Shoreline Access
Data Exchange Standard

Version 1.0
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Revision History
0.1 revised based on Shoreline Access Work Group and community input
0.2 revised based on community input during comment period

**Version 1.0 to be endorsed by the Oregon Geographic Information Council
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1.0 Introduction

The state of Oregon has 362 miles of coastline and 130,771,651 miles of other coastal and inland shorelines. These shores support a variety of outdoor recreation opportunities, cultural practices, and environmental education. Access to shorelines is offered by multiple entities in the form of an access site. There are a number of terms that may be used to define the access sites related to this data exchange standard:

> Shoreline Access Site: A parcel, easement, roadside, or road end that provides access to a waterbody, including lakes, estuaries, rivers, and the ocean shore.

Shoreline Access Sites may differ in their allowable visitation, ranging from fully public to fully private. Site ownership, management, and purpose contribute to these discrepancies.

- Public: An Access Site that is owned by a public entity and is promoted for recreational use.
- Public, but not encouraged: An Access Site that is owned by a public entity, but is not currently promoted for recreational use. This may be due to substandard facilities, environmental considerations, potential hazards, or other concerns about public use.
- Private: An Access Site that is owned by a private entity and is not open to public use.
- Private, but publicly accessible: An Access Site that is owned by a private entity but is available, partially or in full, for public use. For example, certain boat ramp facilities are privately owned but intended for use among the general public.
- Emergency Only: An Access Site that is publicly owned but is only intended for emergency response or other emergency usage.

The Oregon state agencies that collect and maintain datasets related to access to shorelines within Oregon's coastal zone have identified that inconsistent and siloed collection and use of shoreline access data decreases cohesion and validity of decision-making for coastal stewardship, emergency response, recreation, and management. Hence, these agencies have formed a Shoreline Access Work Group (SAWG) to set forth a data standard that promotes interagency data exchange. This data exchange standard fulfills that goal and establishes a lasting collaboration that promotes consistent and coordinated management of Oregon's shorelines.

This document, the Shoreline Access Data Exchange Standard, is the first attempt to establish formal data standards for shoreline access data. Included in the standard are core attributes related to access. Although this standard was developed for the specific purposes of coastal shoreline public access, we intend the standard to be applicable to inland waters of Oregon as well. Future iterations of this standard may incorporate additional attributes that are identified as relevant or include other modifications necessary to expand usage across the entire state of Oregon.

1.1 Mission and Goals of the Standard

The Shoreline Access Data Exchange Standard (SADES) was developed to fulfill the mission of the SAWG: to develop a lasting collaboration that promotes integration and holistic decision-making for shorelines.

SADES addresses this mission by completing a number of goals:

- Provide common definitions for access information to facilitate the effective distribution and use of access data
- Provide consistent attribute definitions, value ranges, and validations to enhance data sharing
- Resolve discrepancies related to the distribution of similar records and attributes, which will minimize duplication and enhance consistency across datasets
- Provide guidance and direction for data managers on standardized definitions and schema, which will improve data management and use
- Provide a standard for the definition and structure of shoreline access data that facilitates data sharing and protects and enhances the investments in shoreline access data at all levels of government

1.2   Background

Multiple agencies collect or use data related to shoreline access to fulfill their respective mandates and goals. This table summarizes the data collected and goals of each partner agency:

Oregon State Agency	Data Collected and/or Used	Goals Fulfilled
Department of Land Conservation and Development (DLCD)	• Decadal inventory of publicly owned shoreline access sites	• Coastal Zone Management Act Enhancement Objectives and Section 309 Program Reporting • Statewide Planning Goal 17 – Coastal Shorelines
Parks and Recreation Department (OPRD)	• Dynamic inventory of emergency beach signs and state park facilities. • Periodic inventory of beach access points and signage • Periodic inventory of statewide public park facilities • Permit based collection of infrastructure placed on the ocean shore • Permit based review of visual access on state scenic waterways	• Rules and requirements in ORS 390 and OAR 736 • Statewide Land Use Planning Goals: Goal 5 – Natural Resources, Scenic and Historic Areas, and Open Spaces Goal 8 – Recreational Needs Goal 15 – Willamette River Greenway Goal 17 – Coastal Shorelands Goal 18 – Beaches and Dunes
Oregon State Marine Board (OSMB)	• Boating access sites (top of the ramp/access) • Boating facility amenities such as: pumpout and dump stations, floating restrooms, nonmotorized access/amenity	• OSMB duties as described in ORS Chapter 830

