Interactions in Our Watershed and Human Impact on the Petaluma River

Participating Schools: Petaluma High School
Lead Teachers: Linda Judah
Participating Classes: Community Health, Biology, Honor's Biology

Overview: Students will analyze, evaluate and report out on anthropogenic impacts on plant and animal populations in the Petaluma River. Students will build on knowledge of river dynamics gained in Physical Science.

Key Learning Objectives: *"How does human activity impact ecological communities?"*
Students will examine populations of plants and animals that utilize the Petaluma River as part of their habitat. They will survey and monitor select populations. They will use modeling to predict how human activities, such as various industries, agriculture, recreation and construction, may impact populations.

Fieldwork Activities
Population surveys: direct counts/estimates, quadrant surveys, possible mark and recapture.
Water quality testing: Dissolved Oxygen, Carbon Dioxide, pH, Ammonia, Nitrite, Nitrate, Temperature
Seed collection trip to study propogation
Restoration: beginning work on restoring the McNear Channel at Steamer Landing
River clean up

Content Standards Addressed:

NGSS HSLS2, Ecosystems: Interactions, Energy, and Dynamics # 1, # 2, #6

Reading Tasks:

CA Core Curriculum Maps of the Petaluma River and Russian River watersheds that we analyze during class. Text Book Chapter 40: Population Ecology Others TBD, such as Newspaper articles regarding river impacts, ecology, and restoration.

Writing Tasks:

CA Core Curriculum Students will read and then deconstruct two text sections within the primary document listed above. While "deconstructing the text" they will be writing to paraphrase, identify central ideas or conclusions, and identify gaps, inconsistencies or questions they have about the information. Finally, they will use the information they deconstructed and organized from the text to write an essay about an aspect of the Petaluma River ecosystem.

Collaboration:

CA Century Core Curriculum Skills Students work in teams to interpret watershed maps, discuss and report findings. Students communicate information to the city planners/council. Students will

work in small groups to plan, research, and present findings on populations within the Petaluma River.

Integration of Media Sources and Skills:

CA Core Curriculum Skills Students will use internet based sources to research different issues of human activity and development that impact the Petaluma River. For example a current issue is the expansion of highway 101 and construction of the Petaluma River freeway bridge. They will use internet-based spreadsheets and documents to manage and analyze data and create a presentation of their findings.

CA Core Standards based Assessments:

How will students demonstrate their acquisition of new knowledge and skills? Assessment of understandings will be achieved through evaluation of quality and reporting of findings in a number of ways: a) Students will report out on their findings to the freshmen classes who studied the river earlier in the year. b) Students will report/present their findings to the city planners/council. c) Additional reporting of findings may be submitted to the Argus Courier.

Presentation of Knowledge/Student Public Forum:

CA Core Curriculum Skills Students will report/present their findings to the city planners/council. Additional reporting of findings may be submitted to the Argus Courier.