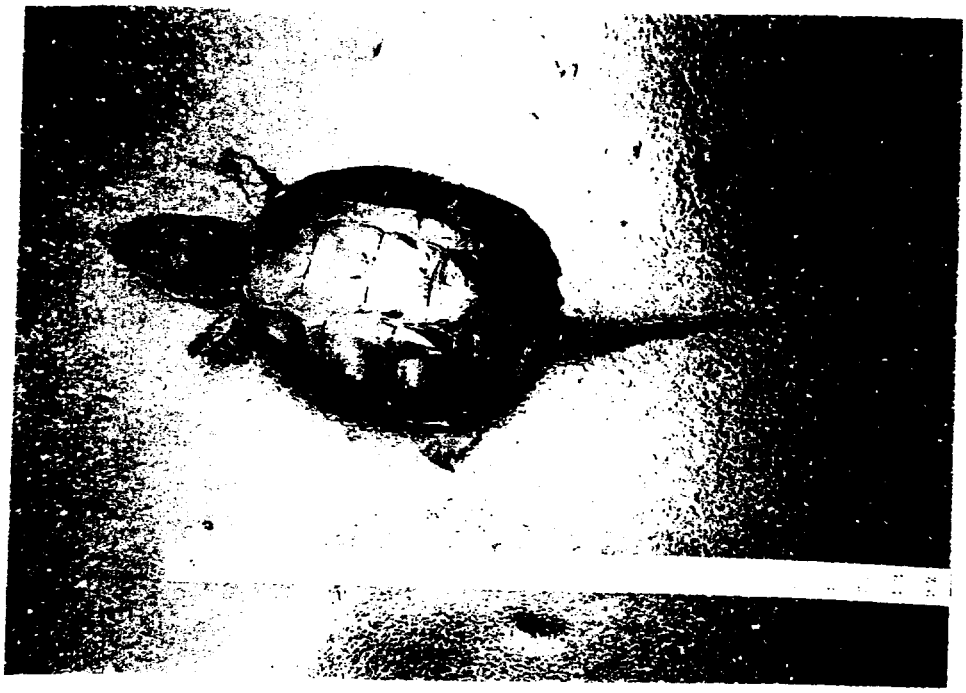


K42021

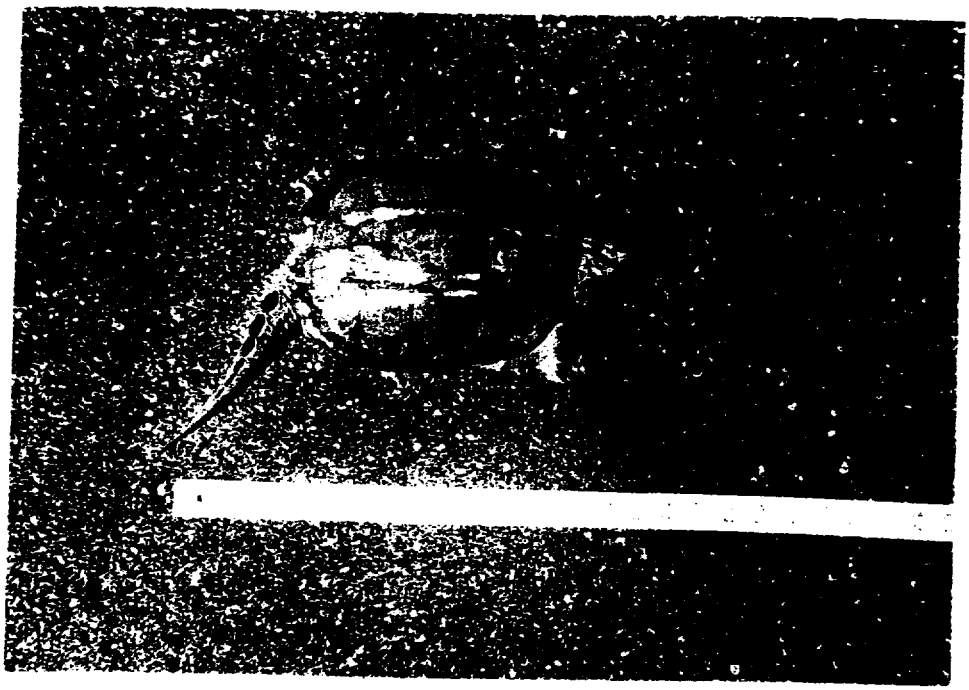


K42028

6/17/94
1494912F



K42029



K42031

K42032

K42033

6/17/94
1494912F

K42034

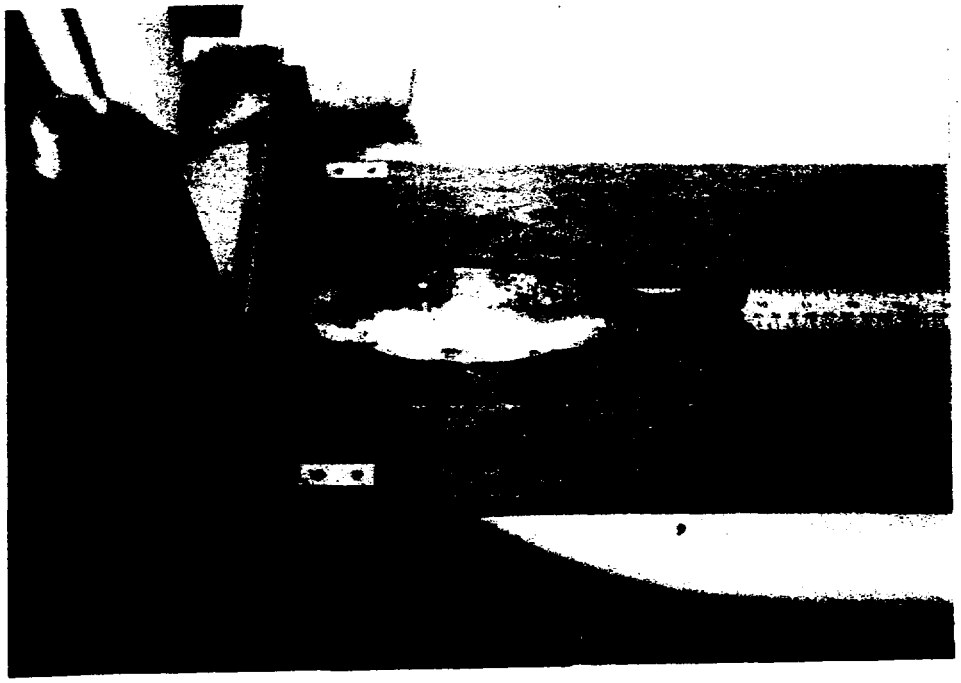
6/17/94
1494912F

ABSA #11
Kalamazoo River Near Saugatuck

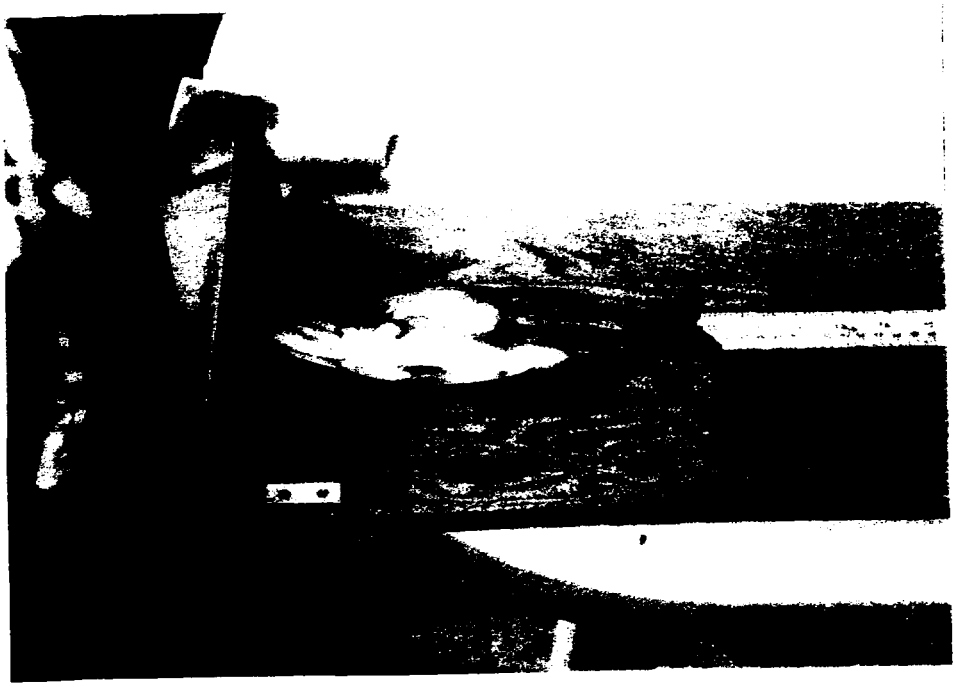
Carp	Smallmouth Bass	White Sucker
K40179		
K40180	K40190	K40202
K40181	K40191	K40203
K40182	K40196	K40204
K40183	K40197	K40205
K40184	K40198	K40206
K40185	K40199	K40207
K40186	K40200	K40208
K40187	K40213	K40209
K40188	K40214	K40210
K40189	K40215	K40211
	K40216	K40212

Smallmouth Bass
(*Micropterus dolomieui*)

