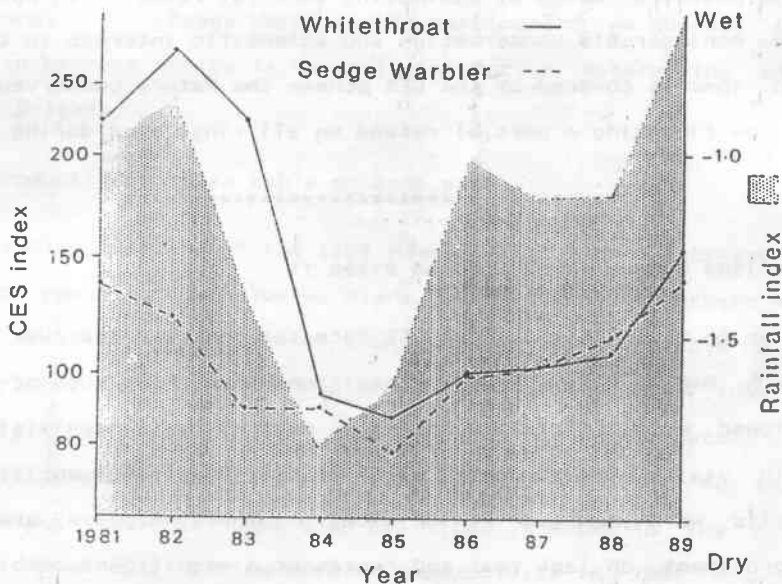
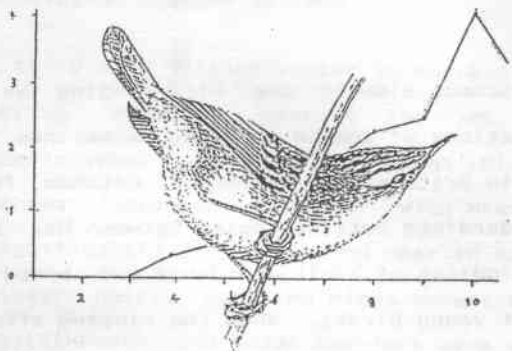


CES News

Number Four



This graph shows changes in the numbers of adult Whitethroats and Sedge Warblers caught on CES sites since 1981 in relation to rainfall during the previous autumn in the west African wintering quarters. Damper conditions in recent years probably account for the larger catches in Britain. Rainfall indices kindly supplied by Dr. G. Farmer of the Climatic Research Unit, U.E.A.

This is the fourth edition of the newsletter intended to keep CES ringers up to date with progress and developments within the CES Scheme.

The Constant Effort Sites Scheme aims to use bird-ringing as a technique for monitoring populations of common breeding passerines in wetland and scrub habitats in Britain and Ireland. Catches from ringing sites operating a standardised netting regime between May and August are used to calculate indices of adult abundance and breeding productivity (the proportion of young birds). When the ringing effort is constant the rate at which adults are retrapped in successive years can provide measures of annual survival. For many species this is the only practical means of estimating survival rates. In recognition of the considerable conservation and scientific interest in the habitats and species covered by the CES Scheme the Nature Conservancy Council is now financing a partial refund on all rings used during CES visits.

The 1989 Season - One Hundred Sites !!

As we go to press the 100th CES data set for 1989 has just arrived at Beech Grove. Dry, sunny conditions throughout much of the summer allowed most CES ringers to fit in most of their main visits. All 12 main visits were completed at 61 of the 100 sites, whilst least 10 visits were managed at 82 sites. These figures are a marked improvement on last year and represent a magnificent combined effort. We were very pleased to welcome fourteen new sites to the scheme in 1989, several of which produced excellent catches. A further nine new sites have so far been registered for 1990.

