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# 4.10.1 Environmental Setting

Gold is the primary mineral resource sought by suction dredge miners. Gold naturally occurs in two types of deposits: lode or placer. Lode gold is found within solid rock, commonly as veins formed in quartz, while placer deposits are found within unconsolidated sediments, typically but not always in stream beds. Suction dredge gold mining involves the pursuit of placer deposits.

Approximately 115,330 ounces of gold were produced by a handful of commercial lode mines in California in 2008 (California Geological Survey [CGS], 2008). The largest lode mine in the state produced 108,000 ounces of gold in 2008 alone (CGS, 2008).

### Placer Gold Mining in the State

Streams rich in gold include streams draining the Sierra Nevada, Klamath Mountains, and the Mojave Desert. Some dredging also occurs to a lesser extent within the Peninsular Ranges, Transverse Ranges, northern Great Valley, and Coast Ranges (CGS, 2002a). Dredging is popular in the "Mother Lode Region" which includes the American, Bear, Calaveras, Cosumnes, Feather, Merced, Mokelumne, and Yuba rivers. Most of this area was mined during the mid 1850s, and again during the 1970s and 1980s (CGS, 2002b; Clark, 1972). Table 4.10-1 illustrates the magnitude of placer gold production from the Gold Rush period to 1968.

TABLE 4.10-1. PLACER GOLD ACTIVITY IN CALIFORNIA

Period	Ounces of Placer Gold Extracted		
1848-1858	26,200,000		
1859-1884	21,200,000		
1885-1899	2,200,000		
1900-1934	10,800,000		
1935-1968	7,800,000		
Total	68,200,000		

Source: Churchill, 2000

Most suction dredgers operate in rivers and streams that have been previously mined for gold, in some cases, several times.

#### Claims

In 1872, the General Mining Law, described further under the *Regulatory Setting* section below, authorized the prospecting and mining for locatable materials, such as gold, platinum, and silver on federal public lands. Under this Law, all citizens of the U.S., 18 years or older, have the right to locate a lode or placer mining claim on federal lands open to mineral entry. The mining law opens up land in the public domain that has never been set aside for a specific use. Land dedicated for specific uses such as military installations, national parks, or wilderness areas, are not subject to mineral entry. Land west of the Great Plains managed by the U.S. Forest Service or the Bureau of Land Management (BLM), unless designated as wilderness area, is generally open to mining claims. In California, federal lands administered by the National Forests or the BLM are available for prospecting (Demaagd pers. comm., 2009).

A miner may stake a 'claim' on public land, which is meant to declare an exclusive right to extract minerals in the claim area. However, an individual miner does not need a personal mining claim to mine; mining on an existing claim is legal if permission is given by the claimant. Claims may be either patented or unpatented. Unpatented claims simply give the holder the right to mine on the claim, while a patented claim gives the holder outright ownership of the claim. Once patented, the claim area becomes private land and is unavailable for public use. There is currently a moratorium by the Federal government on issuance of new patented claims. (Environmental Working Group, 2000)

There are four types of unpatented claims: (1) placer claims, (2) lode claims, (3) tunnel claims, and (4) mill site claims. An estimated 60,000 to 120,000 people engage in recreational placer mining, including use of pans and suction dredges, in the Sierra Nevada each year (U.S. Forest Service 2001). Much of this activity, including the majority of suction dredging takes place on unpatented placer claims. Table 4.10-2 below shows the number of reported mineral activity notices or permits within National Forest lands between 1997 and 1999 fiscal years.

**TABLE 4.10-2.** NUMBER OF MINERAL COLLECTION PERMITS AND NOTICES FOR PLANS TO CONDUCT MINING ACTIVITIES IN NATIONAL FOREST LANDS DURING 1997 AND 1999

National Forest	1997	1998	1999
El Dorado	80	29	45
Inyo	3	5	4
Lassen	43	42	0
Plumas	100	100	23
Sequoia	8	55	5
Sierra	164	144	24
Stanislaus	200	200	168
Tahoe	662	631	659
Lake Tahoe Basin	0	0	0
Toiyabe	0	0	0
Total	1,260	1,206	928

Source: Adapted from Table 5.4.a – Non-bonded operations (U.S. Forest Service, 2001)

However, activity is not directly related to the number of mining claims in an area because many claims sit idle for years while in other cases, a single operation may tie up several claims.

