

ABSTRACT DUSKY ROCKFISH
 HAS RECENTLY BEEN
 RESURRECTED AS A DISTINCT SPECIES IN
 THE GULF OF ALASKA PRODUCTIVE BIOL
 OGY AND GROWTH WERE EXAMINED FOR
 THIS REDESCRIBED SPECIES IN THE
 GULF OF ALASKA FISHERY INDEPENDENT SURVEY DATA #HILTON
 MATURITY WERE YEARS AND
 MM FORK LENGTH RESPECTIVELY WHICH
 ARE LOWER THAN PREVIOUSLY REPORTED
 & FERTILIZED OVA AND EYED EMBRYOS
 WERE OBSERVED IN APRIL AND EVIDENCE OF
 OF POSTPARTURITION WAS NOT OBSERVED
 UNTIL -AY 4 THE GONADOSOMATIC INDEX
 DECREASED WITH THE ONSET OF POST
 PARTURITION IN -AY 6 ON TERTALANFFY

GULF OF ALASKA FISHERY INDEPENDENT
 SURVEY DATA

CONTINENTAL SHELF /RR AND
 DUSKY ROCKFISH ARE PA
 DISTRIBUTED CONCENTRATED
 FOUND NEAR THE MOUTHS OF S
 GULLIES OR CANYONS AND AL
 MERGED BANKS 2EUTER
 BEFORE THIS STUDY ESTIM
 DUSKY ROCKISH MATURITY FOR
 OF ALASKA WERE BASED ON VI
 SERVATIONS OF GONAD MATUR
 A LIMITED SAMPLE OF THIS SH
 THE +ODIAK ISLAND AREA OF
 WORK REVEALED THE POTENTI
 CORRECT IDENTIFICATION OF
 VELOPMENTAL STAGES WITH TH
 SCOPIIC METHOD IN COMPARI
 STUDIES WHERE THE HISTOLO
 UATION METHOD HAS BEEN US
 \$ERMOTT :IMMERMAN
 DUSKY ROCKFISH GROWTH PAR
 WERE DERIVED FROM DATA SET
 BEFORE THE REDESCRIPTION O
 DUSKY ROCKISH
 4HE OBJECTIVE OF THIS STUD
 PROVIDE IMPROVED LIFE HISTO
 THE NEWLY DESCRIBED DUSKY R
 PRODUCING HISTOLOGICALLY
 TIMATES OF THE AGE AND LENG
 MATURITY AND DESCRIBING
 THE SEASONAL TIMING OF OVAR
 MENT IN FEMALE DUSKY ROCKIS
 COMPARING GROWTH RATES AN
 LENGTH RELATIONSHIPS DERIVE
 MATURITY ESTIMATE SAMPLES T
 DATA SET COLLECTED IN THE C
 OF ALASKA FOR BOTH MALE AN
 DUSKY ROCKISH

-ANUSCRIPT SUBMITTED !UGUST
 -ANUSCRIPT ACCEPTED /CTOBER
 &ISH "ULL n

4HE VIEWS AND OPINIONS EXPRESSED
 OR IMPLIED IN THIS ARTICLE ARE THOSE
 OF THE AUTHOR OR AUTHORS AND DO NOT
 NECESSARILY REMECT THE POSITION OF THE
 .ATIONAL -ARINE & ISHERIES 3ERVICE
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ASSESSMENT MODEL TO DETERMINE THE FISHING QUOTA FOR
THIS ROCKISH SPECIES -ATURITY ESTIMATES AND GROWTH

FIGURE

LOCATIONS IN THE CENTRAL GULF OF ALASKA WHERE FEMALE DUSKY ROCKFISH WERE COLLECTED IN 1978 AND 1979 FOR THE GROWTH AND MATURITY STUDY. NUMBER OF FISH IN EACH GULF DEPARTMENT OF FISHERY AND STATE STATISTICAL AREA DELINEATED BY BOUNDARIES IN EACH BLOCK

