

A "Growing" Issue: Environmental Impacts of Medical Marijuana in Northern California
California Department of Fish and Game – Northern Region
Draft briefing – July 2012

I. Issues:

- a. The environmental impacts of producing medical marijuana continue to increase across northern California.
- b. These are not "cartel grows" or other operations run by foreign nationals on federal, state, or local public lands, but grow operations on private lands in rural areas.
- c. California Proposition 215 (1996) and California Senate Bill 420 (2003) have created a vague, quasi-legal status for these activities. Creation of regulation, local ordinances, and other oversight tools for the emerging industry are lagging well behind. Prosecution for Fish and Game Code violations and environmental damage is difficult.
- d. Increased investment in all aspects of medical marijuana production and distribution has created a "gold rush" atmosphere in rural areas of Mendocino, Humboldt and Trinity counties for growers, land speculators, realtors, horticultural suppliers, and other supply and service providers.

II. Impacts:

- a. Water Diversion – Water from rivers, creeks, and streams is taken via dams, pumps, and hoses throughout the growing season, including the dry weather, low-flow period of June-October. Water is taken from small tributaries that feed fish bearing waters downstream. Low-flow periods are critical to the survival of listed anadromous fish species and other sensitive aquatic species including juvenile salmon and steelhead.
 - i. Industry accounts documents a 150 day watering period, at 6 gallons per plant per day, totaling 900 gallons per plant per season. A 10000 square-foot grow may use 360,000 gallons per season. Streams cannot support fish and provide large amounts of water to growers during low flows.
- b. No use of "Best Management Practices" (BMPs) or Stream Protection Buffers - Grow operations do not typically use BMPs to design and build roads, stream crossings, ponds, and cleared areas for growing. Failure of these features during winter storms is common. In many cases, these features are built adjacent to, or within rivers, creeks, streams, and wetlands, without appropriate buffers to protect aquatic species, vegetation, and water quality.
- c. Pollution – Petroleum products, fertilizers, soils amendments, killing agents (pesticides, herbicides, rodenticides, etc.), sediment, thermal pollution (increased water temperature), and trash and human waste may contaminate water at grow sites.
 - i. Petroleum products are used to generate power at remote sites and are often stored both above and below ground inappropriately and unsafely, spilling into water sources.
 - ii. Fertilizers, soil amendments, and other toxic agricultural chemicals are often overused and unsafely stored. Grow sites and soil disposal areas continually leach these materials into rivers and streams, contributing to increased algal growth and decreased water quality.
 - iii. Pesticide "fences" are used to kill animals that may damage crops such as mice, wood rats, ground squirrels, gophers, deer, and bear. Native predators, such as

bobcat, coyote, fisher, and marten are indirectly killed by eating prey that has consumed killing agents.

- iv. Sediment and thermal pollution cause long-term damage to creeks and streams.
- v. "Grow trash" such as plastic hose, gardening and building supplies, and garbage is common in large amounts. Growers often live on site and have poorly developed, or no toilet and septic systems.
- d. Conversion and fragmentation of natural areas and wildlife habitat – Forest, woodland, wetland, and grassland habitats are cleared and converted to open growing space. Many clearings result in bare soil and terraced hillsides. Riparian and aquatic habitat is removed, buried, or dewatered. Large trees and other vegetation are removed to improve sun exposure on site.

III. Sensitive species and habitats affected:

- a. Coho and Chinook salmon, steelhead and coastal cutthroat trout
- b. Amphibians – California and northern red-legged frog, foothill yellow-legged frog, southern torrent salamander, and tailed frog.
- c. Reptiles – Western pond turtle
- d. Birds – Northern spotted owl
- e. Carnivores – Fisher and marten
- f. Sensitive habitats and natural communities – Wetlands and riparian areas, oak woodlands, serpentine woodlands and shrublands, Bishop pine forest.

IV. Solutions:

- a. Focus outreach to discuss environmental impacts and permitting with growers and other stakeholders. This may include:
 - i. Encourage water diverters to find alternatives to diverting out of streams, especially during low-flow periods such as by collecting rainwater of roof-tops and increasing storage capacity by adding tanks.
 - ii. Provide BMPs and other examples of correctly installed roads and building sites and why sediment in streams damages the environment.
 - iii. "More fertilizer is not the solution" - Using too much fertilizer allows excess nutrients to seep into groundwater and runoff into streams during rains. Excess fertilizer in water = algae growth = degraded conditions for fish food, such as mayflies and caddisflies = less fish.
- b. Prioritize important watersheds for outreach and enforcement.
- c. Work with DFG management and other programs to create dedicated enforcement/compliance staff.
- d. Treat all stakeholders and ownerships similarly. Work with all to provide guidance and to bring into compliance with existing state and local laws and ordinances.
- e. Coordinate with other agencies including water quality, federal land managers, local enforcement, environmental health and county/city planning. Support better defined state and county regulations to provide specific guidance for growing operations such appropriate locations to minimize environmental impacts, number of plants etc.



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November 2, 2011

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Subject: 314-55.1 Medical Marijuana Land Uses: Inland
313-55.1 Medical Marijuana Land Uses: Coastal

Dear Mr. Lazar:

The Department of Fish and Game (DFG) has reviewed and understands that the County of Humboldt Community Development Department (County) has been developing a Medical Marijuana Land Use Ordinance for Inland and Coastal portions of the County, and is now proposing a public hearing to discuss the matter before the Humboldt County Board of Supervisors on November 15, 2011. The ordinance states:

The purpose and intent of the Medical Marijuana Land Use Code (MMLUC) is to regulate medical marijuana collective or cooperative dispensing facilities (CCDF) and the cultivation of medical marijuana for personal use in a residence or detached accessory building in a manner that is consistent with State law and promotes the health, safety, comfort, convenience, and general welfare of the residents and businesses within the unincorporated area of Humboldt County by balancing three primary needs: the needs of patients and their caregivers to have access to medical marijuana; the need of residents, businesses, and communities to be protected from public health, safety, and nuisance impacts that can accompany the cultivation, processing, and transfer of medical marijuana; and the need to eliminate, or at least limit to the extent possible, the harmful environmental impacts that can accompany marijuana cultivation.

