

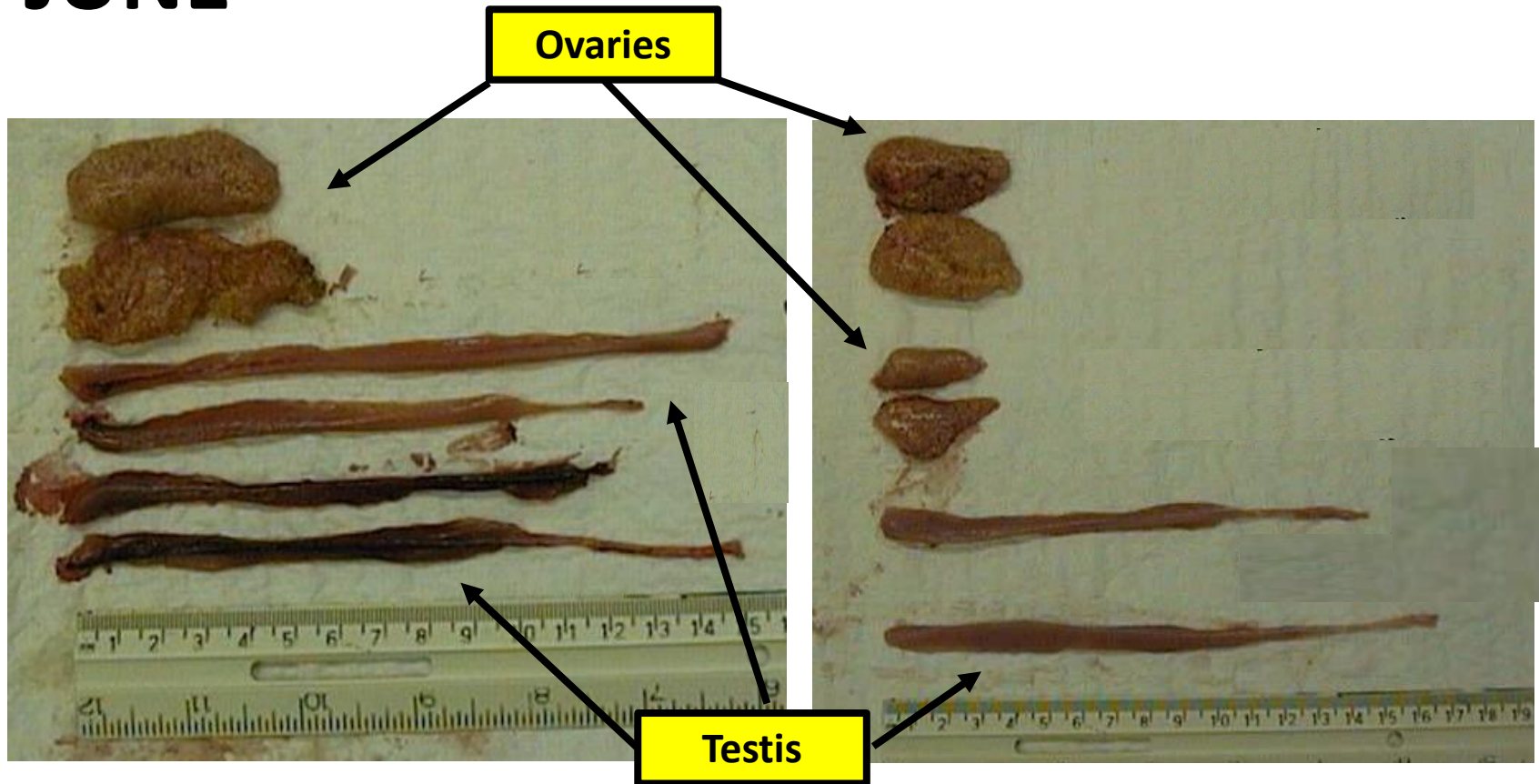
Sex-Linked Changes in Biotransformation of Phenol in Brook Trout (*Salvelinus fontinalis*) over an Annual Reproductive Cycle