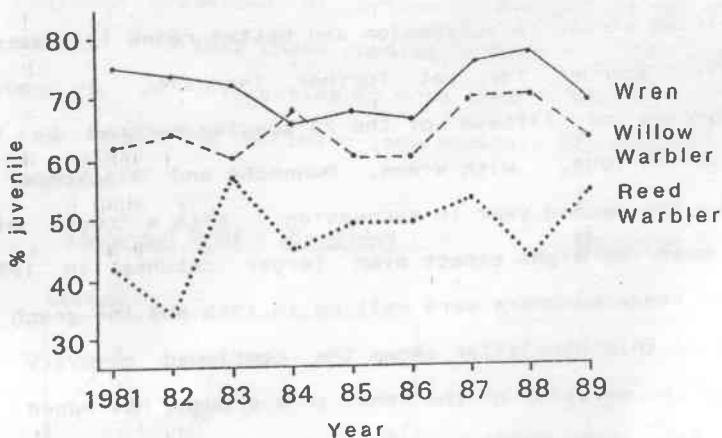
Population Changes in 1989

A third mild British winter in succession and better rains in western Africa probably account for yet further increases in adult populations. Catches of fifteen of the 23 species covered by the scheme increased in 1989, with Wrens, Dunnocks and Blackcaps up significantly for the second year in succession. With a fourth mild winter nearly past we might expect even larger catches in 1990. Whitethroats and Sedge Warblers were well up in 1989 and the graph on the front page of this newsletter shows the continued recovery of these species as the severity of the Sahel zone drought has waned in recent years. For Sedge Warbler, in particular, we suspect that rainfall in western Africa is the critical factor determining adult numbers in Britain.

Breeding Productivity (see table on back page)

The outstanding feature of the 1989 summer was the huge increase in the catch of young *Acrocephalus* warblers. Juvenile Sedge Warblers were 62% more abundant in 1989 whilst young Reed Warblers were 51% up on 1988. Fortunes were mixed, however, with significant declines in productivity (the proportion of young birds in the total catch) for Wren, Blackcap and Willow Warbler. Trends in productivity for three species caught in large numbers on CES sites is shown in the graph below. For Wren and Willow Warbler productivity in 1989 was not therefore unusually low, and the significant declines probably represent a 'return to normality' after two highly productive years. It is worth noting that although the proportion of young Wrens in the entire catch fell in 1989, the actual number of juveniles caught was

higher than in any year since the start of CES ringing in 1981.



Blackcaps and Whitethroats appear to have experienced a poor breeding season in 1989 although catches were well up at some sites. The unusually parched conditions in July and August 1989 probably restricted food availability at many sites, and this may have encouraged the aggregation of young scrub warblers on fewer but bountiful feeding sites. At one Hertfordshire CES site, for example, a bumper crop of wild raspberries attracted more than a hundred young *Sylvia* warblers compared to only 30 in 1988.

Rarities

Amongst this years more unusual captures at CES sites were Savi's Warbler (ringed in Warwickshire in May, controlled in Herts in July), Aquatic Warbler (Kent), Icterine Warbler and Woodcock (Co. Kerry), Wood Warbler (Northumbria and Kent), Firecrest (Lincs), Barn Owl (Norfolk) and Hobby (Herts). One site in Kent produced Whinchat, Stonechat and Lesser Spotted Woodpecker.

Estimating survival rates from retraps

An important aim of the CES Scheme is to provide estimates of annual adult survival for a range of common passerines. This is particularly important for groups like the warblers which have very low recovery rates and therefore little is known about mortality.

Statistical procedures now exist which estimate survival rates from mark-recapture data of the type currently being generated at CES sites. The analysis program we favour is called SURGE which divides mark-recapture data into two separate components: survival rate and capture probability. In other words the chance of retrapping an adult ringed in a previous year depends not only on the survival rate of the population but also on the probability of catching those surviving birds. When ringing effort is reasonably constant between years (as at CES sites) then recapture probability is unlikely to vary between years. This is very important because it allows the user to fit simpler models to describe the retrap data, and this allows survival rates to be estimated with much greater precision. We have now looked at long runs of retrap data for Reed, Sedge and Willow Warbler and in each case the constant effort methodology was essential for the generation of meaningful survival estimates. It was interesting to find that long-term netting at both Marsworth Reservoir (Herts) and Wicken Fen (Cambs) produced more between-year retraps of adult Reed Warblers than there were recoveries from the entire British ringing scheme !!

A new version of SURGE allows survival rates to be calculated using retrap data from more than one ringing site. Obviously this will be invaluable for the efficient use of CES data.

HOW EFFICIENT IS YOUR CES SITE ?

In this table all CES sites operated during 1989 are ranked according to catching efficiency (birds per unit net length), the most efficient sites at the top. On the following page this same information is summarised for different habitats and different regions. Total catch size indicates the contribution of each site to the national trends.

