

# BIOS – Migrating A Complex Viewer from ArcIMS to ArcGIS Server

**Bi**ogeographic **I**nformation and **O**bservation **S**ystem



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# About the CA Department of Fish and Game

## **DFG's Mission:**

“To manage California’s diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public.”

## **Much more than just hunting and fishing:**

More than 50% of our funding goes towards biodiversity conservation, through Habitat Conservation, Species Inventorying and Monitoring, Environmental Review and Permitting, etc.



# What is BIOS?

- BIOS is a map catalog of biological data for California
- Contains hundreds of datasets accessed and searchable via a Data Catalog Tool
- Highly customized ArcIMS viewer, built with ASP
- 2003 ESRI UC Internet Mapping 1st Place Award Winner



# Technology Upgrade Decisions

- Is it time for ArcGIS Server?
- Do we redevelop the full complexity of the current BIOS (\$\$\$\$) or simplify (\$)?



# Web App Design

- Atypical Web App
  - No fixed layers in Table of Contents on startup
  - No single targeted use case
  - User chooses from 500+ datasets to bring into map
  - Robust data and location search tools



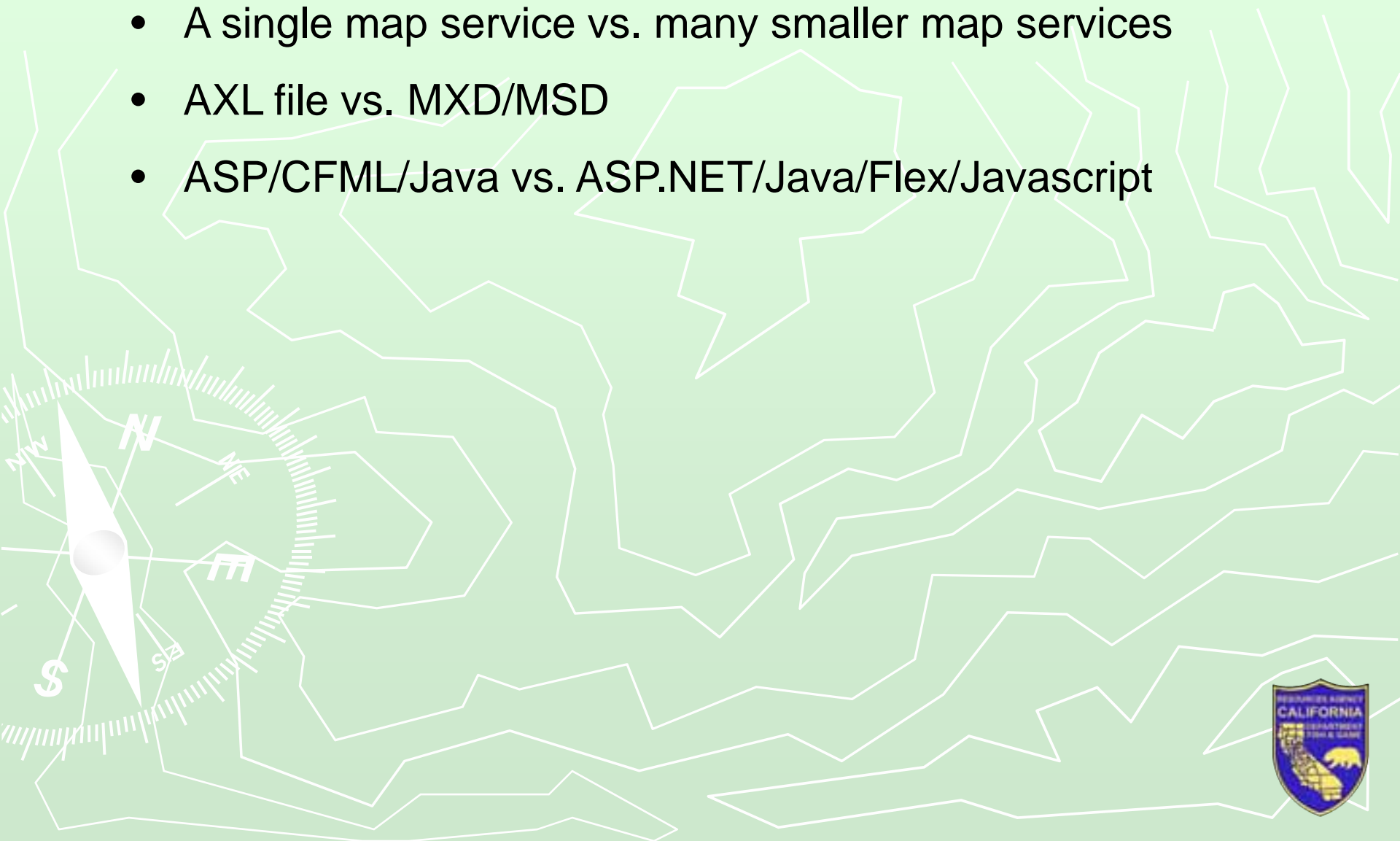
# Application Requirements

- Handle 1000+ datasets in single app
- Data Catalog dataset search and add tool
- Highly customized Table of Contents
- Rich toolset, including robust feature queries
- Public and Secure modes to restrict dataset access



