

THE INTERDISCIPLINARY RELATIONSHIP BETWEEN ELECTROMAGNETIC RADIATION (EMR) AND FLY FISHING

**PRESENTED BY
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I.F.F.F. MASTER CERTIFIED FLY CASTING INSTRUCTOR
AND, I ALSO TIE FLIES.....**

**NOTE....THERE WILL BE A POP
QUIZ AT THE END OF THIS PRESENTATION**

BASIC ASSUMPTIONS

FISH LIVE IN WATER

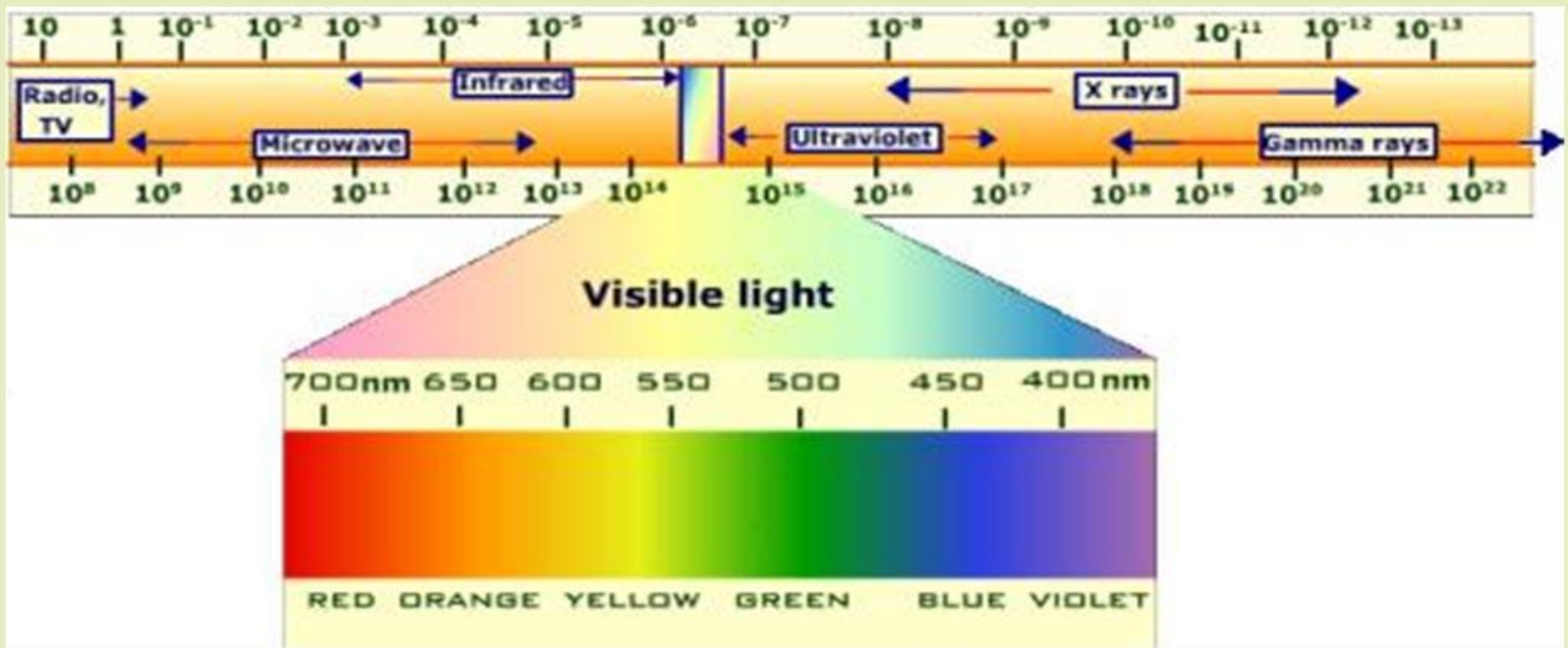
**FISH HAVE TWO BASIC INSTINCTS....
EATING AND REPRODUCTION**

**WE'LL CONCENTRATE ON THE EATING
THING TODAY.....**

**PHYSICAL STUDIES OF THE EYES AND
RETINAS OF FISH SHOW THAT A
MAJORITY OF FISH CAN OBTAIN CLEARLY
FOCUSED IMAGES, DETECT MOTION, AND
HAVE GOOD CONTRAST DETECTION ABILITY**