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Supplementary Atlas

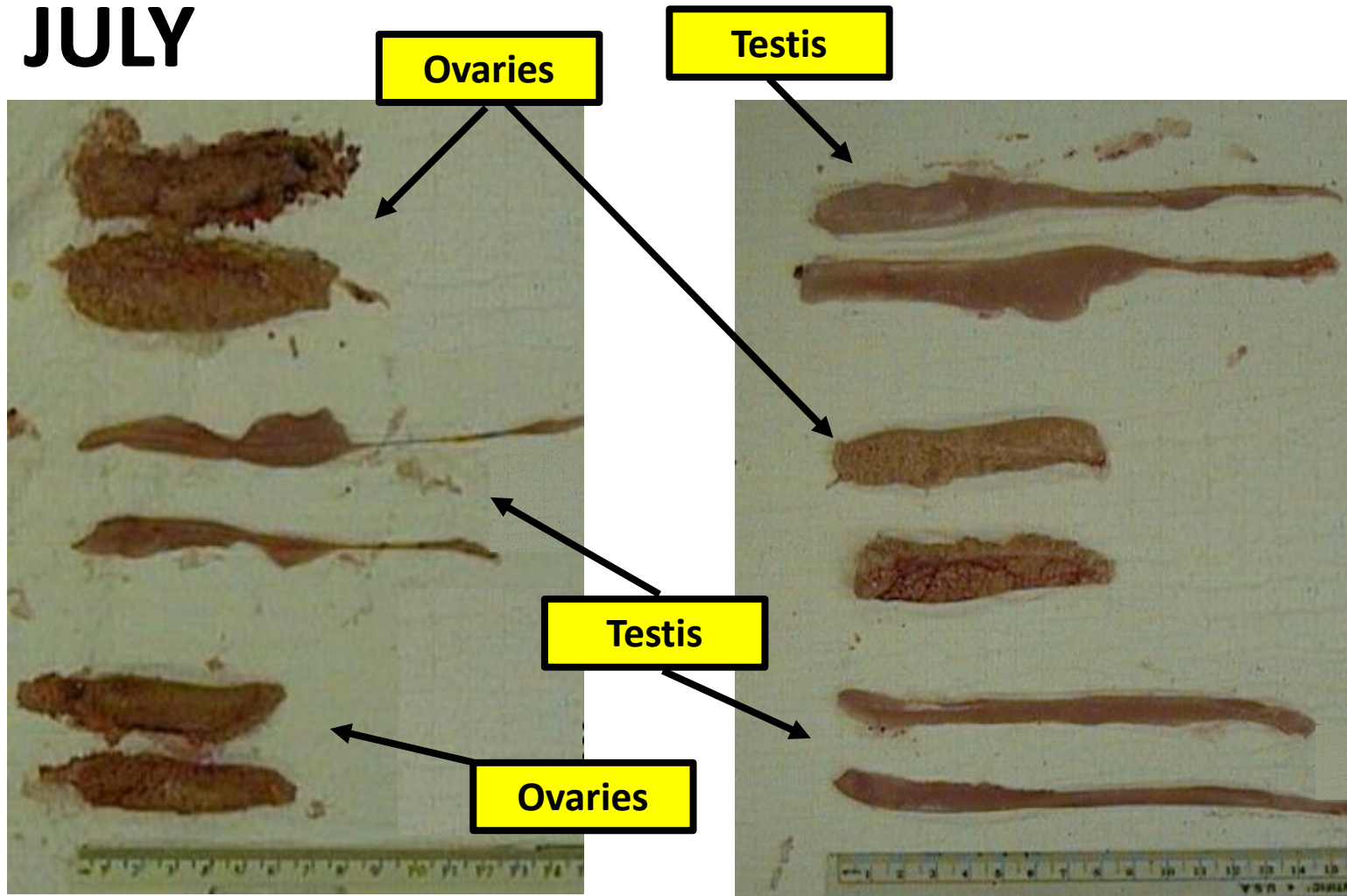
Three male and three female four-year-old brook trout (*Salvelinus fontinalis*) were sampled monthly over a seven-month annual reproductive cycle (June-December). Fish weight, gonad weight (GSI), liver weight (HSI), and plasma steroid levels (estradiol, testosterone, 11-Ketotestosterone) were measured monthly. Liver microsomes were prepared, characterized for microsomal protein, cytochrome P450, and EROD activity. Michaelis-Menten kinetics were determined for the xenobiotic metabolism of phenol to hydroquinone, catechol, and phenylglucuronide. The following panels in this atlas depict the changes in appearance of gonads during development as well as additional photos of secondary sex characteristics.