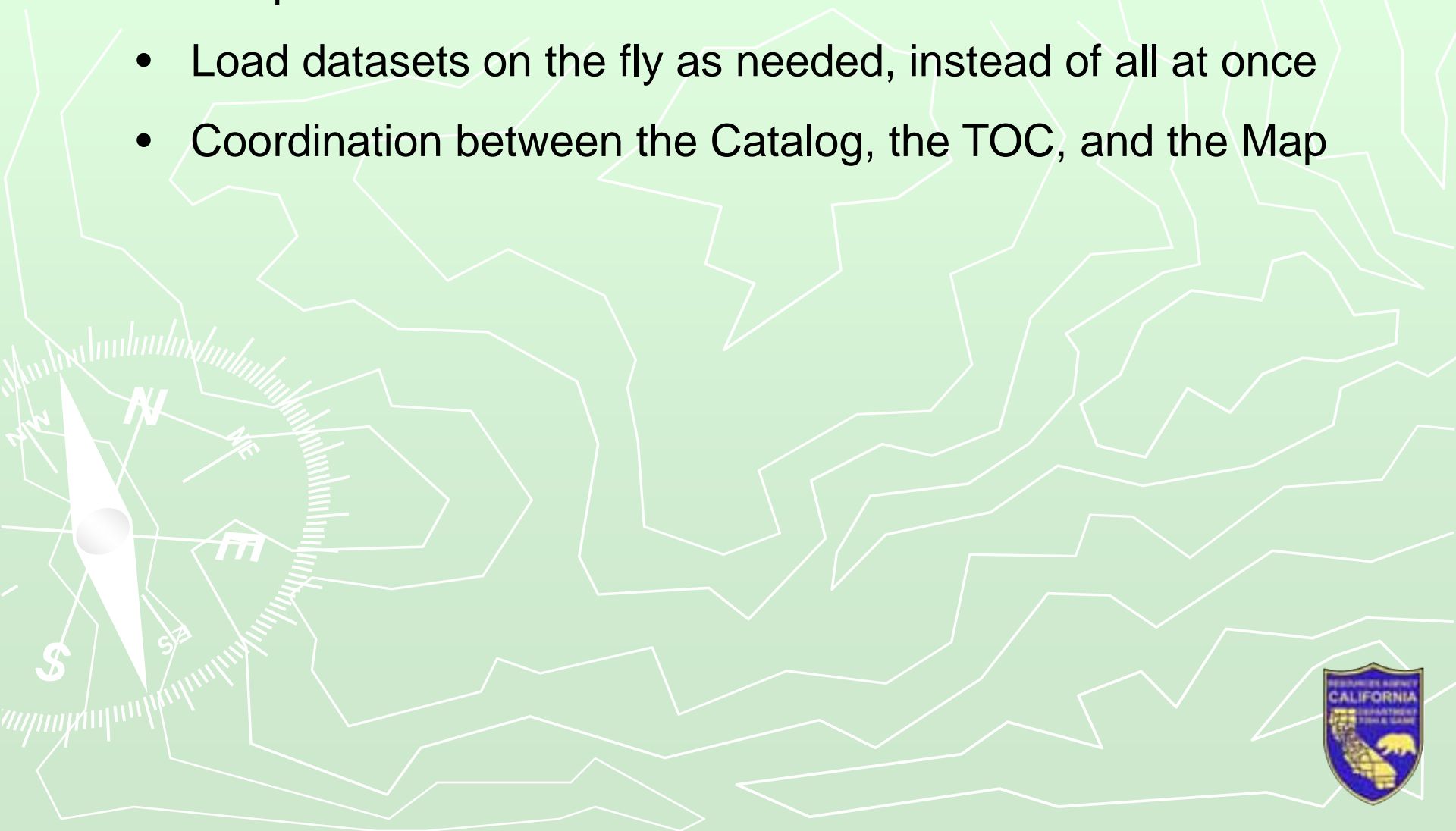
# ArcIMS to ArcGIS Server Migration

- A single map service vs. many smaller map services
- AXL file vs. MXD/MSD
- ASP/CFML/Java vs. ASP.NET/Java/Flex/Javascript



