

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 89-013

CITIES OF SAN JOSE AND SANTA CLARA
SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT
SAN JOSE, SANTA CLARA COUNTY

REQUIRING THE CITIES OF SAN JOSE AND SANTA CLARA TO CEASE AND DESIST
DISCHARGING WASTE CONTRARY TO DISCHARGE PROHIBITIONS IN ORDER NO. 89-012 (NPDES
PERMIT)

The California Regional Water Quality Control Board, San Francisco Bay Region
(hereinafter the Board) finds that:

1. The Cities of San Jose and Santa Clara (hereinafter the discharger) operate a joint water pollution control plant located at 700 Los Esteros Road, San Jose, Santa Clara County. The plant discharges advanced secondary effluent to Artesian Slough, violating Basin Plan prohibitions regarding discharges south of the Dumbarton Bridge, discharges to dead-end sloughs, and discharges receiving less than 10:1 minimum initial dilution.
2. On February 20, 1985, the Board adopted Order No. 85-16, prescribing waste discharge requirements for the discharger (NPDES Permit CA0037842). The Board reissued this NPDES permit on January 18, 1989, as Order No. 89-012. The discharger is in violation of Discharge Prohibitions A.1, A.2, and A.3 (discharges south of the Dumbarton Bridge, discharges to dead-end sloughs, and discharges receiving less than 10:1 minimum initial dilution).
3. The Basin Plan provides for consideration of exceptions to discharge prohibitions where: (a) an inordinate burden would be placed on the discharger relative to the beneficial use protected and an equivalent level of protection can be achieved by alternate means, (b) a discharge is approved as part of a reclamation project, or (c) it can be demonstrated that a net environmental benefit will be derived as a result of the discharge.
4. The discharger submitted a petition dated August 25, 1987, requesting that Discharge Prohibitions A.1, A.2, and A.3 and Receiving Water Prohibitions C.2.a and C.2.c be removed from their NPDES permit. The discharger is a member of the South Bay Dischargers Authority, a joint powers agency. The Authority performed a five-year water quality monitoring study to assess the impacts of existing discharges on water quality and beneficial uses of the South Bay. The discharger submitted the Five-Year Study Final Report and a treatment plant reliability report as documentation of net environmental benefit and water quality enhancement, to be considered in the evaluation of their exception request.
5. The discharger submitted an NPDES permit application dated October 28, 1987, for reissuance of waste discharge requirements under the National

Pollutant Discharge Elimination System, NPDES Permit No. CA0037842.

6. The Five-Year Study and exception request package does not support a finding of net environmental benefit and the discharger's exception request must be denied because the existing discharge adversely affects rare/endangered species habitat, a designated beneficial use in the South Bay. San Jose/Santa Clara's increased freshwater discharge has resulted in the loss of 220 acres of rare/endangered species habitat between 1970 and 1988, due to conversion of saltmarsh to fresh or brackish marsh. Fresh and brackish marsh is unsuitable to the California clapper rail and the saltmarsh harvest mouse, two endangered species found in the South Bay. The 220 acre total includes 95 acres east of Drawbridge and zero acres at Albrae Slough. Marsh conversion in these areas has been the topic of substantial debate between the discharger and U.S. Fish and Wildlife Service (USFWS). Further investigation may help to more precisely define 1970 marsh types in the following areas east of Drawbridge: Coyote Slough, Irvington Marsh, and Coyote Creek Marsh at Warm Springs and Newby Island and to identify the cause of marsh conversion at Albrae Slough and the areas east of Drawbridge (see Attachment 1).
7. A finding of net environmental benefit is not possible without mitigation satisfying the criteria in Attachment 1. At least 240 acres of saltmarsh must be created or enhanced by the discharger, to mitigate for saltmarsh habitat loss. This larger acreage takes into account the relative habitat values of the original saltmarsh, the converted marsh, and the mitigation site for the endangered species. It also accounts for the fact that habitat value will take many years to develop at the mitigation sites.
8. The discharger is not in compliance with the three Discharge Prohibitions cited earlier. If the discharger does not submit a mitigation proposal consistent with Attachment 1, then the Board will require the discharger to relocate its outfall north of the Dumbarton Bridge or otherwise comply with the Discharge Prohibitions.
9. The Board issued a time schedule to the discharger, Order No. 85-123, requiring full compliance with the Discharge Prohibitions no later than July 1, 1988. A revised time schedule cannot be placed in the reissued NPDES permit because July 1, 1988, is a statutory deadline for compliance with technology-based and water quality based permit requirements (Section 301 of Clean Water Act). A cease and desist order is the only mechanism available to the Board to establish an enforceable compliance schedule to resolve the endangered species habitat issue. This action does not reflect any failure by the discharger to properly construct and operate the sewage treatment plant.
10. Section 13301 of the Water Code authorizes the Board to issue a Cease and Desist Order when it finds that a waste discharge is occurring or threatening to take place in violation of requirements or prohibitions prescribed by the Regional Board or State Board.
11. This action is an order to enforce waste discharge requirements previously adopted by the Board. This action is therefore categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency CEQA Guidelines.