GONADOSOMATIC INDEX CALCULATED WITH THE FOLLOWING FORMULA

$$GI = \frac{G}{W} \times 100$$

TO SHOW SEASONAL CHANGES IN DEVELOPMENT OF THE OVARY WITH RESPECT TO THE TOTAL BODY WEIGHT. GONAD WEIGHTS WERE NOT COLLECTED IN MAY OF 1978

GROWTH PARAMETERS FOR THE FEMALE DUSKY ROCKFISH COLLECTED IN THE GULF OF ALASKA FOR THE MATURITY ESTIMATES WERE CALCULATED BY USING NONLINEAR LEAST SQUARES TO FIT THE VON BERTALANFFY GROWTH EQUATION TO AGE LENGTH DATA

4ABLE

- ATURITY CRITERIA FOR STAGING GONADS OF THE SMALL BEAKED KINGFISHER SCOPIC AND MICROSCOPIC AND MICROSCOPIC ADAPTED FROM #HILTON

- ATURITY STAGE / MICROSCOPIC DESCRIPTION / HISTOLOGICAL DESCRIPTION / COMMENTS

1) IMMATURE / 4) THIN AND THREADY OVARIES / COAGULATED NESTS AND UNORGANIZED INTO NESTS / PINK OR LIGHT RED IN COLOR / OOCYTE DIAMETER IS 10-15 μm / SOME OOCYTES AT / OOCYTES ARE NOT VISIBLE / EARLY PERINUCLEUS DEVELOPMENT

2) MATURING / OVARIES CREAM TO LIGHT YELLOW / LOW ACCUMULATION OF YOLK / THROUGH STAGE / INTERMEDIATE COLOR WITH THIN OVARIES WITH YOLK GRANULATIONS / OOCYTE DIAMETER IS 15-20 μm / WALL OOCYTES VISIBLE / ALL OOCYTE DIAMETER AND STAGE OOCYTES ARE ALSO PRESENT

3) TELLOGENESIS / INDIVIDUAL EGGS ARE VISIBLE / BLOBBLES AND OIL BLENDS / YOLK STAGE AND INITIAL / BRIGHT YELLOW IN COLOR / OOCYTE DIAMETER IS 20-25 μm / ACUTED COALESCING IN / WALL THICKENING AND DARKLY / PIGMENTED

