

DRAFT
MEMORANDUM

Date: January 11, 2009
To: Diana Stralberg, PRBO Conservation Science
From: Matt Brennan, Justin Vandever, and Steve Crooks
PWA Project #: 1989
Subject: Marsh accretion predictions for San Francisco Bay

At the request of PRBO, PWA developed a series of predictions for San Francisco Bay marshplain accretion in response to ranges of initial bed elevation, suspended sediment concentration, organic sediment, and rate of sea level rise. These predictions were made for 100 years in the future using the Marsh98 model. The Marsh98 model was revised to use nonlinear rates of sea level rise and to incorporate organic accretion rates at each time step.

MARSH98 DESCRIPTION

Marsh accretion was predicted using the Marsh 98 model, a model has been used widely to examine marsh sustainability to sea level rise across San Francisco Bay (e.g. Orr et al., 2003). The Marsh98 model is based on the mass balance calculations described by Krone (1987). This model assumes that the elevation of a marsh plain rises at rates that depend on the (1) availability of suspended sediment and (2) depth and periods of inundation by high tides. When the level of an evolving marsh surface is low with respect to the tidal range, sedimentation rates may be high if the suspended sediment supply is ample. However, as the marsh surface aggrades through the tidal range, the frequency and duration of flooding by high tides is diminished so that the rate of sediment accumulation declines. Marsh98 implements these physical processes by calculating the amount of suspended sediment that deposits during each period of tidal inundation and sums that amount of deposition over the period of record.

Two revisions were made to the Marsh98 model to more accurately represent physical conditions. These revisions include:

- Instead of a constant, linear rate of sea level rise, the model now incorporates predictions of accelerating, nonlinear sea level rise. The nonlinear curves that were implemented were originally proposed by the National Research Council and modified by the Army Corps of Engineers (2009).
- Previously, organic accretion rates were indirectly incorporated into the model by combining it with the rate of sea level rise to obtain a net rate of elevation change. In the revised version of the

model, the organic matter accretion rate was added directly to the bed elevation at each time step. This method more accurately reflects the physical process in the face of nonlinear sea level rise.

The modeling was conducted relative to the tidal datum of mean lower low water (MLLW). The tidal boundary condition used for all model runs was a tidal month which has statistical characteristics identical to the observed tides at the Golden Gate. By correcting for shifts in tidal datums, the results generated with this boundary condition should be applicable throughout San Francisco Bay.

MODEL INPUT PARAMETERS

Initial bed elevations and suspended sediment concentrations vary throughout San Francisco Bay. In addition, there is uncertainty as to the future rate of sea level rise. Therefore, to accommodate for a range of possible conditions, we considered two rates of sea level rise, five suspended sediment concentrations, three organic matter accretion rates, and three initial bed elevations for a total of 70 model scenarios.

INITIAL BED ELEVATION

Two initial bed elevations were used as model input parameters to span the range of regularly inundated vegetated marsh. The lower initial bed elevation was based on the colonization elevation for vegetation, assumed to be mean tide level plus 1 foot (4.18 ft MLLW). The higher initial bed elevation was based on observations of pickleweed marsh which center around mean higher high water (5.84 ft MLLW).

In addition, some scenarios began with an initial bed elevation 2 feet below MLLW to predict the bed elevation trajectory for subtidal conditions. For these scenarios, it is assumed that wave-induced bed shear stresses are minimal. Locations with significant wave exposure are unlikely to accrete above subtidal elevations.

SUSPENDED SEDIMENT CONCENTRATION

Suspended sediment concentration varies throughout San Francisco Bay because of variations in wave conditions, proximity to mudflats, and river inputs. To represent the range of observed suspended sediment concentrations, we modeled four different suspended sediment concentrations: 25, 50, 100, 150, and 300 mg/L.

ORGANIC MATTER

Marshes with high rates of organic matter production have been observed to accrete at faster rates than marshes composed primarily of inorganic sediments (Orr et al., 2003). Marshes associated with the highest organic matter accretion rates are typically found in brackish or freshwater environments. Based on guidance from PRBO, we modeled organic matter accretion rates of 1, 2, and 3 mm/yr for the scenarios

with initial bed elevations in the vegetated marsh regime. For the scenarios with subtidal initial bed elevations, no organic matter accretion was included during the initial run. Then, for one scenario (Run ID 68), we re-started the model from the point at which the bed elevation reached the vegetation colonization elevation. This run was selected because the initial run indicated that this run would be just able to keep pace with the high rate of sea level rise. The model was restarted twice, with organic matter accretion rates of either 1 or 3 mm/yr (Run ID 68a and 68b, respectively).

RATE OF SEA LEVEL RISE

We chose two nonlinear sea level rise scenarios based on the guidance provided by the US Army Corps of Engineers (2009). This document recommends scenarios modifying curves proposed by the National Research Council to extrapolate intermediate and high sea level rise scenarios (“NRC-I” and “NRC-III”, respectively). These scenarios predict 0.5 m and 1.5 m of sea level rise over the next century. The high rate is similar to draft State of California planning guidelines, which recommends planning for 16” of rise in the next 50 years and 55” in the next 100 years.

RESULTS

The model input parameters and predicted Year 100 bed elevations for the 70 combinations of initial bed elevation, suspended sediment concentration, no organic accretion and rate of sea level rise are summarized in Table 1. Figures 1-70 provide additional detail of each model run by showing the temporal evolution of the bed, either in the fixed reference frame of Year 0 MLLW (top subplot of each figure) or the relative reference frame of increasing MHHW (bottom subplots). The time series of the bed elevation have also been provided in digital format in the Excel spreadsheet entitled *PRBO_bed_elevation_ts.xls*.

DISCUSSION

- A final elevation of 0.0 ft relative to Year 100 MHHW indicates that the marsh is able to accrete to, and keep pace with, sea level rise. These scenarios are colored darker green in Table 1.
- Since the low initial bed elevation (-1.7 ft MHHW) is the lower bound for vegetation, a Year 100 elevation lower than -1.7 ft MHHW indicates likely conversion to mudflat. These scenarios are colored brown in Table 1. Year 100 elevations higher than -1.7 ft MHHW indicate a progression towards pickleweed marsh. These scenarios are colored lighter green in Table 1.
- The high initial bed elevation scenarios experience a larger net change in elevation because they are inundated less frequently, and hence receive less sediment.
- Increasing the organic accretion rate by 1 mm/yr does not result in a Year 100 bed elevation that is 100 mm higher than otherwise identical conditions. This is because as organic accretion raises the bed elevation, it reduces the inundation period and therefore the inorganic deposition rate. The increase in Year 100 bed elevation as a function of organic accretion rate is larger for low suspended

sediment concentrations since the feedback with inorganic deposition is weaker when less sediment is present in the water column.