12. The discharger and interested persons have been notified of the Board's intent to take this enforcement action, and have been provided an opportunity to submit written comments and appear at the public hearing. At a public meeting on January 18, 1989, the Board heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED THAT:

- A. The Cities of San Jose and Santa Clara shall cease and desist from discharging waste contrary to the prohibitions cited in finding 2 above, in accordance with the time schedule contained in this Order.
- B. The Cities of San Jose and Santa Clara shall submit aerial infra-red photos of the following areas east of Drawbridge: Coyote Slough, Irvington Marsh, and Coyote Creek Marsh at Warm Springs and Newby Island. The photos should be at a scale large enough to allow acreage calculations. Photos should be submitted for at least three historic periods: 1970, 1968 or 69, and 1971 or 72, although photos for more recent years may be included. The discharger should discuss with USFWS staff the choice of photos prior to submittal. Two copies of each photo shall be submitted to the Board by March 18, 1989.
- C. The Cities of San Jose and Santa Clara may submit new information on two subjects: (1) interpretation of 1970 marsh types in the following areas east of Drawbridge: Coyote Slough, Irvington Marsh, and Coyote Creek Marsh at Warm Springs and Newby Island and (2) the cause of marsh conversion at Albrae Slough and the areas east of Drawbridge between 1970 and 1988. USFWS or other interested persons may also submit new information on these two subjects. Any such information shall be submitted by May 18, 1989. The Board will, after a public hearing, consider revising its marsh conversion estimates for Albrae Slough and the area east of Drawbridge. Any revision will result in a revised mitigation acreage, based on the method given in Attachment 1.
- D. The Cities of San Jose and Santa Clara shall achieve full compliance by September 1, 1989, with Discharge Prohibitions A.1, A.2, and A.3 of their NPDES permit CA0037842 in accordance with one of the following two alternatives:
 1. Submit a mitigation proposal satisfying the criteria of Attachment 1, or
 2. Submit a schedule for constructing a deep-water outfall located north of the Dumbarton Bridge, or otherwise complying with the discharge prohibitions.

Note: Eligible mitigation projects include: (i) creation or enhancement of saltmarsh consistent with Attachment 1, (ii) reclamation that reduces annual average flows to 1970 levels, (iii) relocation of the discharge that results in a projected net increase in saltmarsh habitat of 240 acres, or (iv) a combination of these options that results in a projected

net increase in saltmarsh habitat of 240 acres.

- E. The Board intends to revise this Cease and Desist Order upon submittal and approval of either alternative 1 or 2 above.
- F. The Executive Officer is directed to initiate enforcement action against the discharger if the discharger does not comply with provision B above. Enforcement options include administrative civil liability and referral to the Attorney General. The Attorney General may seek court-imposed civil liability or an injunction, as appropriate. The Executive Officer should report to the Board if the discharger does not comply with this Order and no enforcement action is initiated. The report should explain the reasons for taking no enforcement action.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 18, 1989.