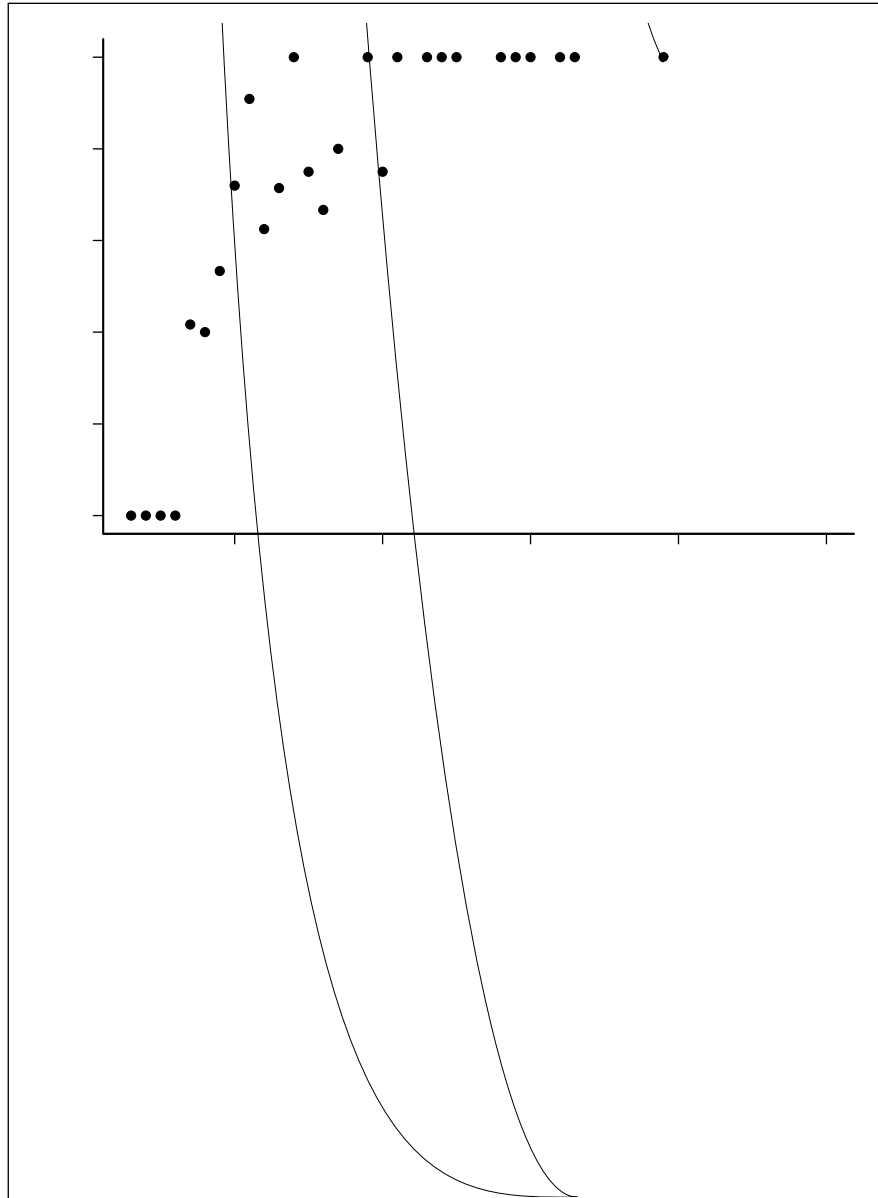
4) FERTILIZED / LARGE TRANSLUCENT EGGS WITH / 3-4 μm MIGRATORY NUCLEUS / PINK TO YELLOW TINT / THROUGH EARLY EMBRYONIC / ENLARGED TO ACCOMMODATE / DEVELOPMENT / LARGE HYDRATED EGGS

5) LARVAE / LARVAE ENLARGED WITH / 1-2 μm / DARK PIGMENTED / LARVAE / OVARIAN WALLS THIN AND / TRANSPARENT / EASILY TORN OR / BROKEN OPEN

6) POSTPARTURITION / OVARIES ACCID AND DARK / REGULATORY FOLLICLES AND PARTURITION BASIS / IN COLOR / SOME EYELETTS / OOCYTES RESIDUAL LARVAE OOCYTES AND / VISIBLE / ARE PRESENT / RESIDUAL EMBRYOS

7) RESTING / OVARIES PINK TO REDDISH / COAGULATED NESTS AND RESIDUAL / OOCYTES / IN COLOR / EGGS ARE SMALL AS AT RETICULAR / OOCYTES PRESENT

IN THE WEIGHT LENGTH RELATIONSHIP THE RESIDUALS OF THE
 E'E EAT AS @ PO > E @ R & E @ 6" SCENHF S
 @ % à OF



FIGURE

AGE AND LENGTH AT MATURITY HORIZONTAL LINE FOR FEMALE
 DUSKY ROCKFISHES VARIA BTLIS IN THE CENTRAL GULF OF ALASKA
 EACH CIRCLE REPRESENTS ONE DATA POINT AND THE VERTICAL D
 DENOTE CONFIDENCE INTERVALS FOR

4 A B L E

-ATURITY PARAMETERS AND VARIANCES FOR FE
ISH3EBASTES VARIATION IN THE CENTRAL 'ULF OF !LASK
MATED BY FITTING A LOGISTIC FUNCTION TO THE
A FUNCTION $A @ 0 T A @ \Delta \delta " C T I$

