

## **Kelp Harvest Plan for The Abalone Farm, Inc.**

The Abalone Farm, Inc. (AFI) owns and operates a mechanical kelp harvester for the purpose of harvesting Giant Kelp (*Macrocystis pyrifera*) to use as abalone feed. The kelp harvester, the “Ocean Rose”, is a converted 1968 LCM-6. It is 56 feet long by 15 feet wide, with a gross tonnage of 37 tons. Maximum fuel capacity is 450 gallons. Maximum payload of harvested kelp is 20 tons.

AFI harvests kelp on a weekly basis, typically three times per week if weather conditions allow. Average annual harvest from January 2007 to December 2013 was 2,575 tons per year, or 214 tons per month. Anticipated harvest for the next 5 years is the same.

AFI harvests primarily from 2 leased beds, numbers 204 and 207, located near its facility in Cayucos (see details below). However, these beds often suffer deterioration due to large storms during the winter months, so the Ocean Rose is typically relocated to the Santa Barbara port during the months of January-March, and kelp is harvested from open beds nearby (see details below). However, our kelp harvesting methodology is the same no matter where we are harvesting.

Kelp canopy moves away from the holdfasts with the current. The Ocean Rose harvests the downstream edges of the canopy. The cutter is 8’ wide and removes a swath from the edge of the bed. At the end of each pass, a 180 degree turn is executed in open water in order to minimize damage to the kelp from the boat propellers, and another pass is made in the opposite direction. Areas with a significant amount of Bull Kelp are avoided altogether, as are areas with congregations of sea otters. Kelp harvesting activity is spread amongst the various kelp beds within the CDF&W administrative bed designation. The Ocean Rose seldom visits the exact same area on back to back harvests, thereby minimizing the repetitive harvest of individual kelp plants. After the kelp is cut by the cutting mechanism, it travels up a conveyor belt and falls into a net bag draped in the front of the hold. When the bag is full, which is approximately 1 ton of wet kelp, the net is pursed, lifted with an on board crane, and placed in the back of the hold. A new bag is suspended in the front of the hold, and harvesting resumes until it is full. This process is repeated until the harvest goal is met. Typically, the Ocean Rose harvests 18-20 tons per trip.

Upon returning to port, the kelp is loaded into a Volvo 3-axle crane truck with a waterproof cargo box. The truck is owned and operated by AFI exclusively for hauling kelp. Each bag is individual weighed using a Sherline Suspended Hydraulic Crane scale. The bag is then placed in the cargo hold of the truck. Full capacity of the truck is 12 tons, so two trips are required to completely offload the Ocean Rose. Bag weights are recorded by the skipper of the Ocean Rose, and then submitted to the corporate office of

AFI, located at 5010 Cabrillo Highway, Cayucos, CA. All kelp royalties are then paid monthly by the corporate office.

### **Leased Kelp Beds 204 and 207**

AFI leases two kelp “beds” from the CDF&W. All bed descriptions and areas are from the “Informational Digest to the Regulations Governing the Harvest of Kelp and other Marine Algae in California”, published by the CDF&W, April, 2014.

Bed 204 is described as: This bed extends from Pismo Beach Pier to Point San Luis, defined as the area bounded by the mean high tide line and straight lines connecting the following points in the order listed: 35° 08.311' N. lat. 120° 38.636' W. long.; 35° 08.259' N. lat. 120° 38.803' W. long.; 35° 08.259' N. lat. 120° 45.369' W. long.; and 35° 09.600' N. lat. 120° 45.369' W. long. Area is 0.72 square miles. Average annual harvest from January 2007 to Dec 2013 was 610 tons, or 50.83 tons per month. Anticipated harvest for the next 5 years is the same, which would total 3050 tons for the 5 year period. Kelp harvested from Bed 204 is unloaded and weighed on the Harford Pier in Port San Luis, CA.

Bed 207 is described as: This bed extends from Morro Rock to Point Estero, defined as the area bounded by the mean high tide line and straight lines connecting the following points in the order listed except where noted: 35° 22.161' N. lat. 120° 52.228' W. long.; 35° 22.161' N. lat. 120° 55.921' W. long.; thence northwestward along the three nautical mile offshore boundary to 35° 24.609' N. lat. 121° 00.704' W long.; and 35° 27.621' N. lat. 121° 00.173' W. long. Area is designated as 1.46 square miles. Average annual harvest from January 2007 to Dec 2013 was 1,450 tons, or 120.83 tons per month. Anticipated harvest for the next 5 years is the same, which would total 7,250 tons for the 5 year period. Kelp harvested from Bed 207 is unloaded and weighed at the South T Pier, Port of Morro Bay, Morro Bay, CA. Bed 207 is the closest kelp to AFI, and to the Port of Morro Bay, and is therefore the preferred harvest location.