6/20/94
1094912.F



K40190

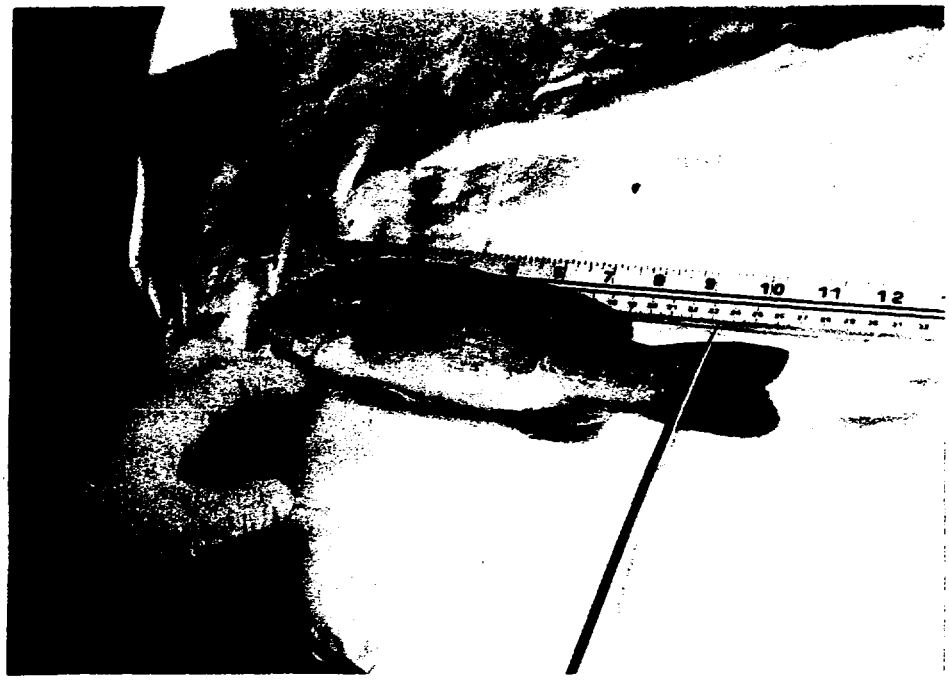


K40191

K40196

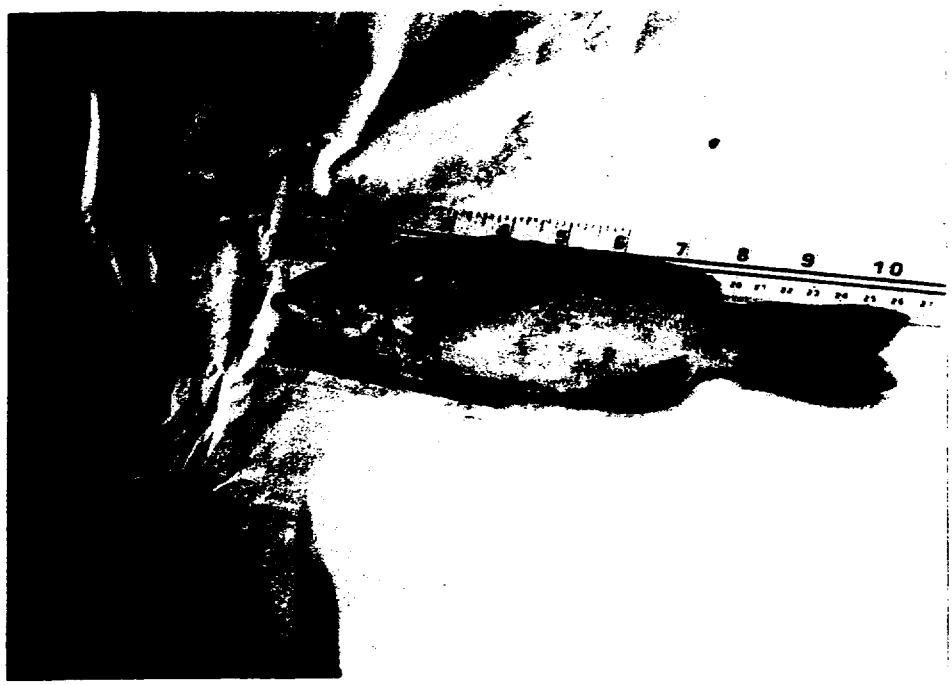
K40197

6/16/94
794912F

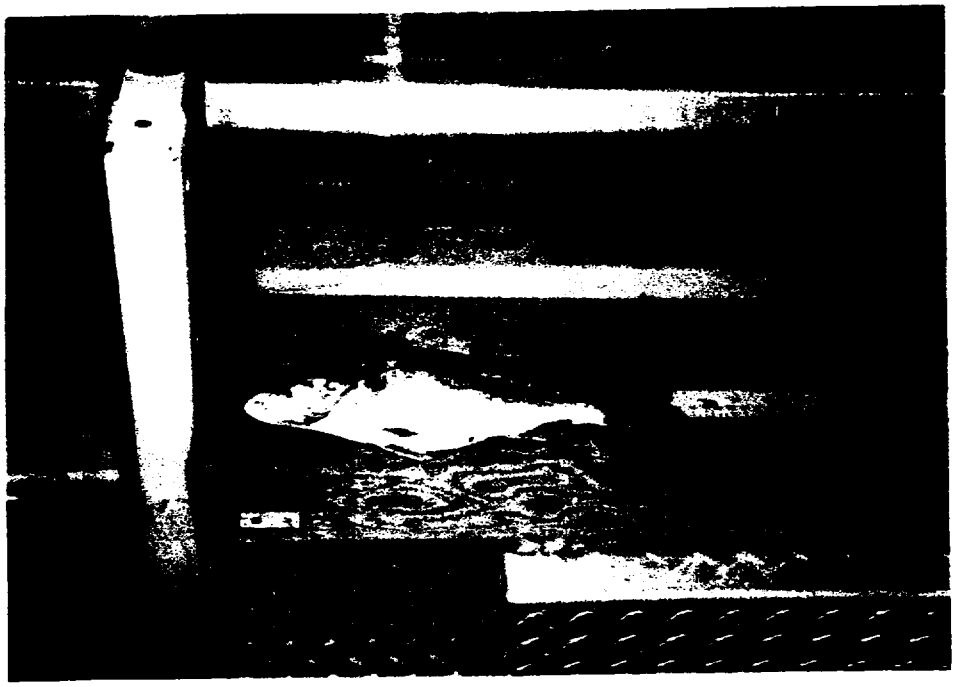


K40198

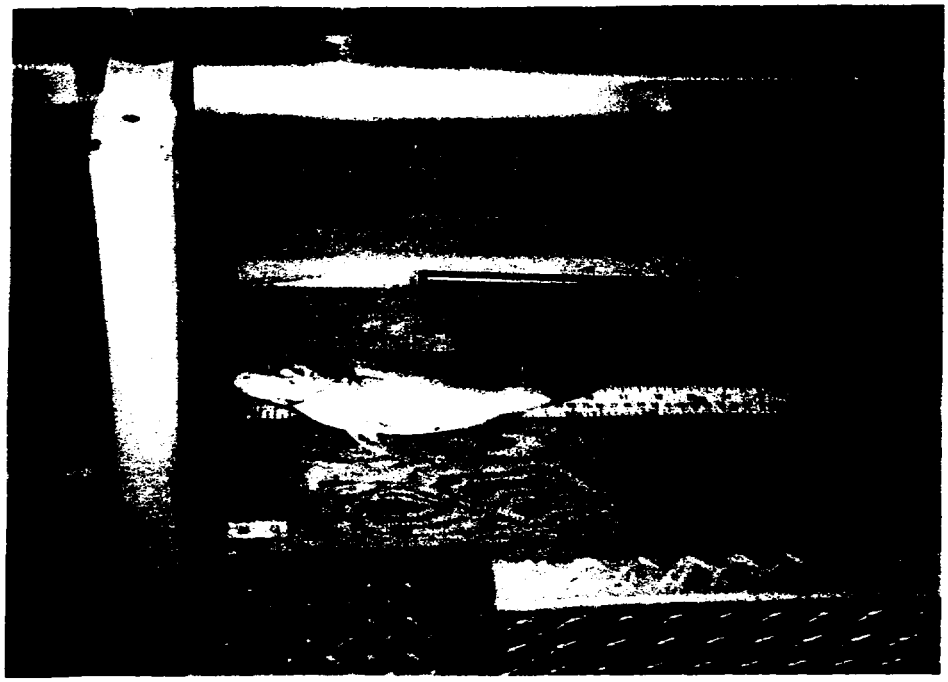
K40199



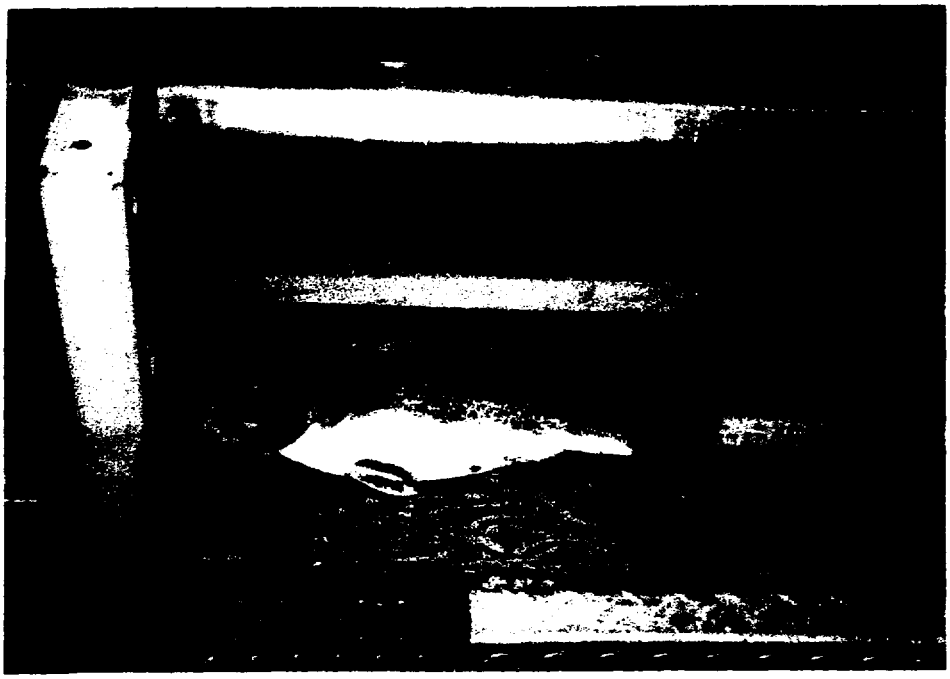
K40200



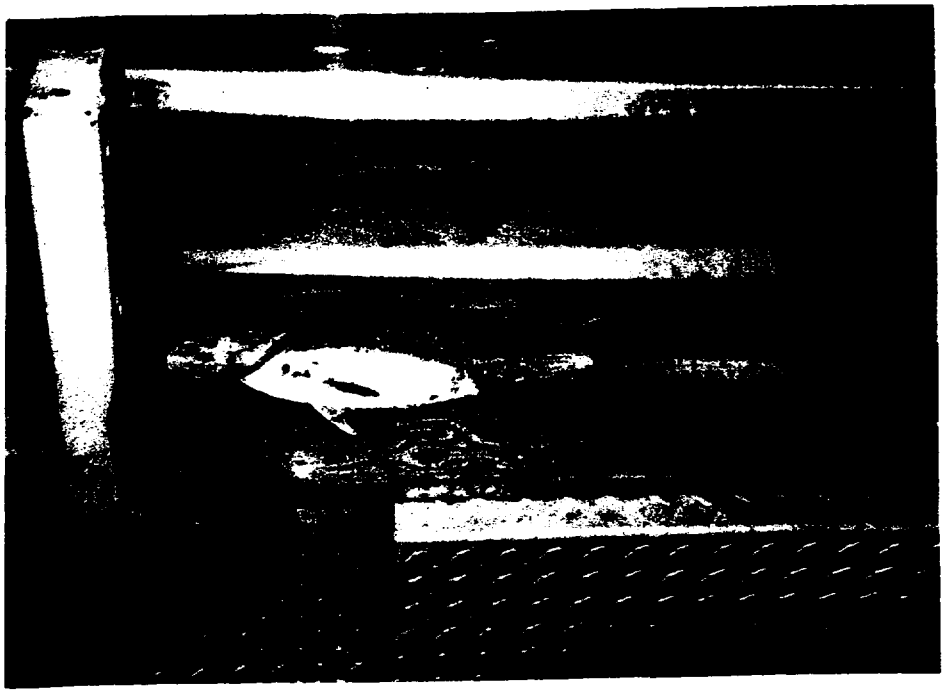
K40213



K40214



K40215

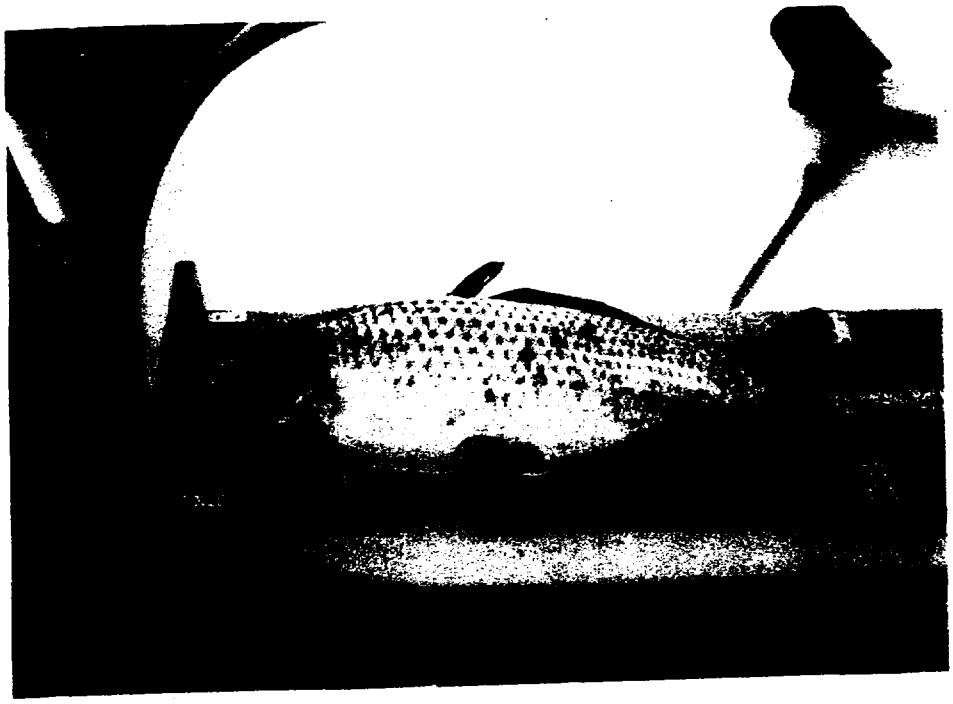


K40216

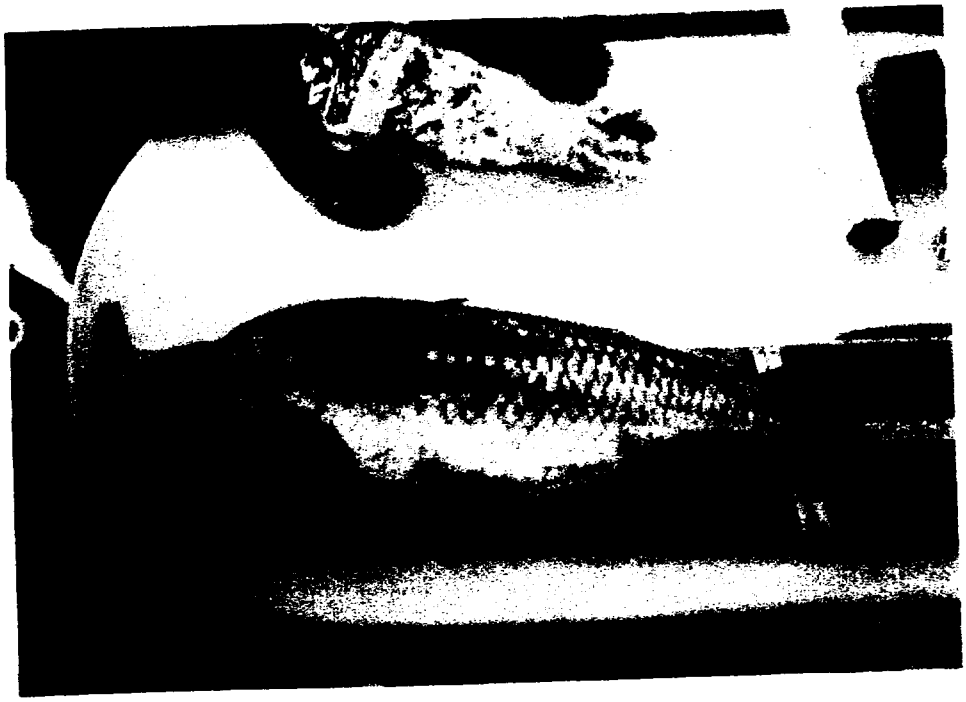
6/16/94
794912F

Carp
(*Cyprinus carpio*)