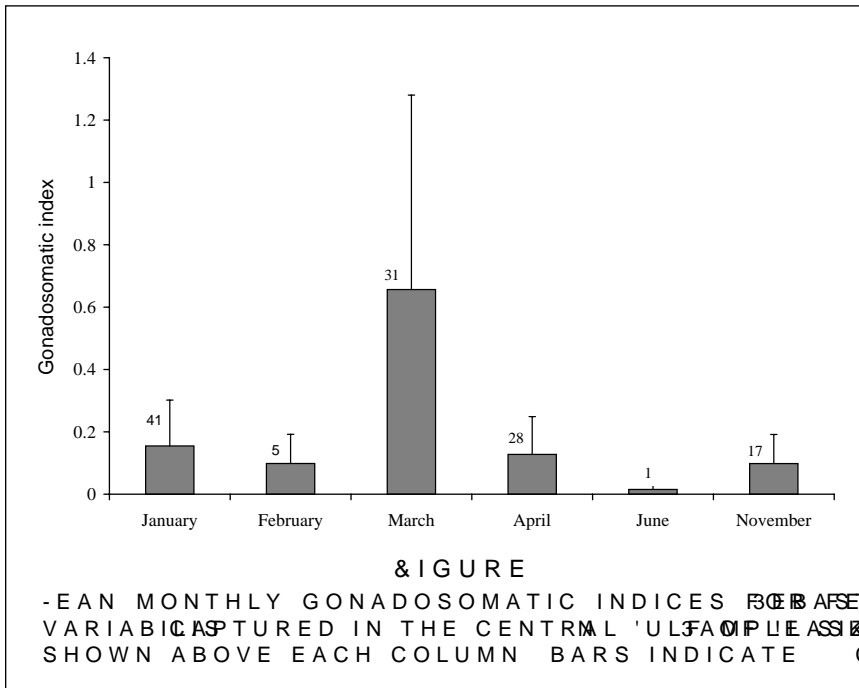
TABLE

ESTIMATED WEIGHT LENGTH PARAMETERS FOR
 SEBASTES VARIABILIS CAPTURED IN THE NATIONAL -A
 FISHERIES SERVICE BULLETIN OF ALASKA GROUND
 AND THE CENTRAL BULLETIN OF ALASKA MATURITY S
 CONSTANT B ALLOMETRIC GROWTH PARAMETE
 SAMPLES