JUNE



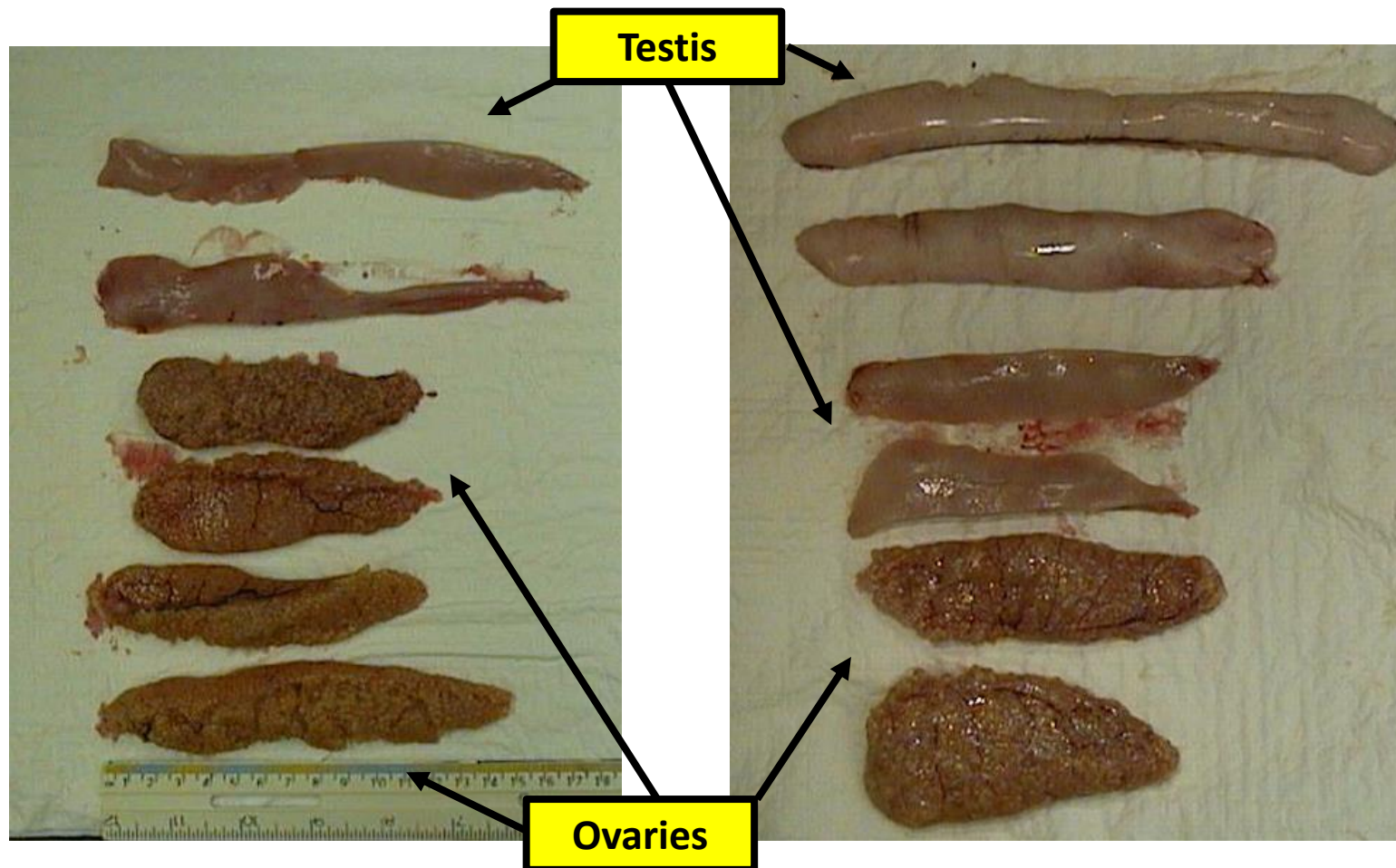
Gonads as extracted from 3 male and 3 female brook trout (*Salvelinus fontinalis*) sampled the month of June as part of an experiment to monitor sex-linked changes in biotransformation over an annual reproductive cycle. Four-year-old brook trout were sampled monthly over a seven-month period (June-December). Fish weight, gonad weight (GSI), liver weight (HSI), and plasma steroid levels (estradiol, testosterone, 11-Ketotestosterone) were measured monthly. Liver microsomes were prepared, characterized for microsomal protein, cytochrome P450, and EROD activity. Michaelis-Menten kinetics were determined for the xenobiotic metabolism of phenol to hydroquinone, catechol, and phenylglucuronide. This figure depicts the paired ovaries (top of each panel) measured at 3 to 5 cm and the paired testis (undeveloped) from male fish (bottom in each panel). Both male and female are considered to be sexually immature.