6/20/94
1094912.F

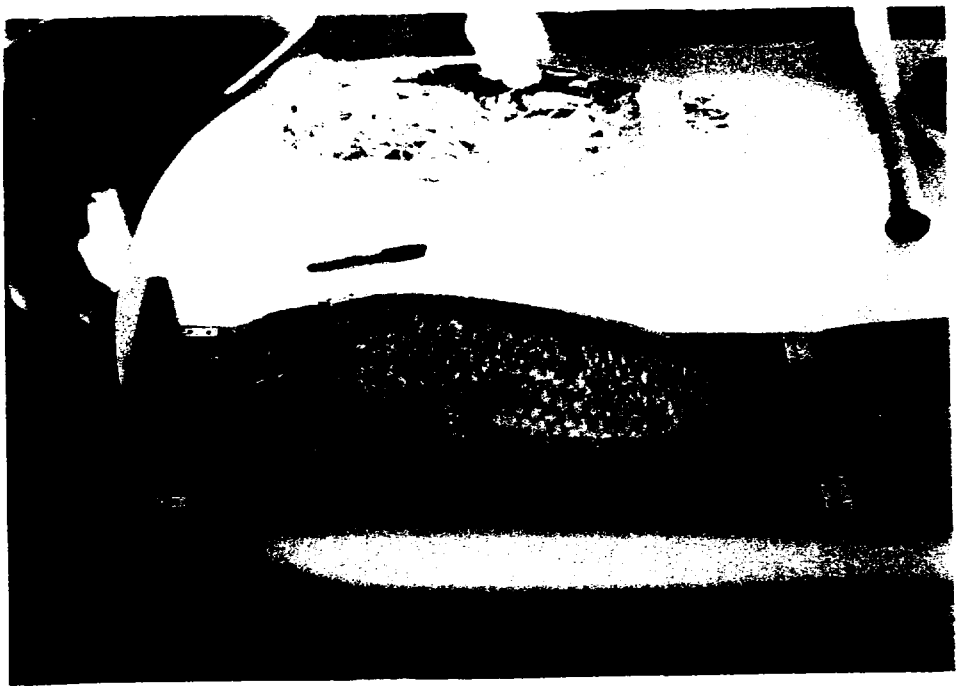


K40179

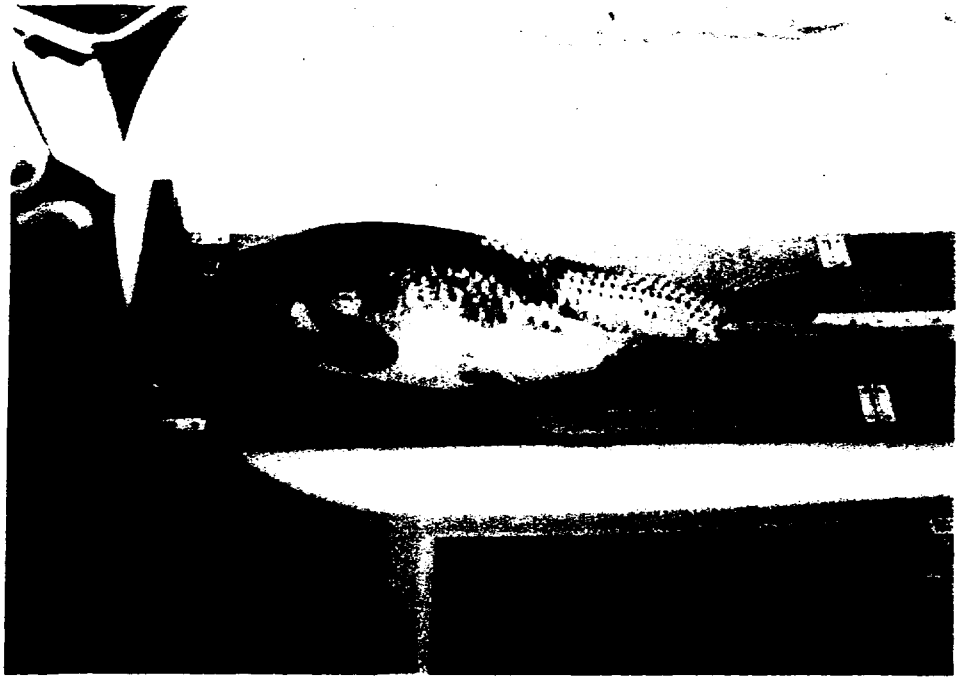


K40180

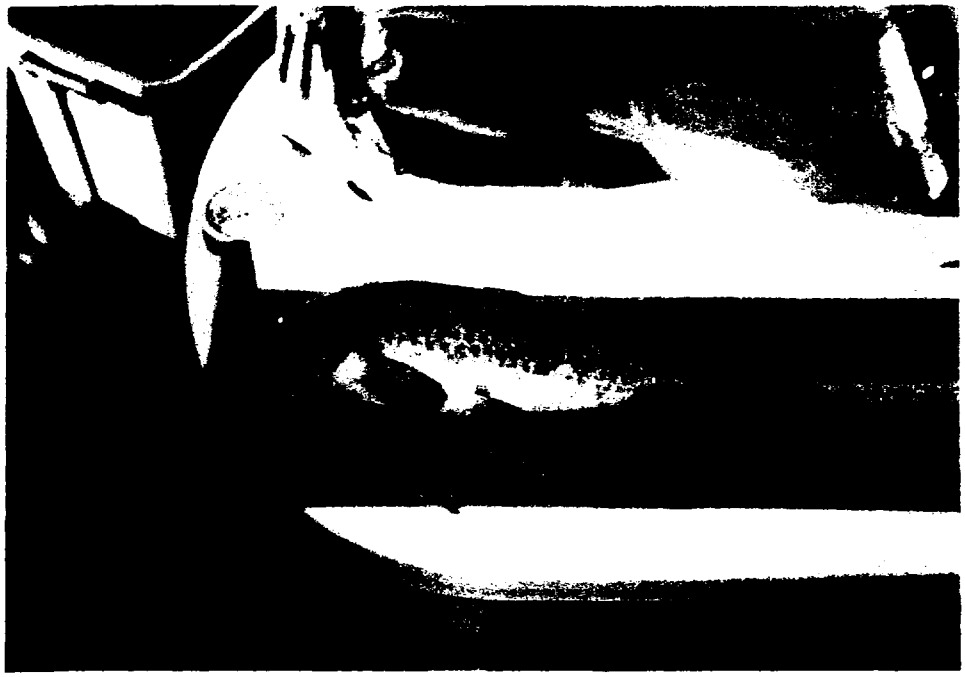
K40181



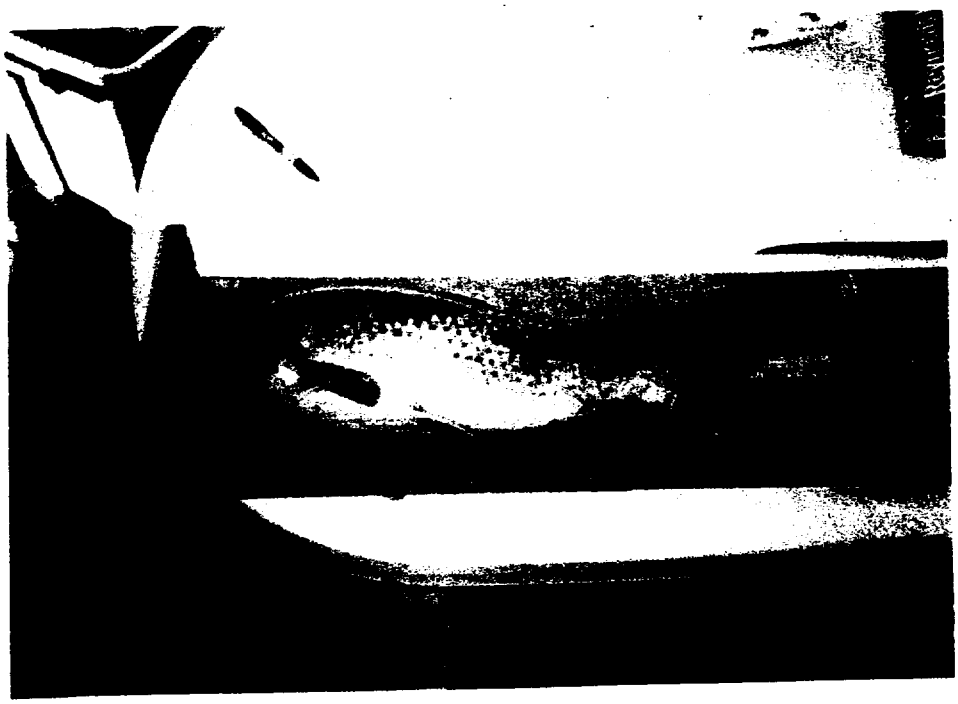
K40182



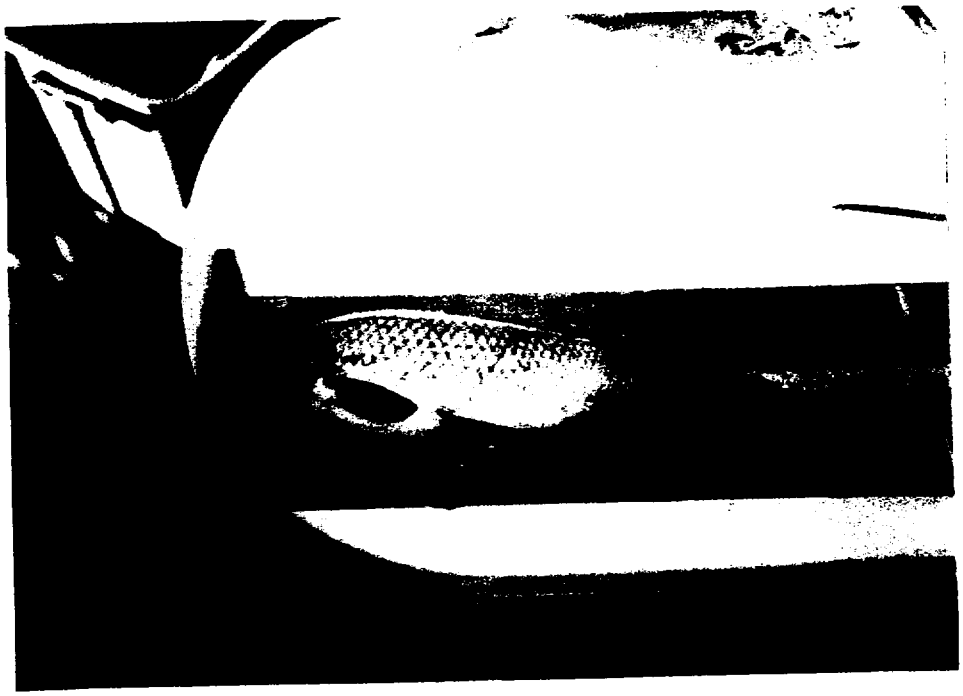
K40183



K40184



K40185



K40186

K40187

K40188

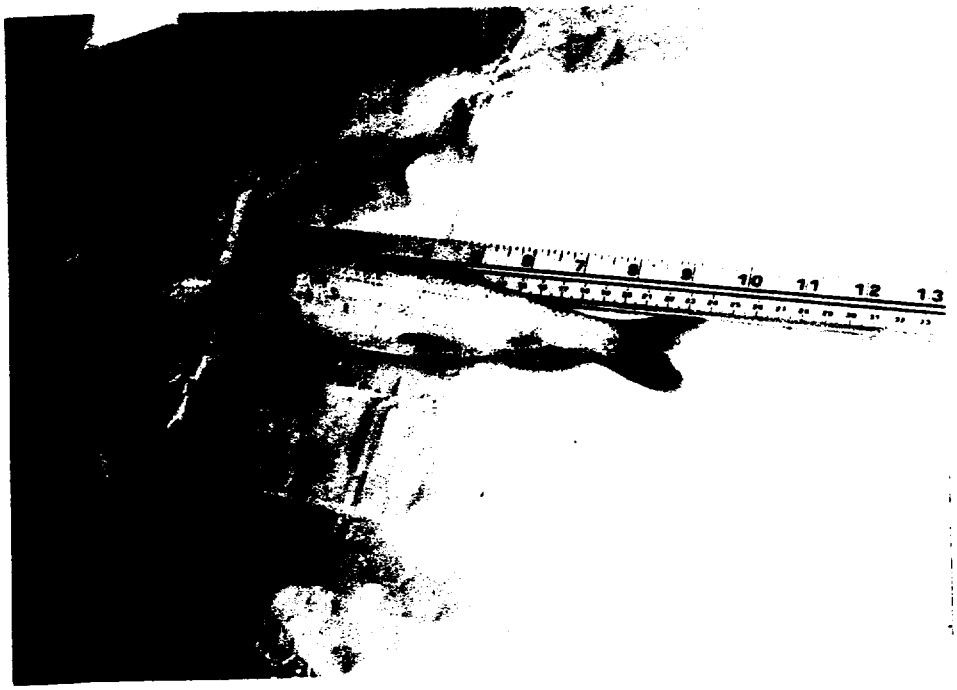
K40189

White Sucker
(*Catostomus commersoni*)