## Suction Dredge Gold Mining

The popularity of recreational suction dredging fluctuates with the worldwide price of gold. In the last 45 years, the price of gold quickly fluctuated from \$100 per ounce in 1974 to a peak of approximately \$850 per ounce in 1980. The peak in 1980 was followed by a crash to \$250 per ounce in 1999 and a recovery to approximately \$1,200 per ounce in 2010, as of mid-July 2010 (GoldPrice, 2010).

In 2009, the California Department of Fish and Game received over 3,600 applications for suction dredge permits. This reflects a gradual decline in this activity from previous years. In the 1980s, the California Department of Fish and Game received an average of approximately 9,070 applications for suction dredge permits per year. This spike in interest appears to be related to the spike in gold prices. However, as gold prices decreased from their 1980 highs, permit requests for the last eight years have averaged fewer than 3,000 per year (see Figure 3-1 in Chapter 3).

Commercial mines report annual gold and silver production to the California Department of Conservation and pay a tax on the amount of gold and silver produced. There is no such requirement for suction dredgers to report how much gold they produce. However, based on the Suction Dredger Survey results, California resident permit holders recovered on average approximately 3.37 ounces of gold; while out of state permit holders reported a slightly higher amount (3.41 ounces). Based on a selling price of gold at \$1,000 per ounce, this amount translates into an approximate value of \$3,374 and \$3,406 dollars. (Suction Dredger Survey results, Appendix F)

# 4.10.2 Regulatory Setting

#### Federal

Management of subsurface minerals pursuant to the General Mining Law of 1872 is administered by the BLM. The surface disturbance aspect of mining on federal lands is managed by the applicable land manager (e.g., BLM, U.S. Forest Service).

#### General Mining Law of 1872

The amended General Mining Law of 1872 allows any U.S. citizen, corporation, or alien who has declared their intention to become a U.S. citizen the right to prospect for, locate, and develop mining claims on open public-domain lands if they meet certain requirements (U.S. Forest Service, 2001; BLM, 2009). Patented mining claims provide the right for a mining claimant to obtain a title to the land and for the mining of locatable minerals, which include metallic minerals (ex., gold) and some types of nonmetallic minerals (ex., gemstones). Under this law, placer deposits can also be claimed and the mineral rights would be acquired by the claim holder (Diggles et al., 1996).

Unpatented claims provide rights to the mining of locatable minerals, but do not provide the claimant title to the land. A patented claim is private land and is unavailable for public use.

BLM has not been accepting new applications for patents since October 1, 1994 when Congress imposed a budget moratorium on BLM acceptance of any new mineral patent applications (BLM, 2009). Prior to the moratorium, to obtain a patented mining claim, a mining claimant was required to meet the following requirements:

- For mining claims, demonstrate a physical exposure of a valuable (commercial) mineral deposit (the discovery) as defined by meeting the BLM's Prudent Man Rule and Marketability Test;
- For mill sites, show proper use or occupancy for uses to support a mining operation and be located on non-mineral land;
- Have clear title to the mining claim (lode or placer) or mill site;
- Have assessment work and/or maintenance fees current and performed at least \$500 worth of improvements (not labor) for each claim (not required for mill sites);
- Meet the requirements of the BLM's regulations for mineral patenting as shown in the Code of Federal Regulations at 43 CFR 3861, 3862, 3863, and 3864; and
- Pay the required processing fees and purchase price for the requested land (BLM, 2009).

The BLM is responsible for managing mineral resources, including the administration and enforcement of this law, on both U.S. Forest Service and BLM lands through its headquarter office and 12 state offices. The two fundamental components of administration of the law are adjudication and mineral examination. The adjudication process is performed by land law examiners in each state office and involves reviewing mineral applications for completeness and compliance with the law and regulations, except for the mineral examination process. Certified BLM geologists or mining engineers will perform a formal mineral examination once an application has been designated as complete and in compliance. Formal mineral examinations verify the discovery of a valuable (commercially viable) mineral deposit on the mining claims and proper use or occupancy for any mill sites, and include the preparation of a mineral report. A mineral contest proceeding may be conducted if applications do not demonstrate a discovery or proper use or occupation. The final approval process for a completed and verified application involves final review and action by the Secretary of the Interior and, if approved, issuance of a mineral patent by the BLM.