JULY



Gonads as extracted from 3 male and 3 female brook trout (*Salvelinus fontinalis*) sampled the month of July as part of an experiment to monitor sex-linked changes in biotransformation over an annual reproductive cycle. This figure depicts the paired ovaries measured at 6.5 to 8 cm and the paired testis (starting to show some development on at least one fish) from male fish. Both male and female are starting to show some development to sexual maturation.

AUGUST

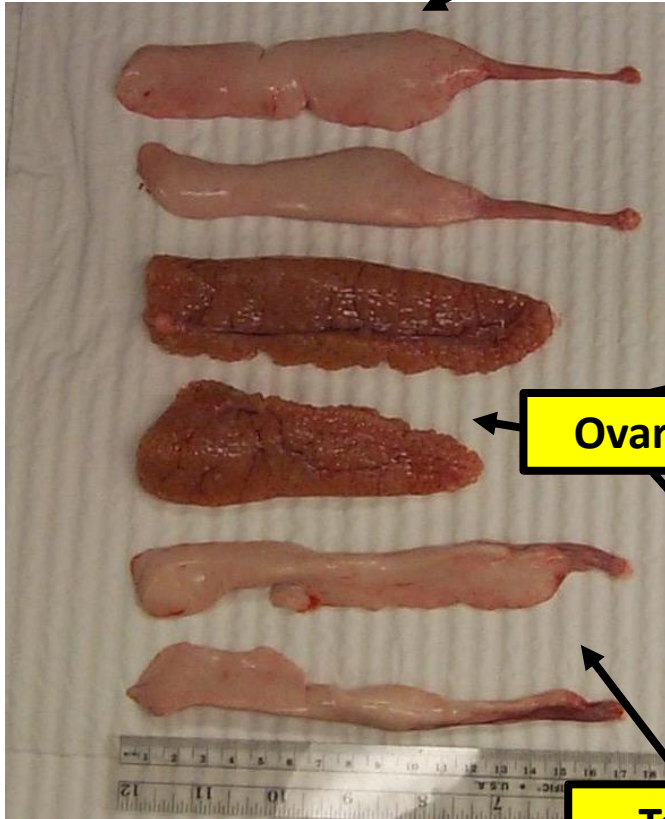


Gonads as extracted from 3 male and 3 female brook trout (*Salvelinus fontinalis*) sampled the month of August as part of an experiment to monitor sex-linked changes in biotransformation over an annual reproductive cycle (June to December). This figure depicts the paired ovaries measured at 12 to 15 cm and the paired testis (partial development with full development on one fish) from male fish. Both male and female are starting to show some development to sexual maturation.