# Key Customization Issues

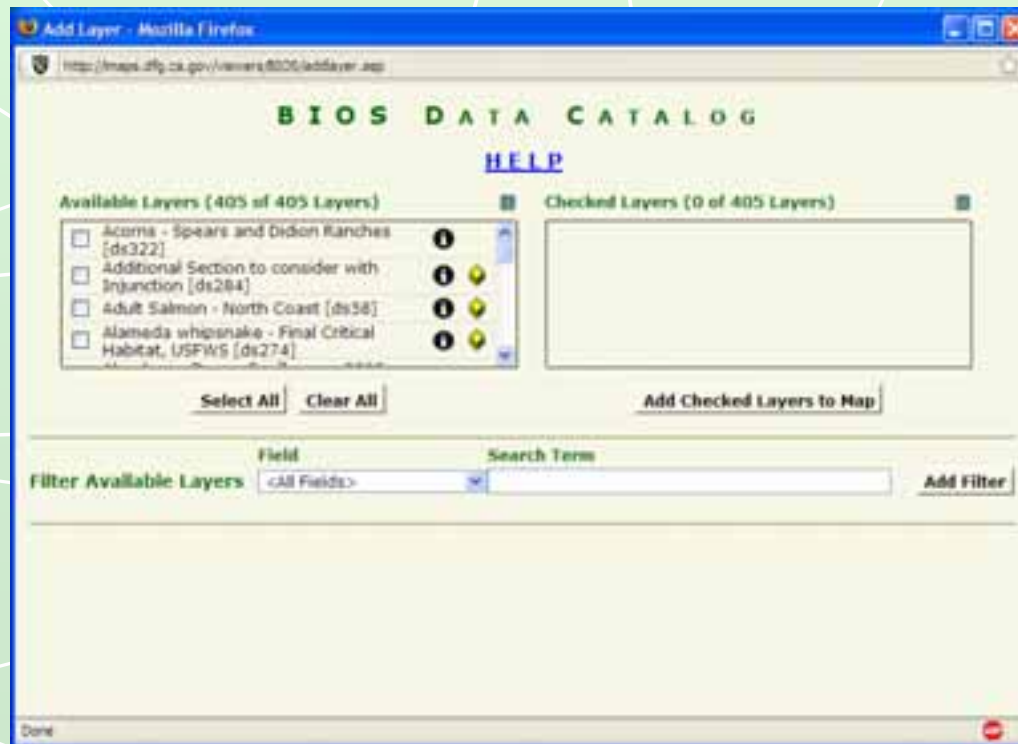
- Unique identifier needed for each dataset
- Load datasets on the fly as needed, instead of all at once
- Coordination between the Catalog, the TOC, and the Map