STEVEN R. RITCHIE
Executive Officer

Attachment 1

Attachment 1

Mitigation Necessary to Find a Net Environmental Benefit for the San Jose/Santa Clara Discharge to South Bay

The discharge of treated wastewater by the San Jose/Santa Clara plant has over several years converted saltmarsh to fresh or brackish marsh in the vicinity of the Artesian Slough discharge location. This marsh conversion has had the effect of eliminating habitat for two listed endangered species: the California clapper rail and the saltmarsh harvest mouse. Rare and endangered species habitat is a designated beneficial use for the South Bay. This habitat loss is the primary reason for the Board being unable to find that the discharge provides a net environmental benefit. If San Jose/Santa Clara wishes to continue to discharge to the South Bay, then mitigation must be provided to offset the loss of rare and endangered species habitat. This attachment calculates past habitat loss and defines acceptable mitigation, should San Jose/Santa Clara wish to continue discharging to the South Bay.

Estimate of Saltmarsh Conversion and Habitat Loss

Attributing the loss of rare and endangered species habitat to the San Jose/Santa Clara discharge is complicated. This discharge is not the only source of freshwater entering the South Bay, nor are freshwater inputs the only reason for loss of species habitat. South Bay urbanization and wetlands diking and filling, as well as Bay-Delta hydrologic patterns have also affected saltmarsh habitat in the South Bay.

Habitat loss should be defined as reduced habitat value due to saltmarsh conversion. This approach follows closely the U.S. Fish and Wildlife (USFWS) habitat evaluation procedure. Saltmarsh conversion can be more accurately estimated and attributed to increased San Jose/Santa Clara discharges than can habitat reduction alone. A total of 220 acres of saltmarsh conversion can be attributed to the San Jose/Santa Clara discharge. This result is based on the following analysis:

- o The estimate should be for conversions that occurred during the period 1970 through the present. The two endangered species were first listed in 1970 under the 1967 federal Endangered Species Act. The early 1970s provides a practical starting point, since aerial infra-red photos needed to identify marsh types are not available for earlier periods. Prediction of future marsh conversion due to increased discharge rates is highly uncertain. Future conversions can be addressed by future mitigation.
- o Aerial infra-red photos from 1969 and 1985 are available and approximate the two endpoints noted above. Brackish marsh and saltmarsh generally have a different color on infra-red photos (brackish marsh looks reddish).
- o The following table shows marsh conversion attributable to the San Jose/Santa Clara discharge (see also figure 1 map):

Marsh Area	Acres Converted
Upstream of Drawbridge (subtotal)	95
Coyote Creek Marsh (2)	0
Irvington Marsh (2)	11
Coyote Slough (1)	84
Downstream Areas (subtotal)	125
Drawbridge (1)	22
Triangle Marsh (3)	61
West Triangle (1)	26
Coyote Creek-Mud Slough (1)	16
Total acreage (both areas)	220

- Notes: (1) Acreage based on USFWS December 22 analysis
 (2) Acreage based on Board staff review of 1969 and 1975 aerial infra-red photos. Irvington acreage adjusted due to conversions caused by Irvington sewage treatment plant.
 (3) Acreage based on Harvey-Stanley 1986 analysis (80% saltmarsh in 1970, 25% in 1983, pro-rated to 1988).

Several factors should be considered in order to calculate the habitat loss for endangered species in the converted marshlands: the habitat value of the original saltmarsh, the subsequent brackish marsh, and the mitigation site, as well as the time required for habitat value to develop at the mitigation site. Habitat value refers to the marsh's suitability for the two endangered species - California clapper rail and saltmarsh harvest mouse.