Order	Site No.	No. Visits	Total catch	Mean catch (X)	St.Net Length (feet) (Y)	Catching Efficiency Index (=X/Y)*1000	Habitat type (a)	Region (b)
1	34	12	419	34.9	190	183.8	WS	SE
2	175	12	331	27.6	160	172.4	DS	SE
3	241	9	263	29.2	180	162.3	DS	NE
4	82	12	545	45.4	280	162.2	RB	SE
5	244	12	444	37.0	240	154.2	DS	NE
6	240	12	561	46.8	310	150.8	DS	CE
7	115	12	483	40.3	270	149.1	WS	NE
8	150	12	853	71.1	480	148.1	RB	CE
9	105	12	463	38.6	270	142.9	WS	NE
10	183	9	332	36.9	260	141.9	WS	IR
11	20	12	347	28.9	210	137.7	WD	NE
12	235	12	488	40.7	320	127.1	DS	SC
13	103	12	608	50.7	400	126.7	WS	CE
14	124	12	364	30.3	240	126.4	DS	SE
15	177	12	272	22.7	180	125.9	DS	SE
16	122	12	573	47.8	380	125.7	RB	SE
17	220	12	484	40.3	340	118.6	DS	CE
18	123	12	568	47.3	400	118.3	WS	NE
19	236	11	389	35.4	310	114.1	RB	SC
20	148	12	205	17.1	150	113.9	WS	NE
21	28	12	217	18.1	160	113.0	DS	NE
22	239	11	591	53.7	480	111.9	WS	SE
23	217	11	401	36.5	330	110.5	RB	SE
24	138	12	341	28.4	260	109.3	WS	CE
25	243	12	467	38.9	360	108.1	DS	NE
26	226	12	481	40.1	380	105.5	WS	CE
27	223	12	530	44.2	430	102.7	DS	SE
28	154	12	547	45.6	450	101.3	RB	SE
29	4	12	729	60.8	600	101.3	WS	SE
30	141	12	352	29.3	290	101.1	RB	CE
31	143	11	598	54.4	540	100.7	RB	SE
32	74	9	262	29.1	290	100.4	WD	SE
33	144	12	573	47.8	480	99.5	WS	CE
34	153	12	365	30.4	310	98.1	DS	NE
35	163	12	222	18.5	192	96.4	DS	NE
36	227	10	225	22.5	240	93.8	RB	NE
37	25	12	584	48.7	520	93.6	WS	SE
38	229	12	593	49.4	530	93.2	DS	NE
39	180	12	244	20.3	220	92.4	DS	NE
40	245	10	421	42.1	460	91.5	WS	CE
41	215	12	279	23.3	260	89.4	DS	SC

Order	Site No.	No. Visits	Total catch	Mean catch (X)	St.Net Length (feet) (Y)	Catching Efficiency Index (=X/Y)*1000	Habitat type (a)	Region (b)
42	182	11	350	31.8	360	88.4	WS	SE
43	104	12	451	37.6	440	85.4	WS	CE
44	247	12	245	20.4	240	85.1	DS	CE
45	117	12	345	28.6	340	84.6	RB	SE
46	158	10	286	28.6	340	84.1	DS	IR
47	137	12	312	26.0	320	81.3	WS	NE
48	10	12	359	29.9	372	80.4	DS	CE
49	95	12	173	14.4	180	80.1	DS	SE
50	149	10	238	23.8	300	79.3	RB	SE
51	152	12	758	63.2	798	79.2	WS	SE
52	129	12	225	18.8	240	78.1	DS	SE
53	221	12	374	31.2	400	77.9	WS	SE
54	224	10	295	29.5	380	77.6	DS	NE
55	70	12	444	37.0	480	77.1	DS	CE
56	110	10	250	25.0	330	75.8	WD	NE
57	135	11	247	22.5	300	74.8	RB	SE
58	167	10	949	94.9	1284	73.9	DS	SE
59	234	12	530	44.1	600	73.6	DS	NE
60	248	10	247	24.7	340	72.6	WS	SE
61	251	12	572	47.6	660	72.2	RB	SE
62	242	10	133	13.3	190	70.0	WS	SC
63	136	11	328	29.8	426	70.0	DS	CE
64	17	12	176	14.6	210	69.8	WS	SE
65	131	12	239	19.9	290	68.7	RB	CE
66	160	12	647	53.9	820	65.7	WS	CE
67	42	12	283	23.6	370	63.7	DS	NE
68	54	12	296	24.7	390	63.2	DS	SE
69	111	11	386	35.1	560	62.7	WS	SE
70	86	12	406	33.8	550	61.5	RB	SE
71	228	12	147	12.3	200	61.3	DS	NE
72	84	11	605	55.0	900	61.1	WD	SE
73	63	9	227	25.2	420	60.1	WD	IR
74	186	12	393	32.8	570	57.5	RB	CE
75	133	12	204	17.0	300	56.7	WS	SE
76	100	11	200	18.2	330	55.1	DS	CE
77	156	12	228	19.0	360	52.8	DS	SE
78	13	12	375	31.3	600	52.1	WD	CE
79	116	12	230	19.2	370	51.8	DS	SE
80	233	12	272	22.7	450	50.4	WS	CE
81	92	12	212	17.7	360	49.1	DS	CE
82	179	12	106	8.8	220	40.2	RB	NE
83	132	12	86	7.2	180	39.8	WS	CE
84	64	12	113	9.4	270	34.9	WD	SE
85	185	11	113	10.3	324	31.7	WD	SE
86	118	11	131	11.9	380	31.3	WS	SE