# Design of Data Catalog

- ArcSDE feature classes as source data
- Secondary database used for dataset-level security
- Prioritizing results based on weighting of searched fields



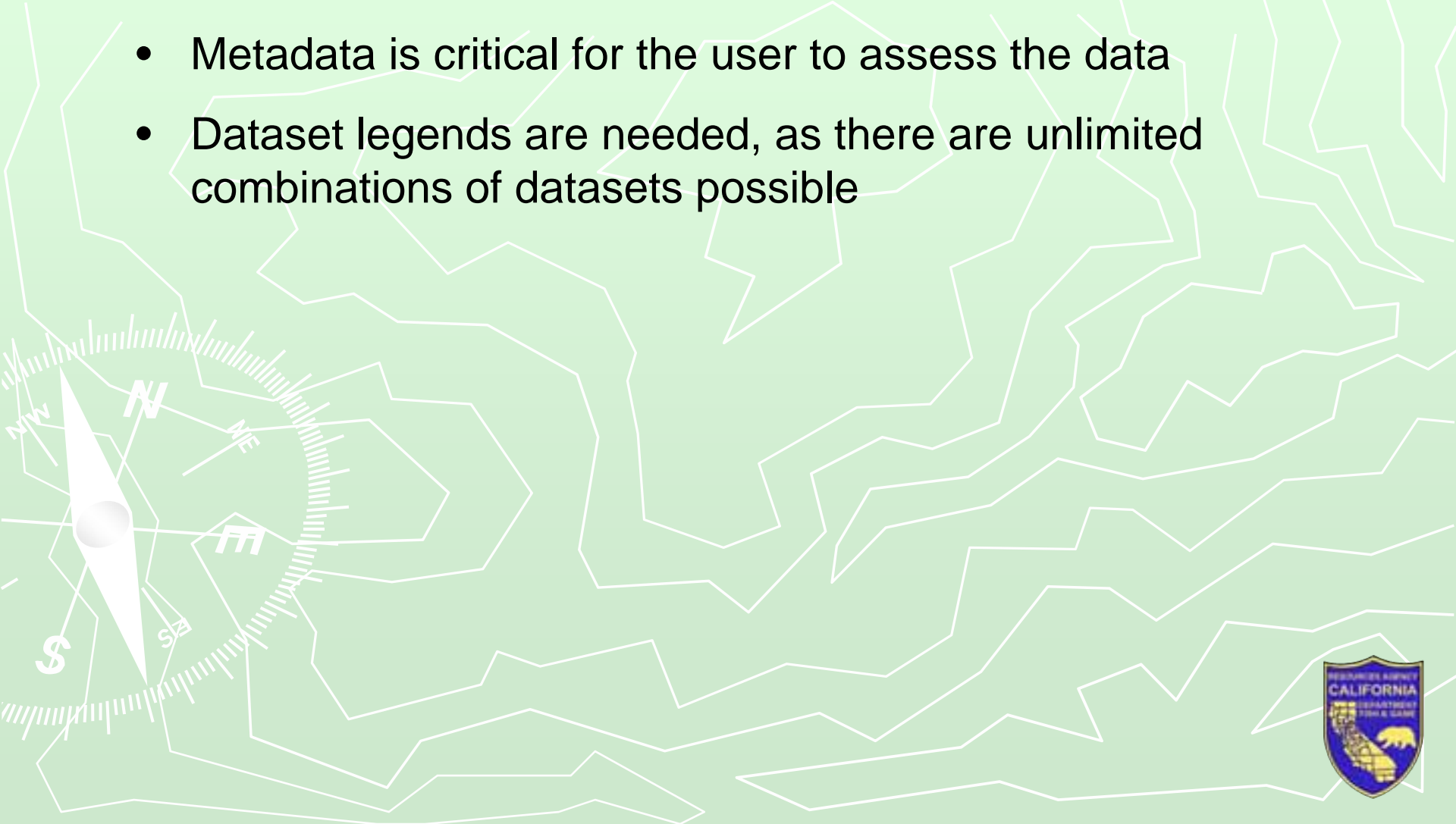
# Design of Map Services

- Too many datasets for a single map service (1000 +)
- Group datasets by Feature Type (point, line, poly, raster) to aid in presentation order
- Then break by numeric groupings (1-299, 300-599, etc) to further reduce datasets per service
- This results in a handful of map services with about 100 datasets per service, which ArcGIS Server seems to handle well



# Design of Client-side Application

- Data querying is required – robust tools needed
- Metadata is critical for the user to assess the data
- Dataset legends are needed, as there are unlimited combinations of datasets possible



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## DFG GIS LINKS

- [BIOS Home](#)
- [Biogeographic Data Branch](#)
- [Northern Region GIS](#)
- [IMAPS](#)

## OTHER GIS LINKS

- [California Spatial Information Library](#)
- [California Environmental Resources Evaluation System \(CERES\)](#)

## OTHER LINKS

- [CalFish](#)

# BIOS

## BIOGEOGRAPHIC INFORMATION & OBSERVATION SYSTEM

BIOS is a system designed to enable the management, visualization, and analysis of biogeographic data collected by the Department of Fish and Game and its [Partner Organizations](#). In addition, BIOS facilitates the sharing of those data within the BIOS community. BIOS integrates GIS, relational database management, and ESRI's ArcIMS technology to create a statewide, integrated information management tool that can be used on any computer with access to the internet.

