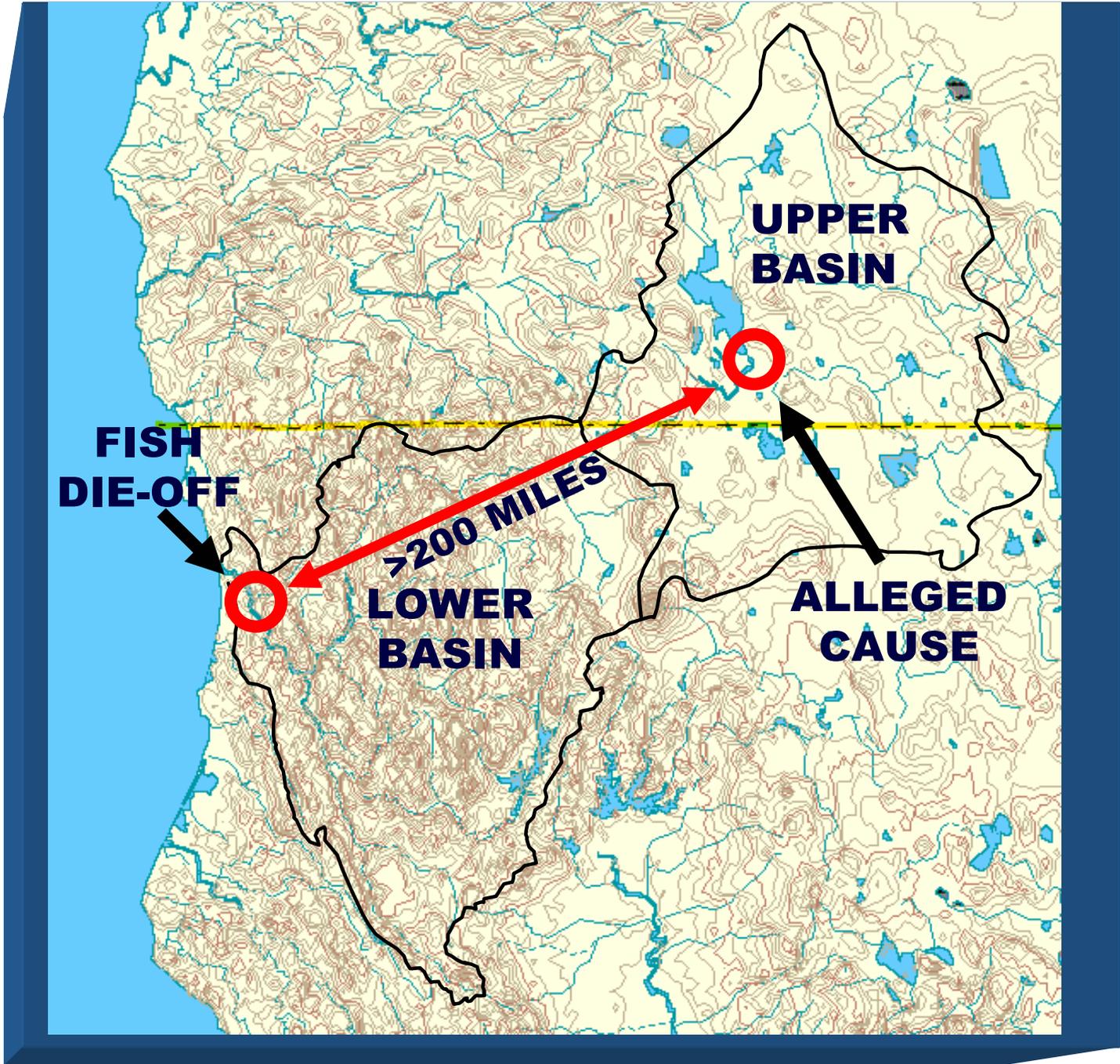


DEPARTMENT OF FISH AND GAME'S “FISH KILL” REPORT

September 2002 Klamath River Fish Kill:
Preliminary Analysis of Contributing Factors