THEIR COLOR PERCEPTION IS ALSO GOOD

**“LIGHT” AS WE PERCEIVE IT
IS THE VISIBLE PART OF EMR,
OR BASICALLY THE COLORS OF THE
VISIBLE SPECTRUM**



**AND, LIGHT IS ABSORBED IN WATER;
FACTORS AFFECTING ABSORPTION ARE....**

**WATER BEING SALT OR FRESH
AMOUNT OF DISSOLVED MINERALS & DENSITY
AND PARTICULATE MATTER, ALGAE, ETC.**

**DEPTH OF WATER COUNTS ALSO...ALL
EMR IS ABSORBED AT APPROX. 300'**

LIGHT ABSORPTION IN WATER DIFFERS FOR DIFFERENT WAVE LENGTHS (OR OUR PERCEPTION OF COLOR) OF LIGHT

THE LONGER WAVE LENGTHS, SUCH AS REDS AND ORANGES, ARE ABSORBED QUICKLY AND PENETRATE INTO THE WATER TO A shallower DEPTH THAN THE SHORTER BLUE AND VIOLET WAVE LENGTHS WHICH GO MUCH DEEPER

LIGHT / COLOR ABSORPTION IN WATER

0 – 10' 60% OF LIGHT SPECTRUM ABSORBED
10' + 85% OF LIGHT SPECTRUM ABSORBED

AT 10 TO 15'+, RED, ORANGE, AND NEARLY ALL
YELLOW ABSORBEDMOSTLY INTO SHADES OF
GREY

BLUES & GREENS MORE VISIBLE AS COLORS
BEYOND A DEPTH OF 10 TO 15' AND DEEPER – IT'S
ONE REASON WHY DEEP WATER APPEARS TO BE
BLUE OR GREEN

