

is indicated by its own symbol, along with the associated female's ID. The vertical dashed black line in Fig A and B indicate estimated day of parturition. The 2000 ng pregnancy threshold is indicated by the horizontal dashed red line in Fig A, as is the 50 ng/g T cut-off for High and Low T samples in Fig B. The left vertical line in red indicates the Julian day where both P4 and T show sharp elevations.

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T3 and GC concentrations also varied across all sex, age and reproductive classes (Table 3). T3 was highest in juvenile and pubescent individuals compared to adults, with the exception of Low and High T successful pregnant and low T UPg females. All of those individuals also had a relatively high T3/GC ratio (> 0.3), indicative of relatively good nutrition (Table 3). By contrast, T3 in the High T UPg samples was comparable to that of non-pregnant adults (Table 3), and notably lower than the concentrations from successful pregnant and low T UPg females (Fig 3B). These High T UPg samples also had the highest GC concentrations of any reproductive class, was significantly higher than the GC concentrations in High T successful pregnancies. The T3/GC ratio in High T UPg females was lower than that of another other reproductive class (Table 3), indicative of nutritional stress (Table 3), and nearly 7 times lower than that among High T successful pregnancies. Indeed, the T3/GC ratio in High T successful pregnancies was higher than that for any other reproductive class, with the exception of lactating females (Table 3, Fig 3B).

3.3 Changes in T3 and GC concentrations relative to fish abundance over time across pregnancy groups

T3 and GC concentrations, along with the T3/GC ratios were separately compared among High T successful pregnant and UPg samples, across Julian date. (Low T samples were not included in these comparisons because their T3 and GC concentrations were not significantly different from those of confirmed pregnant females.) All three dependent variables were best predicted by a 3rd order polynomial of Julian date (p < 0.01). Similar to the overall population trend, T3 concentrations were highest in early summer, followed by a precipitous decline.

Table 3. Mean hormone concentration (ng/g dry feces) and (standard error) by sex and reproductive class for each hormone measured during the study.

Sex and Reproductive Class	Reproductive Hormones				
	Thyroid (T3)	Glucocorticoid (GC)	Progesterone	Testosterone	T3/GC Ratio
Juv F	248.40 (40.06)	610.73 (200.17)	794.40 (268.84) <i>b,k,u,C,J</i>	3.38 (1.14) <i>a,j,v,F</i>	0.69 (.24) <i>a,f</i>
Juv M	229.98 (26.98) <i>a,f</i>	501.03 (158.82)	800.96 (73.99) <i>a,j,t,B,K,O</i>	30.11 (7.84) <i>a-i</i>	0.44 (.05) <i>b,f</i>
Pub F	264.19 (47.49) <i>d,i</i>	955.08 (286.02)	305.90 (95.0) <i>g,q,y,F,H,J-N</i>	3.80 (1.90) <i>h,p,y,D,H</i>	0.70 (.31) <i>d</i>
Pub M	230.99 (29.34) <i>e</i>	1244.21 (310.87)	258.11 (42.15) <i>h,r,z,G,I,O-R</i>	19.32 (6.08) <i>q,A-E</i>	0.71 (.35)
Ad M	167.07 (10.63) <i>a-e</i>	1073.14 (114.92)	579.57 (38.14) <i>l,s,H-I</i>	126.67 (17.73) <i>l,r,u,w,z,E-H</i>	0.32 (.044) <i>e,f</i>
Ad F no-calf	169.97 (14.13)	1004.21 (135.15)	651.83 (68.28) <i>d,m,w,A,D,M,Q</i>	5.12 (1.60) <i>c,l,x,B</i>	0.35 (.057)
LoT Conf	250.78 (35.63) <i>c,h</i>	1127.81 (233.66)	6205.89 (2564.93) <i>g,o,B-G</i>	21.28 (5.78) <i>n,x-z</i>	0.37 (.14)
LoT UPg	252.56 (27.06) <i>b,g,i</i>	1288.23 (228.05)	6618.20 (2014.13) <i>e,n,t-z,A</i>	11.32 (3.2) <i>e,m,s-u</i>	0.82 (0.46)
HiT Conf	218.05 (45.6)	1057.31 (477.75) <i>a</i>	25587.17 (5116.49) <i>a-i</i>	215.34 (42.87) <i>f,t,v,w</i>	1.11 (.42) <i>c,e</i>
HiT UPg	177.1 (26.98)	1787.20 (467.83) <i>a</i>	37425.73 (12819.62) <i>j-s</i>	197.95 (39.7) <i>d,j-r</i>	0.16 (.035) <i>a-d</i>
Lactating	165.02 (24.70) <i>f-i</i>	1094.36 (270.03)	650.12 (84.68) <i>c,l,v,C,L,P</i>	22.71 (13.33) <i>b,k,s,A,G</i>	2.05 (1.59)
Post-Reprod F	199.01 (19.82) <i>j</i>	1039.2 (133.11)	662.30 (66.62) <i>f,p,x,y,E,N,R</i>	7.88 (1.89) <i>c,o,C</i>	0.36 (.068)

Significant differences between means in any two cells within the same column are indicated by the same italicized letter in both cells.

F = female, M = male, Juv = juvenile; Pub = pubescent, Ad = adult, T = testosterone, Conf = confirmed pregnant female by subsequent observation of a live calf; UPg = unsuccessful pregnancy.

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