- Suspended sediment concentrations of 25 mg/L are unlikely to sustain marshes for all scenarios, regardless of the input parameters.
- Suspended sediment concentrations of 50 mg/L are unlikely to sustain marshes for all scenarios except for most favorable conditions (high initial bed elevation and organic accretion rate; intermediate rate of sea level rise).
- Suspended sediment concentrations of 100 or 150 mg/L can sustain marshes only for particular combinations of initial bed elevation, organic accretion rate and rate of sea level rise. Varying any one of these four parameters can alter whether the model predicts vegetated or unvegetated Year 100 conditions.
- Suspended sediment concentrations of 300 mg/L are likely to sustain marshes for all scenarios.

The results presented above provide a first order estimate of marsh accretion rates for San Francisco Bay under a range of input conditions. However, it should be recognized that significant uncertainties remain with respect to future changes in sea level rise as well as the physical and biological processes which affect marsh accretion. In particular, the model does not include influence of waves, which become more important as site size increases and availability of sediment diminishes. Sites that are more vulnerable to waves include those with bed elevations between vegetation colonization elevation and MHHW, e.g. those runs marked in lighter green in Table 1.

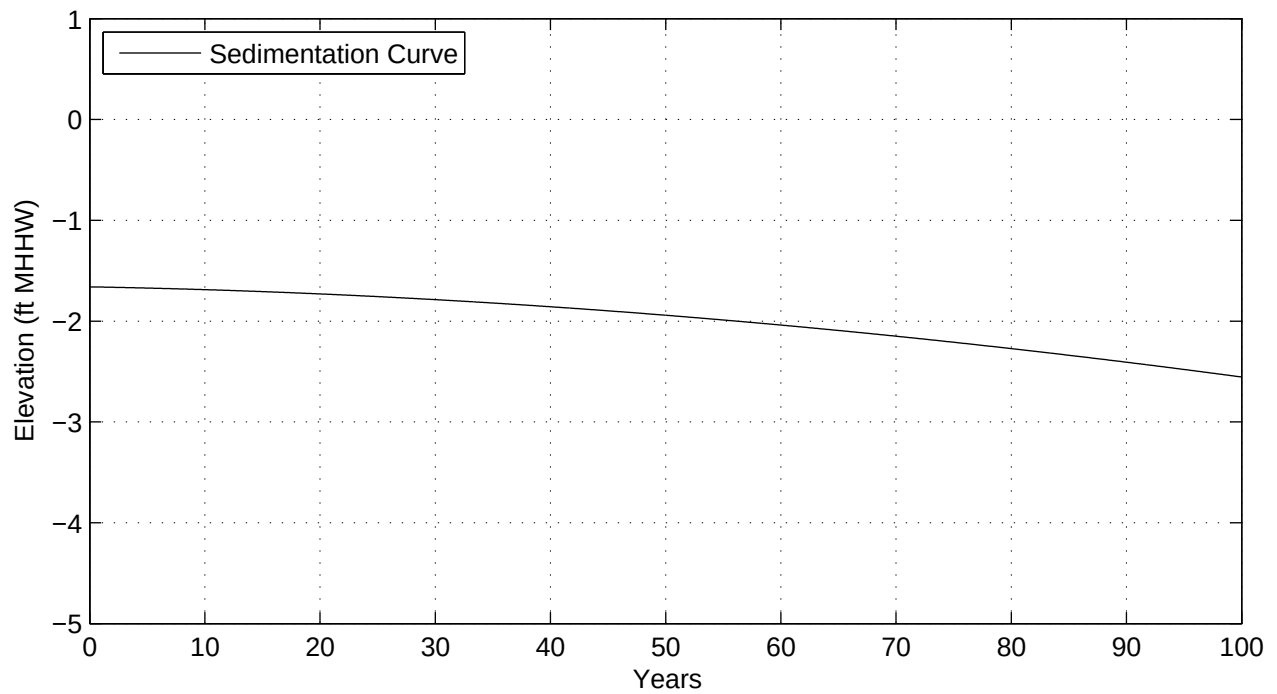
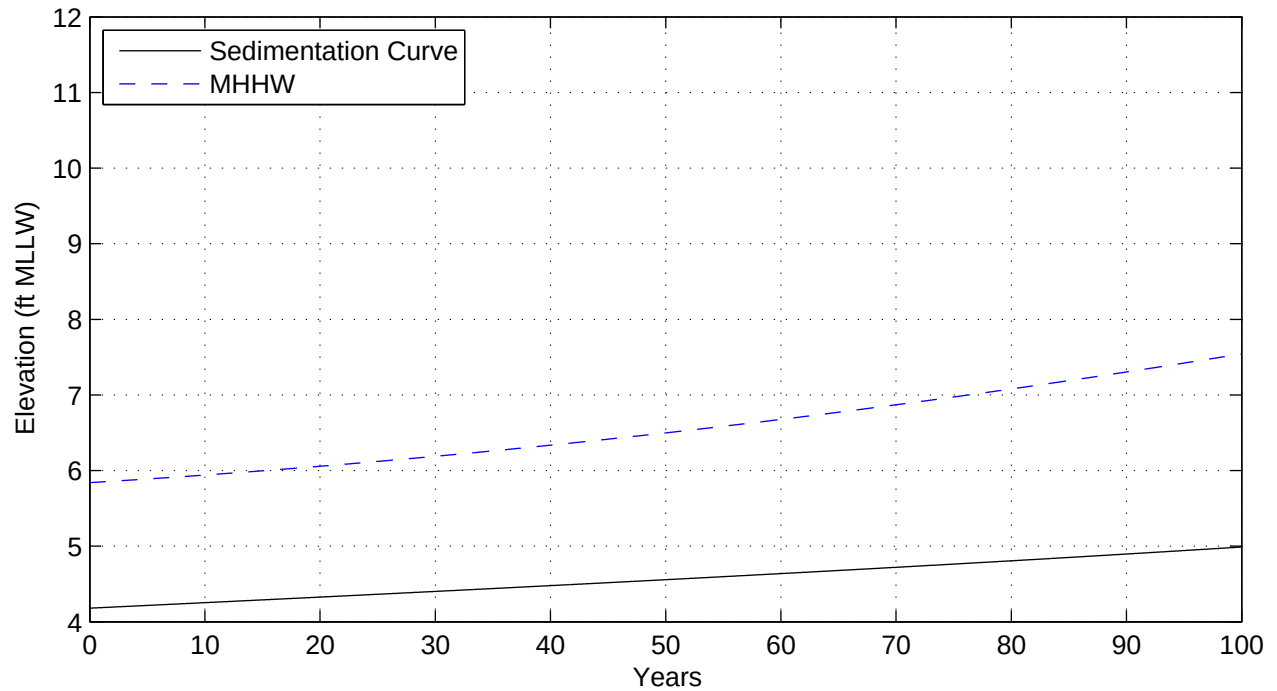
REFERENCES