SEPTEMBER

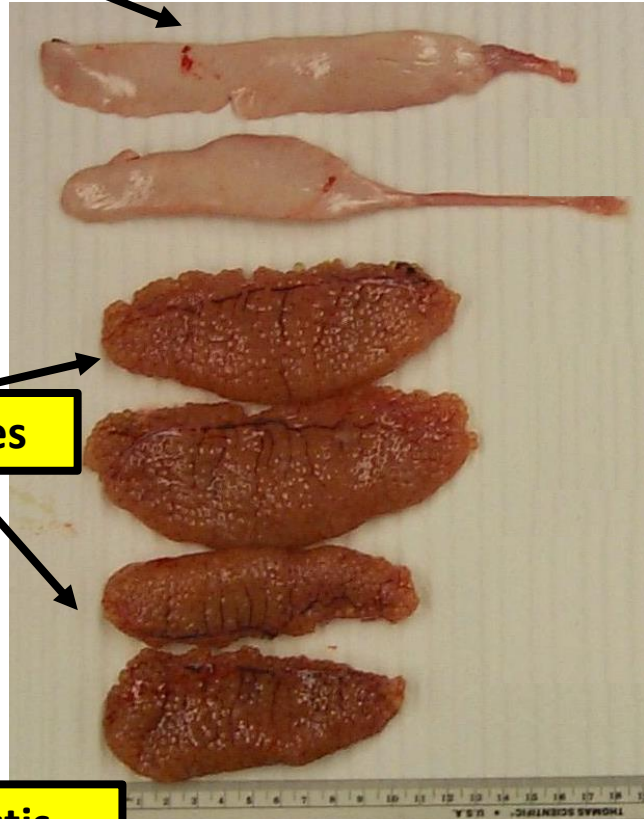


Testis



Ovaries

Testis

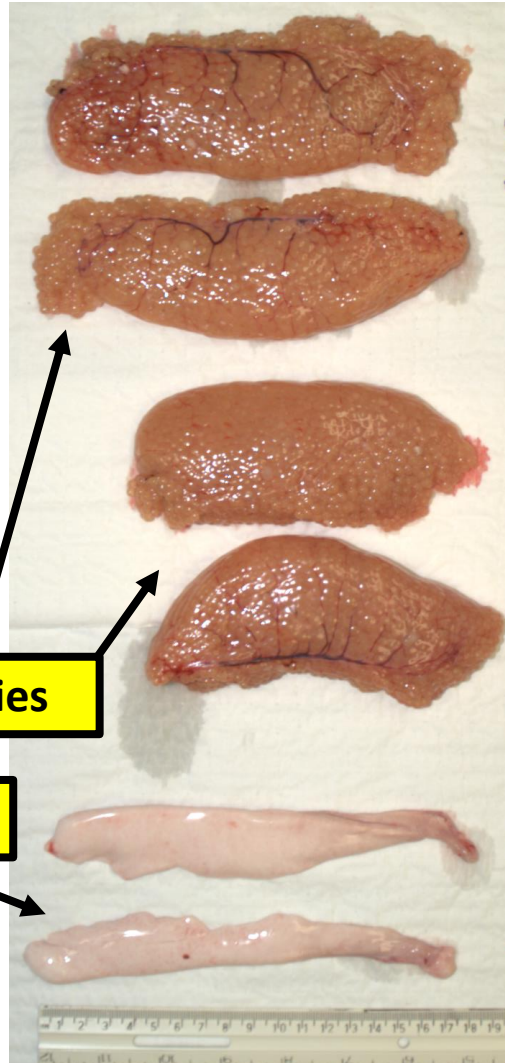
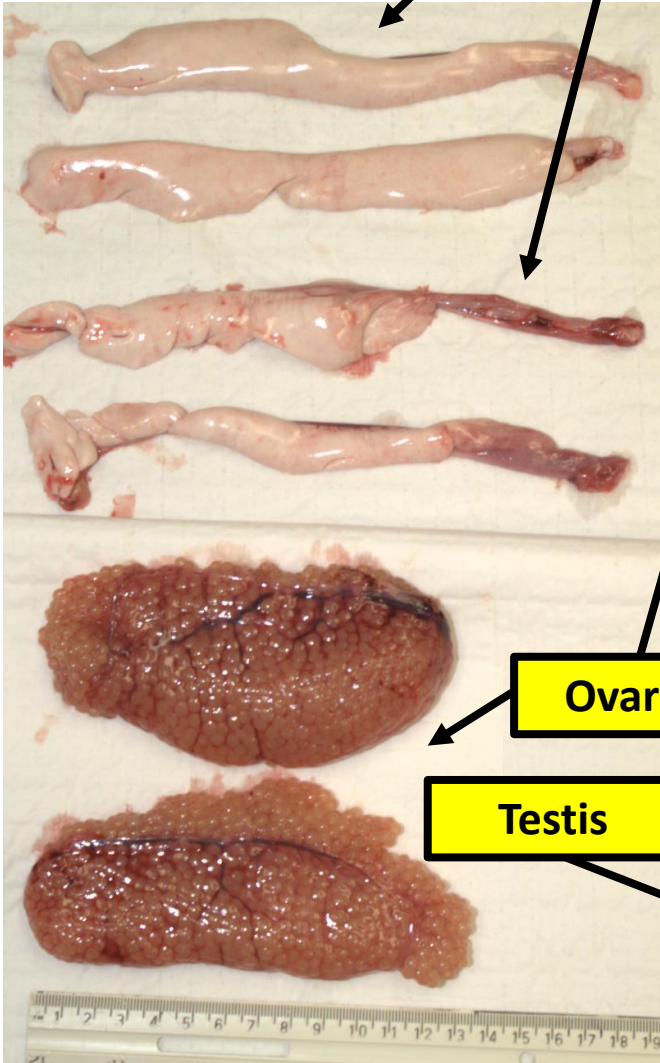


Gonads as extracted from 3 male and 3 female brook trout (*Salvelinus fontinalis*) sampled the month of September as part of an experiment to monitor sex-linked changes in biotransformation over an annual reproductive cycle (June to December). This figure depicts the paired ovaries measured at 11 to 14 cm and the paired testis (2/3 partial development with full development on one fish) from male fish. Both male and female are definitely showing development to sexual maturation. Panel above shows secondary external sexual maturation in the male fish (top) with hooked lower jaw and fat pad hump on the back as prominent features.