#### Federal Land Policy Management Act of 1976

The Federal Land Policy and Management Act (FLPMA) of 1976, as amended, was enacted to "establish public land policy, establish guidelines for its administration, provide for the management, protection, development, and enhancement of the public lands, and for other purposes" (U.S. Department of the Interior, 2001). Under the FLPMA, one of BLM's responsibilities is to manage public lands in a manner that considers the Nation's need for domestic mineral sources and implements the Mining and Minerals Policy Act of 1970 as it pertains to public lands (U.S. Department of the Interior, 2001). BLM authorizes and permits mineral exploration, mining, and reclamation actions on BLM public lands as mandated by Section 302(b) of FLPMA (BLM, 2009). Any activities that disturb the surface of a mining claim or site require authorization (BLM, 2009).

BLM can provide one of three levels of authorization: casual use, notice level, and plans of operations. The first level, casual use, does not require any sort of notification and applies to dredges with engines less than 10 hp. Under the second and third levels, the purpose of a notice of intent (NOI) or plan of operations is to minimize adverse environmental impacts on surface resources within public lands. These latter two levels require NEPA compliance and Endangered Species Act (ESA) consultation (if applicable).

An NOI is required from any person proposing to conduct operations which might cause a significant disturbance of surface resources. The NOI generally applies to exploratory activities involving the use of dredges larger than 10 hp, explosives, or other mechanized earth moving equipment. Camping for more than 14 days also triggers an NOI. Notice level activities must not exceed an annual total unreclaimed surface disturbance of 5 acres per calendar year. The NOI must identify the area involved, the nature of the proposed operations, the route of access to the area of operations, and the method of transport (Electronic Code of Federal Regulations, 2010). Following receipt of a notice of intent to operate, BLM will notify the operator if approval of a plan of operations is required before the operations may begin. In the absence of such a response, the miner is authorized to proceed with the activity following submittal of the NOI. Note that it is up to the miner to determine that the activity exceeds casual use and requires an NOI, although BLM also can inspect a site and require that an NOI be submitted.

Larger surface disturbance activities, and the transition from exploration to production, require a plan of operations that is approved by BLM, and reclamation bonding (BLM, 2009). A plan of operations is necessary when the activities will likely cause a significant disturbance to surface resources or if requested by BLM following submittal of an NOI. A plan of operations must include but not be limited to:

- contact information for the mining operator and/or claimant,
- a map of the project area and access roads, and
- detailed information on the proposed operations, including transport routes, period of operation, type of operation, and measures to protect the environment (Electronic Code of Federal Regulations, 2010).

Mining activities are not authorized to commence without approval of the plan of operation. A review of mining plans of operations by BLM may result in approval of the plans or a request for a validity examination. If BLM determines that a plan of operation has adequate measures to mitigate surface resource impacts to acceptable levels, a plan may be approved. However, if BLM determines that the potential impacts are excessive, a mineral examiner may be requested by BLM to review the plan of operations or conduct a validity examination. Based on the mineral examiner's findings related to the reasonableness of potential impacts, BLM may deny or approve the plan of operations.

Any removal of minerals from BLM lands (or public land in general) is considered mining, even if it is for recreational purposes. Miners should contact the appropriate BLM office to confirm the specific potential notification/authorization requirements for a proposed activity.

### **U.S. Forest Service Mining Oversight**

Although BLM manages mineral resources themselves (i.e., mining claims) within U.S. Forest Service lands, the U.S. Forest Service is responsible for minimizing adverse environmental impacts from mining on surface resources in the national forests (U.S. Forest Service, 2001). Wildlife, recreation, timber, and water quality comprise surface resources in the national forests. The U.S. Forest Service protects surface resources from locatable mineral mining activities via proposing mineral withdrawals and noticing requirement similar to those described above for the BLM (U.S. Forest Service, 2001).

In terms of withdrawals, the U.S. Forest Service may propose that areas within the National Forests are no longer available for the location or entry of new mining activities permissible under U.S. mining laws and subject to valid existing rights. To finalize the withdrawal of National Forest System lands from mining, the BLM and/or Congress must provide final approval. The BLM is responsible for reviewing the U.S. Forest Service's proposal and potentially providing approval for withdrawals that have limited time periods (e.g., 20 years) and/or are less than 5,000 acres. For permanent withdrawals larger than 5,000 acres, Congress must provide its approval. Any existing mining rights at the time of a withdrawal must be honored or acquired. (U.S. Forest Service, 2001)

To obtain a permit for locatable mineral mining (e.g., suction dredge mining) on National Forest lands, the U.S. Forest Service uses the same approach as BLM (i.e., one of three levels of authorization: casual use, notice level, and plans of operations). However, the threshold for exceeding casual use is different than for BLM, and generally applies to situations in which there is a long-term encampment or use of closed roads. An exception to the notice of intent and plan of operation requirements is that certain activities require only an administrative pass from the U.S. Forest Service. For mining operations that will last less than 14 days and that will result in minimal surface resource disturbances, the U.S. Forest Service may issue an Administrative Pass that grants a temporary authorization for prospectors and miners who have a statutory right to enter and prospect on public lands (U.S. Forest Service, 2008).