- Krone, R.B. "A Method for Simulating Historic Marsh Elevations." Coastal Sediments '87. Proceedings of the Specialty Conference on Quantitative Approaches to Coastal Sediment Processes. New Orleans, LA. May 12-14. 1987. 316-323.
- Orr, M., Crooks, C., and Williams, P. 2003. Will Restored Tidal Marshes Be Sustainable? In: Larry R. Brown, editor. Issues in San Francisco Estuary Tidal Wetlands Restoration. San Francisco Estuary and Watershed Science. Vol. 1, Issue 1 (October 2003), Article 5.
<http://repositories.cdlib.org/jmie/sfew/vol1/iss1/art5>
- US Army Corps of Engineers. 2009. Incorporating Sea-Level Change Considerations in Civil Works Programs. Engineering Circular #1165-2-211.

Table 1. Summary of Marsh98 input parameters and Marsh98 model predictions.

Run ID	Input parameters				Model predictions			
	Co (mg/L)	SLR	Organic Rate (mm/yr)	Z ₀ (ft MLLW)	Z ₁₀₀ (ft MLLW)	Z ₁₀₀ -Z ₀ (ft)	MHHW Yr 100 (ft MLLW)	Z ₁₀₀ -MHHW (ft)
1	25	NRC-I	1.0	4.18	4.99	0.81	7.54	-2.55
2	25	NRC-I	1.0	5.84	6.33	0.49	7.54	-1.22
3	25	NRC-III	1.0	4.18	5.23	1.05	11.28	-6.05
4	25	NRC-III	1.0	5.84	6.61	0.77	11.28	-4.67
5	50	NRC-I	1.0	4.18	5.86	1.68	7.54	-1.69
6	50	NRC-I	1.0	5.84	6.65	0.81	7.54	-0.89
7	50	NRC-III	1.0	4.18	6.75	2.57	11.28	-4.53
8	50	NRC-III	1.0	5.84	7.56	1.72	11.28	-3.72
9	100	NRC-I	1.0	4.18	7.02	2.84	7.54	-0.52
10	100	NRC-I	1.0	5.84	7.26	1.42	7.54	-0.28
11	100	NRC-III	1.0	4.18	9.09	4.91	11.28	-2.19
12	100	NRC-III	1.0	5.84	9.21	3.37	11.28	-2.07
13	150	NRC-I	1.0	4.18	7.54	3.36	7.54	0.00
14	150	NRC-I	1.0	5.84	7.54	1.70	7.54	0.00
15	150	NRC-III	1.0	4.18	10.08	5.90	11.28	-1.20
16	150	NRC-III	1.0	5.84	10.09	4.25	11.28	-1.19
17	300	NRC-I	1.0	4.18	7.54	3.36	7.54	0.00
18	300	NRC-I	1.0	5.84	7.54	1.70	7.54	0.00
19	300	NRC-III	1.0	4.18	11.11	6.93	11.28	-0.17
20	300	NRC-III	1.0	5.84	11.12	5.28	11.28	-0.16
21	25	NRC-I	2.0	4.18	5.28	1.10	7.54	-2.26
22	25	NRC-I	2.0	5.84	6.63	0.79	7.54	-0.92
23	25	NRC-III	2.0	4.18	5.54	1.36	11.28	-5.74
24	25	NRC-III	2.0	5.84	6.91	1.07	11.28	-4.37
25	50	NRC-I	2.0	4.18	6.08	1.90	7.54	-1.46
26	50	NRC-I	2.0	5.84	6.90	1.06	7.54	-0.64
27	50	NRC-III	2.0	4.18	6.99	2.81	11.28	-4.28
28	50	NRC-III	2.0	5.84	7.79	1.95	11.28	-3.49
29	100	NRC-I	2.0	4.18	7.14	2.96	7.54	-0.40
30	100	NRC-I	2.0	5.84	7.44	1.60	7.54	-0.10
31	100	NRC-III	2.0	4.18	9.20	5.02	11.28	-2.08
32	100	NRC-III	2.0	5.84	9.32	3.48	11.28	-1.96
33	150	NRC-I	2.0	4.18	7.54	3.36	7.54	0.00
34	150	NRC-I	2.0	5.84	7.54	1.70	7.54	0.00
35	150	NRC-III	2.0	4.18	10.14	5.96	11.28	-1.14
36	150	NRC-III	2.0	5.84	10.16	4.32	11.28	-1.12
37	300	NRC-I	2.0	4.18	7.54	3.36	7.54	0.00
38	300	NRC-I	2.0	5.84	7.54	1.70	7.54	0.00
39	300	NRC-III	2.0	4.18	11.16	6.98	11.28	-0.12
40	300	NRC-III	2.0	5.84	11.16	5.32	11.28	-0.12
41	25	NRC-I	3.0	4.18	5.57	1.39	7.54	-1.97
42	25	NRC-I	3.0	5.84	6.93	1.09	7.54	-0.61
43	25	NRC-III	3.0	4.18	5.84	1.66	11.28	-5.44
44	25	NRC-III	3.0	5.84	7.21	1.37	11.28	-4.07
45	50	NRC-I	3.0	4.18	6.32	2.14	7.54	-1.23
46	50	NRC-I	3.0	5.84	7.16	1.32	7.54	-0.39
47	50	NRC-III	3.0	4.18	7.24	3.06	11.28	-4.04
48	50	NRC-III	3.0	5.84	8.02	2.18	11.28	-3.26
49	100	NRC-I	3.0	4.18	7.29	3.11	7.54	-0.25
50	100	NRC-I	3.0	5.84	7.54	1.70	7.54	0.00
51	100	NRC-III	3.0	4.18	9.31	5.13	11.28	-1.97
52	100	NRC-III	3.0	5.84	9.44	3.60	11.28	-1.84
53	150	NRC-I	3.0	4.18	7.54	3.36	7.54	0.00
54	150	NRC-I	3.0	5.84	7.54	1.70	7.54	0.00
55	150	NRC-III	3.0	4.18	10.20	6.02	11.28	-1.08
56	150	NRC-III	3.0	5.84	10.22	4.38	11.28	-1.06
57	300	NRC-I	3.0	4.18	7.54	3.36	7.54	0.00
58	300	NRC-I	3.0	5.84	7.54	1.70	7.54	0.00
59	300	NRC-III	3.0	4.18	11.21	7.03	11.28	-0.07
60	300	NRC-III	3.0	5.84	11.21	5.37	11.28	-0.07
61	25	NRC-I	0.0	-2.0	-0.93	1.07	7.54	-8.47
62	25	NRC-III	0.0	-2.0	-0.93	1.07	11.28	-12.21
63	50	NRC-I	0.0	-2.0	1.72	3.72	7.54	-5.82
64	50	NRC-III	0.0	-2.0	1.76	3.76	11.28	-9.52
65	100	NRC-I	0.0	-2.0	6.29	8.29	7.54	-1.25
66	100	NRC-III	0.0	-2.0	8.27	10.27	11.28	-3.01
67	150	NRC-I	0.0	-2.0	7.32	9.32	7.54	-0.23
68	150	NRC-III	0.0	-2.0	9.96	11.96	11.28	-1.31
68a*	150	NRC-III	1.0	-2.0	10.03	12.03	11.28	-1.25
68b*	150	NRC-III	3.0	-2.0	10.13	12.13	11.28	-1.14
69	300	NRC-I	0.0	-2.0	7.54	9.54	7.54	0.00
70	300	NRC-III	0.0	-2.0	11.06	13.06	11.28	-0.21