OCTOBER



Testis



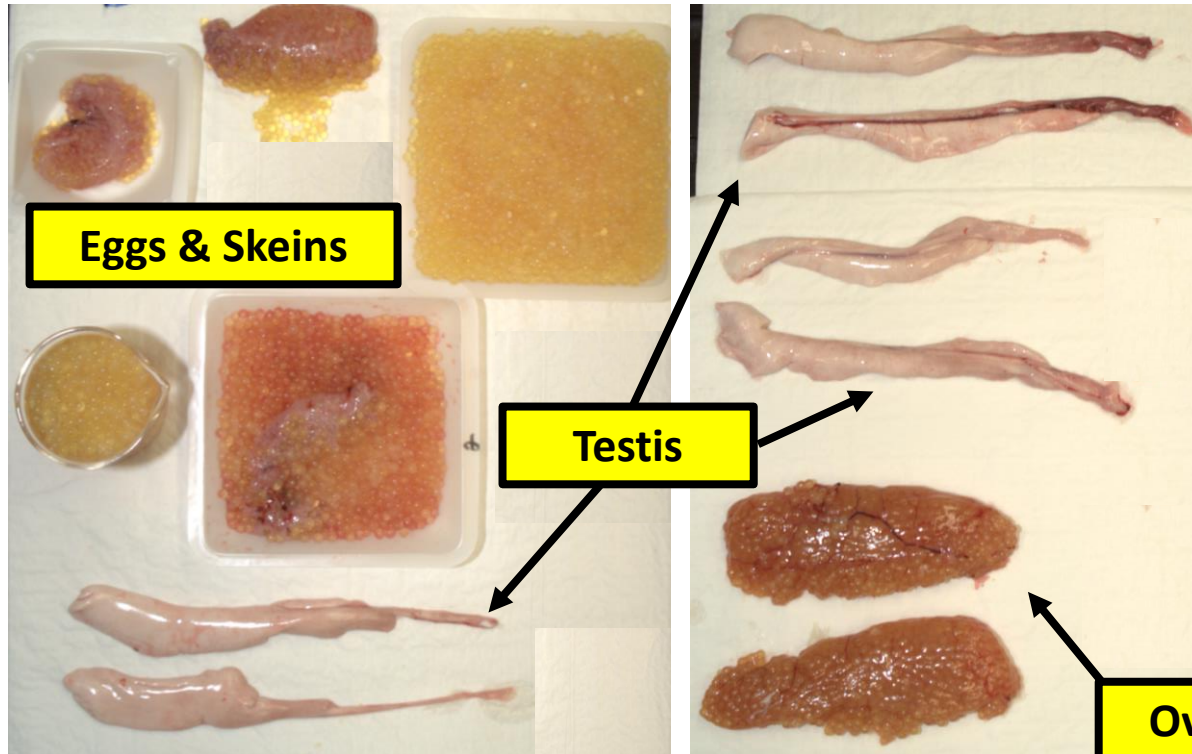
Ovaries

Testis



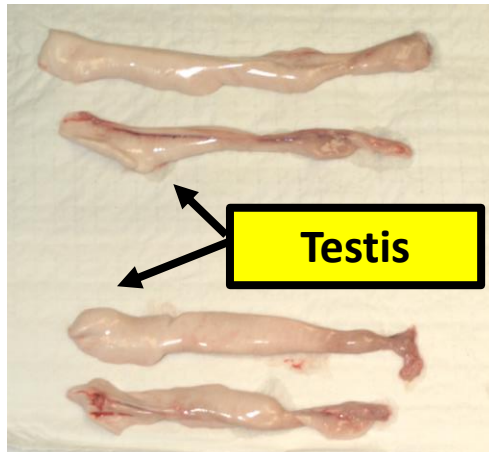
Gonads as extracted from 3 male and 3 female brook trout (*Salvelinus fontinalis*) sampled the month of October as part of an experiment to monitor sex-linked changes in biotransformation over an annual reproductive cycle (June to December). This figure depicts the paired ovaries measured at 14 to 19 cm with egg formation and the paired testis (with full development) from male fish. Both male and female are definitely showing progression to sexual maturation. Panel above shows secondary external sexual maturation in the male fish (top) with hooked lower jaw and fat pad hump on the back as prominent features even more pronounced than the previous month.