The USFWS habitat evaluation procedure (HEP) was developed for terrestrial and inland aquatic habitats used by a full range of species. However, it can reasonably be applied to the South Bay, an estuarine habitat, and a very small number of species. The HEP is based on a habitat suitability index, which ranges from 0.0 for unsuitable habitat to 1.0 for optimal conditions. The following steps make up the HEP, as modified for this South Bay application:

- (1) Assign habitat suitability indices for the two endangered species and the three habitat types: saltmarsh prior to conversion, brackish marsh created as a result of conversion, and saltmarsh to be created at the mitigation site. The actual values are taken from the USFWS December 22 analysis:

Species	HSI index values for:		
	Saltmarsh	Brackish	Mitigation
California clapper rail	.51	.10	.50
Saltmarsh harvest mouse	.51	.23	.52

- (2) Calculate the change in habitat units from 1970 to 1988, based on the 220 acres of marsh conversion and the above index values (habitat units = index value x acres of habitat):

Species	Habitat units:	
	1970	1988
California clapper rail	112	22
Saltmarsh harvest mouse	112	51

Note: The lower value of 22 habitat units should be used for 1988 to reflect the more sensitive species.

- (3) Define the study period. A 38-year study period, from 1970 to 2008, is appropriate in order to allow time for habitat value to develop at the mitigation site. This value comes from the USFWS December 22 analysis.
- (4) Calculate annual average habitat units lost due to marsh conversion. Habitat units declined steadily during the 1970-1988 period, stabilizing at 22 (see figure 2 graph). The area above the curve represents habitat units lost due to marsh conversion. Only habitat loss after 1988 is included, since the discharger only recently became aware of the need for mitigation. It would be inequitable to assess a time-lag penalty under these circumstances. A total of 1,800 habitat units will be lost during the 1988-2008 period, or an average of 90 habitat units per year (see figure 2 graph).
- (5) Calculate annual average habitat units gained due to mitigation. Mitigation refers to the creation or enhancement of saltmarsh to offset the conversion of 220 acres of saltmarsh. Habitat units increase from zero in 1988 to 110 in 1998 and then level off (see figure 2 graph). This result assumes that 10 years will be required for habitat value to become established at the mitigation site. This assumption is based on comments from the Department of Fish and Game. A total of 1650 habitat units will be gained during the 1988-2008 period, or an average of 82 habitat units per year (see figure 2 graph).
- (6) Compute the adjustment factor as the ratio of the two annual averages:

$$\text{Adjustment} = \frac{\text{AAHU lost}}{\text{AAHU gained}} = \frac{90}{82} = 1.1$$

- (7) Calculate the total mitigation acreage by including the adjustment factor. This total now takes time lags and relative habitat value into account:

$$\begin{aligned} \text{Total mitigation} &= \text{Acres converted} \times \text{Adjustment factor} \\ &= 220 \times 1.1 \\ &= 240 \text{ acres} \end{aligned}$$

Criteria for Reviewing Mitigation Proposal

If San Jose/Santa Clara choose to submit a mitigation proposal, the Regional Board will use the following criteria in determining whether the proposal is adequate to result in a net-environmental-benefit finding for the San Jose/Santa Clara discharge. The Board will hold a public hearing on this issue

before reaching a conclusion.

- o The mitigation proposal should provide for the creation or enhancement of at least 240 acres of saltmarsh. Mitigation is intended to provide replacement habitat for the two endangered species cited above. Saltmarsh creation means using a site that is not now a wetland. Saltmarsh enhancement means using a site that is now a severely degraded saltmarsh, that does not currently provide habitat for the two endangered species.
- o The mitigation should not result in the conversion of fresh or brackish marsh to saltmarsh, unless such conversion represents a re-conversion to saltmarsh due to reduced discharge volume or discharge relocation.
- o A mitigation site in the South Bay (south of the Dumbarton Bridge) is preferred, in order to more closely replace the lost habitat. However, mitigation sites in the Lower Bay (Bay Bridge to Dumbarton Bridge) are acceptable, given the scarcity of potential mitigation sites.
- o The mitigation site should, if possible, be one contiguous unit or adjacent to an existing saltmarsh area, in order to provide more valuable habitat. Individual units should be at least 10 acres in size.
- o The mitigation site cannot be one already proposed as mitigation for a development project (double-counting).
- o San Jose/Santa Clara or another public agency must acquire the mitigation site property (or at least its development rights) and provide ongoing management of the mitigation site. San Jose/Santa Clara will retain final responsibility for acquisition and management of the site, even if another public agency assumes primary responsibility. Property acquisition need not occur before a mitigation proposal is submitted, however.