*Subtidal manual restart runs



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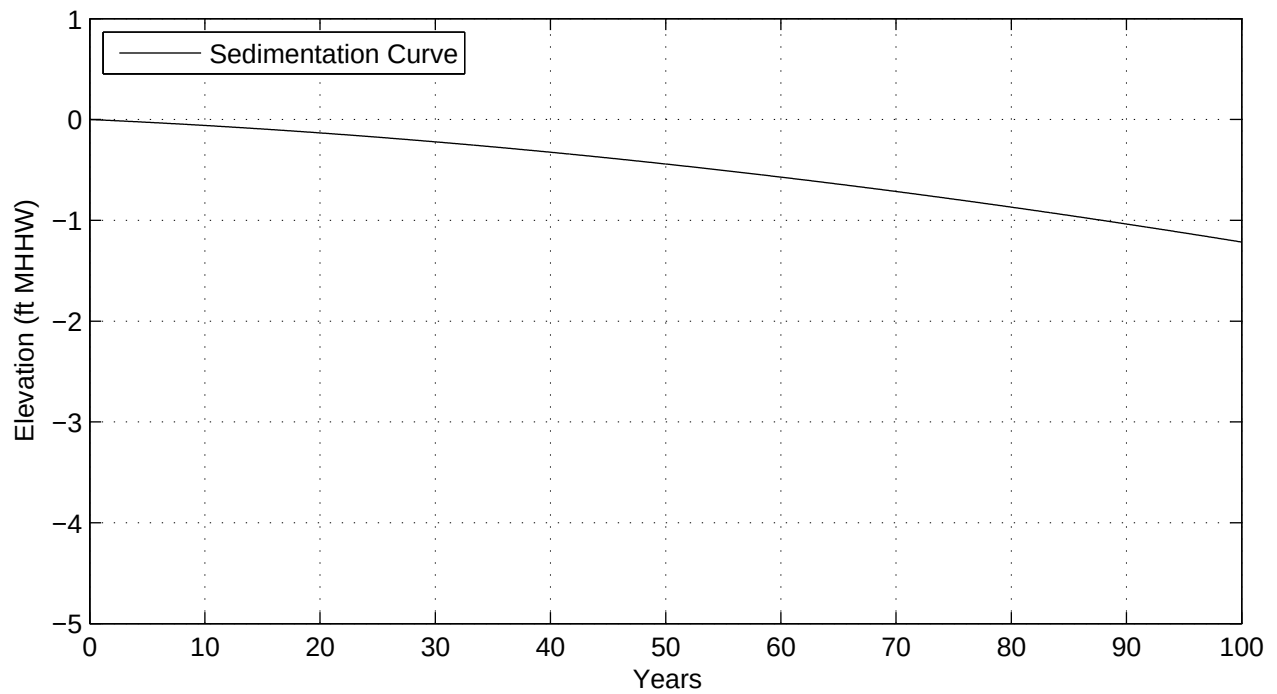
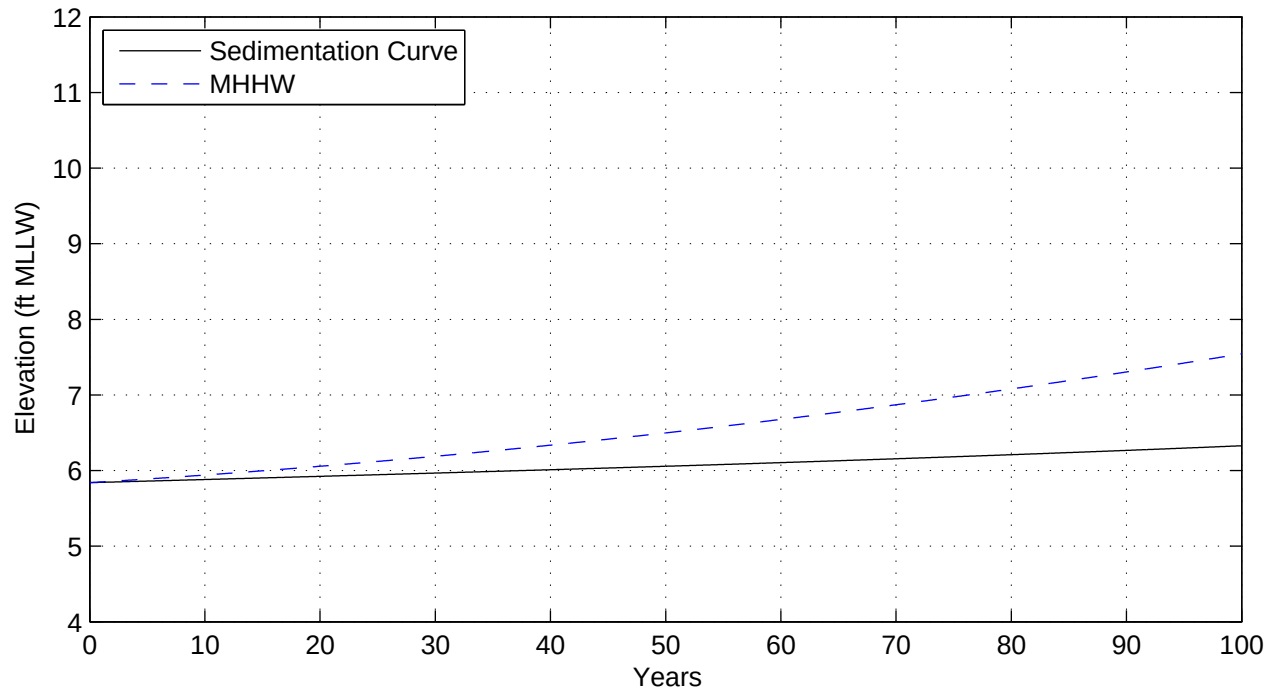
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Figure 1
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 1