Department of Environmental Quality	• Inventories of access related information used for emergency response: signs, State Park boundaries, public shoreline access (no data collection), emergency access points • Inventories of boat ramps and launches, marinas, and parking lots to stage emergency equipment (sporadic data collection/verification driven by spill response planning efforts)	• OAR 340 Division 141 – Oil Spill Contingency Planning and 142 - Oil and Hazardous Materials Emergency Response • ORS 468B.495 - Interagency response plan for oil or hazardous material spills • ORS 468B.500 - Contents of plan • ORS 358.910 - Preservation and Protection of Cultural Heritage

In 2014 these agencies formed a Shoreline Access Work Group (SAWG) to address parallels in data collection, decrease duplication of efforts, and establish methods for enhancing consistency and interagency data exchange.

1.3 Description of the Standard

The Shoreline Access Data Exchange Standards (SADES) contains sufficient information to convert public access information to a common format. The SADES defines point locations and attributes associated with Shoreline Access Sites. It provides interagency definitions and domains for required and encouraged attributes. These two standardization efforts (definitions and domains) should increase the uniformity of Shoreline Access Site records. Additionally, SADES describes the essential and encouraged elements necessary to adequately describe, produce, and use real property data in Oregon.

1.4 Applicability and Intended Use of the Standard

The SADES is intended to support the integration of Shoreline Access Site locations and attributes. It is intended to be used at all levels of government and the private sector. The standard contains entity definitions and objects related to access attributes, including survey measurements, ownership/management, general access formats, and relevant details. The standard supports the exchange of this information.

The intended geographic scope of the standard is the Oregon Coastal Zone, which extends from the crest of the coastal range to 3 nautical miles offshore (Figure 1). This includes the shore of the Pacific Ocean and all inland shorelines (i.e. rivers, lakes, and estuaries). Although the SADES was developed with this geographic scope in mind, it was developed with flexibility to accommodate the entire state of Oregon in the future. The extension of this standard across the entire state of Oregon shall be determined as the document and process evolves.
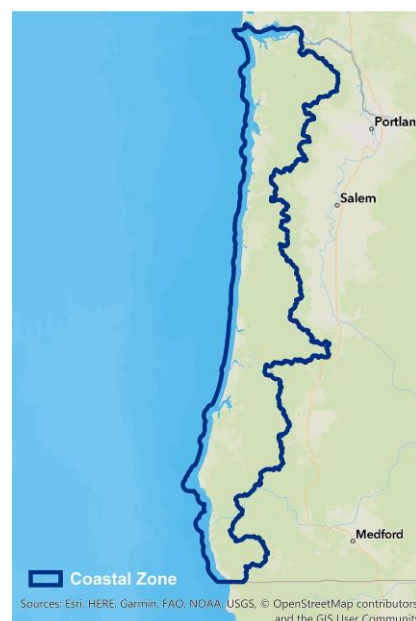

Figure 1. Oregon's Coastal Zone

1.5   Standard Development Procedures

1.5.1   Participants

The Shoreline Access Work Group (SAWG) is centered in the Department of Land Conservation and Development's Oregon Coastal Management Program, and has coordinated with other public access data collectors and users. This community is composed of the Parks and Recreation Department, Oregon State Marine Board, Department of Environmental Quality, Oregon Coast Visitors Association, Oregon Shores Conservation Coalition, Oregon Coast Trail Association, and local jurisdictions.