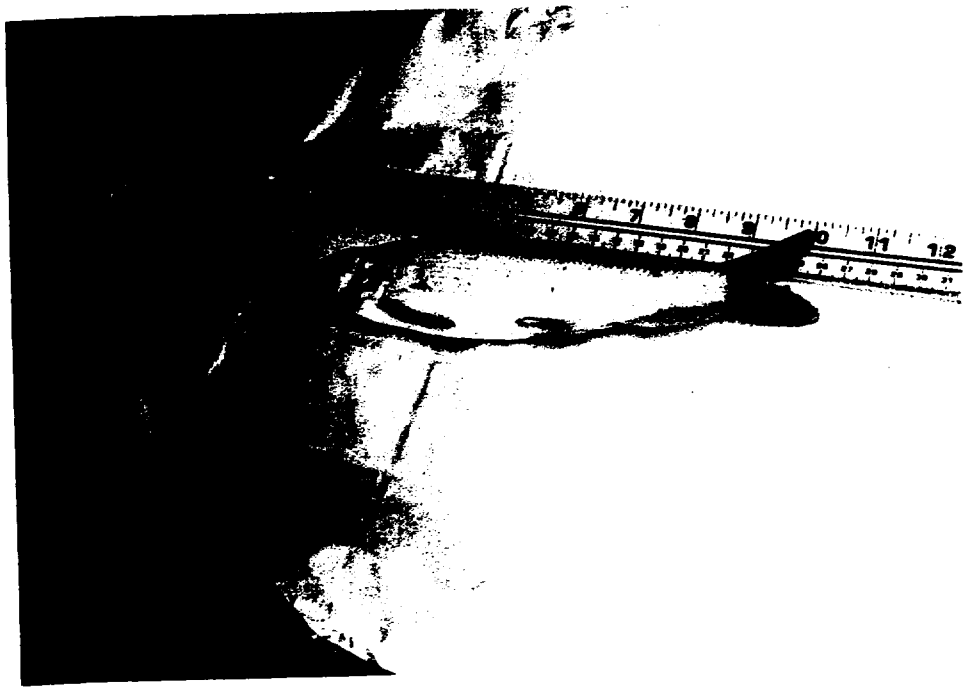
6/20/94
1094912.F

K40202

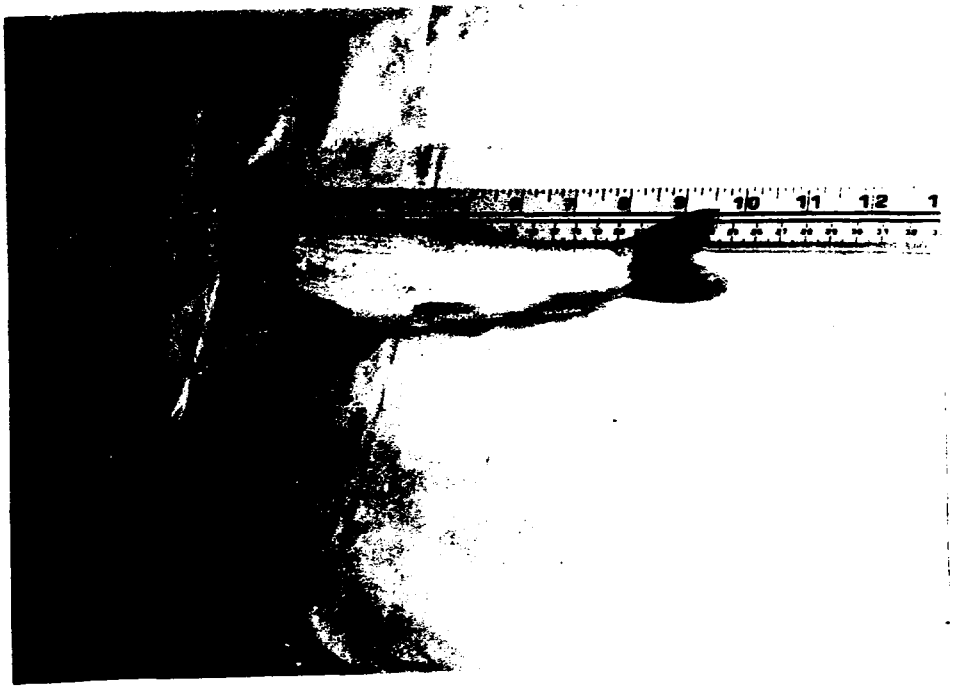
K40203



K40204



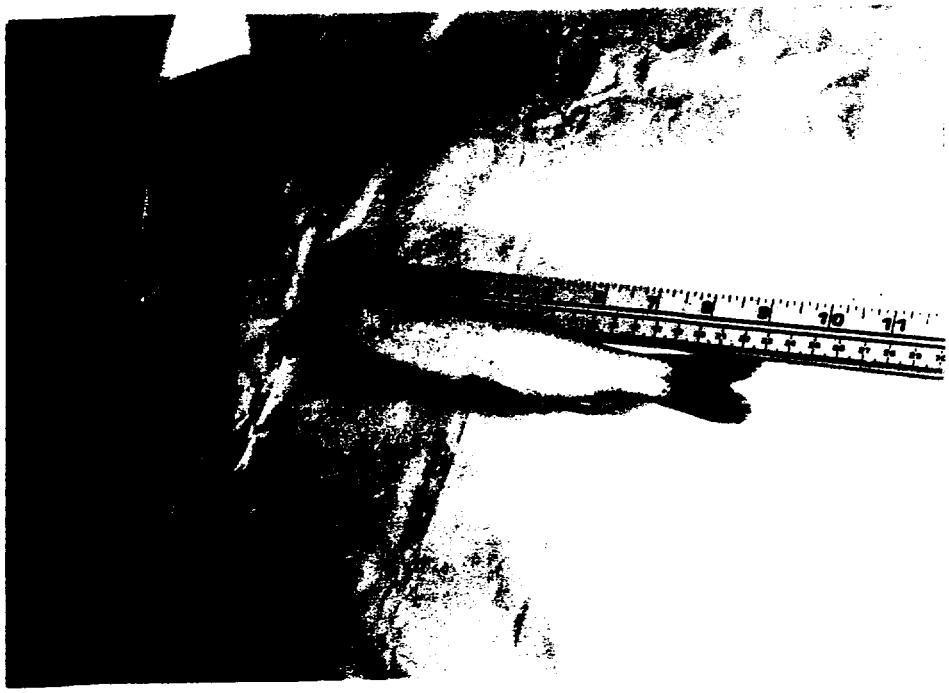
K40205



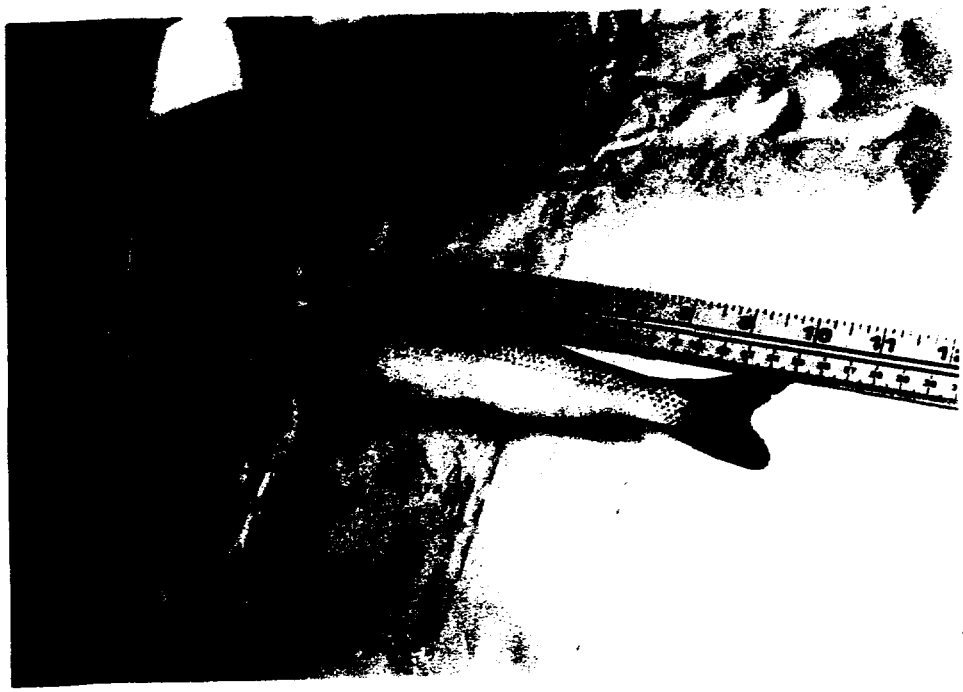
K40206

Photo Not Taken Due To Error In Field

K40207



K40208



K40209

'Photo Not Taken Due To Error In Field

K40210

K40211

K40212

6/16/04
794912F

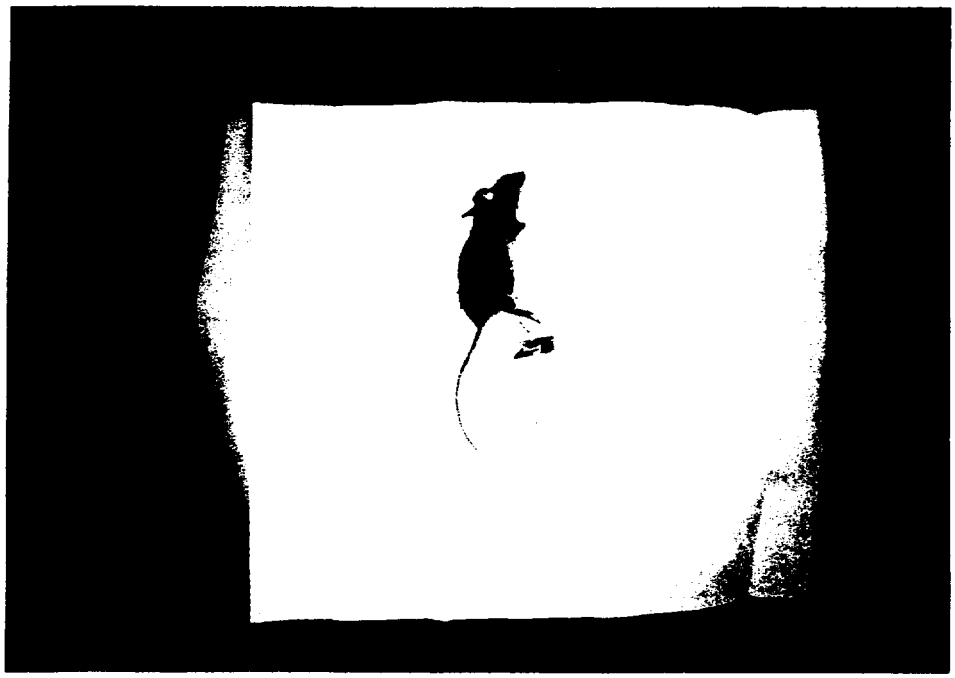
TBSA #1

White-footed Mice	Earthworms
K44000	K46000
K44001	K46001
K44002	K46002
K44003	
K44004	
K44005	
K44006	
K44007	
K44008	
K44009	

White-footed Mouse (*Peromyscus leucopus*)