- a. WS wet scrub; DS dry scrub; RB reedbed; WD woodland;
b. CE central England (and Wales); NE northern England;
SE southern England; SC Scotland; IR Ireland.

Habitat Split

The table below confirms the generally held view that woodland ringing sites produce fewer birds per net than scrub and reedbed sites. It should be stressed that neither the average catch nor the catching efficiency at woodland sites was statistically significantly lower than at scrub and reedbed sites (using analysis of variance).

Habitat	No. Sites	mean net length (feet)	mean catch		mean catching efficiency
			visits 1-6	1-12	
Dry scrub	33	342	26.4	30.3	95
Wet scrub	28	386	26.8	34.9	94
Reedbed	17	384	22.7	35.6	94
Woodland	8	418	25.0	26.8	69

It is apparent from this table that catches at woodland sites are relatively poor in the later half of the CES season. In other words, woodland sites tend to produce fewer juveniles than scrub and reedbed sites. This could be a result of either fewer young birds using woodland habitats or of a tendency for young birds to forage high in the canopy (as in case of Blue Tits and Great Tits) out of the reach of mist nets.

Regional split

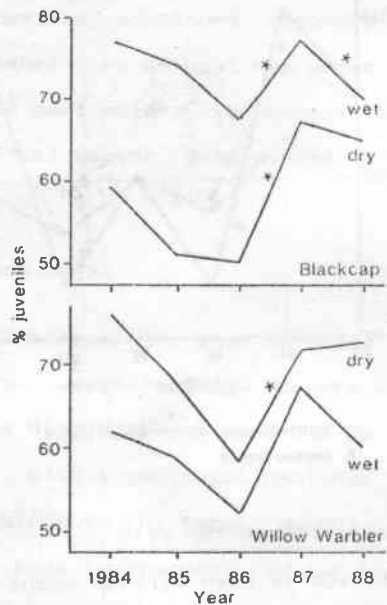
There is no evidence of regional differences in catching efficiency. Although CES sites in central and southern England did tend to produce slightly higher catches on average during 1989, the differences were far from being statistically significant.

Region	No. Sites	mean net length (feet)	mean catch		mean catching efficiency
			visits 1-6	1-12	
Scotland	4	270	17.1	28.1	100
Ireland	3	322	22.1	30.2	101
northern England	21	295	22.6	28.9	102
central England	22	407	27.2	34.3	86
southern England	36	414	27.9	34.3	88

HABITAT AND REGIONAL TRENDS

As part of a detailed analysis of trends and variation within CES data I have calculated trends in adult abundance and productivity for different habitats and geographic regions since 1983. For the habitat split each CES site was classified as either 'wet' or 'dry', according to the species composition of the adult catch. 'Wet' sites include all dry scrub and woodland sites whilst 'dry' sites include all reedbed and most wet scrub sites. Sites with both wet and dry patches were classified on the basis of a species ordination approach.

For most species trends in adult abundance and productivity are very similar between habitats and between regions. Some of the differences that do arise are quite interesting; for example the decline in adult Willow Warblers between 1986 and 1987 was much greater on drier sites than on wetter sites. Also young Blackcaps are consistently more abundant on wetter sites, whilst the reverse is true for young Willow Warblers (see graph opposite).