PWA Ref# 1989





Source:

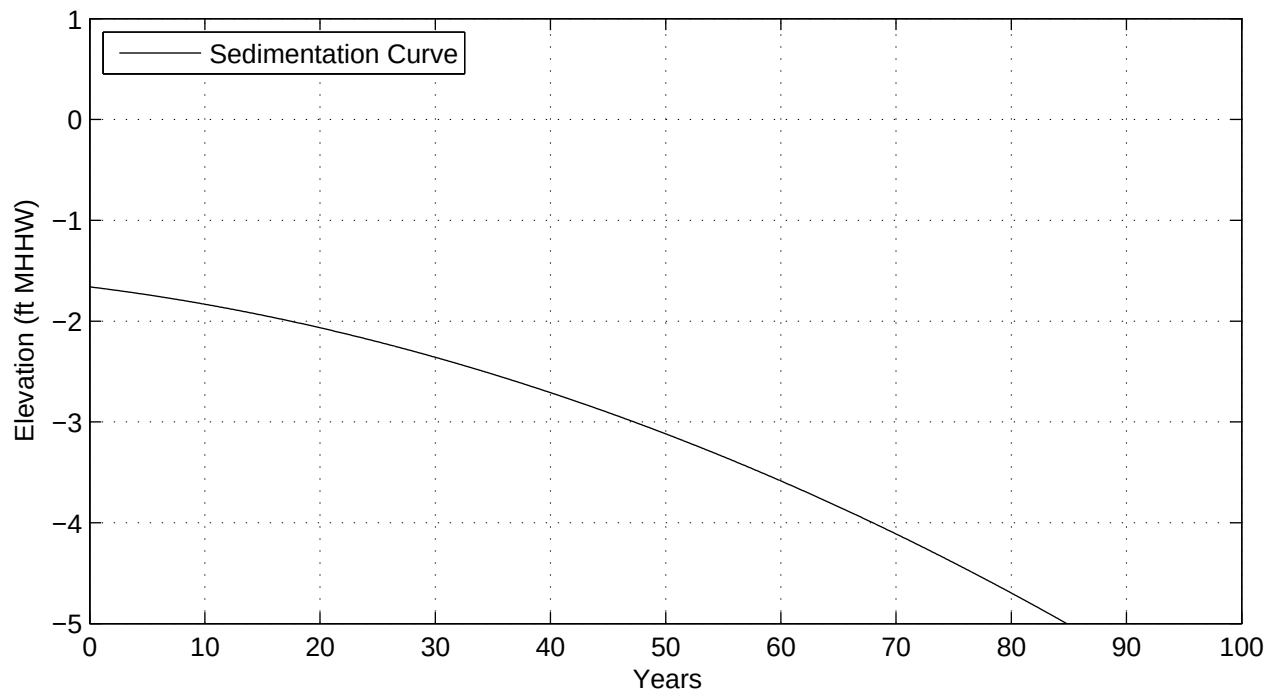
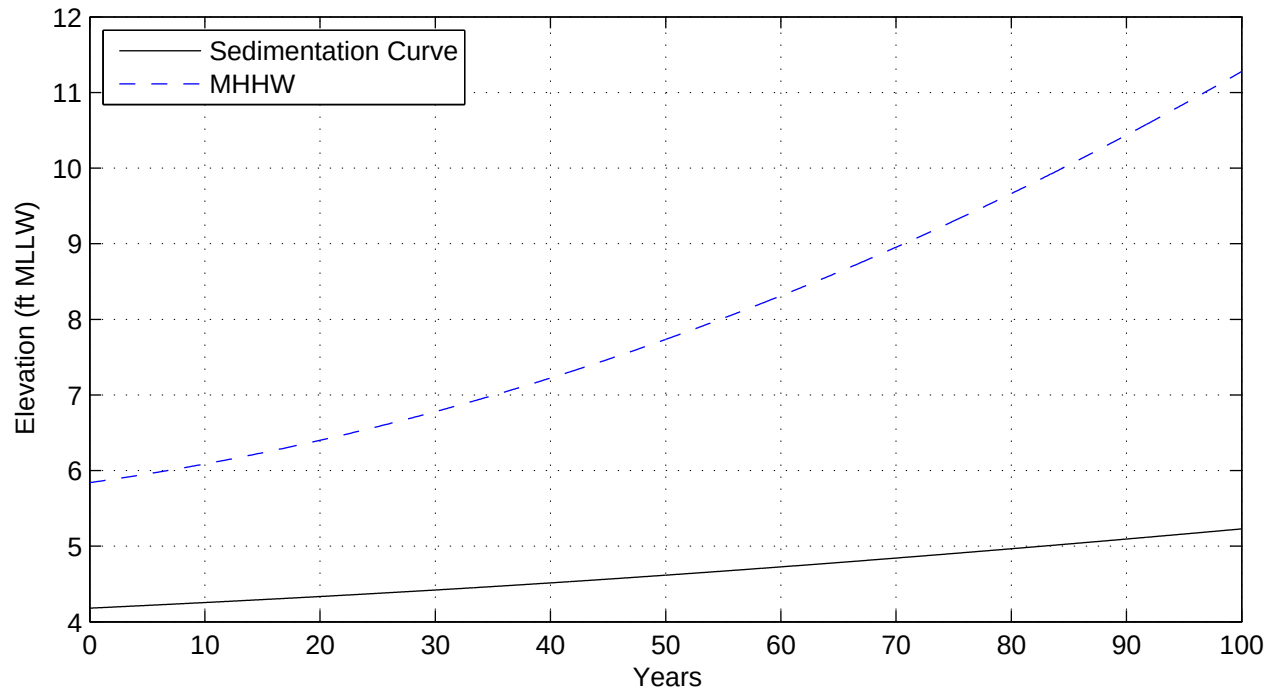
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Figure 2
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 2

