

upon the open sand and native vegetation....It would therefore be prudent to commence with eradication of European beach grass in this quarry before the beach grass takes over.

The 1999 report specifically recommended that “European beach grass control should take place immediately at Quarry 82-01.” This was not done.

The 2003 Biological Monitoring report noted that the situation had continued to deteriorate. “Over the last five years, however, the beach grass has become well established along the quarry’s centrally located dunes and is slowly encroaching upon the open sand and native vegetation”. The 2003 report further stated, “It is our recommendation, and has been in past years, that the European beach grass be removed from this quarry before it out-competes the native vegetation.” To this date, no such measures have been implemented.

Permit Condition 5: Implementation of the Reclamation Plan and of the recommendations of the annual Biological Monitoring Report.

5a. If sand depletion is determined through monitoring to indirectly create significant impacts, corrective measures shall be taken.

5b. If monitoring determines that revegetation and stabilization measures are both required and feasible with the current and former quarrying permit areas, appropriate measures of the Reclamation Plan shall be implemented and corrective measures shall be taken.

This condition refers to the abandoned quarry site (76-04), as well as to the two current sites (82-01 and 91-01). Work recommended has not been undertaken.

- Quarry site 76-04

The 1990 Biological Resource Inventory and Proposed Reclamation Plan, (p.20) states “Although the old quarry site (Permit Q-76-04) is undergoing natural revegetation with primarily native species, and there are no obvious problems to correct, it is recommended that reclamation measures be undertaken as soon as possible to enhance the process.” This recommendation has been totally ignored and the Q-76-04 site is now completely covered in European beach grass. In 1999, the Biological Monitoring Report stated that European beach grass covered 55% of the site. “In past monitoring reports, it was recommended that the European beach grass invading the old quarry site be removed to prevent it from out-competing the native vegetation and stabilizing the dunes. However, no remedial action has occurred, and now, approximately eight years since the closure of Quarry 76-04, European beach grass is the dominant plant species. Any attempts now to rid the quarry of this species (European beach grass) would probably be futile.”

- Quarry site 82-01

The 1999 Biological Monitoring report recommended that “European beach grass control should take place immediately at Quarry 82-01.” This recommendation is repeated in every Biological Monitoring report, but has never been implemented.

Lack of scientific basis for use permit.

Replenishment of sand dunes:

The Use Permit is based on erroneous assumptions regarding dune sand transport. The findings in PC 96-125, under which Use Permit Renewal 96-442 was renewed, include the following:

The sand quarrying operation does not significantly reduce the amount of sand, a natural resource, within the central dunes of Lawson's Landing since the quarry operators only mine blow sand, a renewable resource that is continually replenished through natural, wind-induced conditions.

This statement is incorrect. The large, vegetated foredune ridge along the back of the beach, with a dense and continuous cover of European beach grass, has for many decades intercepted onshore-transported sand. This was documented in W.S. Cooper's 1967 monograph of the coastal dunes of California (Geol. Soc. Mem. Bull. 104, pp. 37-38, and accompanying map), and is plainly evident from the view from “Little Sugarloaf”. The moving dune is a relict deposit, mobile but removed from updrift resupply of sand. It simply cannibalizes its own sand deposits as it migrates, and is not “replenished” naturally to compensate for quarrying losses. The statements concerning replenishment are unsupported by any quantitative estimates of sediment budgets by professional geomorphologists. This failure of dune replenishment means that the impact of quarrying on the dune system may be significant, and have not been adequately addressed by mitigation measures.

The Local Coastal Plan Unit II requires that quarry permits be reviewed to ensure that quarrying is not causing deterioration of dunes or vegetation. (p.70) However, the 1983 Expanded Initial Study (p.2) found that at quarry site 76-04 “the current sand extraction rate does exceed the rate of replenishment at this location.” As acknowledged in a letter dated January 31, 1984 from the Marin County Department of Public Works, “this has resulted in a deterioration of the surrounding dunes.” The total amount taken from this 23 acre site between 1977 and 1981 was, according to the operator, less than 124,000 tons, an average annual rate of 30,000 tons. The annual allowed extraction rate from the current 15 acre quarry site (91-01) is 60,000 tons. Given these facts, it is likely that quarrying has caused dune deterioration at quarry sites 82-01 and 91-01, just as it did at site 76-04.

Replenishment of sand in other habitats:

The 2003 Biological Monitoring report found that quarrying activities at site 91-01 “are currently not impacting the eel grass shoal or the downwind dune scrub habitat....It must be questioned, however, for how many more years this large sand dune can be mined before the amount of sand available to shift and blow to downwind habitats is depleted.”

Lack of information regarding quarrying’s impact on biological resources:

The quarry areas have not been thoroughly surveyed for sensitive species. Two colonies of a still-unnamed presumed hybrid occur in the sand quarry area, though they are not recognized in any of the permit documents. It is very likely a hybrid between two native creeping wildrye grasses native to coastal dunes, *Leymus pacificus* x *Leymus mollis* and was probably first described by J.T. Howell in 1949 from Point Reyes and Dillon Beach in his Marin Flora.

Among the listed species for which the sand dunes are potential habitat are beach layia *Layia carnosa*, Coast marsh milkvetch, *Astragalus pycnostachyus* var. *pycnostachyus*, Dune gilia *Gilia capitata* ssp. *Chamissonis*, Northern beach glehnia *Glehnia littoralis* ssp. *Leiocarpa*, Sonoma spineflower *Chorizanthe valida*, and Tidestrom's lupine *Lupinus tidestromii*. Thorough surveys of the quarry areas should be done to determine the extent of sensitive species and potential sensitive species habitat.

The 1999 Biological Monitoring report notes that the population of Woolly-headed Spineflowers in Quarry 82-01 is safe because the quarry is not being actively worked. By 2003, however, Quarry 82-01 was once again being worked. The re-opening of this quarry site may have damaged both the Woolly-headed Spineflower population and the Pacific sand bear scarab beetle population, but no data regarding these potential disturbances was gathered.

In view of all the above, Permit 96-442 should be revoked immediately. Reinstatement should be contingent on compliance all conditions of this and previous permits for sand quarrying at Lawson’s Landing, on compliance with the Local Coastal Plan, and on a determination of what, if any, level of extraction will not cause deterioration to the dunes or any neighboring habitats.

Sincerely yours,



Catherine Caufield
Executive Director

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