### **Open Beds**

Due to the exposed nature of the coastline found in Beds 204 and 207, the kelp canopy is often severely reduced during the winter months as a result of storm activity. In addition, the local harbors can be quite treacherous during this same time. Therefore, AFI often relocates the Ocean Rose to the Port of Santa Barbara during the winter, typically from January through March. During this time we harvest from open beds in the area, remaining clear of Marine Protected Areas. Harvest methodology remains the same as described above. Kelp harvested in this area is offloaded and weighed at the main wharf in the Port of Santa Barbara, Santa Barbara, CA. Typical beds harvested are:

Bed 20; This bed extends from Rincon Pt. to Loon Pt., defined as the area bounded by the mean high tide line and straight lines connecting the following points in the order listed

except where noted: 34° 22.376' N. lat. 119° 28.671' W. long.; 34° 19.818' N. lat. 119° 30.669' W. long.; thence northwestward along the three nautical mile offshore boundary to 34° 21.817' N. lat. 119° 35.552' W. long.; and 34° 24.749' N. lat. 119° 34.600' W. long. Designated area 0.24 square miles. Harvest occurred in five out of the seven years from January 2007 to Dec 2013. Average annual harvest during that time was 159 tons, or 13.25 tons per month. Anticipated harvest for the next 5 years is the same, which would total 795 tons for the 5 year period.

Bed 21; This bed extends from Loon Pt. to Edgecliff Pt., defined as the area bounded by the mean high tide line and straight lines connecting the following points in the order listed except where noted: 34° 24.749' N. lat. 119° 34.600' W. long.; 34° 21.817' N. lat. 119° 35.552' W. long.; thence westward along the three nautical mile offshore boundary to 34° 21.929' N. lat. 119° 38.626' W. long.; and 34° 24.953' N. lat. 119° 38.415' W. long. Designated area 0.19 square miles. Harvest occurred in three out of the seven years from January 2007 to Dec 2013. Average annual harvest during that time was 108 tons, or 9 tons per month.. Anticipated harvest for the next 5 years is the same, which would total 540 tons for the 5 year period.

Bed 23; This bed extends from the tip of the Santa Barbara Breakwater to the Santa Barbara Lighthouse, defined as the area bounded by the mean high tide line and straight lines connecting the following points in the order listed except where noted: 34° 24.187' N. lat. 119° 41.520' W. long.; 34° 24.187' N. lat. 119° 41.506' W. long.; 34° 24.290' N. lat. 119° 41.266' W. long.; 34° 21.150' N. lat. 119° 40.483' W. long.; thence westward along the three nautical mile offshore boundary to 34° 20.703' N. lat. 119° 44.181' W. long.; and 34° 23.734' N. lat. 119° 43.369' W. long. Designated area 0.10 square miles. Harvest occurred in three out of the seven years from January 2007 to Dec 2013. Average annual harvest during that time was 20 tons, or 1.67 tons per month. Anticipated harvest for the next 5 years is the same, which would total 100 tons for the 5 year period.

Bed 25; This bed extends from Rogue Creek (Arroyo Burro) to Hope Ranch Creek, defined as the area bounded by the mean high tide line and straight lines connecting the following points in the order listed except where noted: 34° 24.183' N. lat. 119° 44.590' W. long.; 34° 21.056' N. lat. 119° 45.509' W. long.; thence northwestward along the three nautical mile offshore boundary to 34° 21.626' N. lat. 119° 47.085' W. long.; and 34° 24.875' N. lat. 119° 46.801' W. long. Designated area 0.18 square miles. Harvest occurred in five out of the seven years from January 2007 to Dec 2013. Average annual harvest during that time was 286 tons, or 23.83 tons per month. Anticipated harvest for the next 5 years is the same, which would total 1,430 tons for the 5 year period.

Bed 28; This bed extends from Coal Oil Pt. to the middle of Gato Canyon, defined as the area bounded by the mean high tide line and straight lines connecting the following points in the order listed except where noted: 34° 24.413' N. lat. 119° 52.687' W. long.; 34° 21.675' N. lat. 119° 54.268' W. long.; thence northwestward along the three nautical mile offshore boundary to 34° 24.045' N. lat. 120° 00.375' W. long.; and 34° 26.989' N.

lat. 119° 59.304' W. long. Designated area 0.60 square miles. Harvest occurred in four out of the seven years from January 2007 to Dec 2013. Average annual harvest during that time was 163 tons, or 13.583 tons per month. Anticipated harvest for the next 5 years is the same, which would total 815 tons for the 5 year period.