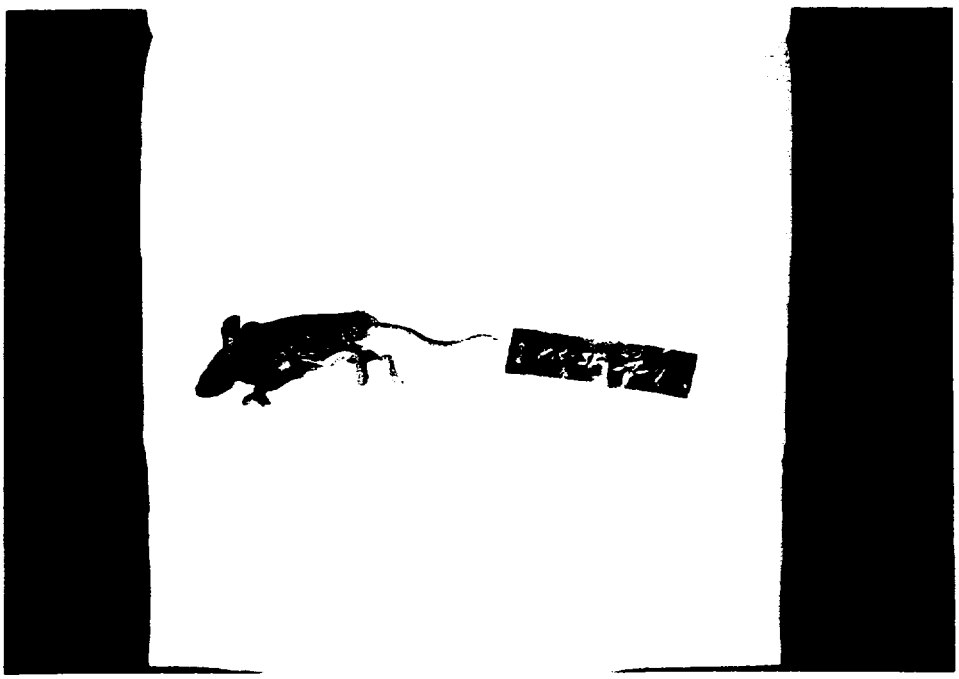
6/20/94
1094912.F

K44000

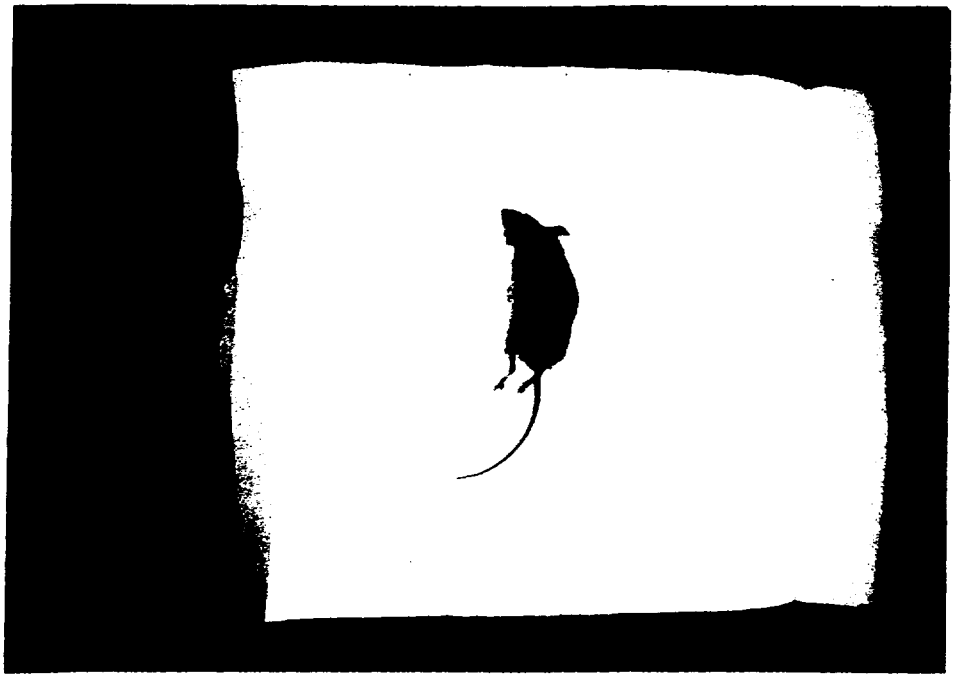


K44001

K44002



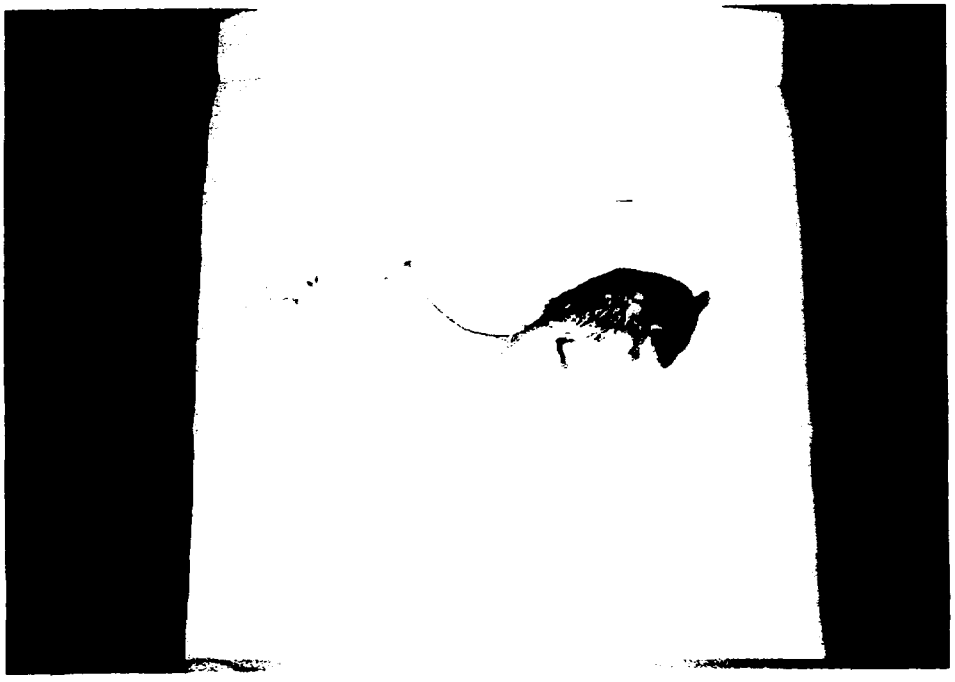
K44003



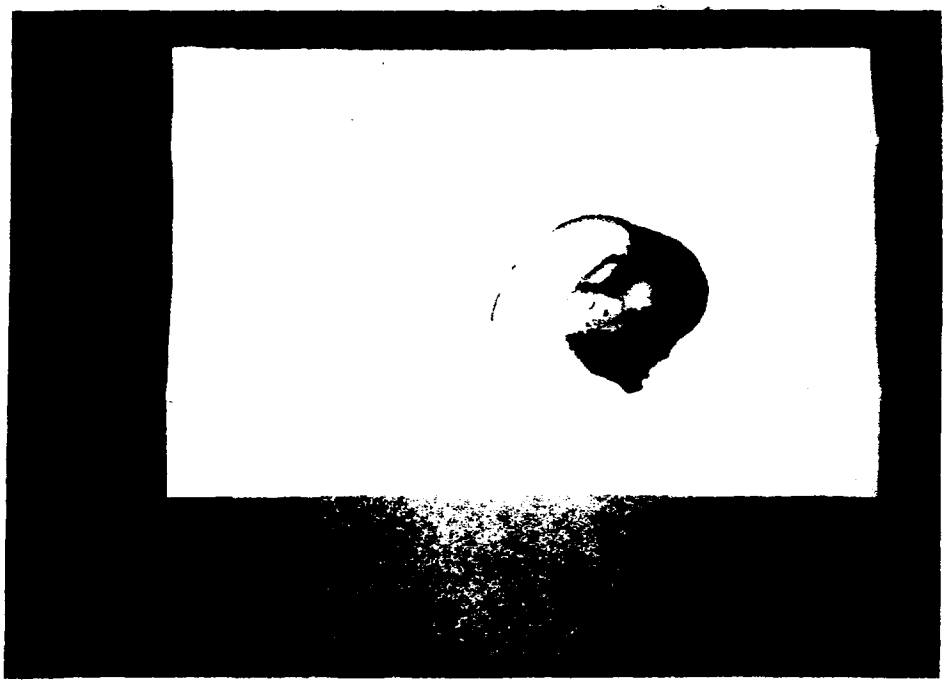
K44004

K44005

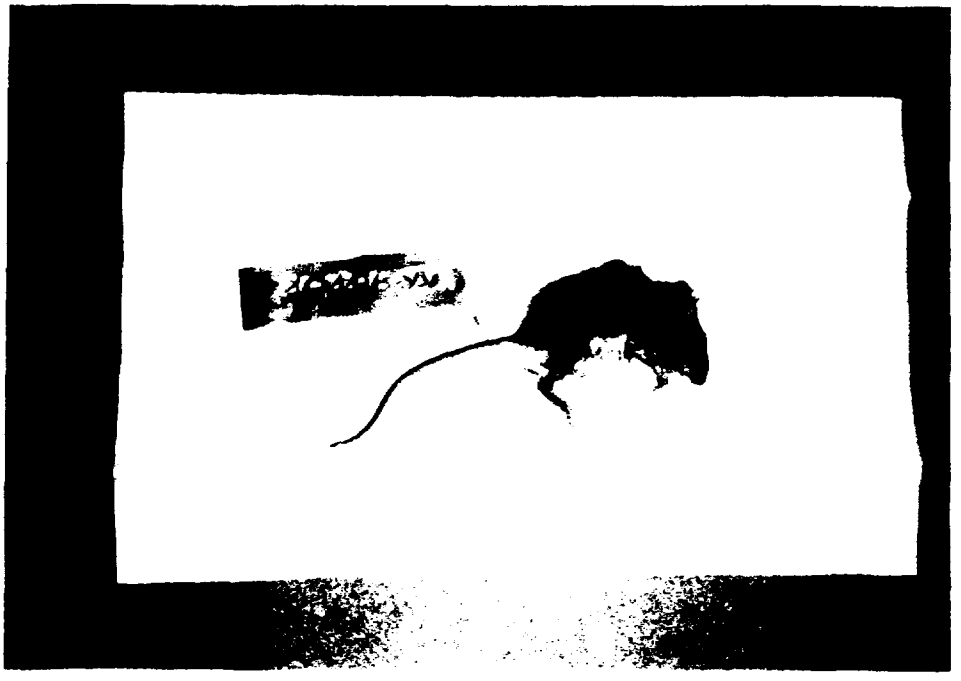
K44006



K44007



K44008



K44009

Earthworms
(*Lumbircus* sp.)

KR-SSH-15

K46000

KR-SH-6

K46001

6/17/94
1494912F

K46002

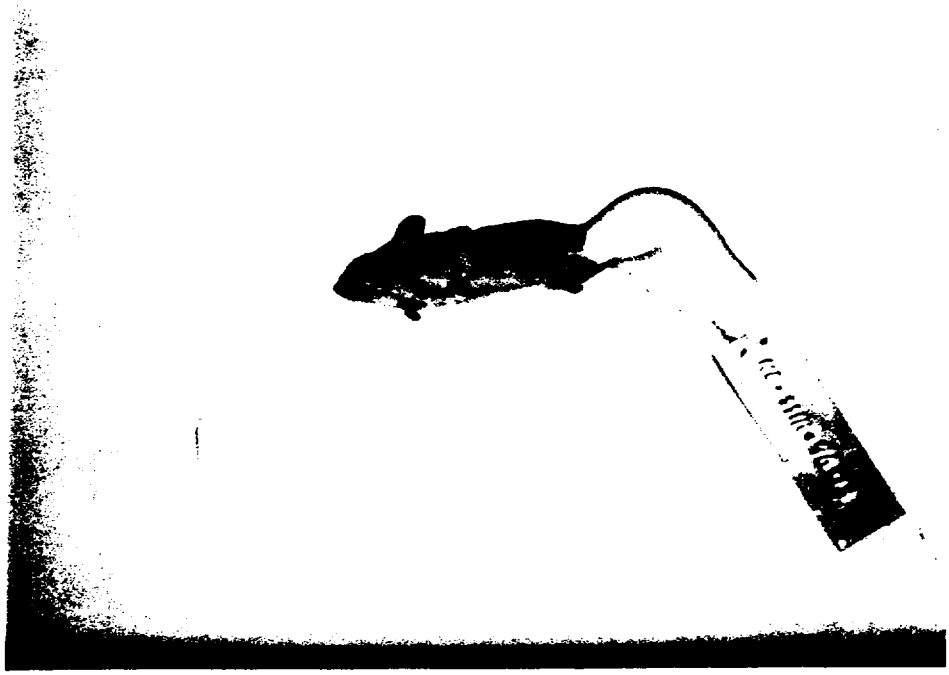
6/17/94
1494912F

TBSA #3

White-footed Mouse	Earthworms
K44010	K46004
K44011	K46005
K44012	K46006
K44013	
K44014	
K44015	
K44016	
K44017	
K44018	
K44019	

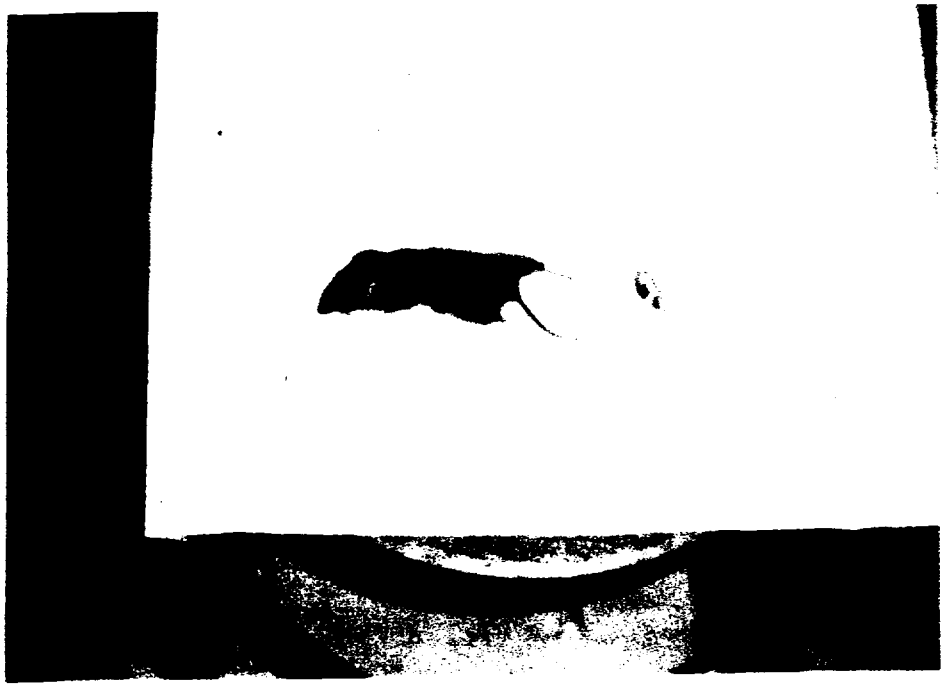
White-footed Mouse
(*Peromyscus leucopus*)