Contents of Mitigation Proposal

If San Jose/Santa Clara chooses to submit a mitigation proposal, the proposal should include the following elements. The proposal may identify a single mitigation site or alternative sites.

- o Site acreage and location (including USGS map)
- o Description of existing habitat type and value (including any prior biological studies) and basic hydrology (e.g. source of Bay water if any)
- o Current owner and any lessee, and any development restrictions that apply, and status of negotiations with owner/lessee regarding use of the site
- o Description of any adjacent saltmarsh or protected wetlands
- o Preliminary mitigation plan, including source of Bay water, need for grading, need for circulation improvements

Implementation

If the Board approves a mitigation proposal, then San Jose/Santa Clara (or its designee) would proceed with property acquisition for the site. San Jose/Santa Clara (or its designee) would prepare a draft site improvement plan and management plan, which would be subject to review and approval by the Executive Officer, in consultation with the California Department of Fish and Game. Specific deadlines for project milestones would be established by the Board at the time it approves the mitigation proposal.

Attachment: Figure 1 - Saltmarsh Conversion Map
Figure 2 - Habitat Units Lost and Gained

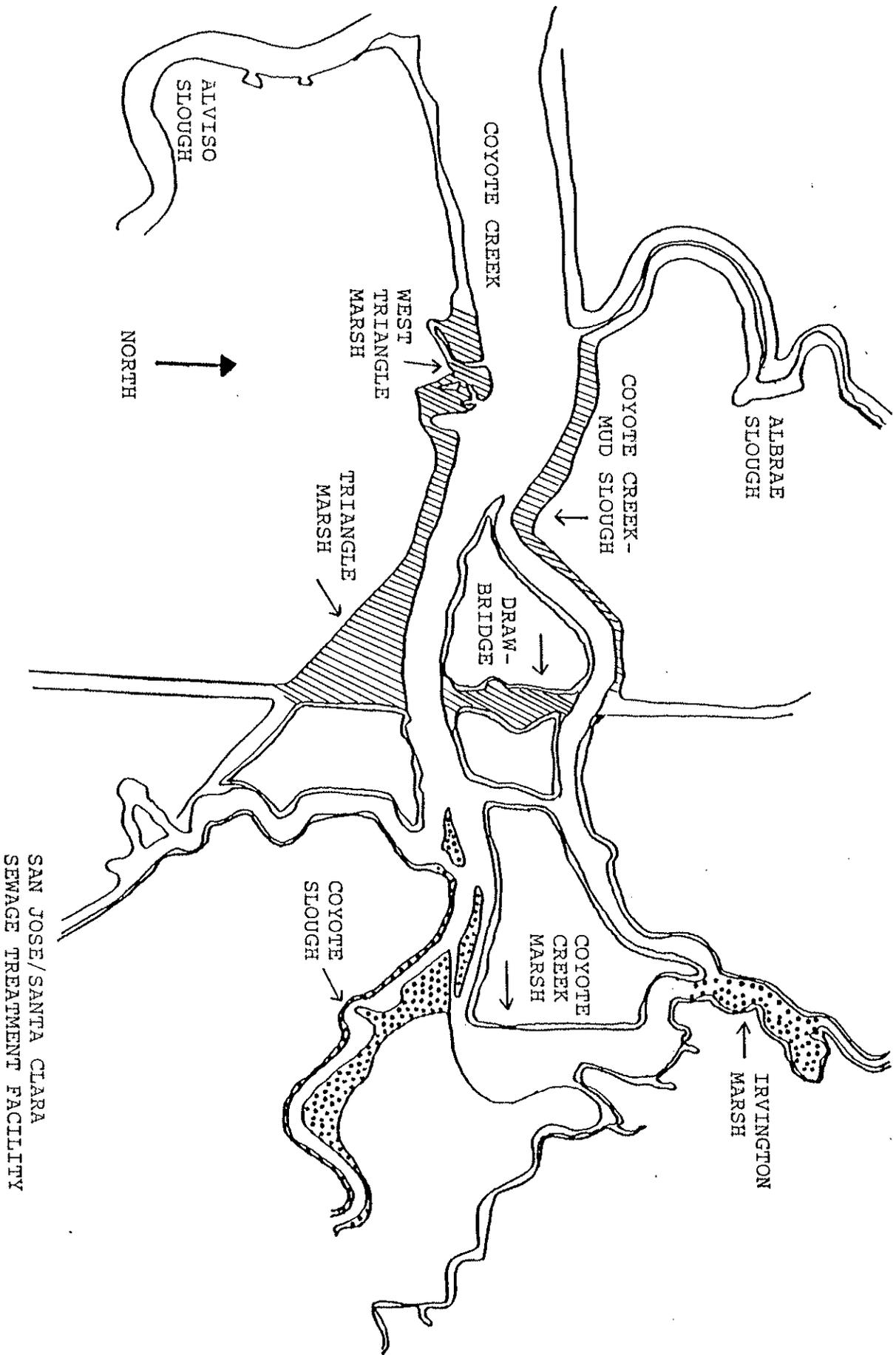
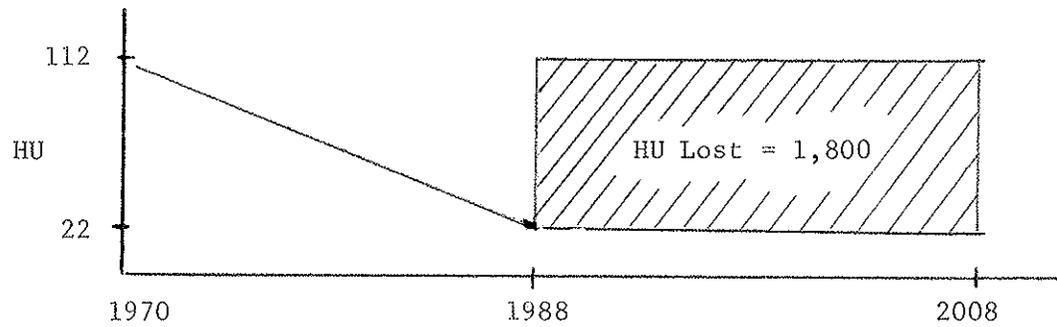


