



INVENTORYING AND MIGRATING COMPREHENSIVE NAVY ENVIRONMENTAL GIS DATA

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Presentation Outline



Project Background

Inventory Execution

Filtering

Schema Mapping

Conclusions, Questions



Background



Challenge:

Inventory comprehensive and often disorganized environmental data for all installations in the region, and migrate all relevant, authoritative data into the Navy's enterprise data model.



Background



Participation:

- **Ten NAVFAC Southwest Installations, including a large number of associated facilities**

Sources of Data:

- **M&A: centralized data repository**
- **EVBL: Environmental Business Line resources, to include Cultural Resources, Natural Resources, and Environmental Compliance**
- **Installation GIS Analysts**



Background



Obtaining Data:

- **Interviews with installation-level EVBL and GIS staff; obtain data submissions from each installation**
- **Download centralized data**
- **Provide data to Critigen**



Inventory Challenge:

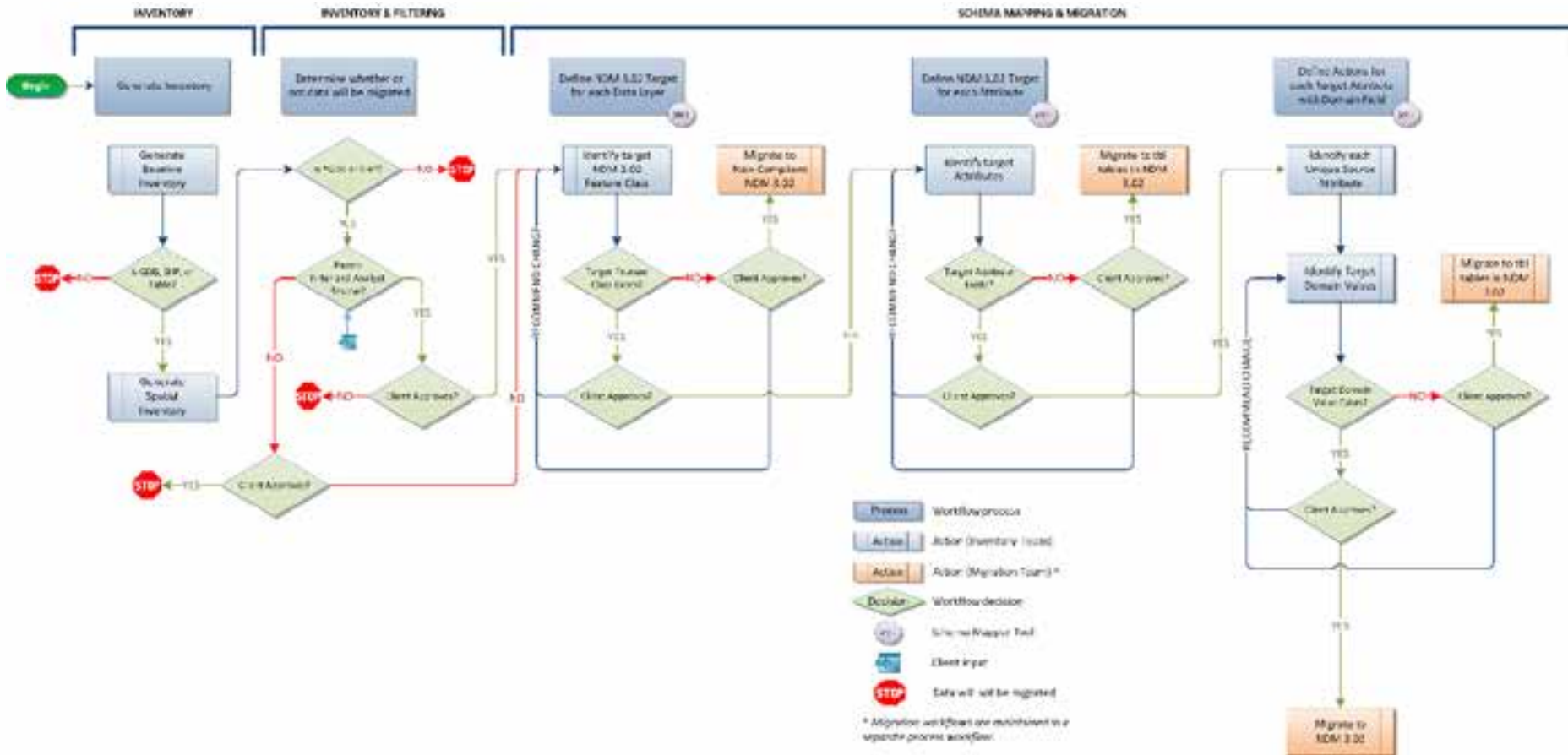
~150,000 total files received, or 83.4 GB, including non-GIS data and non-standard GIS data (e.g., coverages)