PWA Ref# 1989





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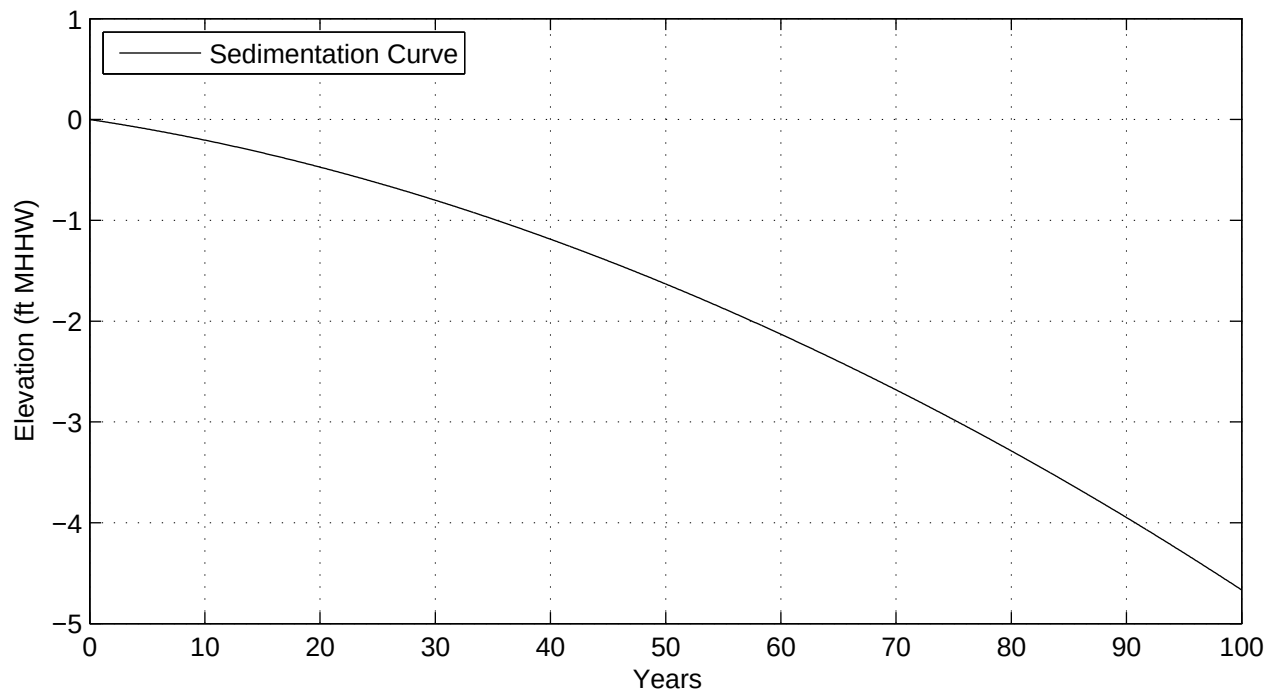
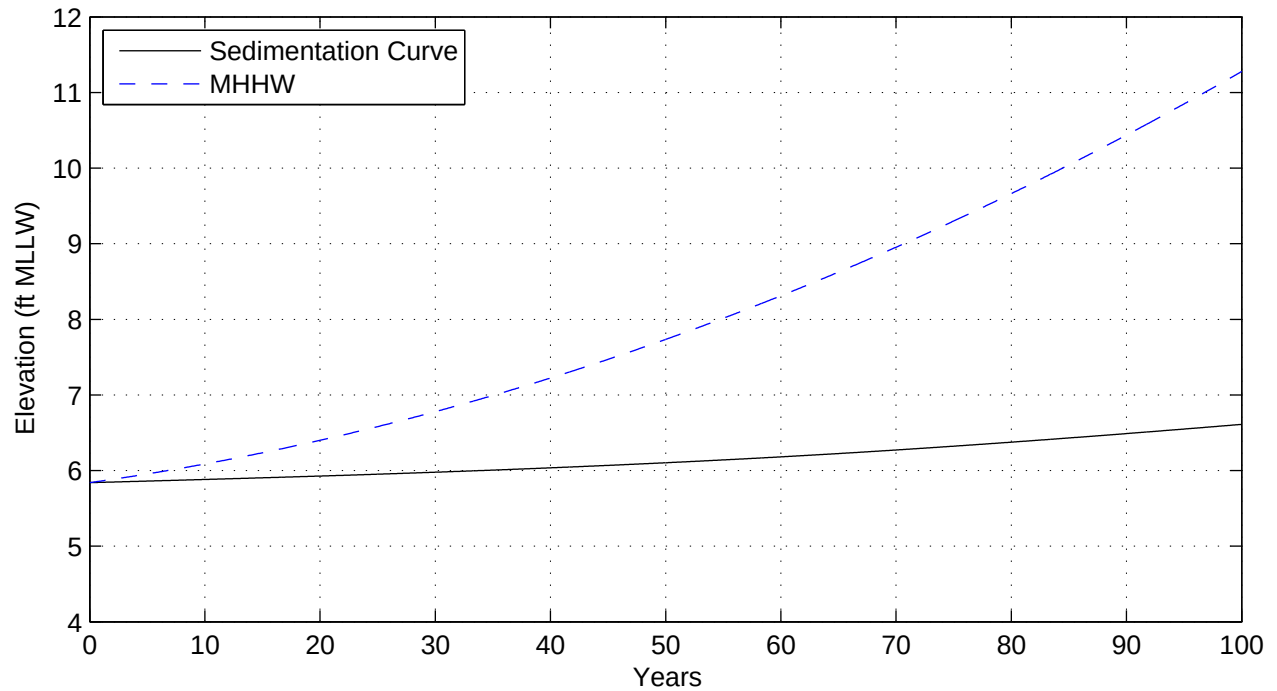
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Figure 3
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 3

