

TIMING THE WALLEYE SPAWN

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OVERVIEW

1. FACTORS THAT AFFECT THE SPAWN

- SURFACE TEMPERATURE
- LENGTH OF DAY
- FOOD CHAIN/BAITFISH
- WEATHER (MACRO AND MICRO)
- WATER COLOR AND CLARITY
- OTHER FACTORS

OVERVIEW

2. HOW THESE FACTORS MAY AFFECT SPAWNING LOCATION AND TIMING
3. GREAT LAKES VS INLAND LAKES
 - TIMING
 - INFLUENCE OF FACTORS FROM LIST ABOVE
4. HOW LONG DOES THE SPAWN ACTUALLY LAST

TEMPERATURE

1. **WHEN AND AT WHAT TEMP DO WALLEYE SPAWN?**
 - **ACROSS THEIR RANGE**
2.
 - **FEBRUARY TO EARLY JULY**
 - **2 TO 26°C (35.6 TO 78°F)**
3.
 - **IN OUR REGION**
 - **MARCH TO JUNE**
 - **43 TO 50°F**

TEMPERATURE

4. REMEMBER THIS IS SURFACE TEMP

- TEMPERATURE MAY BE DIFFERENT AT DEPTH
- A QUICK SEARCH DIDN'T FIND ANY STUDIES
- SURFACE TEMP IS A COMBINATION OF MANY FACTORS
- COULD SUB-SURFACE TEMPERATURE CONTROL SPAWNING?

TEMPERATURE

5. PACE AT WHICH WATER IS WARMED BY THE SUN IS MOST INFLUENTIAL ASPECT
 - SHALLOW VS DEEP
 - STREAM VS DEEP LAKE
 - 80°F AIR TEMP IN MARCH ON LAKE ERIE

LENGTH OF DAY

1. PHOTOPERIOD-REMAINS CONSTANT YR TO YR
2. PHOTOPERIODISM
 - DEVELOPMENTAL RESPONSES OF ANIMALS TO PERIODS OF LIGHT AND DARK
 - SPAWNING BEHAVIOR, HORMONE PRODUCTION, MIGRATIONS, MANY PHYSIOLOGICAL PROCESSES, GAMETE DEVELOPMENT

LENGTH OF DAY

3. CHANGING PHOTOPERIOD TRIGGERS ANNUAL GAMETE DEVELOPMENT THROUGH HORMONAL CHANGES
4. 12 HR LIGHT/DARK CYLES IN PRODUCTION
5. SO IMPORTANT THAT 24HR LIGHT IS USED TO MODULATE SPAWNING IN HATCHERIES

LENGTH OF DAY

6. TIME OF SPAWN WILL VARY BY LATITUDE
 - LENGTH OF DAY VARIES BY LATITUDE AND SEASON
 - CONSISTANT DAY-TO-DAY OVER TIME

FOOD CHAIN/BAITFISH

1. **NO DIRECT IMPACT ON SPAWNING BEHAVIOR**
 - **PRESPAWN**
2.
 - **BODY CONDITION**
 - **LIPID CONTENT OF EGGS**
3.
 - **POST-SPAWN**
 - **PHENOLOGY**
 - **LOCATION OF BAIT IN MIGRATIONS**

WEATHER

RAIN AND WIND

- 1. BOTH EFFECTS WATER TEMPERATURE**
- 2. • RAIN**
 - WIND DIRECTION (ON SHORE VS OFFSHORE)**
 - VARIES FROM LAKE TO LAKE**
- 3. ANOTHER IMPORTANT FACTOR IN RIVER SPAWNERS**
 - INCREASED FLOW FROM MAUMEE AND SANDUSKY**
 - NOT DETROIT RIVER (NOT AS “FLASHY”)**

WATER COLOR AND CLARITY

- 1. NO REAL IMPACT OF ON SPAWNING BEHAVIOR**
 - **PRESPAWN**
 - **POST-SPAWN AND LARVAL FISH (TURBIDITY)**
- 2. NO EFFECT OF SEDIMENTATION (TURBIDITY/CLARITY) DUE TO DREDGING**
 - **PHYSICAL DISTURBANCE OF SPAWN HABITAT**
 - **EXPOSURE OF EGGS TO SEDIMENTATION**

(REINE ET AL 2007)

INLAND LAKES

1. ALL OF THE FACTORS AND DETAILS PREVIOUSLY COVERED HOLD TRUE IN INLAND WATERS
 - POSSIBLE EXCEPTIONS
 - SMALL, COLD SPRING FED LAKES OR TROUT STREAMS
2. TIMING OF SPAWN USUALLY LATER DEPENDING ON ICE COVER

INLAND LAKES

- 3. THINGS CAN CHANGE SPAWN TIMING**
- **ASPECT OF TERRAIN AROUND LAKE**
 - **DIRECTIONAL LAYOUT OF LAKE**
 - **DEVELOPED SHORELINES**
 - **BOGS OR WETLANDS**
 - **CREEKS AND RIVERS**

OVERALL FACTORS CONTROLLING SPAWN

- 1. PHOTOPERIOD REGULATES ANNUAL EGG AND SPERM MATURATION DEVELOPMENT CYCLE**
- 2. TEMPERATURE INDUCES ACTUAL SPAWNING BEHAVIOR**
- 3. TOGETHER THEY MAY BE THE MOST IMPORTANT PROXIMATE FACTORS IN CONTROLLING SEASONAL REPRODUCTIVE CYCLE**