Figure 1. Upstream (dotted) and downstream (striped) areas containing converted acreage. See text for the number of converted acres within each area.

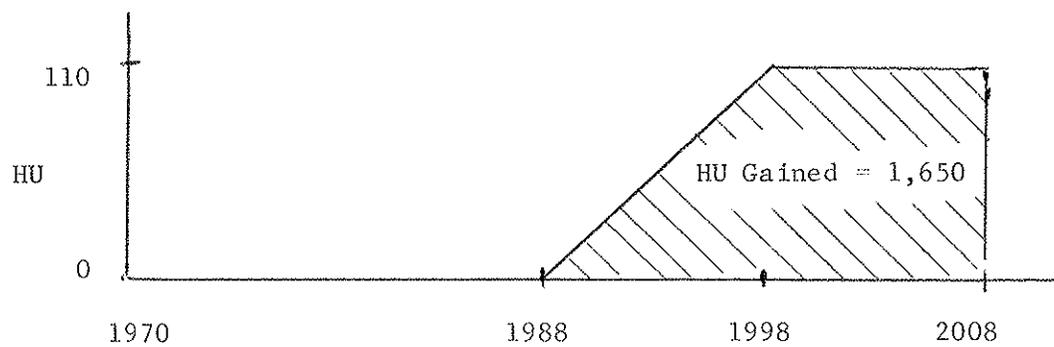
Figure 2: Habitat Units Lost and Gained

Habitat Units (HU) Lost



$$\text{Annualized average habitat units (AAHU) lost} = \frac{1,800 \text{ HU}}{20 \text{ years}} = 90 \text{ HU/year}$$

Habitat Units (HU) Gained



$$\text{Annualized average habitat units (AAHU) gained} = \frac{1,650 \text{ HU}}{20 \text{ years}} = 82 \text{ HU/year}$$

Insect permit (89-012)
with SMR / attachments