PWA Ref# 1989





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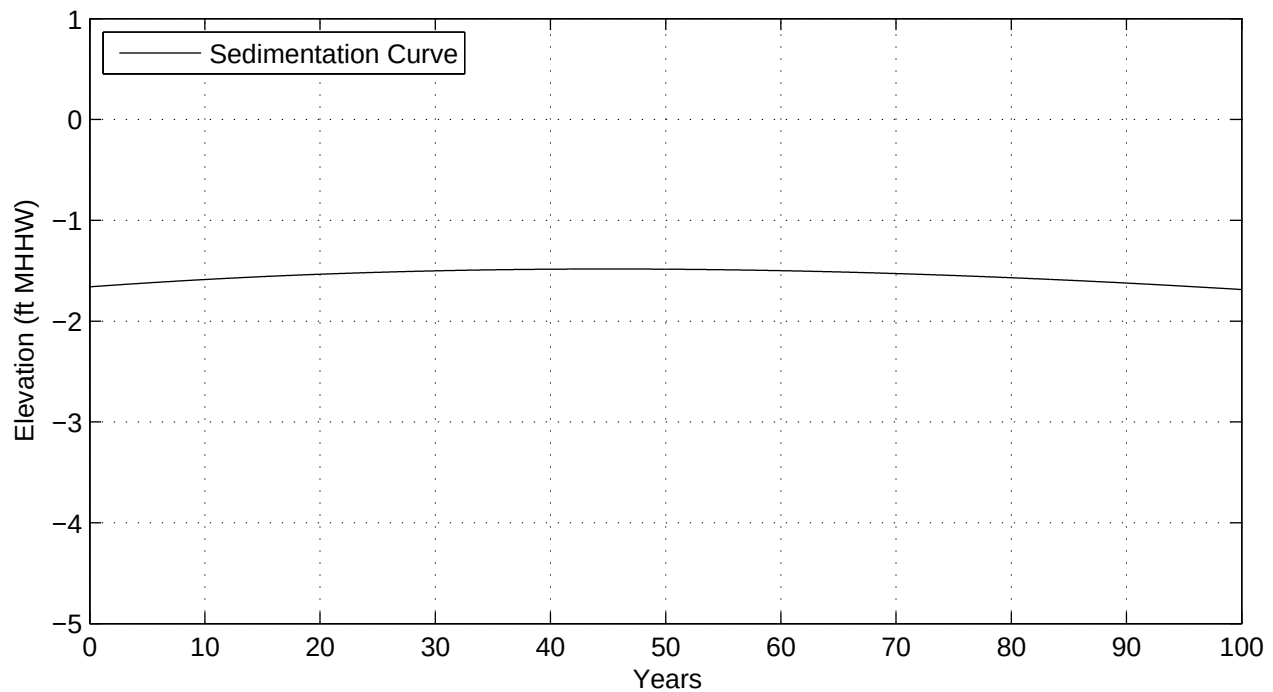
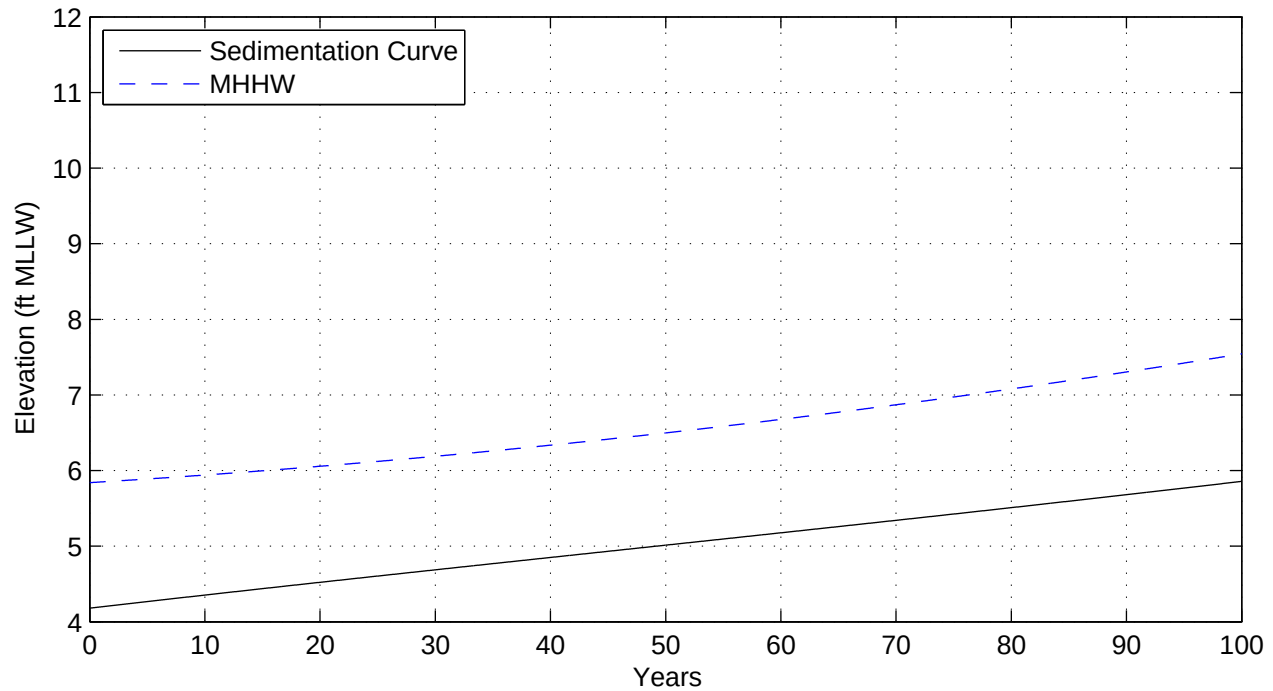
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Figure 4
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 4

