

CALCULATION OF PEAK DAY OF DEAD COUNT.

DAY	X No.	F	Fx	X ²	Fx ²
Aug 28	1	24	24	1	
29	2	46	92	4	
30	3	34	102	9	
31	4	89	356	16	
Sept 1	5	73	365	25	
2	6	95	570	36	
3	7	105	735	49	
4	8	126	1008	64	
5	9	108	972	81	
6	10	103	1030	100	
7	11	95	1045	121	
8	12	73	876	144	
9	13	66	858	169	
10	14	38	532	196	
11	15	40	600	225	
12	est. 16	(30)	480	256	
13	est. 17	(20)	340	289	
14					

$$\sum F = 1165 \quad (\sum Fx)^2 = 99,700,225$$

$$\sum Fx = 9985 \quad \frac{(\sum Fx)^2}{\sum F} = 85,580$$

$$\sum Fx^2 = 102,509$$

$$\bar{X} = \frac{\sum Fx}{\sum F} = \frac{9985}{1165} = 8.57$$

$$S_x^2 = \frac{\sum Fx^2 - \frac{(\sum Fx)^2}{\sum F}}{\sum F - 1} = \frac{102,509 - \frac{99,700,225}{1165}}{1165 - 1} = \frac{102,509 - 85,580}{1164} = 14.54$$

$$S_x = 3.8$$

$$S_{\bar{X}} = \frac{3.8}{\sqrt{1165}} = \frac{3.8}{34.2} = 0.11$$

Peak day, Sept 4

117
 119
 120
 121
 122
 123
 124
 125
 126
 127
 128
 129
 130
 131
 132
 133
 134
 135
 136
 137
 138
 139
 140
 141
 142
 143
 144
 145
 146
 147
 148
 149
 150
 151
 152
 153
 154
 155
 156
 157
 158
 159
 160
 161
 162
 163
 164
 165
 166
 167
 168
 169
 170
 171
 172
 173
 174
 175
 176
 177
 178
 179
 180
 181
 182
 183
 184
 185
 186
 187
 188
 189
 190
 191
 192
 193
 194
 195
 196
 197
 198
 199
 200

CALCULATION OF PEAK DAY OF LIVE COUNT.

- WMS ADULTS
1954

DAY	X No	F	x ²
AUG. 8	1	80	1
9	2	233	4
10	3	920	9
11	4	189	16
12	5	1553	25
13	6	686	36
14	7	1137	49
15	8	591	64
16	9	439	81
17	10	318	100
18	11	217	121
19	12		
20	13		
21	14		
22	15		
23	16		
24	17		
25	18		
26	19		
27	20		
28	21		
29	22		
30	23		
31	24		
1	25		
2	26		
3	27		
4	28		
5	29		
6	30		
7	31		
8	32		

$$\Sigma F = 6363$$

$$\Sigma Fx = 38,148 \quad (\Sigma Fx)^2 = 1,455,269,904$$

$$\Sigma Fx^2 = 262,990$$

$$\frac{(\Sigma Fx)^2}{\Sigma F} = 228,708$$

$$S_x = \frac{44,282}{6362}$$

$$= 6.95$$

$$S_x = 2.64$$

$$S_{\bar{x}} = \frac{2.64}{\sqrt{6363}} = \frac{2.64}{79.8} = 0.033$$

$$\bar{x} = \frac{\Sigma Fx}{\Sigma F} = \frac{38,148}{6363} = 6.0$$

Peak day Aug 13

Difference between live count and dead count

peak dead count (using live count code) = 28.57

peak live count (" ") = 6.95

Difference 21.62

$$S_{\text{diff}} = \sqrt{\frac{6.95}{6363} + \frac{14.57}{1165}}$$

$$= \sqrt{\frac{0.001092}{0.01248} + \frac{0.01248}{0.01357}}$$

$$= 0.116$$

Standard deviation of life span of tagged fish

x	λ _c	f	F	x ²
10	1	I	1	1
11	2	I	2	4
12	3	I	3	9
13	4	II	4	16
14	5	III	5	25
15	6	I	6	36
16	7	IIII	7	49
17	8	II	8	64
18	9	IIII III	9	81
19	10	III	10	100
20	11	IIII	11	121
21	12	IIII I	12	144
22	13	III	13	169
23	14	IIII	14	196
24	15	II	15	225
25	16	IIII	16	256
26	17	I	17	289
27	18		18	324
28	19		19	361
29	20	I	20	400