6/20/94
1094912.F

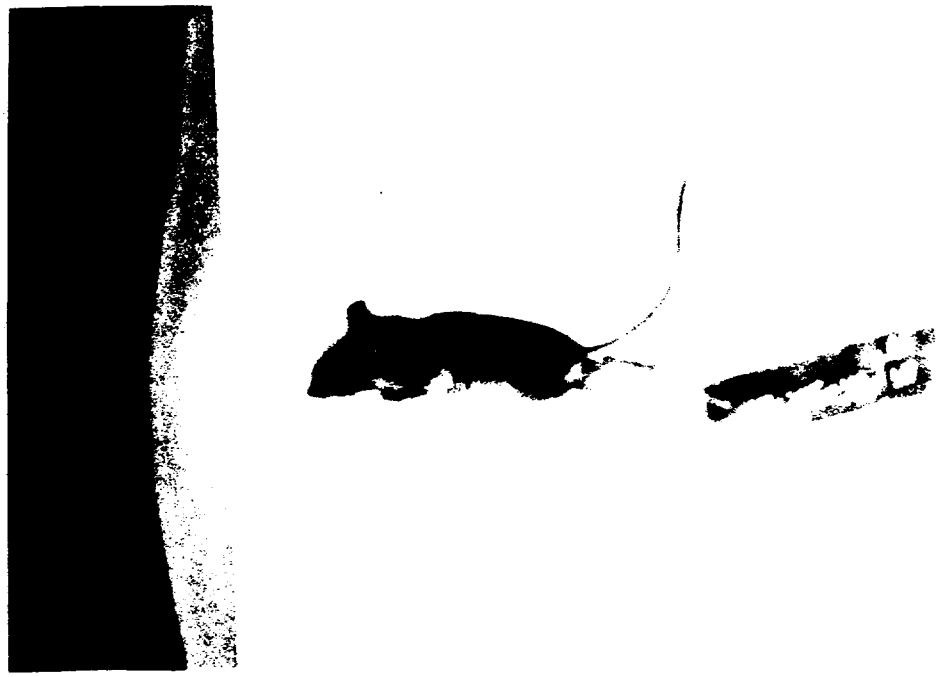


K44010

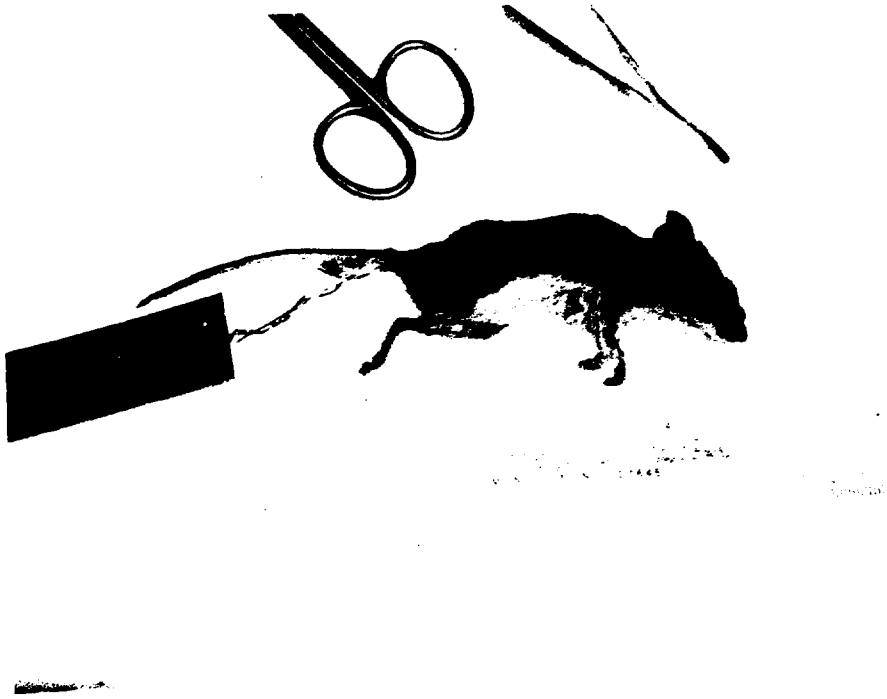
K44011



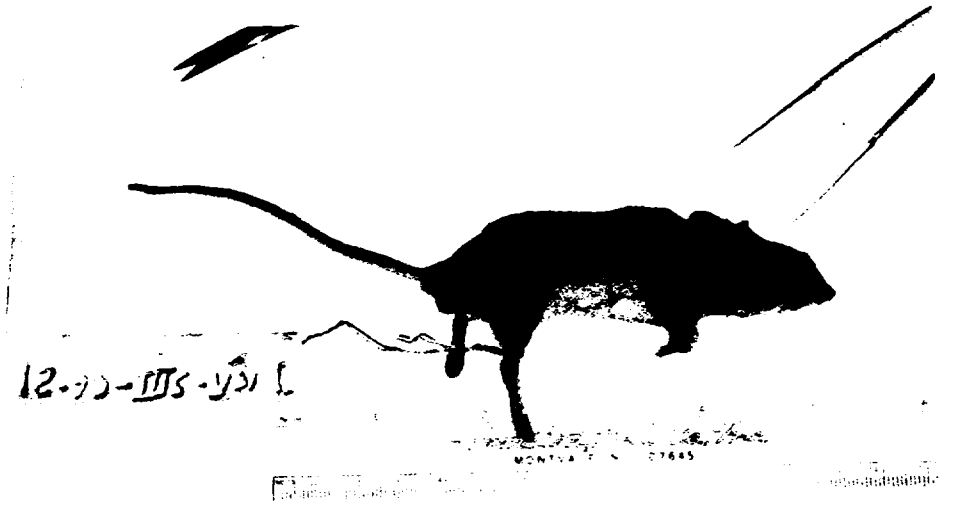
K44012



K44013

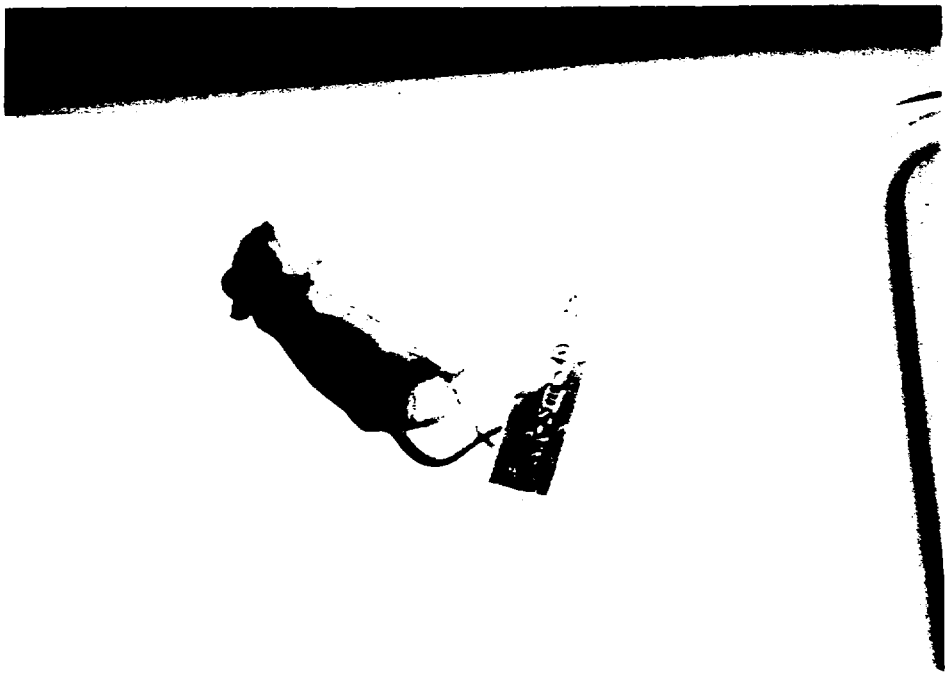


K44014



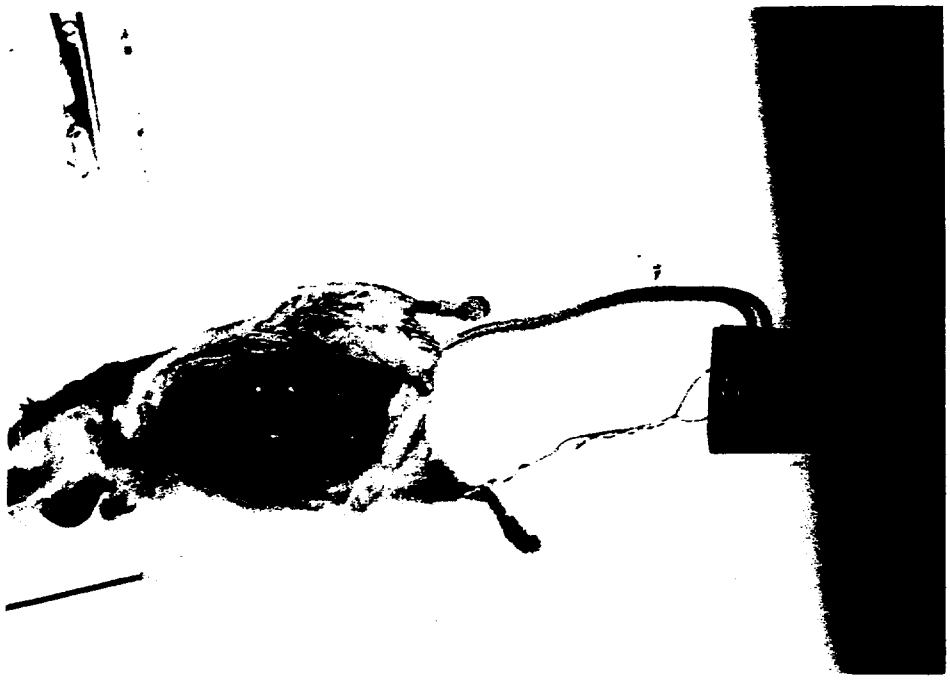
K44015

K44016



K44017

6/17/94
1494912F



K44017 (7 well developed embryos)

K44018

K44019

Earthworms
(*Lumbircus sp., Allolobophora sp.*)

K46003

K46004

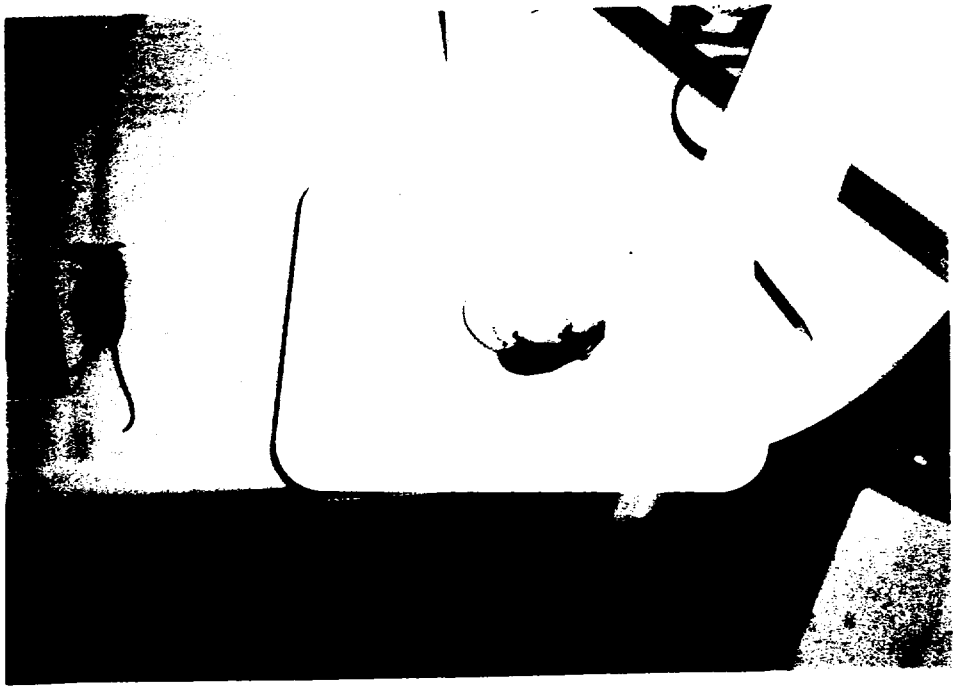
K46005

TBSA #5

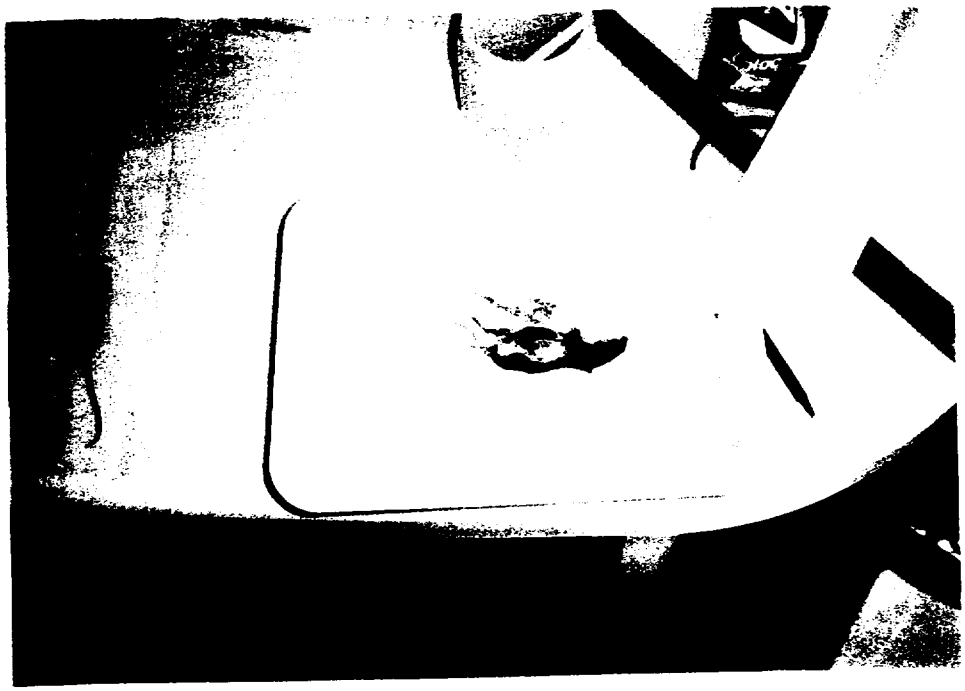
White-footed Mouse	Earthworms
K44020	K46006
K44021	K46007
K44022	K46008
K44023	
K44024	
K44025	
K44026	
K44027	
K44028	
K44029	

White-footed Mouse
(*Peromyscus leucopus*)

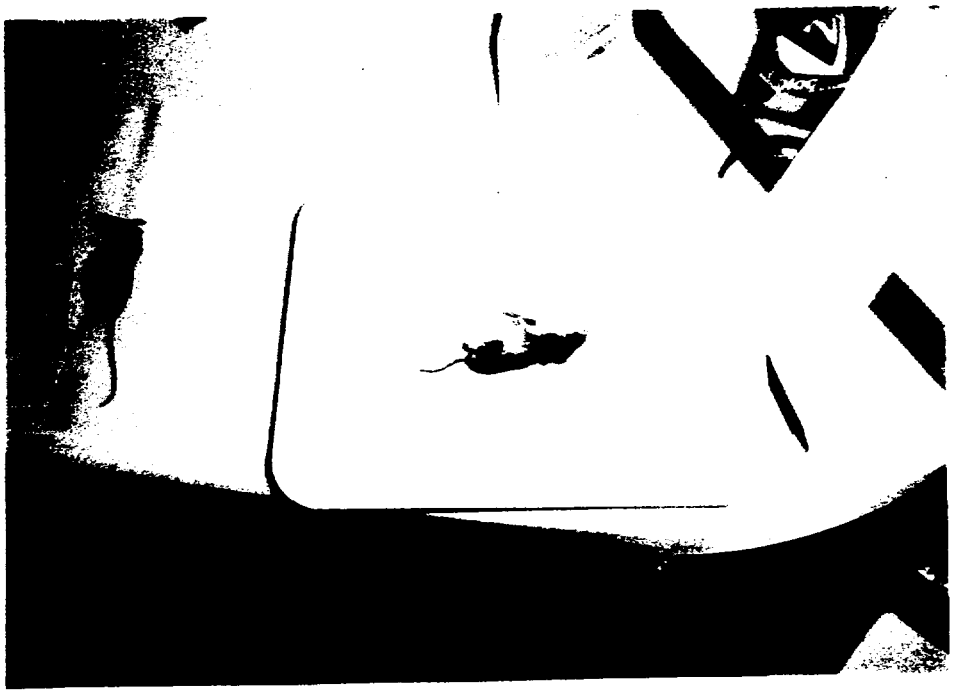
6/20/94
1094012 F



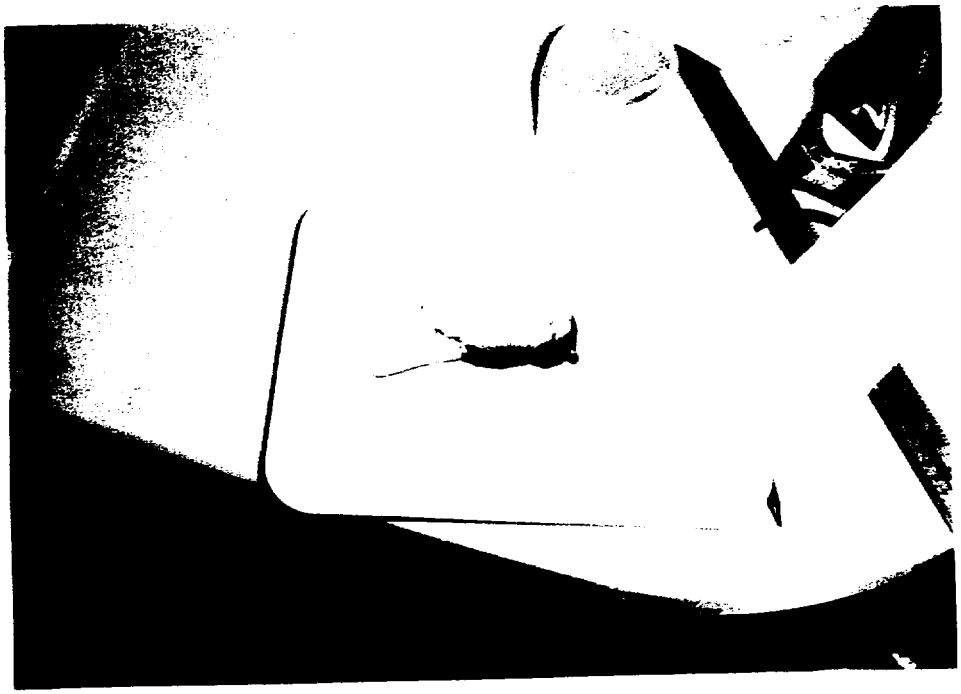
K44020



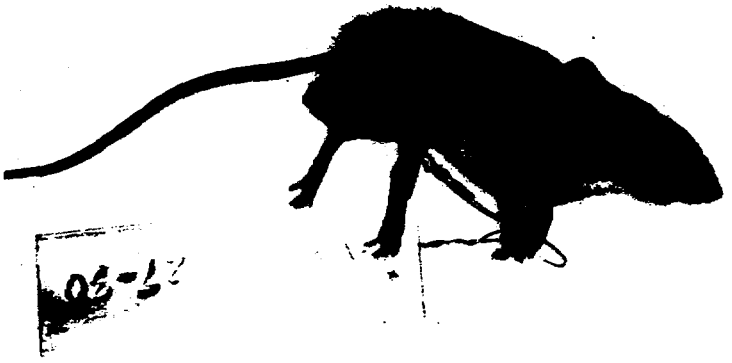
K44021



K44022



K44023



K44024

K44024 (Large parasite)

K44025

K44026

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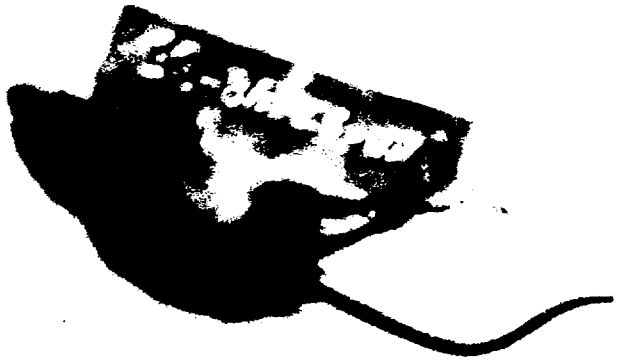
1494912F

K44027

K44028



K44029

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1494912F

Earthworms
(*Lumbircus sp.*)