**PRIMARY
SOURCE OF
ALLEGATIONS**



**UPPER
BASIN**

**FISH
DIE-OFF**

>200 MILES

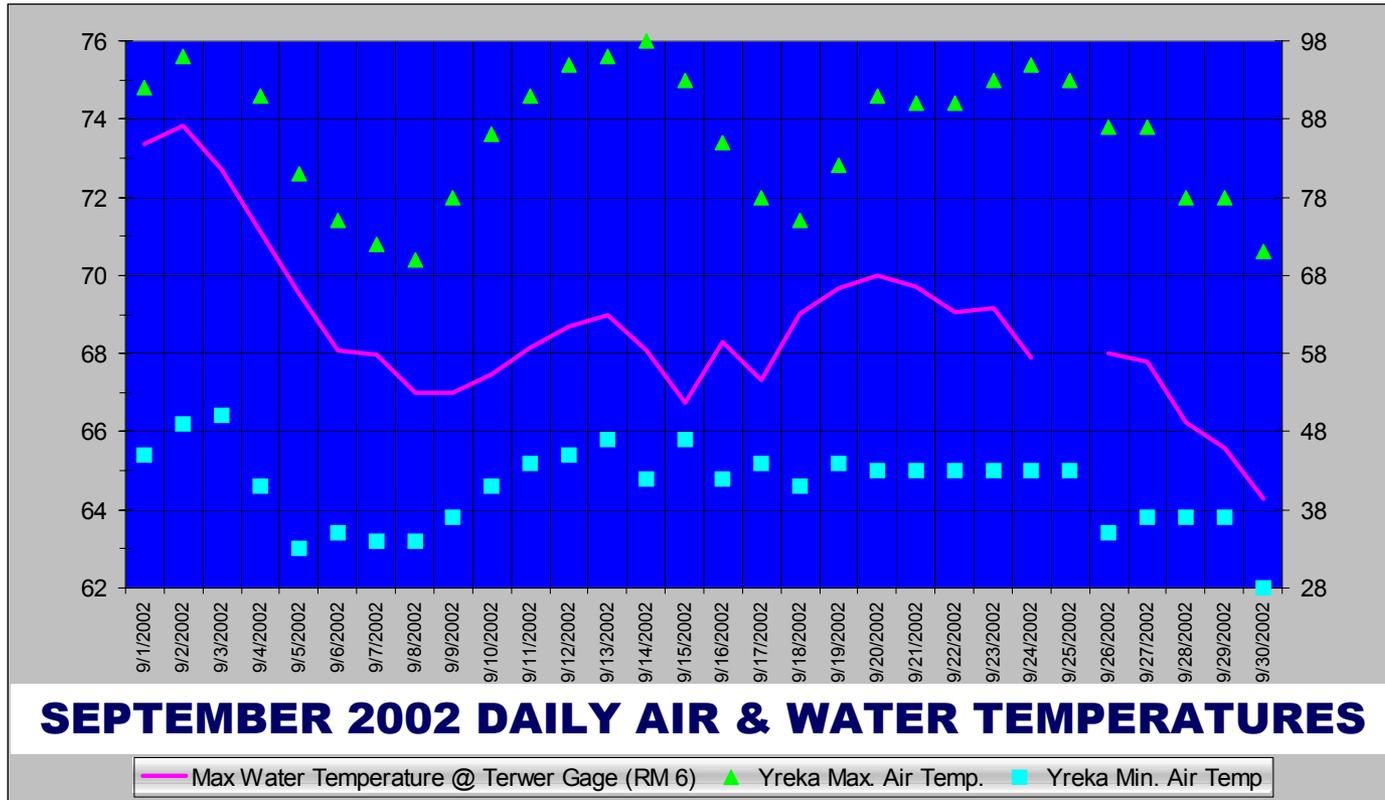
**LOWER
BASIN**

**ALLEGED
CAUSE**

MAJOR PROBLEMS WITH DFG'S REPORT:



INCORRECTLY USED MONTHLY AVERAGES TO COMPARE BETWEEN-YEAR DIFFERENCES

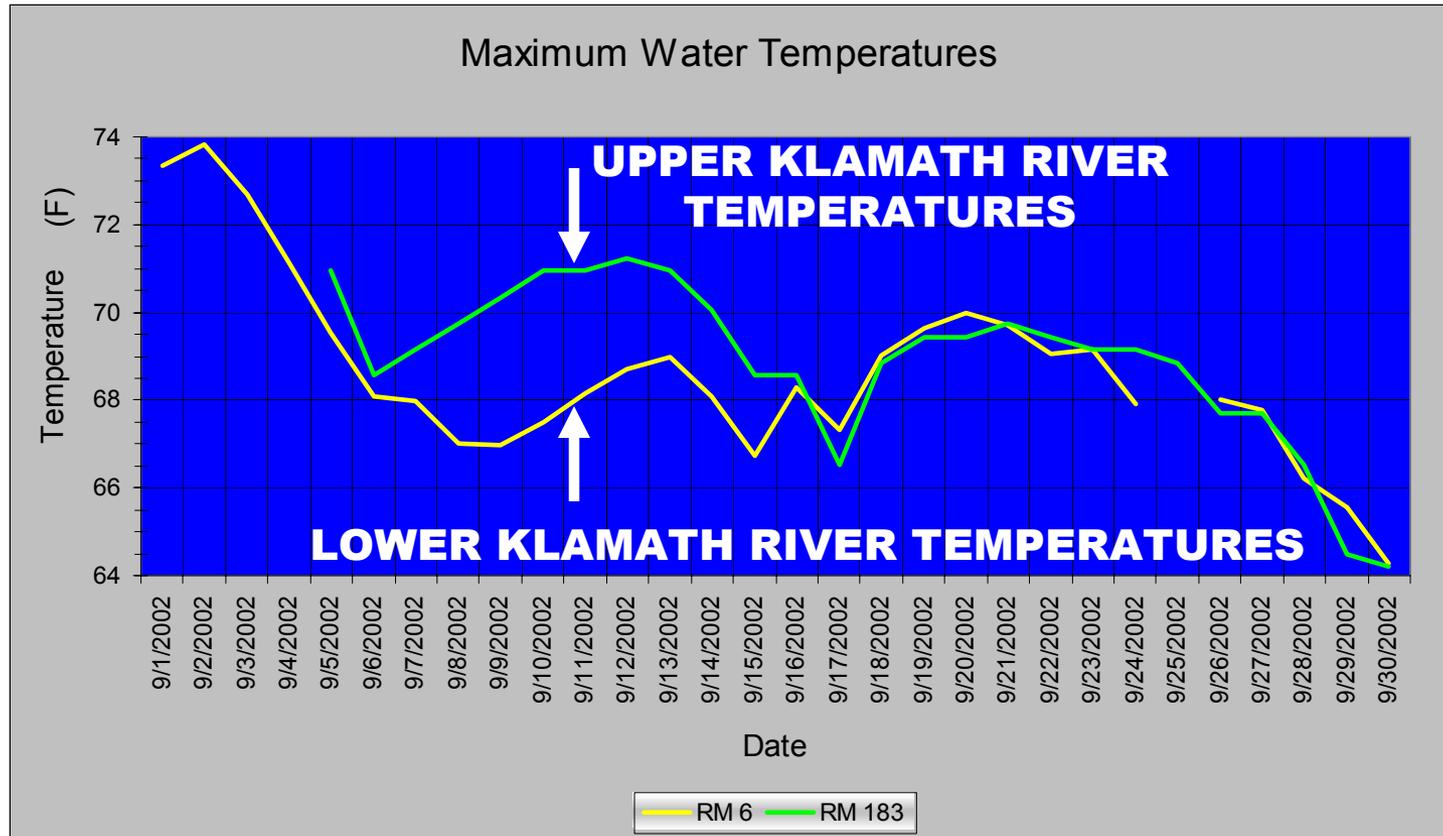


THIS MISTAKE MASKED IMPORTANT CHANGES IN DAILY AIR AND WATER TEMPERATURES THAT OCCURRED DURING SEPTEMBER 2002

MAJOR PROBLEMS WITH DFG'S REPORT:



ASSUMED THAT UPPER KLAMATH RIVER TEMPERATURES WERE COLDER THAN LOWER RIVER TEMPERATURES

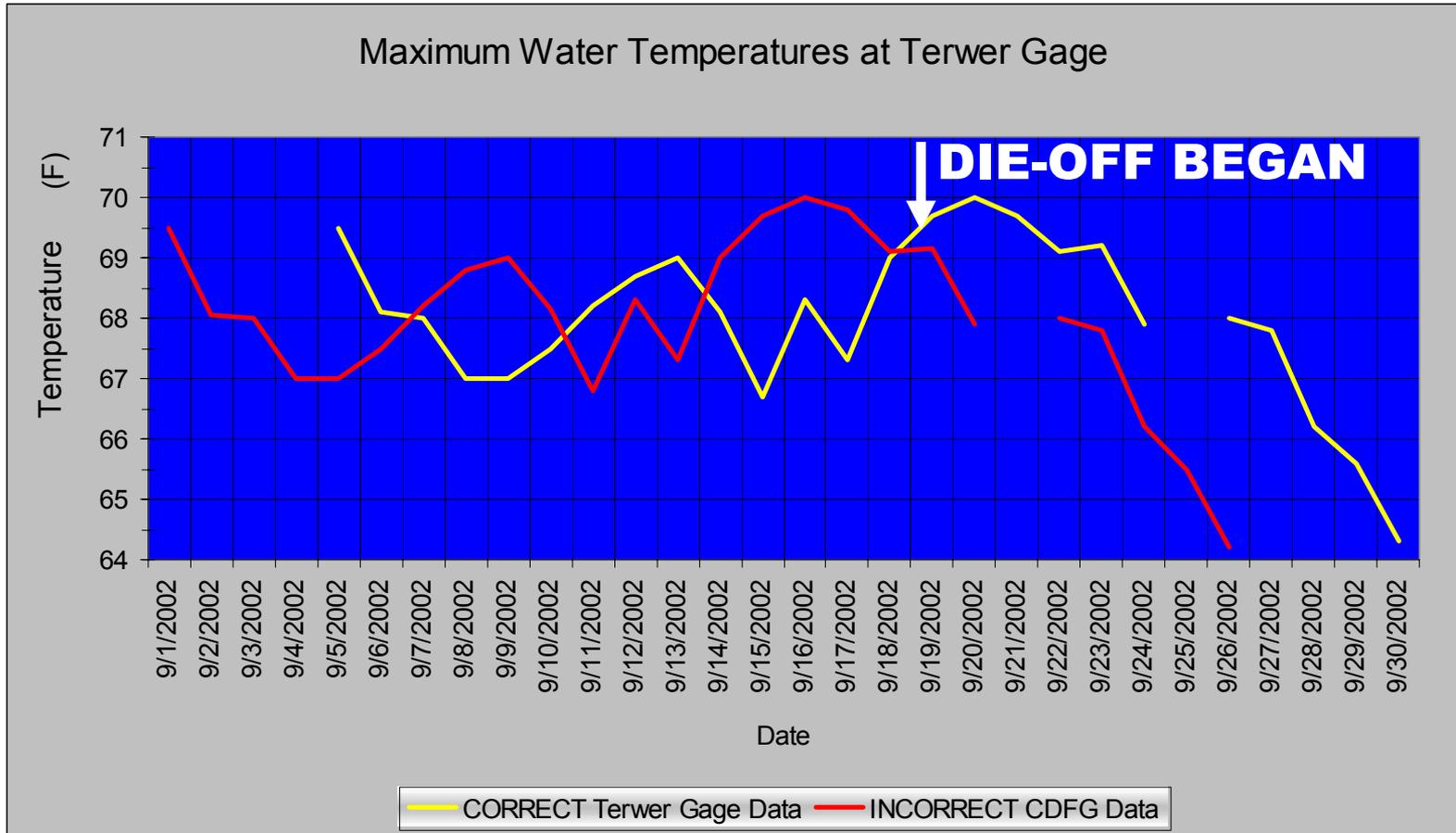


DFG ASSUMPTION WAS INCORRECT: UPPER KLAMATH RIVER TEMPERATURES WERE WARMER OR THE SAME AS THE LOWER RIVER DURING MOST OF SEPTEMBER 2002

MAJOR PROBLEMS WITH DFG'S REPORT:



INCORRECTLY PLOTTED WATER TEMPERATURES AT THE FISH DIE-OFF SKEWED FOUR DAYS EARLIER



DFG ERROR DID NOT SHOW THE SUDDEN WARMING TREND AT THE TIME OF THE FISH DIE-OFF

MAJOR PROBLEMS WITH DFG'S REPORT:

- ASSUMED THAT SEPTEMBER 2002 CLIMATE WAS NOT UNUSUAL WHICH IS DISPUTED BY U.S. GEOLOGICAL SURVEY ANALYSES THAT SHOWED SEPTEMBER 2002 WAS DRIER AND WARMER THAN NORMAL :

“September 2002 water temperatures were above the long-term average. Temperatures in the Klamath River above the fish die-off reach exceeded 65 degrees Fahrenheit for nearly all of September; multiple days of exposure by fish to temperatures at or above that level can greatly increase disease incidence.” USGS 2003

“The low streamflows were caused by below-average snowpack and long-term drought, with resulting reduced ground-water discharge to streams.” USGS 2003

THE DFG ERROR MISSED A PROBABLE EXPLANATION OF FACTORS CONTRIBUTING TO THE FISH DIE-OFF

MAJOR PROBLEMS WITH DFG'S REPORT:

- ASSUMED A FISH PASSAGE BARRIER OCCURRED IN THE LOWER RIVER**



ERRORS:

- 1) FISH PASSAGE OCCURRED PRIOR TO THE DIE-OFF**
- 2) FISH PASSAGE OCCURRED IN OTHER YEARS WITH LESS FLOW**
- 3) LARGE COMMERCIAL JET BOATS COULD NAVIGATE THE LOWER RIVER**
- 4) COMPUTATIONS OF HYDRAULIC CHARACTERISTICS DO NOT SUPPORT DFG'S PREMISE**

MAJOR PROBLEMS WITH DFG'S REPORT:

- ASSUMED SEPTEMBER 2002 WAS UNIQUE BECAUSE OF A LARGE SALMON RUN AND LOW RIVER FLOWS

1988

215,322 SALMON

2,130 CFS

2002

132,600 SALMON

2,129 CFS

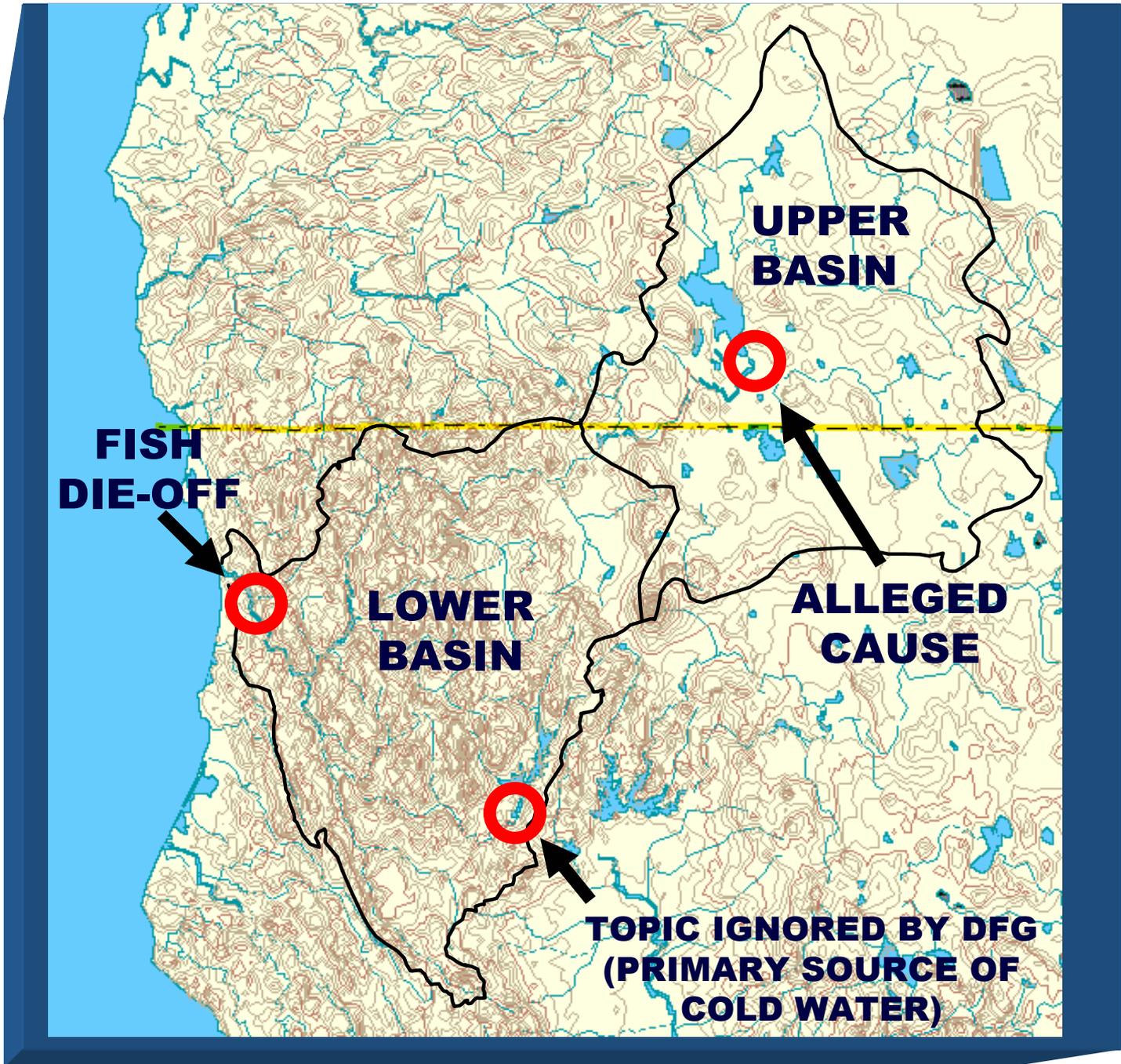
ERROR: THERE WAS A MUCH LARGER SALMON RUN IN 1988 WITH THE SAME LOWER RIVER FLOW BUT NO FISH DIE-OFF

MAJOR PROBLEMS WITH DFG'S REPORT:

APPLICATION OF AN INCONSISTENT STANDARD

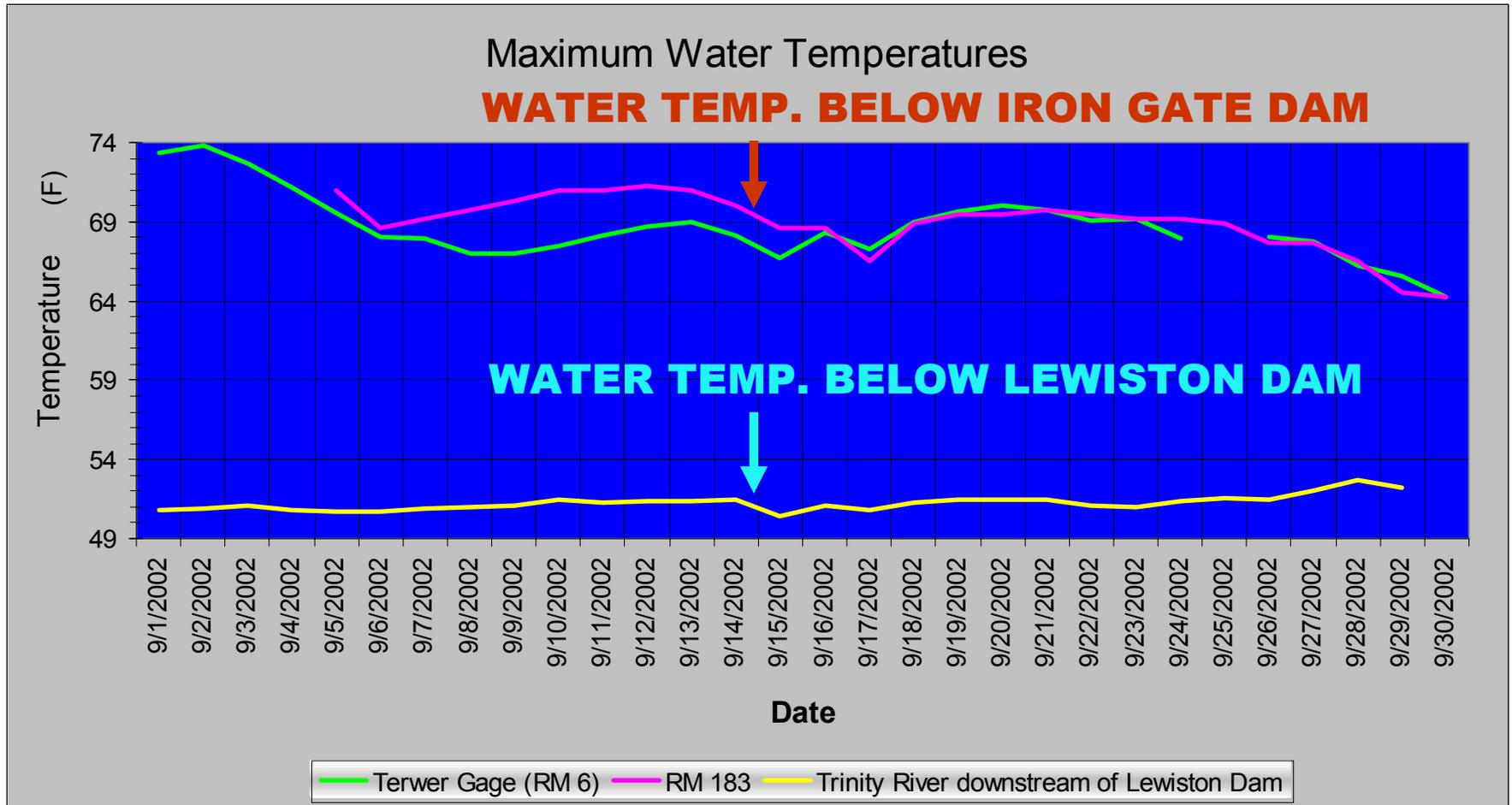
In 2002, a die-off of 3,000 spring-run Chinook salmon (a federally listed threatened species) occurred in a California Central Valley river immediately downstream of a water project. DFG attributed the cause to natural causes, warm water, and called it a “die-off”.

In 2002, a die-off of fall-run Chinook salmon (a non-federally listed species) occurred more than 200 miles downstream of the Klamath Project in Oregon. DFG attributed the cause to water project operations and called it a “fish kill”.



MAJOR PROBLEMS WITH DFG'S REPORT:

- DID NOT ADDRESS THE SIGNIFICANCE OF THE TRINITY RIVER



**THIS OVERSIGHT DEMONSTRATES THE REPORT'S
LACK OF SCIENTIFIC OBJECTIVITY**

FACT: The gradual declining temperatures in the Klamath River downstream of Iron Gate Dam during the fall are primarily attributable to normal seasonal declines in ambient air temperatures, not river flow.



IRON GATE DAM, CALIFORNIA