$$\sum f = 52$$

$$\sum fx = 530$$

$$\sum fx^2 = 6280$$

$$S_x^2 = \frac{\sum fx^2 - \frac{(\sum fx)^2}{\sum f}}{N-1}$$

$$\frac{6280 - \frac{530^2}{52}}{51} = 17.2$$

$$S_x = 4.15$$

$$S_{\bar{x}} = \frac{4.15}{\sqrt{52}} = \frac{4.15}{7.22} = 0.574$$

$$\bar{x} = \frac{530}{52} = 10.19$$

decode add 9

$$\bar{x} = 19.19$$

Handwritten calculations for the sum of squares and the mean:

```

16
16
---
32
17
16
---
33
18
16
---
34
19
16
---
35
20
16
---
36
21
16
---
37
22
16
---
38
23
16
---
39
24
16
---
40
25
16
---
41
26
16
---
42
27
16
---
43
28
16
---
44
29
16
---
45
30
16
---
46
31
16
---
47
32
16
---
48
33
16
---
49
34
16
---
50
35
16
---
51
36
16
---
52
37
16
---
53
38
16
---
54
39
16
---
55
40
16
---
56
41
16
---
57
42
16
---
58
43
16
---
59
44
16
---
60
45
16
---
61
46
16
---
62
47
16
---
63
48
16
---
64
49
16
---
65
50
16
---
66
51
16
---
67
52
16
---
68
53
16
---
69
54
16
---
70
55
16
---
71
56
16
---
72
57
16
---
73
58
16
---
74
59
16
---
75
60
16
---
76
61
16
---
77
62
16
---
78
63
16
---
79
64
16
---
80
65
16
---
81
66
16
---
82
67
16
---
83
68
16
---
84
69
16
---
85
70
16
---
86
71
16
---
87
72
16
---
88
73
16
---
89
74
16
---
90
75
16
---
91
76
16
---
92
77
16
---
93
78
16
---
94
79
16
---
95
80
16
---
96
81
16
---
97
82
16
---
98
83
16
---
99
84
16
---
100
85
16
---
101
86
16
---
102
87
16
---
103
88
16
---
104
89
16
---
105
90
16
---
106
91
16
---
107
92
16
---
108
93
16
---
109
94
16
---
110
95
16
---
111
96
16
---
112
97
16
---
113
98
16
---
114
99
16
---
115
100
16
---
116
101
16
---
117
102
16
---
118
103
16
---
119
104
16
---
120
105
16
---
121
106
16
---
122
107
16
---
123
108
16
---
124
109
16
---
125
110
16
---
126
111
16
---
127
112
16
---
128
113
16
---
129
114
16
---
130
115
16
---
131
116
16
---
132
117
16
---
133
118
16
---
134
119
16
---
135
120
16
---
136
121
16
---
137
122
16
---
138
123
16
---
139
124
16
---
140
125
16
---
141
126
16
---
142
127
16
---
143
128
16
---
144
129
16
---
145
130
16
---
146
131
16
---
147
132
16
---
148
133
16
---
149
134
16
---
150
135
16
---
151
136
16
---
152
137
16
---
153
138
16
---
154
139
16
---
155
140
16
---
156
141
16
---
157
142
16
---
158
143
16
---
159
144
16
---
160
145
16
---
161
146
16
---
162
147
16
---
163
148
16
---
164
149
16
---
165
150
16
---
166
151
16
---
167
152
16
---
168
153
16
---
169
154
16
---
170
155
16
---
171
156
16
---
172
157
16
---
173
158
16
---
174
159
16
---
175
160
16
---
176
161
16
---
177
162
16
---
178
163
16
---
179
164
16
---
180
165
16
---
181
166
16
---
182
167
16
---
183
168
16
---
184
169
16
---
185
170
16
---
186
171
16
---
187
172
16
---
188
173
16
---
189
174
16
---
190
175
16
---
191
176
16
---
192
177
16
---
193
178
16
---
194
179
16
---
195
180
16
---
196
181
16
---
197
182
16
---
198
183
16
---
199
184
16
---
200
185
16
---
201
186
16
---
202
187
16
---
203
188
16
---
204
189
16
---
205
190
16
---
206
191
16
---
207
192
16
---
208
193
16
---
209
194
16
---
210
195
16
---
211
196
16
---
212
197
16
---
213
198
16
---
214
199
16
---
215
200
16
---
216
201
16
---
217
202
16
---
218
203
16
---
219
204
16
---
220
205
16
---
221
206
16
---
222
207
16
---
223
208
16
---
224
209
16
---
225
210
16
---
226
211
16
---
227
212
16
---
228
213
16
---
229
214
16
---
230
215
16
---
231
216
16
---
232
217
16
---
233
218
16
---
234
219
16
---
235
220
16
---
236
221
16
---
237
222
16
---
238
223
16
---
239
224
16
---
240
225
16
---
241
226
16
---
242
227
16
---
243
228
16
---
244
229
16
---
245
230
16
---
246
231
16
---
247
232
16
---
248
233
16
---
249
234
16
---
250
235
16
---
251
236
16
---
252
237
16
---
253
238
16
---
254
239
16
---
255
240
16
---
256
241
16
---
257
242
16
---
258
243
16
---
259
244
16
---
260
245
16
---
261
246
16
---
262
247
16
---
263
248
16
---
264
249
16
---
265
250
16
---
266
251
16
---
267
252
16
---
268
253
16
---
269
254