SAWG has contributed to all aspects of the SADES, including structure, definitions, and language. All of these participants have considered their unique requirements and perspectives to assist in creating this document. For more information on participants in the construction of this document, contact the Coastal & Marine FIT lead.

1.5.2   Comment Opportunities and Reviews

The SADES was circulated throughout the community for review and comment. Initial review began with informal comments from the FIT leads group followed by other framework discussion channels such as the GIS Program Leaders group (GPL), FIT listservs, and the spring 2021 Framework Forum. The first formal review period occurred from March 17, 2021 to April 28, 2021. SAWG reviewed and integrated comments, and initiated final review on May xx, 2021. Following the adoption of this standard, additional reviews and comments shall be incorporated on a timely basis contingent on community approval.

To make a comment, send an email to adrian.laufer@state.or.us.

1.6   Maintenance of the Standard

The SAWG is responsible for maintaining this standard. It exists in an environment of rapidly evolving user needs and mission requirements. This standard shall be revised to incorporate the additions and revisions that are evaluated and validated following publication. Any user of the standard may submit requests for change. Additions and suggestions are encouraged to make this a workable document; they should be sent to the email address on the title page.

2.0   Body of the Standard

2.1   Scope and Content of the Standard

The SADES provides guidance for the development and integration of feature and attribute data for particular layers related to shoreline access. Specifically, this documents data format and content. The standards outlined must be applied to all datasets stored and maintained under this Standard.

Geographical scope of applicable standards must be established to maintain consistent interpretation of the data format and content. All datasets must record point features with information relating to a Shoreline Access Site; however, the site is truly a polygon with borders. Certain sites have clearly delineated boundaries (e.g. State Parks) while others are less clear (e.g. locally owned access sites). Discrepancies in data may arise from different interpretations

of a site's true geographic range. The following geographic definition serves as a guide for datasets shared under SADES, with the understanding that geographical scope may be subjective.

The SADES geographically defines a Shoreline Access Site by its *sphere of influence*: the general area in which site visitors are willing to walk to access an amenity or service without actually leaving the site. Data collectors may consider the following when determining a site's sphere of influence: average walking speed for different demographics, distance from the parking location, and distance from the accessible shoreline. Under this definition, one site may have more than one type of service (e.g. multiple restroom facilities) and multiple sites may share one service (e.g. one restroom serving two adjacent parks). A state park may also have multiple Shoreline Access Sites within its larger boundaries.

Temporal scope differentially impacts particular fields that are specified in this standard (Figure 2). Many fields can be reasonably assumed as constant across multiple years (e.g. ownership, waterbody). Certain facilities (e.g. restrooms) and allowable uses (e.g. designated camping) are permitted on a seasonal basis. Some of these are subject to temporary changes in access, due to unforeseen circumstances and immediate maintenance. Since the datasets included in this standard are not updated frequently enough to accurately reflect temporal changes, it is permissible to record a field as true despite seasonal limitations. Data users should be aware of this caveat and inform additional distributors that facilities and allowable uses may be seasonally limited.

Long-Term Scale
1. Ownership
2. Management
3. Waterbody
4. Access Type

Seasonal Scale
1. Restrooms
2. Fee
3. Designated Campgrounds

Temporary Scale
1. Ramp Status
2. Potable Water
3. Restrooms
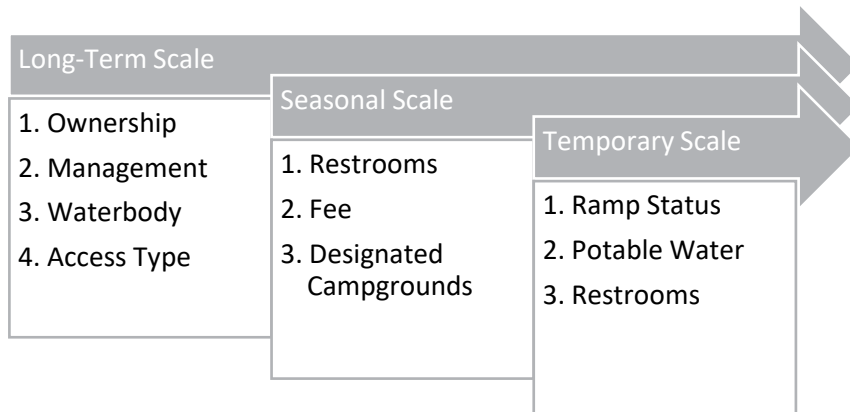
Figure 2. Temporal scope of data content maintained in SADES datasets. Long-term fields are reasonably expected to persist for multiple years. Seasonal fields may experience seasonal changes in public access. Temporary fields may be temporarily closed due to unforeseen circumstances and maintenance needs.

