THE USE OF BENTHIC MACROINVERTEBRATE ASSESSMENTS IN THE STRESSOR IDENTIFICATION PROCESS TO REDUCE CHEMICAL ANALYTICAL COSTS (SESSION J-2)

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NJDEP  WATER MONITORING AND STANDARDS
WHY STRESSOR IDENTIFICATION?

• STATE AND FEDERAL CLEAN WATER ACT LEGISLATION REQUIRES STATES TO IDENTIFY WHAT IS CAUSING IMPAIRMENT OF THEIR WATERBODIES.

• WHILE INITIAL FOCUS WAS ON CHEMICAL RELATED IMPAIRMENTS, BIOLOGICAL IMPAIRMENTS HAVE BECOME EQUALLY AS IMPORTANT. IN NEW JERSEY THIS HAS BEEN MEASURED PRIMARILY BY THE HEALTH OF BENTHIC MACROINVERTEBRATE POPULATIONS.

• REMEDIATING IMPAIRED WATERBODIES REQUIRES THAT THE CAUSES OF IMPAIRMENT FIRST BE IDENTIFIED – AN OFTEN DIFFICULT UNDERTAKING, ESPECIALLY WHEN THE SOURCES OF IMPAIRMENT ARE NOT SOLELY THE RESULT OF PIPED DISCHARGES.
IT IS OFTEN IMPOSSIBLE TO ENUMERATE EVERY POTENTIAL STRESSOR OF A CONTRIBUTING WATERSHED BECAUSE OF “MASKING” DEFINED BY HONACHEFSKY (2008) AS;

“THE ACCUMULATION OF ENVIRONMENTAL STRESSORS IN SUCH LARGE NUMBERS, FROM SO MANY SOURCES SIMULTANEOUSLY, THAT INDIVIDUAL STRESSORS CANNOT BE TEASED OUT”.

BIOLOGICAL (BENTHIC MACROINVERTEBRATE) SAMPLING HELPS US PINPOINT SOME OF THE BEST AND WORST AREAS.
LET’S LOOK AT THE BEAVER BROOK WATERSHED
EXCESSIVE NUTRIENTS?
THE GOLF COURSE?
RESEARCH FACILITY DISCHARGE?

DISCHARGE ORIGIN:
EXXON RESEARCH & ENGINEERING CO.

NJPDES PERMIT NUMBER: NJ0035084
DISCHARGE SERIAL NUMBER: DSN001
NJDEP HOTLINE NUMBER: (609) 292-7172
EXCESSIVE EROSION?
CALCIUM CHLORIDE SPILLAGE FROM AN NJDOT FACILITY?
SOAPY WATER RUNOFF FROM THE CAR WASH?
RUNOFF FROM FIREFIGHTING TRAINING FACILITY?
PERMITTED DISCHARGE FROM A CORRECTIONAL FACILITY?
UNFENCED COW PASTURES?
DETENTION BASIN DISCHARGES?
UNCONTROLLED STORMWATER DISCHARGES?
NARROWING THE SCOPE OF THE INVESTIGATION

• DETERMINE HOW FAR UPSTREAM THE IMPAIRMENT OCCURS WITH THE USE OF LESS COSTLY BIOLOGICAL (BENTHIC MACROINVERTEBRATE) ASSESSMENTS.

• ELIMINATE THOSE REACHES AND/OR TRIBUTARIES THAT REFLECT GOOD OR EXCELLENT CONDITIONS.
ESTIMATED SAVINGS IN CHEMICAL ANALYTICAL COSTS

• AT THIS ONE SITE - ABOUT $7,500