16
---
270
255
16
---
271
256
16
---
272
257
16
---
273
258
16
---
274
259
16
---
275
260
16
---
276
261
16
---
277
262
16
---
278
263
16
---
279
264
16
---
280
265
16
---
281
266
16
---
282
267
16
---
283
268
16
---
284
269
16
---
285
270
16
---
286
271
16
---
287
272
16
---
288
273
16
---
289
274
16
---
290
275
16
---
291
276
16
---
292
277
16
---
293
278
16
---
294
279
16
---
295
280
16
---
296
281
16
---
297
282
16
---
298
283
16
---
299
284
16
---
300
285
16
---
301
286
16
---
302
287
16
---
303
288
16
---
304
289
16
---
305
290
16
---
306
291
16
---
307
292
16
---
308
293
16
---
309
294
16
---
310
295
16
---
311
296
16
---
312
297
16
---
313
298
16
---
314
299
16
---
315
300
16
---
316
301
16
---
317
302
16
---
318
303
16
---
319
304
16
---
320
305
16
---
321
306
16
---
322
307
16
---
323
308
16
---
324
309
16
---
325
310
16
---
326
311
16
---
327
312
16
---
328
313
16
---
329
314
16
---
330
315
16
---
331
316
16
---
332
317
16
---
333
318
16
---
334
319
16
---
335
320
16
---
336
321
16
---
337
322
16
---
338
323
16
---
339
324
16
---
340
325
16
---
341
326
16
---
342
327
16
---
343
328
16
---
344
329
16
---
345
330
16
---
346
331
16
---
347
332
16
---
348
333
16
---
349
334
16
---
350
335
16
---
351
336
16
---
352
337
16
---
353
338
16
---
354
339
16
---
355
340
16
---
356
341
16
---
357
342
16
---
358
343
16
---
359
344
16
---
360
345
16
---
361
346
16
---
362
347
16
---
363
348
16
---
364
349
16
---
365
350
16
---
366
351
16
---
367
352
16
---
368
353
16
---
369
354
16
---
370
355
16
---
371
356
16
---
372
357
16
---
373
358
16
---
374
359
16
---
375
360
16
---
376
361
16
---
377
362
16
---
378
363
16
---
379
364
16
---
380
365
16
---
381
366
16
---
382
367
16
---
383
368
16
---
384
369
16
---
385
370
16
---
386
371
16
---
387
372
16
---
388
373
16
---
389
374
16
---
390
375
16
---
391
376
16
---
392
377
16
---
393
378
16
---
394
379
16
---
395
380
16
---
396
381
16
---
397
382
16
---
398
383
16
---
399
384
16
---
400
385
16
---
401
386
16
---
402
387
16
---
403
388
16
---
404
389
16
---
405
390
16
---
406
391
16
---
407
392
16
---
408
393
16
---
409
394
16
---
410
395
16
---
411
396
16
---
412
397
16
---
413
398
16
---
414
399
16
---
415
400
16
---
416
401
16
---
417
402
16
---
418
403
16
---
419
404
16
---
420
405
16
---
421
406
16
---
422
407
16
---
423
408
16
---
424
409
16
---
425
410
16
---
426
411
16
---
427
412
16
---
428
413
16
---
429
414
16
---
430
415
16
---
431
416
16
---
432
417
16
---
433
418
16
---
434
419
16
---
435
420
16
---
436
421
16
---
437
422
16
---
438
423
16
---
439
424
16
---
440
425
16
---
441
426
16
---
442
427
16
---
443
428
16
---
444
429
16
---
445
430
16
---
446
431
16
---
447
432
16
---
448
433
16
---
449
434
16
---
450
435
16
---
451
436
16
---
452
437
16
---
453
438
16
---
454
439
16
---
455
440
16
---
456
441
16
---
457
442
16
---
458
443
16
---
459
444
16
---
460
445
16
---
461
446
16
---
462
447
16
---
463
448
16
---
464
449
16
---
465
450
16
---
466
451
16
---
467
452
16
---
468
453
16
---
469
454
16
---
470
455
16
---
471
456
16
---
472
457
16
---
473
458
16
---
474
459
16
---
475
460
16
---
476
461
16
---
477
462
16
---
478
463
16
---
479
464
16
---
480
465
16
---
481
466
16
---
482
467
16
---
483
468
16
---
484
469
16
---
485
470
16
---
486
471
16
---
487
472
16
---
488
473
16
---
489
474
16
---
490
475
16
---
491
476
16
---
492
477
16
---
493
478
16
---
494
479
16
---
495
480
16
---
496
481
16
---
497
482
16
---
498
483
16
---
499
484
16
---
500
485
16

```

COMPARISON OF DIFFERENCE
BETW. LIFESPAN OF TAGGED
& UNTAGGED FISH

$$\bar{x} - \text{all fish} = 21.62$$

$$\bar{x} - \text{tagged fish} = 19.19$$

$$\bar{x} - \text{diff} = 2.43$$

$$S_{\text{diff}} = \sqrt{0.11 + \frac{17.2}{52}}$$

$$= \sqrt{\frac{0.01357 + 0.330}{0.397}}$$

$$= 0.585$$

$$t = \frac{2.43}{0.585} = 4.15$$

probably significant