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Estimation of energy budget for gonadal development migration and spawning of Anguilla anguilla L. inhabiting the Egyptian Lagoons

E.M. AMIN

National Institute of Oceanography and Fisheries, Alexandria (Egypt)

BSTRACT. The total energy of European silver eel ; the start of migration is sufficient to fulfill .l biological activities which begin with active .grations. We used the model of Boetius and Boetius 980) after our modification to became :

$$ = E_G + E_D + E_S + E_M$$

Material of the present work (100 alive samples non-migrating yellow eels and migrating silver ls) were collected in lagoon Edku (Egypt) in the riod from August 1986 to March 1987. Hormonal duction of gonad maturation was carried out on 30 mples. Contents of water, lipid, protein and ash muscles, liver, skin, intestine, bones and gonads re determined.

Lipid and protein are the main components of eel dy. Furthermore, lipid is considered as the princi- l source which supply most of required energy . otein, on the other hand, represents the second urce of energy.

Lipid energy in percent of total energy was lculated as 58.21 for male and 67.91 for female llow eel. These two values were significantly aller than those calculated for male (76.31) d female silver eel (80.07). In contrary to pid energy, the protein energy higher for both le (41.28) and female (32.09) yellow eel than ose of non injected male and female silver eel ing calculated as 23.69 and 19.93 respectively.

Lipid energy of immature testes amounted to .53 %, while immature ovaries was found to be .90 %. Further gonadal development showed a gnificant increase in lipid energy up to the rmation spermatozoa in ripe male (80.28 %) and .44 % at the time of appearence ripe ova in e female ovary.

About 25.08 % and 20.28 % from the total energy emed to be utilized in oogenesis and spermato - nesis respectively. 17.07 % and 15.78 % being ilized for ovulation and spermiation respectively. achieve migration and simultaneous routine tabolism,energy values of about 35.75 and 34.19% the total energy seemed to be utilized by female d male silver eel (Table 1). The energy of routine tabolism (E_R) is considered as a part of the energy migration was found to be higher in male 1.40 X 10^6 kg than that in female 0.97 X 10^6 J/kg.

Table 1- The determined values of energy of E_G, E_D, and E_M of ripe female and male European eel Anguilla anguilla

ex	E_T J X 10^6	E_G J X10^6	E_G % of E_T	E_D J X10^6	E_D % of E_T	E_M J X10^6	E_M % of E_T
♀	16.11	2.75	17.07	4.03	25.08	5.76	35.75
♂	14.45	2.28	15.78	2.93	20.28	4.94	34.19

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Induced maturation of female Silver Eel (Anguilla anguilla L.) leaving the brackish delta lakes for spawning

E.M. AMIN

National Institute of Oceanography and Fisheries, Alexandria (Egypt)

ABSTRACT. The European silver eel (Anguilla anguilla) gave positive results when the females treated with a combination of(HCG) human chorionic gonadotropin hormone and (CP) carp pitutary or with carp pitutary only.

Migrating female were obtained from lake Edku (Egypt), in winter, from October 1986 to November 1987. Females were selected according to size and colour. After acclimatized in sea water the experiments was started under the previously described conditions (Amin, 1986).

Injected females with a combination of HCG and CP attained their ripe condition after 11 injections within a period of 40 days. Injection with CP only gave the same results but the period was extended to 54 days and number of injections increased to 16 times. In both conditions ripe ova could be detected.

Several external and internal changes took place with increasing the number of injections. Colour of the body became more dark, eye diameter changed from 10 mm in non-injected silver eel to 16 mm in injected ripe eels (Fig. 1). Urogenital opening became more wide and bulged over the body surface (Fig.2). GSI changed

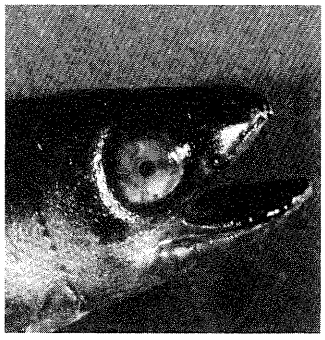

Fig. 1

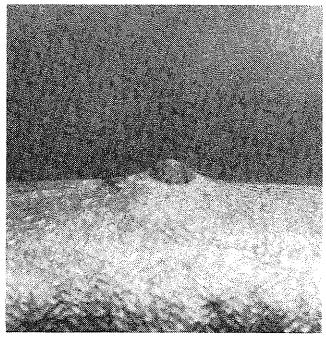

Fig. 2

Fig. 3

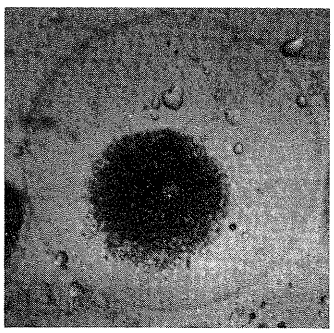

Fig. 4

from 1.66 when immatured to 31.41 in ripe condition (Fig.3).

Mean egg diameter measured 1.12 ± 0.06 mm, eggs were small, spherical with centrally positioned oil droplet (Fig. 4), fecundity was found to be 1.46 X 10^6.

Amin,E.M. 1986- Induced gonadal maturation of male European eel (Anguilla anguilla L.) inhabiting the Egyptian lakes. Arab.Gulf.J.Scient.Res. 4(1),293-301.

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