Color Absorption Underwater

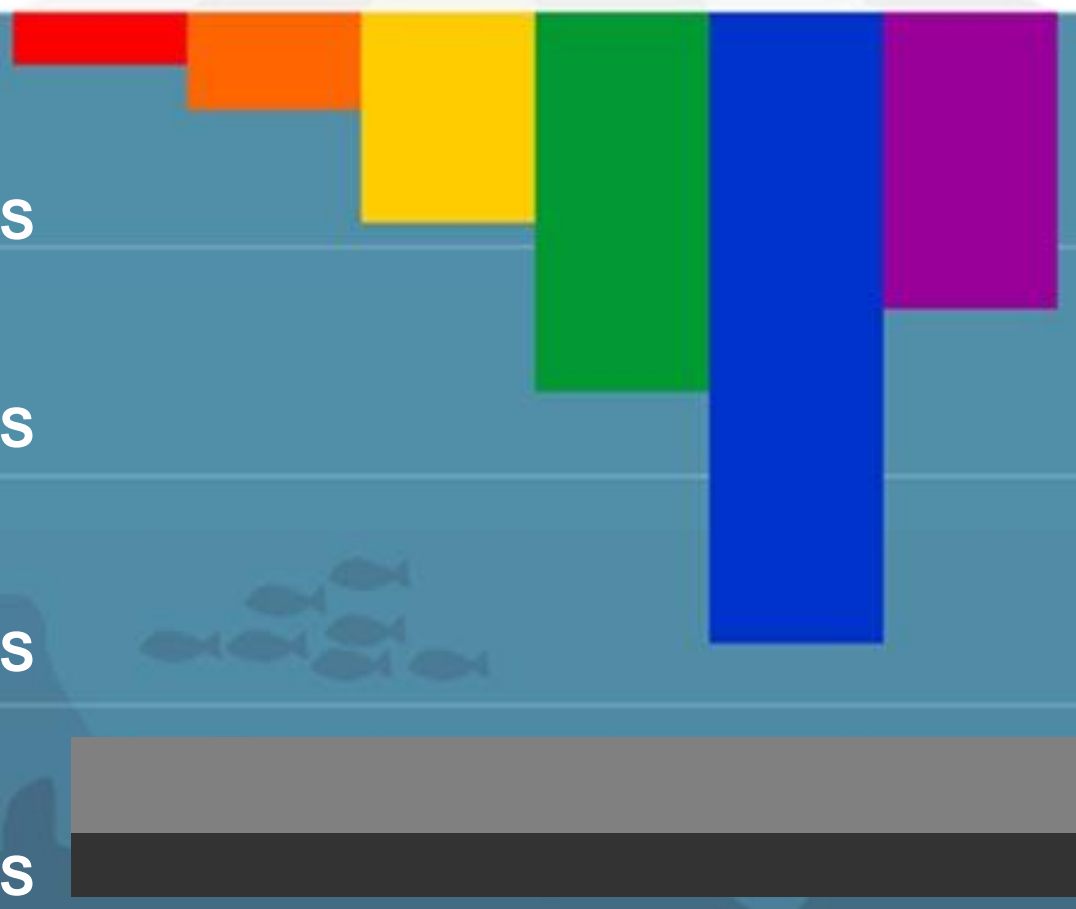


10 METERS

20 METERS

30 METERS

40 METERS



**THE DEPTH OF WATER
AS WELL AS LATERAL DISTANCE FROM PREY
AFFECTS THE COLOR OF FLIES AS PERCIEVED
BY SAID PREY**

TO PUT IT ANOTHER WAY....

IN EXTREMELY SHALLOW / CLEAR WATER, THE
COLOR OF FLIES LOOK SIMILAR TO THEIR
APPEARANCE IN THE AIR;

AS A FLY GETS JUST 3' DEEP OR 3' AWAY
FROM A FISH — OR LESS IF THE WATER HAS
LIMITED CLARITY — COLORS START TO
CHANGE, OFTEN WITH SURPRISING RESULTS

(Do you remember the old adage....Use any colors as long
as they are chartreuse and gold?)

EXAMPLES



VS.



**REMEMBER, ABSORPTION OR THE
FILTERING OUT OF COLOR ALSO WORKS
HORIZONTALLY**



**SO, WHY CAN FISH REALLY SEE
COLOR?**

**THEY HAVE CONES, THE COLOR
RECEPTOR CELLS IN THE RETINA;
CONES ALSO ESTABLISH COLOR
SENSIVITY FOR THE EYE**

**ANOTHER INDICATOR IS
THAT MANY FISH ARE
HIGHLY COLORED, AND THE
MOST COLORFUL FISH ARE TYPICALLY
FOUND IN SHALLOW WATER**

**IT'S GENERALLY UNDERSTOOD - INSHORE
FISH HAVE GOOD COLOR VISION**

**WHEREAS MOST OFFSHORE FISH HAVE
LIMITED COLOR VISION AND DETECT ONLY A
FEW, IF ANY COLORS OTHER THAN
SHADES OF BLACK AND WHITE**

THEREFORE.....



**FISH TYPICAL OF A SHALLOW, SALT
WATER REEF**



Salvelinus fontinalis

Tom Tripi - 1979

A TYPICAL FRESH WATER FISH
(From the northern head waters of the Tchefuncte)



**A TYPICAL DEEP WATER FISH
(From one of the deep-water canals
near Down Town Ruddock)**

WHICH LEADS TO.....

**A FAVORITE SALT WATER FLY
FOR SHALLOW WATER < 15'**

**FLY HAS THE RIGHT COLOR & SIZE;
AND CONTRAST IS GOOD**



**AND A FAVORITE SALT WATER FLY
FOR DEEPER WATER**



IN FLY DESIGN.....SIZE **DOES** MATTER

SMALL, QUIET, SIMPLE FLIES TIED IN NATURAL
COLORS DON'T GIVE OFF NEGATIVE FACTORS
WHICH FISH ARE QUITE ABLE TO SEE AND SENSE
ESPECIALLY IN CALM, QUIET WATER

FLIES SHOULD BE SIZED AND COLORED TO
MATCH AVAILABLE FOOD SOURCES –
AND FISHED TO IMITATE THE ACTUAL
SLOWER MOTIONS OF REAL PREY

FOR EXAMPLE.....



**18" REDFISH CRUISING IN 3' OF WATER OVER
12" OF GRASS**



**SAME AREA – 30 INCHES OF QUIET
SHADY WATER UNDER THE OAK TREE**



18" WATER DEPTH - LAKE BORGNE JUST AFTER KATRINA

QUIET INLET NEAR TIGER PASS – 3' DEEP
BASICALLY CRYSTAL CLEAR WATER – LOADED
WITH ONE INCH BLUE CRABS



MOVING INTO FRESH WATER.....

