

5.0 Management & Monitoring



objectives will influence the type and intensity of monitoring that needs to be implemented to address biological questions on species and Habitats. Representative questions to be addressed through inventory and monitoring activities include:

- What is the status (*e.g.*, presence/absence, number of populations, relative abundance, reproductive activity, etc.) and distribution of the Covered Species?
- What Habitats or substrates do the Covered Species rely on?
- How is the status of the Covered Species changing over time?
- How many acres of each Vegetation Community are there in the MSHCP Conservation Area?
- How is each Vegetation Community distributed?
- How is the abundance and distribution of each Vegetation Community changing over time?
- What is the condition (*e.g.*, percentage cover exotic versus native vegetation, disturbance and fire history, etc.) of each Vegetation Community, and how is it changing over time?

In addition to the implementation of monitoring activities to meet species and Habitat/Vegetation Community objectives, the Biological Monitoring Program will implement several thematic objectives including the following:

- Seek creativity and efficiency in monitoring protocols;
- Use multi-species or community-level efforts when possible;
- Ensure technically and logistically feasible implementation;
- Recognize the need for adaptability in monitoring strategies based on data and feedback mechanisms; and
- Develop products that are scientifically reliable and responsive to the management needs.

5.3.3 Monitoring Program Implementation Sequence

The Biological Monitoring Program will be implemented in phases, and phases may overlap in time to increase flexibility and opportunity during implementation. This approach recognizes the uncertainty involved in achieving milestones (such as completing an inventory of species “X”) in a discrete period of time, and thus is forgiving enough to allow milestones to be developed or achieved over a range of time rather than by a specific date. For example, inventory on some species groups may be completed in four years, whereas on others, the inventory may be completed in one

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or two years. The phased strategy allows full implementation of monitoring to begin as soon as a first inventory cycle for any suite of species (*e.g.*, amphibians) has been completed rather than waiting for inventory to be completed on all suites of species. There is an initial phase of species, community, and Habitat inventory and assessment, for the development of monitoring strategies, and for testing of methodologies and protocols. This initial period will be followed by full implementation of the long-term Biological Monitoring Program. The phased implementation sequence is as follows:

Initial Inventory and Assessment Phase

Years 1-3

- Create Baseline Vegetation Communities and Wildlife Habitats GIS Layer and Map
- Assess Habitat/Vegetation Communities and Environmental Conditions
- Conduct Baseline Inventory Field Surveys on Plant and Animal Species Distribution and Abundance
- Intensive Monitoring of Covered Species with Additional Information Needs (Based on Species-Specific Objectives)

Years 2-4

- Develop Long-Term Monitoring Strategies (protocols, schedules, time intervals for monitoring, multi-species approaches)
- Initiate Monitoring on Selected Suites or Categories of Covered Species

Years 3-5

- Intensive Monitoring of Covered Species with Additional Information Needs
- Identify Species as Potential Indicators of System Condition
- Identify Other Biotic/Abiotic Attributes for Monitoring or as Potential Indicators
- Evaluation and Feedback on Data for MSHCP Adaptive Management Strategy
- Evaluation and Feedback for Potential Modification of Monitoring Strategies

Long-Term Monitoring Phase

Years 6-8+

- Routine Monitoring of Suites of Covered Species Every 8 Years
- Intensive Monitoring of Covered Species with Additional Information Needs

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- Intensive Monitoring of Select Species and Abiotic/Biotic Attributes to Determine Health of Ecosystem
- Update Vegetation Communities and Wildlife Habitats GIS Layer and Map

Every 8 Years

- Change Detection for Vegetation Communities and Wildlife Habitats
- Evaluation and Feedback on Data for MSHCP Adaptive Management Strategy
- Evaluation and Feedback for Potential Modification of Monitoring Strategies

To create an effective Biological Monitoring Program, there must be a thorough baseline inventory on which to build the long-term monitoring program. Therefore, the initial inventory will be the emphasis of the Biological Monitoring Program for the first few years of the MSHCP. The initial inventory and assessment phase will consist of (a) mapping the Vegetation Communities and assessing Habitat quality; (b) baseline inventory field surveys of all Covered Species; and (c) updating and field verifying existing recorded species occurrences. Specific long-term monitoring sampling locations, methods, and survey intensity will be fully developed after analyses of the Habitat and species inventories.

5.3.4 Inventory, Monitoring, and Sampling Considerations

➤ **Extent of MSHCP Conservation Area to Inventory and Monitor**

Because the MSHCP Conservation Area will be assembled over time, there must be a process for including new lands into the inventory and sampling strategy for monitoring. The MSHCP Plan Area comprises the following categories of land (approx. acres):

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| a) | The entire MSHCP Plan Area | 1,260,000 acres |
| b) | MSHCP Plan Area that is undisturbed/undeveloped | 881,000 acres |
| c) | MSHCP Plan Area that is Public/Quasi-Public Land or is proposed to be incorporated into the MSHCP Conservation Area (d + e) | 500,000 acres |
| d) | MSHCP Conservation Area that is currently Public/Quasi-Public Land | 347,000 acres |
| e) | Additional Reserve Lands to be added to MSHCP Conservation Area | 153,000 acres |