7611694
1094912G

K46006

K46007

6/17/94
1494912F

K46008

6/17/94
1494912F

TBSA #10

White-footed Mouse	Earthworms
K44040	K46012
K44041	K46013
K44042	K46014
K44043	
K44044	
K44045	
K44046	
K44047	
K44048	
K44049	

White-footed Mouse (*Peromyscus leucopus*)

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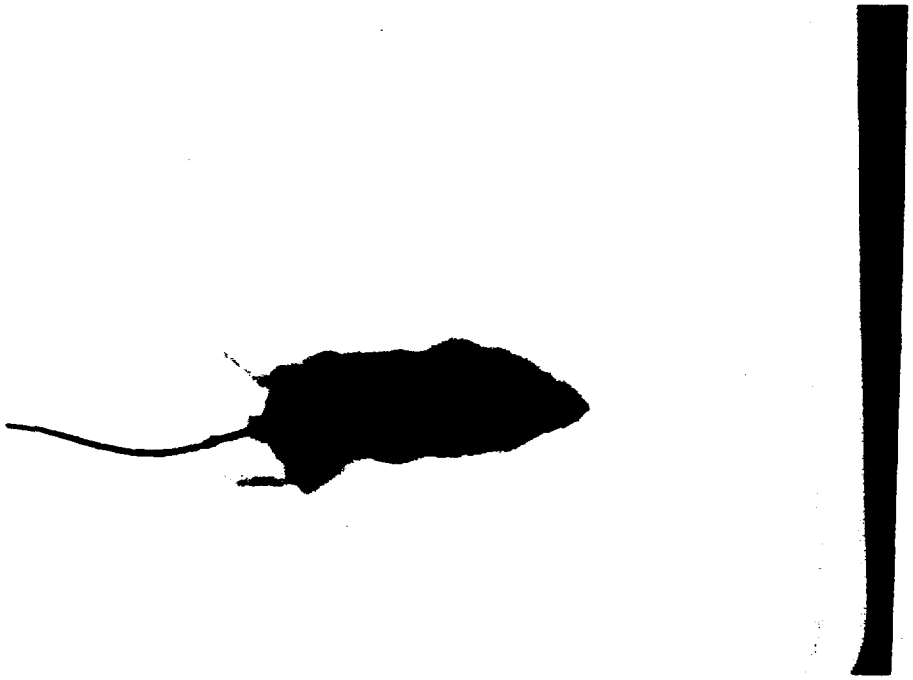
1094912.F