~20,000 GIS data layers (shapefiles, geodatabase feature classes), varying by installation from a couple hundred to over 10,000

- **Both EVBL and non-EVBL data was provided**



Inventory Workflow





Filtering by File Type with ArcPy:

- **Inventory Script 1**
 - identifies files that may contain spatial data but are not GIS data (e.g., Excel, PDF)
- **Inventory Script 2**
 - identifies all GIS files (e.g., shapefile, coverage)
- **Inventory Script 3**
 - identifies all shapefiles and individual geodatabase feature classes



Inventory Execution: Filtering



Filtering for Environmental Data:

- Identify target NDM 3.02 feature classes
- Identify “keywords”
 - inclusion keywords (e.g., “archae*”)
 - exclusion keywords (e.g., “electrical”)



Inventory Execution: Filtering



Additional Filtering:

- Filtering out analytical output (e.g., union)
- Filtering out duplicate data



Critigen Recommendation:

- **Recommended data for migration, based on both subjective and objective filtering results**

Navy Review of Critigen Recommendations:

- **Each installation was provided with an opportunity to review the complete migration recommendations**



Inventory Execution: Filtering



GIS Data Layer Filtering Results:

Installation	GIS Data Layers	Env. Layers
NAF El Centro, CA	158	15
NAS Fallon, NV	277	127
NAS Lemoore, CA	87	44
NAWS China Lake, CA	219	60
NB Coronado, CA	3,672	914
NB Point Loma, CA	811	292
NB San Diego, CA	107	14
NB Ventura County, CA	289	137
NSA Monterey, CA	162	57
NWS Seal Beach	9,829	834
Total	15,611	2,494



Schema Mapper Tool:

An access-based tool used to manage the mapping of source feature layers, attributes, and domain values to NDM 3.02 targets

- **Target NDM 3.02 Schema loaded into the SMT database**
- **Source GIS data layers loaded into a single file geodatabase and projected using FME**
- **Source schema was generated from this FGDB using ArcPy**



SMT – Feature Type Mapping:

The below sources were used to identify the appropriate target NDM 3.02 feature type

- **Feature type metadata and associated domains**
- **NDM 3.02 schema**
- **Feedback from installation subject matter experts**
- **Review of metadata, geospatial, and attribute information in the source layer using ArcCatalog**
- **Final client review and validation of mapping recommendations**



Inventory Execution: Filtering



SMT Feature Type Mapping Results:

Installation	Env. Layers	Env. Layers Mapped to NDM 3.02 Feature Type
NAF El Centro, CA	15	13
NAS Fallon, NV	127	102
NAS Lemoore, CA	44	40
NAWS China Lake, CA	60	27
NB Coronado, CA	914	810
NB Point Loma, CA	292	228
NB San Diego, CA	14	7
NB Ventura County, CA	137	105
NSA Monterey, CA	57	48
NWS Seal Beach	834	489
Total	2,494	1,869



Conclusions, Questions



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