2.2   Need for the Standard

The development and implementation of this standards is necessary to facilitate data compilation and sharing within and outside of SAWG. All participants of SAWG maintain datasets related to shoreline access, so a standard is needed to assure data developed by different organizations can be shared easily among data users throughout the state. This standard is needed so that geographical information, as well as attribute field names, definitions, and schema, is similar across datasets.

2.3 Participation in Standards Development

The SADES was developed by the agencies participating in SAWG. The SAWG fosters collaboration from different public access programs and stakeholders throughout Oregon. The entities involved in SAWG and this standard's development process include the Oregon Coastal Management Program, Parks and Recreation Department, Oregon State Marine Board, Department of Environmental Quality, Oregon Coast Visitors Association, Oregon Shores Conservation Coalition, Oregon Coast Trail Association, and local jurisdictions. For more information, please visit **https://www.coastalmarinedata.net/workgroups/shoreline-access/.**

2.4 Integration with Other Standards

The SADES follows the same format as other Oregon Framework standards as identified on the GEO website[1].

2.5 Technical and Operational Context

2.5.1 Data Environment

The data environment for shoreline access data in Oregon is a vector model comprised of points. The exchange medium for shoreline access data is the ESRI file geodatabase, which is an open data structure relating points, lines, polygons, and feature attribution. The most common commercial and Open Source GIS software used in Oregon support this format. Information about the data structure can be found at **www.esri.com**.

2.5.2 Reference Systems

Exchange data should utilize a well-known coordinate reference system, either geographic or projected, that is recognized by the European Petroleum Survey Group (EPSG) Registry. The most commonly used projected coordinate reference systems in Oregon are currently based on the North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84). These systems include the OGIC endorsed Oregon Lambert, the State Plane Coordinate System, the Oregon Coordinate Reference System (OCRS) zones, Universal Transverse Mercator (UTM), USFS Region 6 Albers, and Web Mercator. When data is exchanged between state agencies, Oregon Lambert is required.

2.5.3 Global Navigation Satellite System (GNSS)

Satellite positioning is the preferred method for field-based data collection due to its ease of use and general accuracy. There are currently multiple GNSS operating including the Global Positioning System (GPS), Russian GLONASS, European Galileo, and Chinese BeiDou. Tools that utilize multiple GNSS are preferred because this capability increases data robustness and availability in challenging environments such as heavy vegetation, canyons, or near buildings. Autonomous GNSS is typically the most common and does not use an external correction source or post-processing workflow to increase accuracy.

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[1] **gis.oregon.gov**

2.5.4 Integration of Themes

The SADES is currently categorized with the Coastal Marine theme for ease of stewardship, but shoreline access can also be considered relevant to the Preparedness theme (due to emergency response or evacuation needs), as well as the Transportation theme (as connection nodes between networks).

2.5.5 Encoding

Shoreline Access Sites are encoded as points and attributes. These convey information about the location and descriptions of each feature.

2.5.6 Accuracy

Accuracy refers to the location of the point feature compared to the true location of the Shoreline Access Site. The point feature must be located within the site's sphere of influence, as described in section 2.1 of the SADES. The exact location of the point may be dictated by the conventions and preferences of the collecting agency (e.g. the Oregon State Marine Board's collection policy specifies that points must be taken at the head of the boat ramp). Geographic information may be recorded with any collection methodology (e.g. in situ GPS, remote imagery), as long as the point location recorded in the shared geodatabase is within the site's sphere of influence.