NOVEMBER

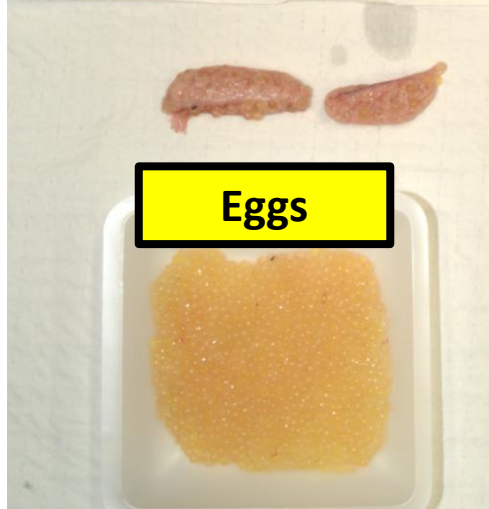


Gonads as extracted from 3 male and 3 female brook trout (*Salvelinus fontinalis*) sampled the month of November as part of an experiment to monitor sex-linked changes in biotransformation over an annual reproductive cycle (June to December). This figure depicts the paired ovaries in one fish with well-formed eggs. Two female fish had loose eggs in body cavity from skeins ready to be laid. Paired testis (with full development) from all three male fish with running milt. Both male and female are definitely in full development of sexual maturation. Panel above shows secondary external sexual maturation in the male fish (top) with hooked lower jaw and fat pad hump on the back as prominent features.

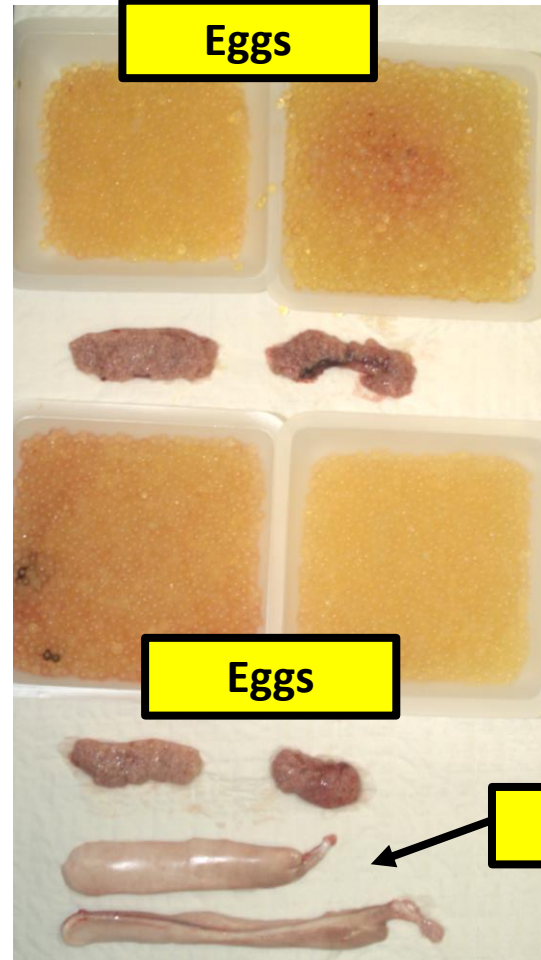
DECEMBER



Testis



Eggs



Eggs

Eggs

Testis

Gonads as extracted from 3 male and 3 female brook trout (*Salvelinus fontinalis*) sampled the month of December as part of an experiment to monitor sex-linked changes in biotransformation over an annual reproductive cycle (June to December). This figure depicts loose eggs in body cavity from skeins ready to be laid. Paired testis (with full development) from all three male fish with running milt. Both male and female are in full development of sexual maturation. Panel above shows secondary external sexual maturation in the male fish (top) with hooked lower jaw and fat pad hump on the back as prominent features, female fish below.