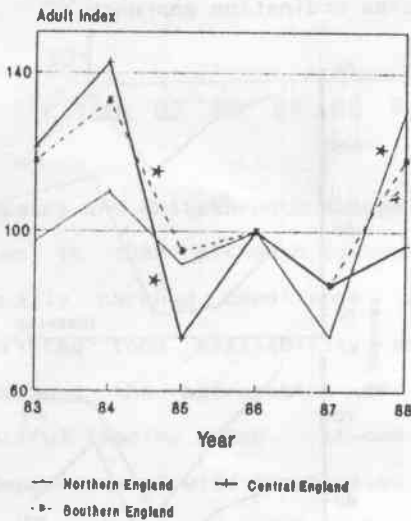


(* statistically significant change)

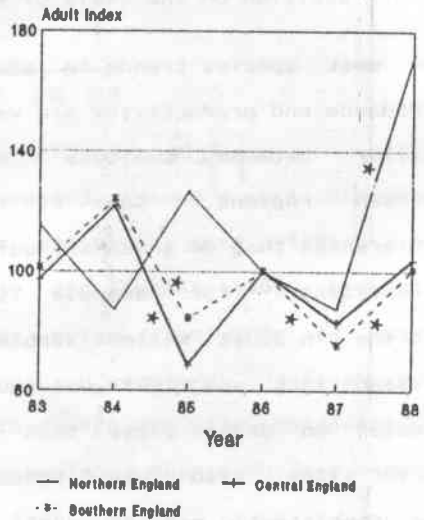
The regional division was based upon the areas defined on the back of the age-specific totals forms. As there are so few sites from Scotland and Ireland the analysis is restricted to northern, central and southern England. Again there is very little evidence of

pronounced regional differences in capture trends. Here I present the regional breakdown of trends in adult captures for Blackbird and Robin. In 1988 these species increased by 26% and 43% respectively, and it is interesting to note that in each case the increase was significant in northern and southern England but not in central England.

Regional Split - Blackbird



Regional Split - Robin



QUOTATION OF THE YEAR

If you've been worried about habitat changes on your CES site always remember there are others worse off than yourself. Take the case of poor old Harry Vilkaitis in Yorkshire

".... sometime before the season started an earthmover drove through the reedbed. Between visits 2-3 an earthmover went in and partially drained the square pond. Between visits 6-7 the square pond was totally drained and all bushes and trees in and around the area uprooted."

Even with the site crumbling before his very eyes Harry still completed all 12 visits !! Fortunately for the CES scheme Harry has two surviving sites to keep him busy in 1990.

PUBLICATIONS

Several papers have come to my notice which may be of interest to CES ringers.

1. Biometrics, capture data and sex ratio in relation to migration in Blackcaps by G.J. Holloway & P.J. Edwards. Ringing and Migration, 1989, Volume 10, 108-112.

Catches of first year Blackcaps at this CES site were biased in favour of males, particularly during September and October. Males also had higher fat scores.

2. Bayesian estimation of population size by L.G. Underhill. Proceedings of the EURING technical conference, Sempach 1989. To be published in The Ring.

Bayesian statistics are employed to estimate population size using mark-recapture data from a reedbed CES site in Essex. As more visits are made the proportion of new to retrapped adult Reed Warblers is used to give increasingly precise estimates of population size. A very promising technique.

3. Estimating survival rates using mark-recapture data from multiple ringing sites by W.J. Peach, S.T. Buckland & S.R. Baillie. Proceedings of the EURING technical conference, Sempach 1989. To be published in The Ring.

Using programs SURGE and RECAPCO to estimate survival rates of Acrocephalus warblers from two long-running ringing sites in southern England (described earlier in this newsletter).

4. Influence of resource abundance on use of tree-fall gaps by birds in an isolated woodlot by J.G. Blake and W.G. Hoppes. The Auk, 1986, Volume 103, 328-340.

Constant effort netting was used to compare species composition forest understory and tree-fall gaps. Further evidence is presented to suggest that birds are attracted to tree-fall gaps where food is often abundant.