Content accuracy, the correctness and completeness of the attribute data associated with Shoreline Access Site points, must also meet exchange standards.

1. The attribute data must be correct for the site in question.
2. The attribute data must contain all of the elements specified in Section 3.0 of this standard.
3. The individual components of the attribute data elements must be complete, as appropriate, and contain the correct information.

2.5.7 Feature Identification Code

Features shall be identified by a unique code. The unique identifier shall be used to link records and attributes with geospatial features. A statewide unique site identifier will be defined and named SITEID. Each identifier will be unique and may be reused when updating information on existing shoreline access sites, to maintain a time series of site attributes.

Several challenges face the creation of unique feature identification codes: shoreline access sites can be large and contain subsites, sites often undergo name changes, and naming convention must allow for additions of new sites. Therefore, feature identification codes will be created in numerical order starting at 1001. All feature identification codes will be maintained in an Alias Table, where participatory organizations can add their own site names and where official site names may be recorded.

2.5.8   Map Features

Map feature types are point features with associated attributes.

a) Point: Point features are geospatial objects that represent point map elements such as an individual access site.

b) Attributes: Attributes are any of the additional information that is collected and shared about a feature.

2.5.11 Metadata

All data exchanged under this standard will be documented under the Oregon Metadata Standard, available at
https://www.oregon.gov/geo/FIT%20Documents/FINAL_OR_Metadata_standard_ver_2.04.pdf.

3.0 Data Attributes

The attributes for Shoreline Access Sites are presented here. The attributes specified are specified as either required or encouraged. Required attributes must be included and complete within a dataset. Encouraged attributes are included because they will increase the functionality of the dataset across data users; however, they are not mandatory for all datasets.

3.1   History

The four primary collectors of Shoreline Access Site data (OCMP, OPRD, OSMB, and ODEQ) have distinct histories of data collection and use.

As a Coastal Zone Management Program, the OCMP in part provides and protects "public access to the coast for recreation purposes."[2] Additionally, Oregon Statewide Land Use Goal 17 - Coastal Shorelands requires, among other things, requires the OCMP to inventory and protect shoreline access sites. The OCMP fulfills both of these this objectives by maintaining a decadal inventory of all public access sites in the Oregon coastal zone. These sites are then included and protected in local coastal comprehensive plans. Coastal comprehensive plans are acknowledged by NOAA as part of the Oregon Coastal Management Program. The first inventory was collected in 1990 by Benkendorf Associates (in coordination with OPRD). Inventories from 2000, 2010, and 2020 were conducted by OCMP staff. All previous inventories can be acquired through a request to the OCMP.

OPRD has acquired and maintained information related to shoreline access in a variety of program areas since the 1970's. The majority has centered on its responsibilities related to managing the ocean shore, state scenic waterways, Willamette River greenway, statewide outdoor recreation planning, and state parks. Each program has its own requirements for data content and format, and may have historically cooperated with other entities on collection. For example, in 1990 OPRD collaborated with DLCD on the Benkendorf inventory of beach access but has subsequently performed its own inventory on a periodic basis due to differing needs. Other program areas such as scenic waterways and ocean shore also create and manage non-traditional data such as structures and visual access.

The Oregon State Marine Board (OSMB) funds Waterway Access Grants to support public access across private, local, state, federal, and tribal waterway facility providers.[2] OSMB does not own or operate any boating sites or facilities and, instead, relies on willing partners to apply for grants to make needed improvements. While there is no data collection mandate, the OSMB does collect data on facilities that provide boating access for internal planning and public display in GIS applications. The first geospatial boating access site data inventory was created in 2016 and was a product of GNIS data and prior boater surveys. Maintenance on the dataset occurs monthly or as updates arrive, attributes are updated, and new access added. The Marine Board often relies on facility owners to provide updates if their information has changed.