DFG understands that the MMLUC under consideration is Phase 1, and future ordinances will be developed to address other issues associated with medical marijuana, such as outdoor grows, in the unincorporated portion of Humboldt County. We greatly appreciate the efforts by the County to protect the public trust resource, and DFG has recommendations on how the County will "limit to the extent possible, the harmful environmental impacts that can accompany marijuana cultivation." Specifically,

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DFG is concerned that un-permitted surface water diversion of Humboldt County streams will result in stream de-watering, contribute to already impaired aquatic conditions, and result in "take" of State and federally listed species such as coho salmon (*Oncorhynchus kisutch*).

Aquatic Species at Risk and Impaired Streams

Many Humboldt County streams are fish-bearing and currently support three listed salmonid species. Coho salmon is State- and federally-listed as "threatened" pursuant to the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA). Chinook salmon (*O. tshawytscha*) and steelhead (*O. mykiss*) are federally-listed as "threatened" pursuant to the ESA. DFG has identified Humboldt County's entire coho salmon population key to maintain or improve as part of the *Recovery Strategy of California Coho Salmon* (DFG 2004). Coho salmon have undergone at least a 70% decline in abundance since the 1960s, and is currently at 6% to 15% of its abundance during the 1940s (DFG 2004).

DFG maintains historic files and databases on the abiotic and biotic condition of streams within the region. Numerous aquatic dependent Species of Special Concern (SSC) are present in Humboldt County streams including the coastal cutthroat trout (*O. clarki clarki*), foothill yellow-legged frog (*Rana boylei*), northern red-legged frog (*R. aurora*), western tailed frog (*Ascaphus truei*), southern torrent salamander (*Rhyacotriton variegates*), and western pond turtle (*Actinemys marmorata*).

DFG designates certain vertebrate species as SSC because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction or extirpation in California. Though not listed pursuant to the federal ESA or CESA, the goal of designating taxa as SSC is to halt or reverse these species' decline by calling attention to their plight and addressing the issues of conservation concern early enough to help secure their long-term viability. Hence, the ultimate goal of the SSC designation is to *avoid* CESA or ESA listing.

Pursuant to Clean Water Act §303(d), the North Coast Regional Water Quality Control Board has identified several of Humboldt County's streams as impaired due to elevated levels of sedimentation/siltation and temperature. As one regional example, the South Fork Eel River had extreme low-flows in 2008 and 2009. The United States Geologic Survey gauge at Miranda shows that for the 69-year period of record, the mean discharge in September is 53 cubic feet per second (cfs). The discharge in September 2009 was approximately 20 cfs. The record low discharge was in September 2008 at 13 cfs, a quarter of the mean discharge for the period of record. Low instream flow leads to increased water temperature, disconnected pools, and degraded salmonid rearing habitat.

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Project Referrals and Water Sources

Humboldt County is approximately 3,573 square miles, of which, 3,550 square miles are unincorporated and contain 54% of the human population. Since May 2011, DFG has received seven project referrals for CCDF's in unincorporated portions of Humboldt County. In general, developed parcels within the County rely either on community water systems (e.g., Garberville Community Service District, Humboldt Bay Municipal Water District, etc.) or private water systems.

DFG believes that the cumulative effect of private water systems on stream flow in unincorporated Humboldt County is substantial. Private water systems are usually on a parcel with the residence or have deeded access to a water source, and can include wells, springs, or surface water diversions (i.e., streams). A spring can either be connected to a stream, river, or lake (i.e., jurisdictional); or not, in which case the spring would not be within the jurisdiction of DFG or subject to a Lake or Streambed Alteration Agreement (LSAA). Furthermore, shallow wells close to streams can also be hydrologically connected to surface water flow, in which case, the well would likely require an LSAA. The MMLUC does not address existing/historical water diversion within the unincorporated portions of the County.

Lake or Streambed Alteration Agreement

DFG is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code Section 1602 requires an entity to notify DFG of any proposed activity that may substantially modify a river, stream, or lake. In terms of water diversion on jurisdictional spring development or hydrologically connected wells, notification is required by any person, business, State or local government agency, or public utility that proposes an activity that will: "substantially divert or obstruct the natural flow of any river, stream, or lake."

Once DFG has received the notification pursuant to Section 1602, DFG will determine if the activity may substantially adversely affect fish and wildlife resources. If DFG determines that the activity may substantially adversely affect fish and wildlife resources, an LSAA will be prepared. The LSAA includes reasonable conditions necessary to protect those resources and it must be compliant with the California Environmental Quality Act. Section 1602 of the Fish and Game Code does not include a "grandfather clause," meaning all substantial diversions are required to notify and apply for an LSAA, regardless of how long they have been in use.

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Recommendations

1. Section 55.1.9 of the MMLUC should include a standard that all private water sources comply with Section 1602 of the Fish and Game Code, and notify DFG of the water diversion. Once the Notification is received, DFG will determine if an LSAA is required.

If you have any questions or comments regarding this matter, please contact Senior Environmental Scientist Tony LaBanca at (707) 441-2098 at 619 Second Street, Eureka, California 95501.

Sincerely,



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Regional Manager

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References

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