#### State

# Surface Mining and Reclamation Act of 1975 (SMARA)

The purpose of the Surface Mining and Reclamation Act of 1975 (SMARA) and its recent amendments is to "create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations" (California Department of Conservation [CDC], 2007a). Specific objectives of SMARA's surface mining and reclamation policies are to:

- prevent or minimize adverse environmental effects and reclaim mined lands to a condition that is readily usable for alternative land uses;
- encourage the production and conservation of minerals, while considering the values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and
- eliminate residual hazards to the public health and safety (CDC, 2007a).

 The act's requirements apply to anyone, including government agencies, engaged in surface mining operations in California (including those on federally managed lands) that disturb more than one acre and/or remove more than 1,000 cubic yards of overburden or mineral product in any one location (CDC, 2007a; CDC, 2007b). Disturbance or removal activities include, but are not limited to: prospecting and exploratory activities, dredging and quarrying, streambed skimming, removing overburden, borrow pitting, and the stockpiling of mined materials. A disturbance is the occurrence of any of the above surface mining operations on mined lands. Mined lands include the surface, subsurface, and ground water of an area in which surface mining operations will be, are being, or have been conducted, including roads, land excavations, mining waste, and areas in which all structures and equipment related to the mining activities are stored. Overburden is defined as the soil, rock, or other materials that lie above a natural mineral deposit or in between mineral deposits, before or after their removal by surface mining operations (CDC, 2007a).

### Mineral Classification

In addition to regulating mining and reclamation activities, SMARA requires the State of California to inventory and classify selected mineral resources within California. The intent of SMARA is to classify the absence or presence of mineral resources within a region, identify the market area of the commodity, and to estimate the future need of the commodity within a geographic area. Additionally, the mineral resource information is referenced in city and county general plans and used during the land-use planning process to restrict the development of incompatible land uses in areas with identified mineral deposits, especially those of regional or statewide significance (CDC, 2007b).

Areas are classified into Mineral Resource Zones (MRZ) depending on the occurrence and availability of the mineral resource. Pursuant to Section 2790 of SMARA, the state Mining and Geology Board designates certain mineral resource sectors within geographical areas to be of regional or statewide significance. MRZ maps are available by county. As of 2008, all counties except Los Angeles, Nevada, Marin, Sonoma, Napa, San Joaquin, and Kern have been surveyed for mineral resources (CGS, 2008).

As an example, in Yuba County the Yuba City-Marysville production-consumption region is the only area within the county that has MRZ classifications. The classifications are primarily for Portland cement concrete (PCC) aggregate; however, some areas of gold deposits have been identified. Most of the eastern portion of the county has not been classified. The Yuba City-Marysville area has vast quantities of low-cost, high-quality PCC aggregate materials locally available that are more than sufficient to meet the local demands. Within the Yuba City-Marysville production-consumption region, the dredge field in the Yuba River is classified as MRZ-2 for gold. MRZ-2 represents areas where the adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists. (CDC, 1988)

#### SMARA Compliance Process

If a mining activity meets the disturbed/removed area or volume thresholds described above, a miner would be required to complete the SMARA compliance process through the local city or county and the California Department of Conservation, Office of Mine Reclamation (OMR). The SMARA compliance process generally includes: 1) approval of a surface mining permit and/or a conditional use permit, and 2) the preparation and approval

of a reclamation plan (McNally pers. comm., 2010, Gonzalez pers. comm., 2010). The applicable city or county typically approves the surface mining or conditional use permits. The approval of reclamation plans is performed by a designated "lead agency," which may include a city, county, the San Francisco Bay Conservation and Development Commission, or the Mining and Geology board (CDC, 2007a). For El Dorado and Yuba counties, the OMR serves as the lead agency (Gonzalez pers. comm., 2010). Approval of the surface mining permits or conditional use permit and a reclamation plan is contingent on compliance with all other applicable environmental regulations, including but not limited to CEQA, the Clean Water Act, and CESA. The lead agency would inform the mining applicant of the type of CEQA document required and all required permits (McNally pers. comm., 2010). Additionally, approval of the reclamation plan would require approval of a financial assurance plan by the lead agency (Gonzalez pers. comm., 2010). Fees are typically associated with the application process and the required annual inspections of the mining site by the lead agency. Annual production activities must be reported to the OMR until a mine has been certified as reclaimed by the lead agency (Gonzalez pers. comm., 2010).