The Oregon Department of Environmental Quality develops and maintains the state's interagency plan to respond to oil and hazardous materials spills in the Columbia and Willamette Rivers, coastal waters and estuaries, and along high hazard rail routes. Current information on shoreline access is vital to DEQ's planning, preparedness, and response efforts for spills. In the course of these efforts, DEQ verifies relevant information about shoreline access points used for spill response. To protect cultural resources, DEQ makes every attempt to avoid ground-disturbing activities by using developed access points, boat ramps, and parking lots to stage spill response equipment.

3.2   Design Issues

The exchange data structure has to be:

- flexible;
- simple;
- easily made from any GIS software;
- minimalist and agreeable to almost everyone;
- able to support basic viewing, querying and GIS/LIS functionality; and
- inclusive of enough attributes to be useful but not so many as to be controversial.

3.3   Conceptual Framework

The Shoreline Public Access Inventory contains points that describe real access sites that are publicly owned and managed. A list of fields (attributes) and values (domains) used to describe each access site (point) is available below. The table also identifies fields that are required for data exchange; these fields must be included attributes for a dataset to be eligible under this data exchange standard. Non-required fields are still highly encouraged, but this standard recognizes that flexibility is necessary to accommodate the diversity of data sharers. Each dataset may also include additional elements not included in SADES to address their own unique needs, as long as required format and content are met.

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[2] **https://www.oregon.gov/osmb/boating-facilities/Documents/Boating_Facility_Grant_Procedure_Guide.pdf**

Shoreline Access Inventory Shapefile: Schema and Definitions

Field Code	Alias	Description	Accepted Values (Domains or Binds)	Type	Required
NAME	Site Name	Name of the access site, boat ramp, or closest street.		Text	Yes
SITEID	Site ID	Feature Identification Code	Use convention in section 2.5.7	Text	Yes
WATERBODY	Waterbody	GNIS's name for the adjacent waterbody.	"Unnamed" is acceptable if there is no formalized name	Text	Yes
SHORETYPE	Shore Type	The type of shore where the access site is located.	Estuary: the tidal mouth of a river surrounded by land River: a stream of flowing water Lake: a standing body of water fully surrounded by land Ocean: the Pacific Ocean shore	Text	Yes
MANAGER	Manager	The entity responsible for managing the access site. This may be the owner, but not always.		Text	Yes
MGMTPHONE	Manager Phone	Telephone contact for the access site manager.	999-999-9999	Text	No
OWNER	Owner	The entity that owns the access site. This may be the same as the manager, but not always. "Private" shall denote private ownership.		Text	Yes
OWNERPHONE	Owner Phone	Telephone contact for the access site owner.	999-999-9999	Text	No
ATVACC	ATV Access	ATV access is available at the site.	Boolean	Short	Yes
BOATACC	Boat Access	Boat access is available at the site.	Boolean	Short	Yes
PEDESTACC	Pedestrian Access	Pedestrian access is available at the site.	Boolean	Short	Yes
VEHICLEACC	Vehicle Access	Vehicle access is available at the site.	Boolean	Short	Yes

VISUALACC	Visual Access	Visual access is available at the site	Boolean		Short	Yes
PATH2WATER	Path to the Water	Maintained paths available to access the water at the site.	Gravel Path: Any portion of the path has a gravel surface.		Text	Yes
			Paved Path: The ENTIRE trail is paved (may include concrete, articulated concrete pavers, brick, paving stones, asphalt) and does not include stairs.			
			Natural Trail: Any portion of the path is unpaved.			
			None Available: There is no trail available.			
BOATRAMP	Boat Ramp	Boat ramp options available at the access site.	Boat Slide: Wood or metal slide on steep banks, used by drift boats and nonmotorized boats only. Also called a pole slide.		Text	Yes
			Floating: Floating launch that is only used by nonmotorized boats. May be attached to other docks.			
			Hardened Surface: Typically concrete or asphalt.			
			Hoist: Mechanical system to lift boats into and out of the water. Also called a sling.			
			Natural Appearance: Gravel, dirt, grass, pavers, or other natural materials. Water access is defined and limits impact to adjacent riparian areas.			
			Unimproved: Undefined water access. Often user created with significant impact to adjacent riparian areas.			
			None Available: No boat ramps offered at the site.			
RAMPSTATUS	Ramp Status	Status of the boat ramp current operations.	Operating: The boat ramp is actively in operation.		Text	No