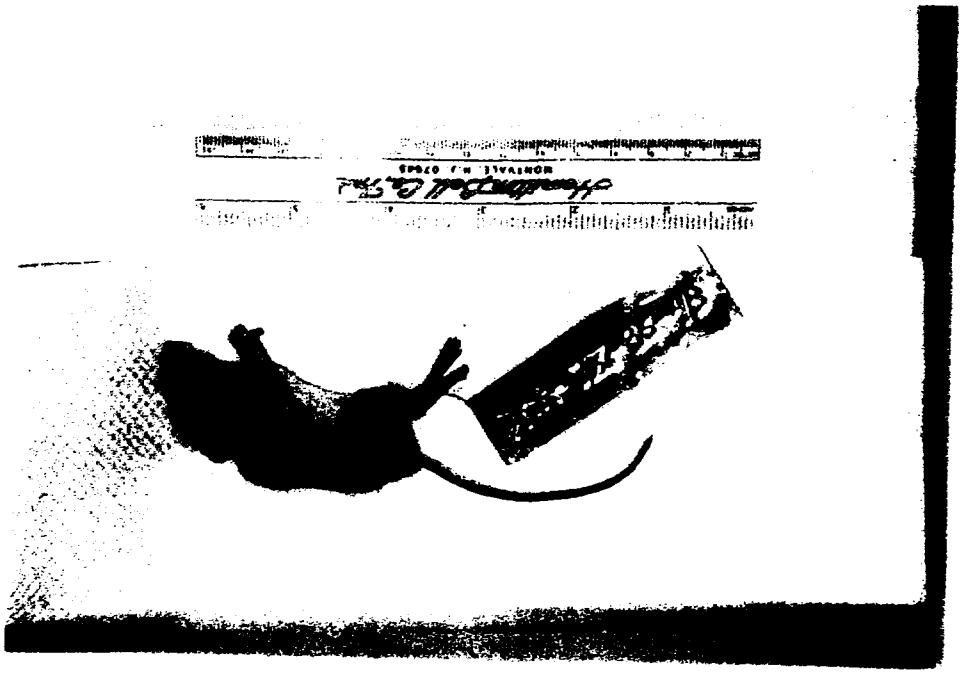
K44040

K44041

6/17/94
1494912F

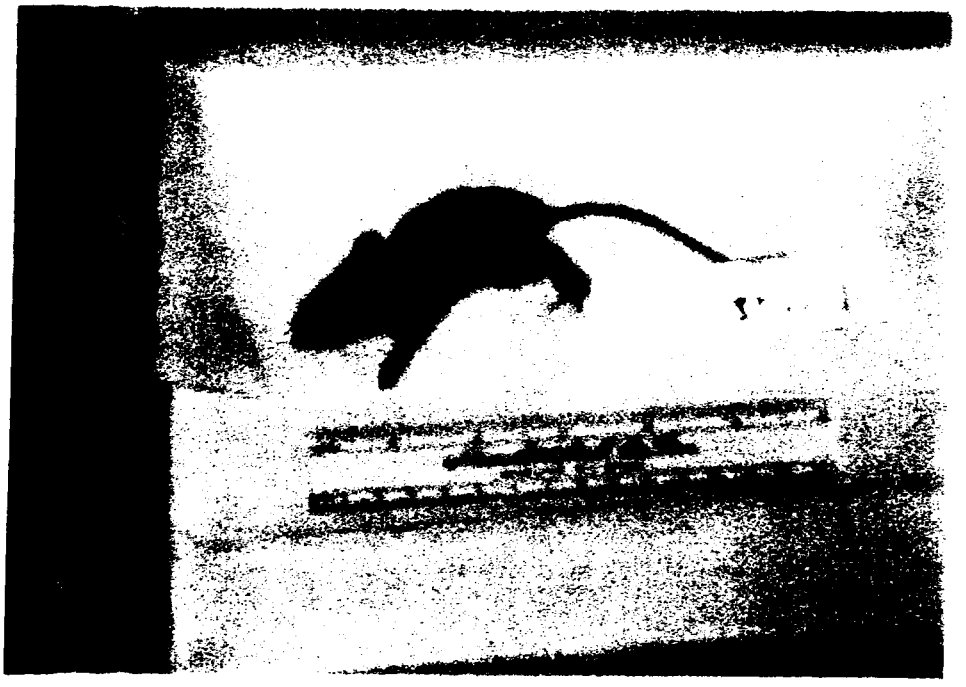


K44042



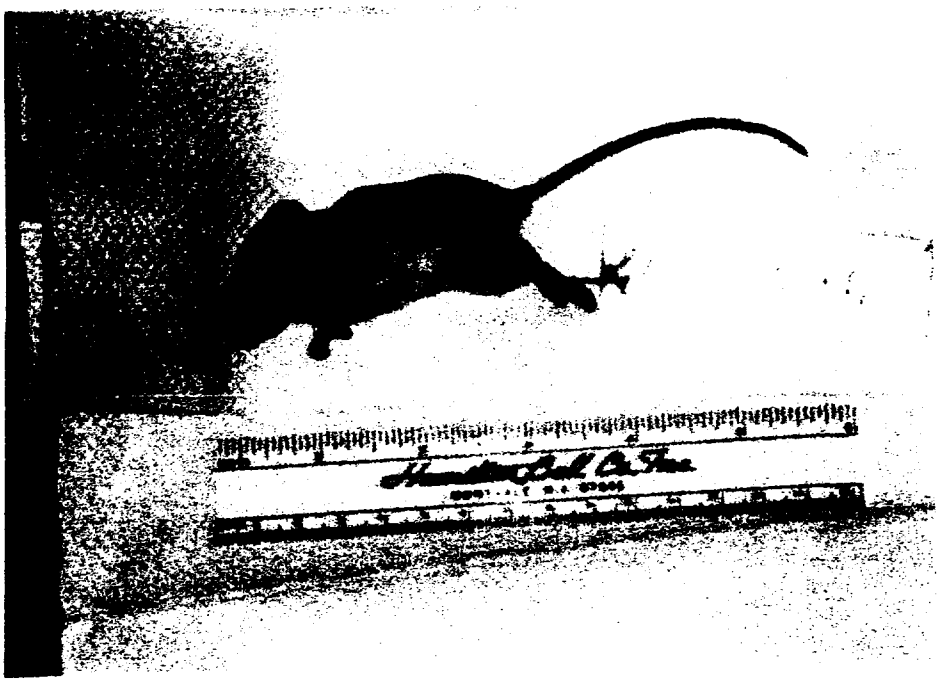
K44043

6/17/94
1494912F

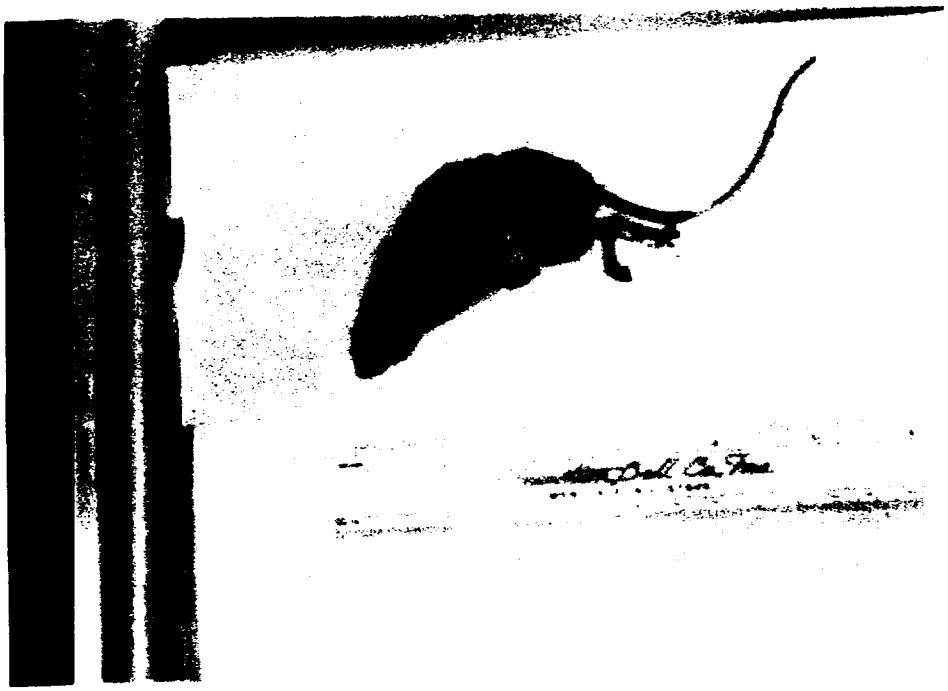


K44044

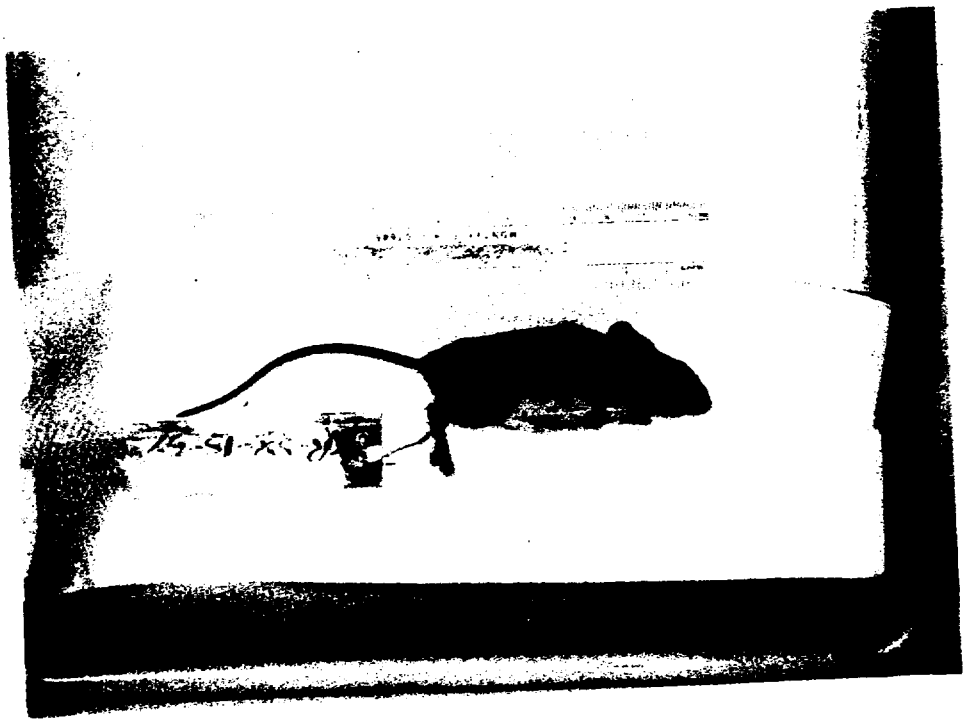
K44045



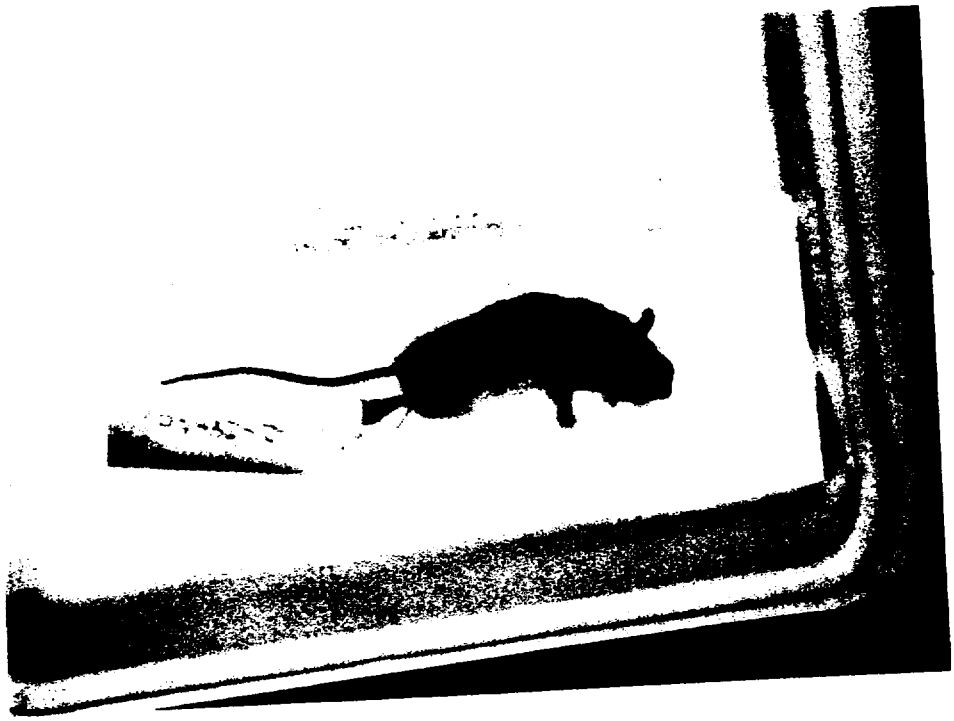
K44046



K44047



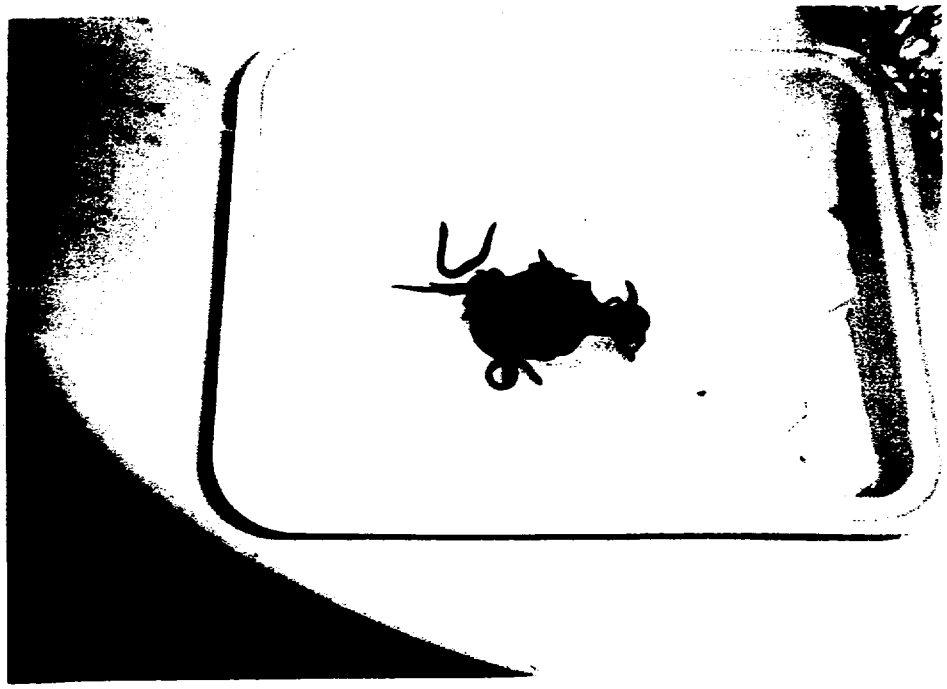
K44048



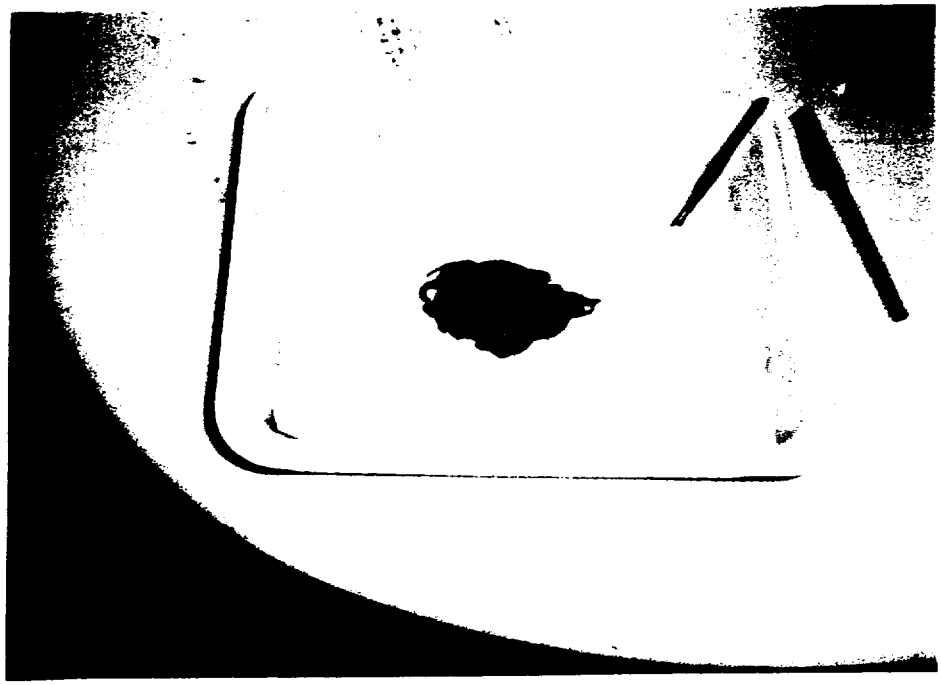
K44049

Earthworms
(*Lumbircus sp., Aporrectodea sp., Dendrobaena sp.*)

K46012



K46013



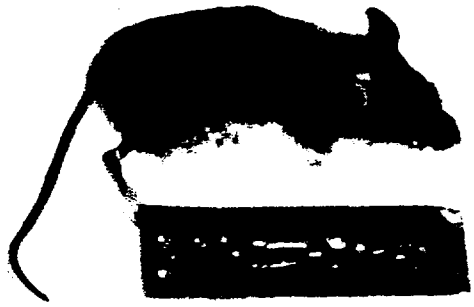
K46014

TBSA #11

White-footed Mouse	Earthworms
K44030	K46009
K44031	K46010
K44032	K46011
K44033	
K44034	
K44035	
K44036	
K44037	
K44038	
K44039	

White-footed Mouse (*Peromyscus leucopus*)

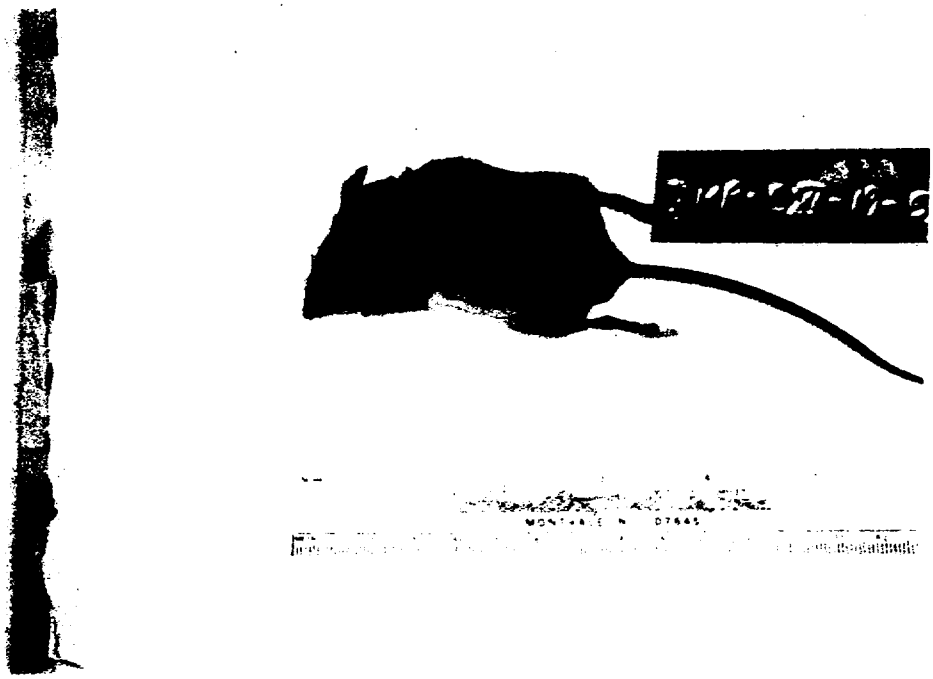
6/20/94
1094912.F



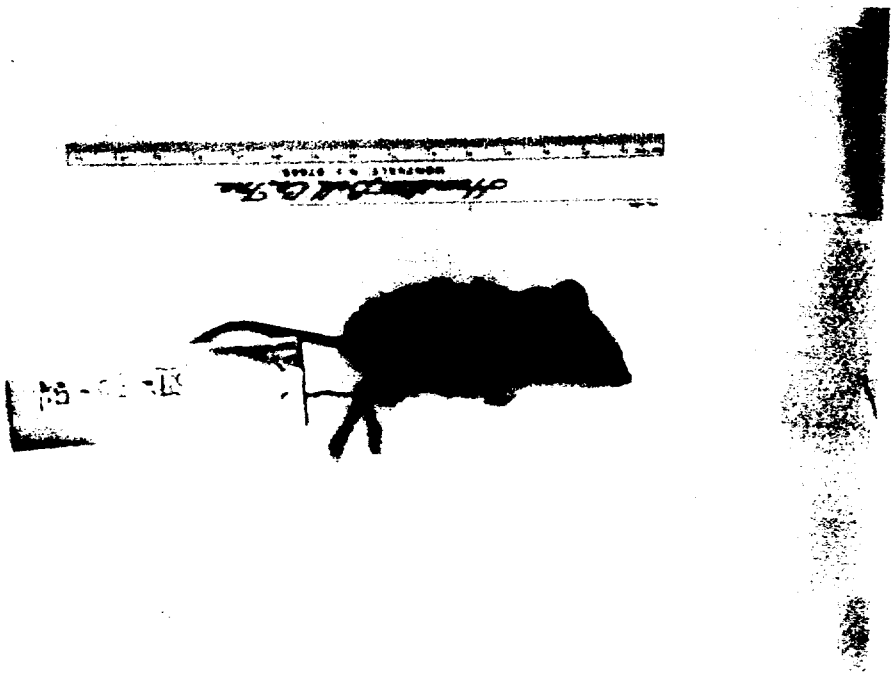
K44030

K44031

6/17/94
1494912F

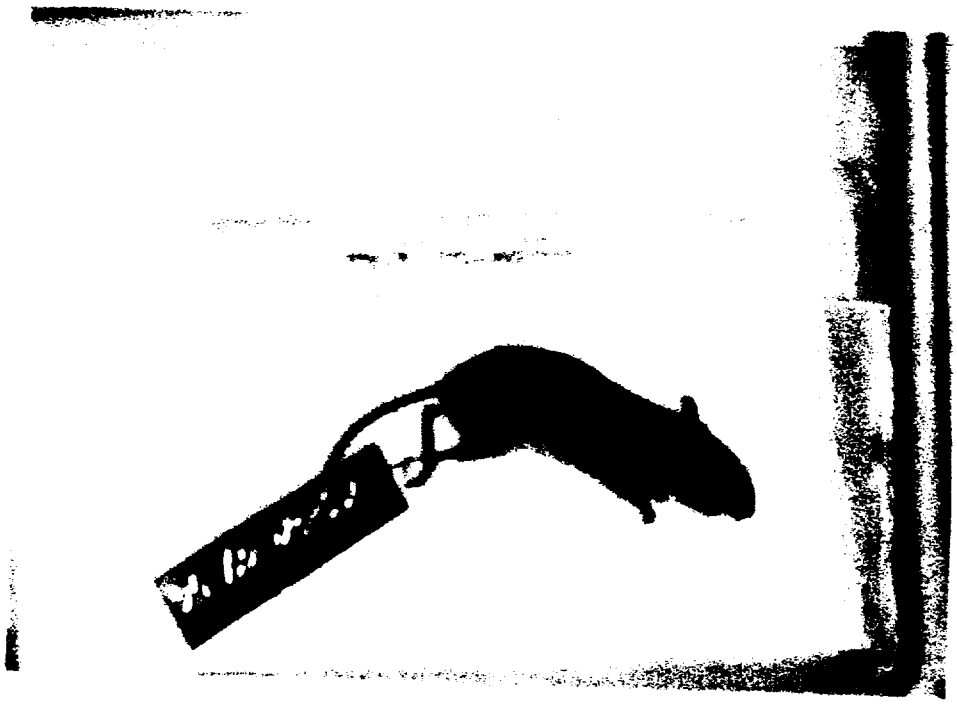


K44032



K44033

K44034



K44035

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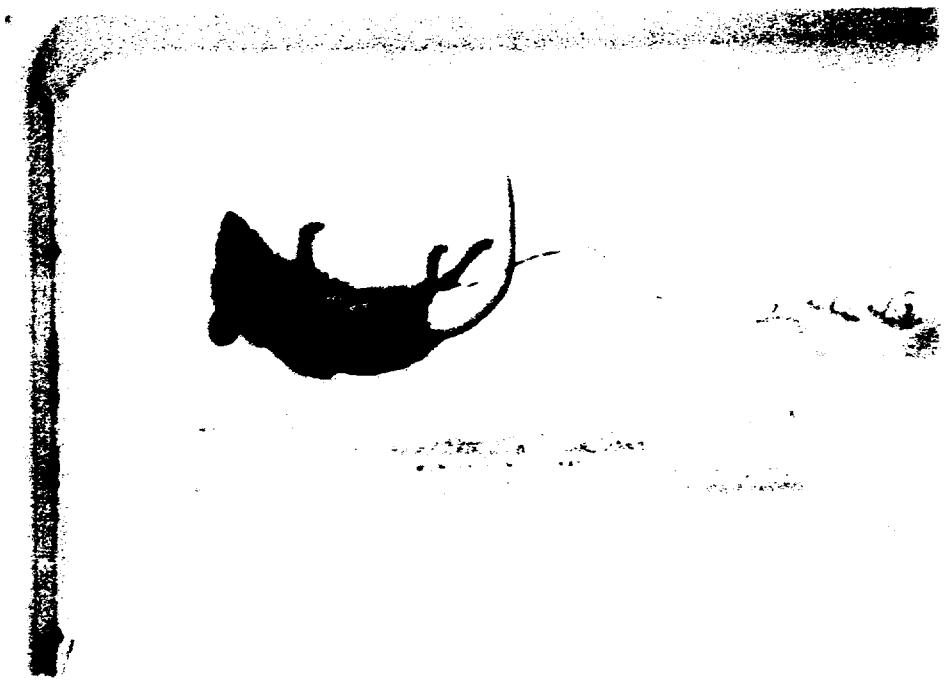
1494912F

K44036



K44037

6/17/94
1494912F

K44038

K44039

Earthworms
(*Lumbircus sp., Aporrectodea sp., Dendrobaena sp.*)

K46009

K46010

K46011

6/17/94
1494912F