# 4.10.3 Impact Analysis

# Findings of 1994 Environmental Impact Report

The 1994 EIR did not make findings for this environmental resource area.

### Criteria for Determining Significance

For the purposes of this analysis, the Proposed Program would result in a significant impact if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan; and
- Conflict with any applicable mining regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.

As discussed in the *Regulatory Setting* section above, suction dredging miners may be required to comply with a variety of mining laws. An Appendix G threshold of the CEQA Guidelines related to consistency with other laws states an impact would be significant if a project would "Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project...adopted for the purpose of avoiding or mitigating an environmental effect." The General Mining Law of 1872 was not adopted for the purpose of avoiding or mitigating the environmental effects of mining. Therefore, this discussion does not address if suction dredging activities would comply with this law, because this threshold is not applicable.

Unlike the General Mining Law of 1872, one of the purposes of the USFS and BLM authorizations for surface disturbance associated with mining is to prevent or minimize adverse environmental effects. Similarly, one of the specific purposes for which SMARA was adopted is to prevent or minimize adverse environmental effects. Suction dredging miners

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may be required to comply with SMARA if they meet the threshold requirements. 2 Therefore, the impact discussion below further considers and discusses the potential of the 3 Proposed Program to comply with these requirements.

> Suction dredging activities requiring notification under Fish and Game Code section 1602 are not anticipated to result in any new or more severe impacts related to mineral resources beyond those which are described below.

## 4.10.4 Environmental Impacts

#### Impact MIN-1: Availability of, or Access to, Placer Gold Deposits (Beneficial)

Mining methods that may be used to access placer gold deposits include but are not limited to suction dredging, high-banking, and panning. Implementation of CDFG's Program would lift an existing ban on suction dredging and would increase the potential access to placer gold deposits using this mining method. Other mining methods (high-banking, panning, etc.) would not be regulated by the Program and could be utilized with or without implementation of the Program, although they may be governed by other regulatory schemes (e.g., Fish & G. Code § 1602 covering alterations to streambeds in the case of highbanking).

By permitting the use of suction dredges, the Program would provide another means for recovery of gold from placer deposits. Adoption of the Proposed Program would result in a beneficial impact by allowing an additional method for extracting mineral resources (i.e., increasing the availability of such resources). The Proposed Program may also include measures to permanently or seasonally restrict suction dredging activities in certain areas of the State. However, these restrictions on suction dredging activities would not preclude other methods of mineral extraction. Therefore, the Proposed Program would not result in a loss of availability from the existing baseline conditions (i.e., prohibition of suction dredging) and would only change the allowable methods of mineral recovery. Therefore, the Proposed Program would have a beneficial impact on the availability and access to placer gold deposits.

# Impact MIN-2: Compliance with Applicable Federal and State Mining Regulations (No Impact)

The Proposed Program would authorize suction dredge mining activities in California. As described previously in this chapter, suction dredge mining activities could occur on federal, state, or privately-owned lands throughout the state. The California SMARA applies to any surface mining activities that occur in the state, including activities performed by federal agencies or on federal lands, and that meet the SMARA volume or area thresholds. Therefore, any surface mining activity in California, including suction dredge mining activities, may be required to comply with SMARA. Similarly, suction dredging activities on federal land must comply with the requirements of USFS and the BLM.

Implementation of the Proposed Program would not affect the ability of placer miners using other mining techniques to comply with the applicable federal and state mining regulations because the Proposed Program would only apply to suction dredging miners. In addition, although the Proposed Program's requirements would not directly require compliance with other federal and state mining laws, because it is outside of CDFG's jurisdiction to enforce

such a requirement, suction dredging miners would still be responsible for complying with any applicable mining regulations. CDFG is not aware that SMARA compliance has been required related to suction dredging in the past, and hence no known conflicts exist. Similarly, CDFG's past and currently proposed regulations may be stricter in certain respects than BLM and USFS requirements, but CDFG is not aware of any instances where implementation of its 1994 regulations generated conflicts with the requirements of those agencies. The Proposed Program is not believed to include any new or changed provisions that would introduce the potential for such conflicts. Thus, the Proposed Program would not affect the ability of placer miners to comply with applicable state and federal regulations. Therefore, there would be no impact.