			Temporary Closure: The boat ramp is temporarily closed		
			Permanent Closure: The boat ramp is permanently closed.		
PARKING	Parking	Parking available at the access site.	Paved Parking Lot: The majority of the parking lot is paved.	Text	Yes
			Gravel Parking Lot: The majority of the parking lot has a gravel surface.		
			Unpaved Parking Lot: The majority of the parking lot is unpaved (natural surface).		
			Street Parking Only: There is no parking lot, but parking is allowed on nearby streets.		
			None Available: There is no parking lot and parking is not allowed on nearby streets.		
PARKINGNUM	Parking Spaces	Number of marked parking spaces for cars in the parking lot.	# of marked spaces	Short	No
			No lines = null		
TRAILERNUM	Trailer Spaces	Number of vehicle with trailer spaces designated in the parking lot.	# of marked spaces	Short	No
			No lines = null		
NIGHTPARK	Overnight Parking	Is overnight parking available at the site?	Yes	Short	No
			No		
			Unsure		
FEE	Fee	Is there a fee to park at the site?	Boolean	Short	No
POTABLE	Drinking Water	Is drinking water available at the site?	Boolean	Short	Yes
RESTROOM	Restrooms	Restroom facilities available at the site.	Flush Toilet: A flushable toilet is available for public use.	Text	Yes
			Vault Toilet: Vault toilets are available for public use.		
			Port-a-Potty: There may be port-a-pottys available for public use.		

			None Available: There are no restrooms available at the access site.		
ACCIMPROVE	Accessibility	Are there any accessibility improvements?	Yes No Unsure	Short	No
ACCDESC	Accessibility Description	Description of accessibility improvements available at the site		Text	No
CAMPGROUND	Designated Campground	Is there a designated campground at the site?	Boolean	Text	No
BRIDGE	Bridge	Is bridge crossing necessary to access the shoreline?	Yes No Unsure	Short	Yes
STAIRS	Stairs	Is it necessary to cross stairs to access the shoreline?	Yes No Unsure	Short	Yes
PATHWIDTH	Path Width	Width of passageway to the shoreline at the narrowest point, to the nearest foot.		Float	No
SHOWER	Shower	Is there a shower available at the access site?	Yes No Unsure	Short	No
TIEUPDOCK	Tie-Up Dock	Is designated short-term tie-up available at the access site?	Yes No Seasonal Unsure	Short	No
INTERP	Interpretation Center	Is there an interpretation center at the site?	Yes No Unsure	Short	No
PICNIC	Picnic Tables	Are picnic tables available at the access site?	Yes No Unsure	Short	No
PIER	Pier	Is there a pier (fixed structure extending perpendicular to the	Yes No Unsure	Short	No

		shoreline for various uses) at the access site?			
PUBLISH	Publish	Is this site suitable for sharing with the public?	Yes: Data is suitable for large-scale public sharing	Short	Yes
			Maybe: Data may be suitable for large-scale public sharing if specific concerns are addressed. See notes.		
			No: Data is not suitable for large-scale public sharing		
NOTES	Notes	Additional notes or comments about the access site.		Text	No
PHOTO	Photo	Photograph of the site's entrance		Attach	Yes
EDATE	Edit Date	The last time the record was modified.		Date	Yes
DATE	Entry Date	The day that the record was entered into the database.		Date	Yes
DATACUST	Data Custodian	Data record custodian's organization.		Text	Yes