RINGERS' CONFERENCE

Those of you who witnessed the volume of BTO wine consumed at the Research Meeting for CES ringers on Saturday evening at the Swanick Ringers' Conference are probably surprised to see I am still employed at Beech Grove. Whilst the obvious popularity of this event (particularly from the Dyfed contingent !) necessitates its continuation at future Swanicks, BTO alcohol provisions are likely to be severely restricted. I suggest, therefore, that next year's CES Research Meeting be made a 'Bring-A-Bottle' affair.

See you there

W. J. Peach

TABLE 1. CHANGES IN TOTAL CAPTURES ON CES SITES FROM 1988 TO 1989

Species	ADULTS (VISITS 1-12)					JUVENILES (VISITS 1-12)				
	n	Total 1988	Total 1989	% Change	SE	n	Total 88	Total 89	% Change	SE
Wren	59	310	485	+56*	8.9	60	1037	1067	+3	7.3
Dunnock	60	385	448	+16*	7.3	60	662	692	+5	13.1
Robin	57	223	266	+19	12.1	59	846	877	+4	6.9
Blackbird	60	632	662	+5	7.9	58	434	383	-12	7.9
Song Thrush	55	205	213	+4	10.5	54	165	135	-18	13.7
Sedge Warbler	42	544	649	+19	11.0	42	678	1099	+62*	26.5
Reed Warbler	41	1032	995	-4	4.4	44	777	1173	+51*	14.1
Lesser Whitethroat	44	154	173	+12	12.3	49	168	180	+7	19.3
Whitethroat	45	228	309	+36*	16.8	50	398	413	+4	9.8
Garden Warbler	50	228	222	-3	9.4	53	181	234	+28	23.1
Blackcap	56	422	484	+15*	7.6	56	926	676	-27*	7.4
Chiffchaff	46	213	215	+2	12.7	52	885	618	-30*	8.2
Willow Warbler	58	951	1030	+8	5.5	60	2270	1745	-23*	7.5
Long-tailed Tit	49	192	260	+35	23.1	42	327	484	+48	34.6
Blue Tit	59	449	345	-23*	5.3	60	1330	1308	-2	12.6
Great Tit	57	254	227	-11	7.5	59	757	504	-33*	9.0
Chaffinch	49	288	277	-4	9.6	41	248	219	-12	23.4
Greenfinch	32	118	141	+19	18.2	24	104	80	-23	23.8
Linnet	19	85	90	+6	19.1	14	45	20	-56*	19.7
Redpoll	20	125	77	-38*	17.5	13	42	42	0	21.3
Bullfinch	56	420	396	-6	6.9	51	243	210	-14	9.2
Reed Bunting	39	201	227	+13	13.0	32	130	138	+6	27.4
Treecreeper	32	45	54	+20	29.2	40	82	127	+55	30.5

TABLE 2. CHANGES IN THE PERCENTAGE OF JUVENILES CAUGHT ON CES SITES FROM 1988 TO 1989

Species	n	Paired sites 1988-1989				Diff in % juv
		Total 1988	% juv 1988	Total 1989	% juv 1989	
Wren	58	1347	77	1552	69	-8*
Dunnock	58	1047	63	1140	61	-2
Robin	57	1069	79	1143	77	-2
Blackbird	58	1066	41	1045	37	-4
Song Thrush	50	370	45	348	39	-6
Sedge Warbler	38	1222	55	1748	63	+8
Reed Warbler	39	1809	43	2168	54	+11*
Lesser Whitethroat	33	322	52	353	51	-1
Whitethroat	45	626	64	722	57	-7
Garden Warbler	47	411	44	456	51	+7
Blackcap	53	1348	69	1160	58	-11*
Chiffchaff	46	1118	79	833	74	-5
Willow Warbler	58	3221	70	2775	63	-7*
Long-tailed Tit	43	519	63	744	65	+2
Blue Tit	60	1779	75	1653	79	+4
Great Tit	57	1011	75	731	69	-6
Chaffinch	45	536	46	496	44	-2
Greenfinch	26	222	47	221	36	-11
Linnet	13	130	35	110	18	-17
Redpoll	13	167	25	119	35	+10
Bullfinch	52	663	37	606	35	-2
Reed Bunting	33	331	39	365	38	-1
Treecreeper	32	127	65	181	70	+5

n = number of paired sites

Total = total number of adults plus juveniles captured

% juv = percentage of captures which were juveniles

Diff in % juv = % juveniles in 1989 minus % juveniles in 1988

* = statistically significant change at 5% level