WEIGHT LENGTH CONSTANTS	A	B	N
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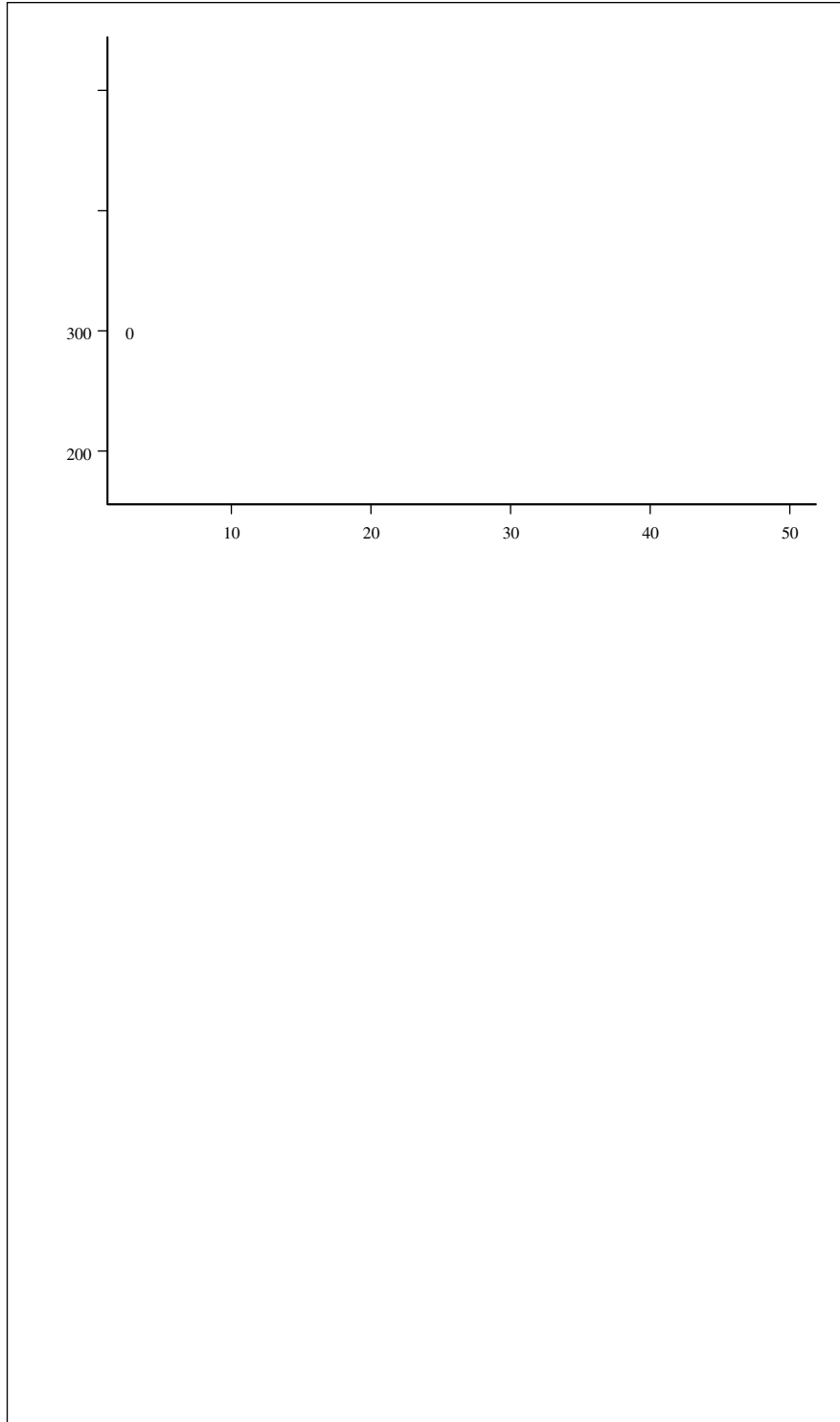
BULLETIN OF ALASKA COMBINED SEX			N=10, r=0.9
FROM 1-3 GROUNDISH			
SURVEYS			n

BULLETIN OF ALASKA FEMALES



FIGURE

MEAN MONTHLY GONADOSOMATIC INDICES FOR SEBASTES VARIABILIS CAPTURED IN THE CENTRAL GULF OF ALASKA. SAMPLE SIZES ARE SHOWN ABOVE EACH COLUMN. BARS INDICATE CONFIDENCE INTERVALS.



FOR THE MATURITY ESTIMATE WERE VANISHED TO DETERMINE HOW LONG IT TOOK TO DEVELOP OVARY
THE YEAR HIGHLIGHTING THE POSSIBILITY OF DELAY
& FUTURE STUDIES FOCUSING ON THE REPRODUCTION OF MATURITIES WITHIN A YEAR
OF ROCKISH WOULD BENEFIT FROM THE ISOLATION OF HISTOLOGICAL METHOD HAS
THROUGHOUT THE YEAR)N THIS STUDY THE RESEARCHERS EMPHASIZED THE NEED
ING OF OVARY COLLECTIONS FOR THE MATURITIES BEING EMPHASIZED .ICHO AND
CRUCIAL FOR THE HISTOLOGICAL EVALUATION OF #HILTON MOST AD 4HE DIFFERENC

PARAMETERS AND WEIGHT LENGTH RELATIONSHIPS BETWEEN THE MATURITY ESTIMATE COLLECTION AND THE 1983 COLLECTION ARE AN INDICATION THAT SAMPLING THROUGHOUT THE YEAR IN MONTHS ADDITIONAL TO THOSE OF THE SUMMER SURVEY COULD IMPROVE THOSE ESTIMATES AND COULD PROVE BENEFICIAL TO THE ASSESSMENT OF DUSKY ROCKSH AND MANAGEMENT OF THE PELAGIC SHELF ROCKSH FISHERIES

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