### Public BIOS Data Viewer

Open to the public. Only non-sensitive data are included.

### Secure BIOS Data Viewer

**Password required**, for DFG Personnel and Authorized Partners only

### CNDDDB/Spotted Owl Viewer

**Password required**, for DFG Personnel and [CNDDDB Subscribers](#); for current CNDDDB password, please call (916) 324-3812

## \*\*\* DESERT RENEWABLE ENERGY CONSERVATION PLAN \*\*\*

### BIOS Renewable Energy Viewer

Open to the public.

### BIOS Renewable Energy Viewer

**Password required**, additional secured

## Password Management:

If you're getting warnings about your password expiring, and need to change it, go to [NRM Password Management](#) for changes.

Non-DFG user accounts expire every year, and need to be manually refreshed. If you think your account has expired, please contact the [DFG Staff](#)

Refresh Map

Layer Legend

Active Layer: Barred Owl [ds8]

BIOS Layers

- Barred Owl [ds8]
- Elf Owl [ds14]
- Raptors - San Diego Co. [ds171]
- Spotted Owl Territories [ds97]

Base Layers

- Cities
- Highways
- Hydrography (24K - N. Coast)
- Hydrography (100K)
- Hydrography (500K)
- PLSS (Protracted)
- California Lakes

GDFG Viewer



Print Export Expand Identify Results for Barred Owl [ds8] - 8 records Identified

ZOOM	SITEID	LOCATION	ACTCENT	OBSDATE	OBSTIME	OBSERVER	TOTINDIV	SOCSTATUS	SPP	NESTSITE	NUMYOY	OBSME
<a href="#">1</a>	COL0001	Perrington Cr		6/7/1994	1300	Lewendal	2	P	BS			
<a href="#">2</a>	COL0001	Perrington Cr	X	6/22/1994	AM	Lewendal	4	PJJ	BSH		2	HS
<a href="#">3</a>	COL0001	Perrington Cr	xxx	7/20/1994		Lewendal	0		BH			
<a href="#">4</a>	COL0001	Perrington Cr		6/20/1994		Lewendal	1	U	S			

# Questions?

## Biogeographic Information and Observation System



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