**PARTLY CLOUDY DAY, ALL COLORS
APPEAR DARKER, WASHED OUT**





**SUNNY DAY, VIBRANT COLORS
NOTE DEPTH IS MORE VISIBLE**

**CLEAR 3' WATER DEPTH
GREAT VISIBILITY**



4' WATER DEPTH

(NOTE BOTTOM DETAILS ARE ALMOST GONE)



5' WATER DEPTH





**DEEPER (NOTE BLUE COLOR) SECTION
IN THE BLIND RIVER**

FINAL NOTES ON COLOR / CLARITY

**IF COLOR IS IMPORTANT TO YOU,
RED IS THE FIRST AND BLUE
IS THE LAST COLOR ABSORBED, SO IT MAKES
SENSE TO USE BLUE / GREEN FLIES FOR MOST
GENERAL FISHING IF YOU WANT COLOR
TO BE A FACTOR, IF NOT, CONTRAST RULES**

**INCREASE CONTRAST OF THE FLY DESIGN
IF THE WATER IS DIRTY – COLOR IS
LESS IMPORTANT**

**DECREASE CONTRAST IF WATER
IS CLEAR**

**DIFFERENT COLORED FLIES MAY BE EQUALLY
EFFECTIVE OR INEFFECTIVE ONLY BECAUSE
THEY MAY BE SIMILAR IN
COLOR/SHADE/VALUE AT THE
DEPTH THAT FISH ACTUALLY SEE THEM**

ANSWERS QUESTION IN EMAIL

SHAPE AND THE CONTRAST OF PREY (OR A FLY) AGAINST THE SURFACE IS IMPORTANT;

WHEN A FEEDING PREDATOR IS LOOKING UP, A DARK SILHOUETTE, EVEN AGAINST A NIGHT SKY, PROVIDES GREAT VISIBILITY

**A FEW FINAL COMMENTS ON
COLOR , SHAPE AND
FLY DESIGN**



STREAMERS - CARRIE STEVENS c. 1950'S



MARY ORVIS MARBURY c. 1890



BRIGHT / FLASHY HAIR-WING FLIES FOR.....??



TYPICAL SHALLOW SW FLIES



RAINY'S CF FLIES



**AS DEPTH INCREASES, GREYING
MAY DIFFER DEPENDING ON
COLOR, DENSITY OF WATER,
CLARITY, ETC.; CONTRAST THEN
STARTS TO BE A FACTOR**

THEREFORE.....









**MY FAVORITE FRESH WATER WET FLIES
POLKA & THE PROFESSOR;
BOTH ARE USED AS “FILM FLIES” AND
TIED ON LIGHT WIRE HOOKS**



MY FAVORITE STREAMERS
FRESH - THE NINE-THREE, 10X LONG
SALT – GENERAL MAC ARTHUR, 6X LONG

**EDITORIALLY SPEAKING....
NAMES TO REMEMBER IN
HISTORIC FLY DESIGN**

**STREAMERS ARE HISTORICALLY
IMPORTANT
“THEY ARE POTENTIALLY A MOUTHFULL OF
PROTEIN”**

**DON GAPEN THE MUDDLER
LEW OATMAN STREAMERS
CARRIE STEVENS STREAMERS
JOHN ALDEN KNIGHT MICKEY FINN**

POP QUIZ

WHAT IS THE MOST VISIBLE “COLOR” TO FRESH
AND SALT WATER FISH UNDER MOST
CIRCUMSTANCES

WHY CAN YOU EASILY SEE THE PRINT ON THIS SLIDE

COMMERCIAL FLIES/LURES ARE MADE TO ATTRACT
FISHERMAN AND SOME, EVEN FISH.... T/F

POP QUIZ

WHAT IS THE MOST VISIBLE COLOR TO FRESH
AND SALT WATER FISH UNDER MOST
CIRCUMSTANCES.....black or shades of dark grey

WHY CAN YOU EASILY SEE THE PRINT ON THIS SLIDE
.....because of contrast

COMMERCIAL FLIES/LURES ARE MADE TO ATTRACT
FISHERMAN AND SOME, EVEN FISH.....true

**REFERENCE MATERIALS AVAILABLE UPON
REQUEST**