PWA Ref# 1989





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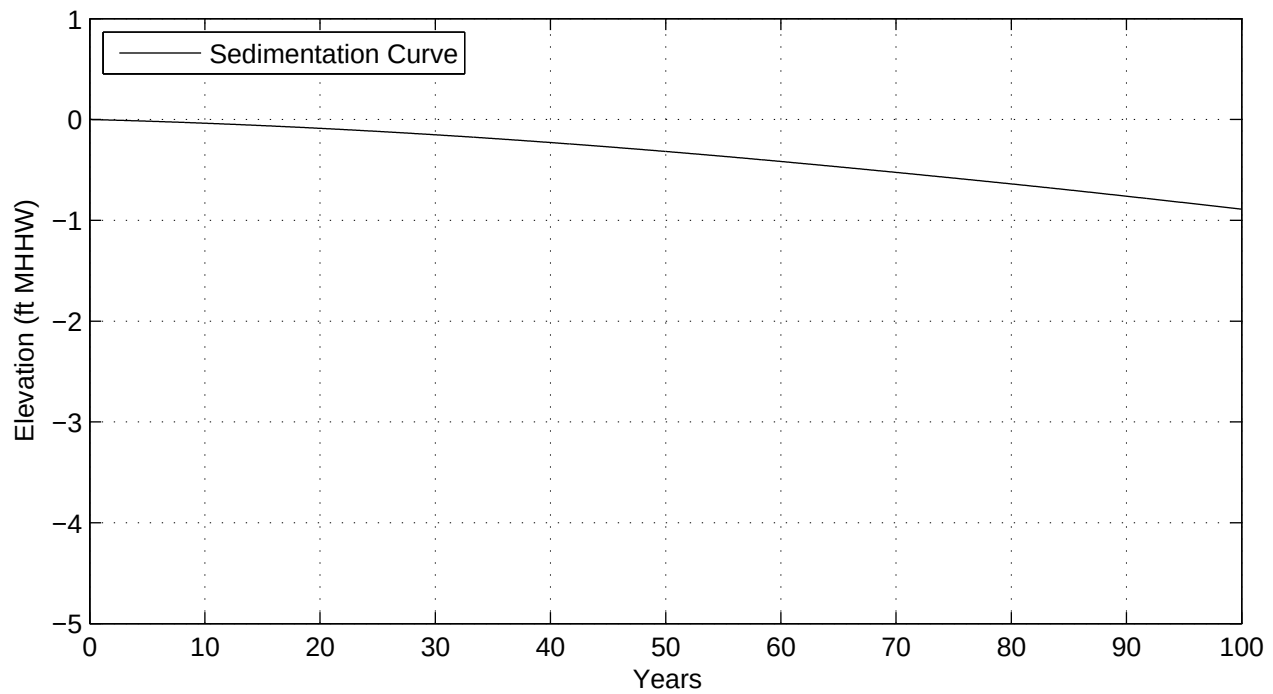
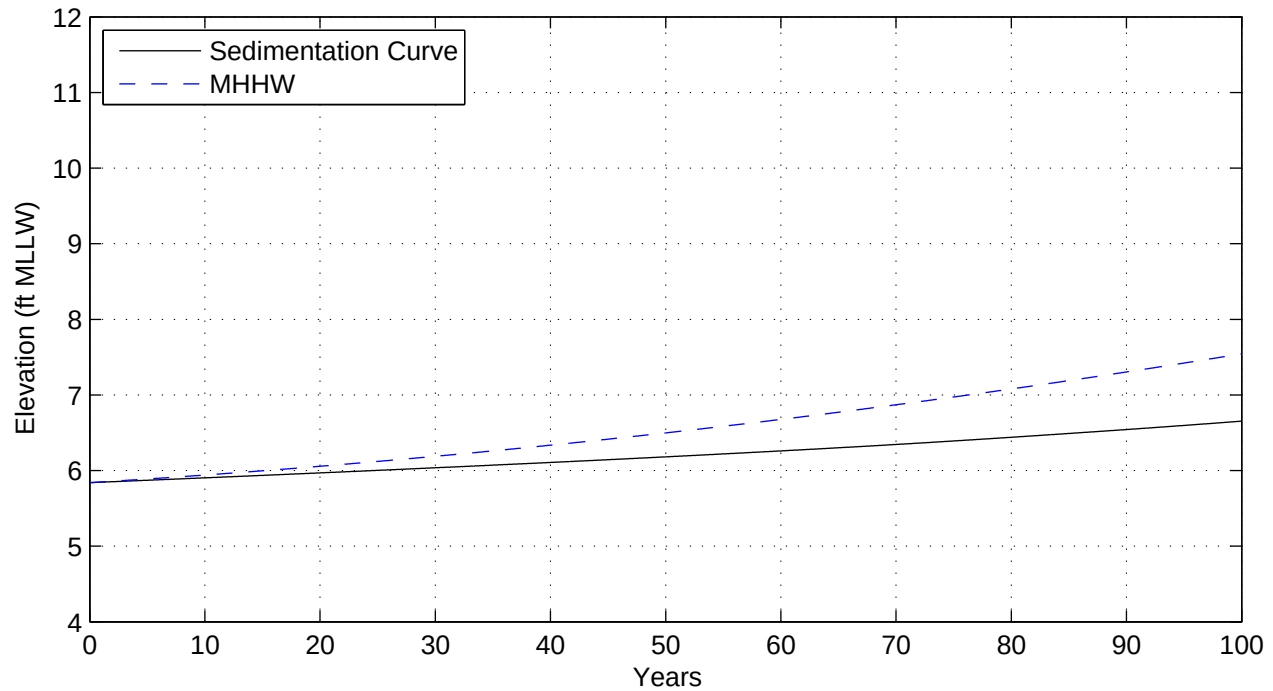
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Figure 5
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 5

PWA Ref# 1989





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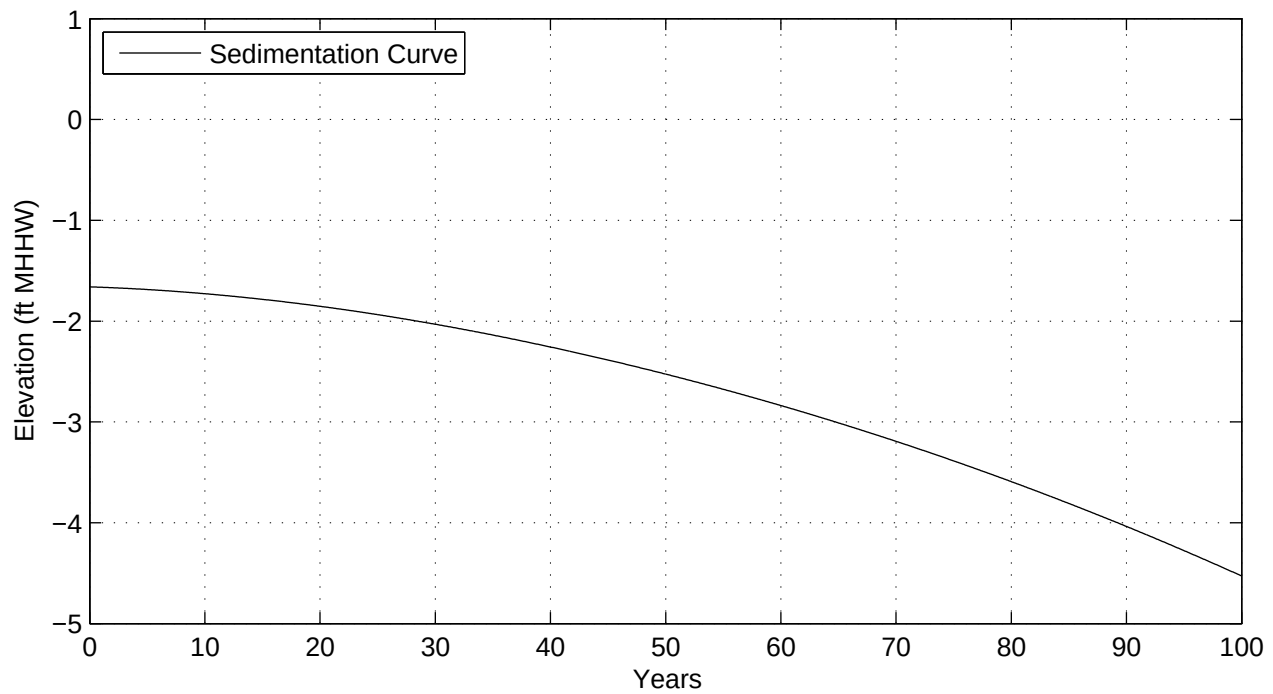
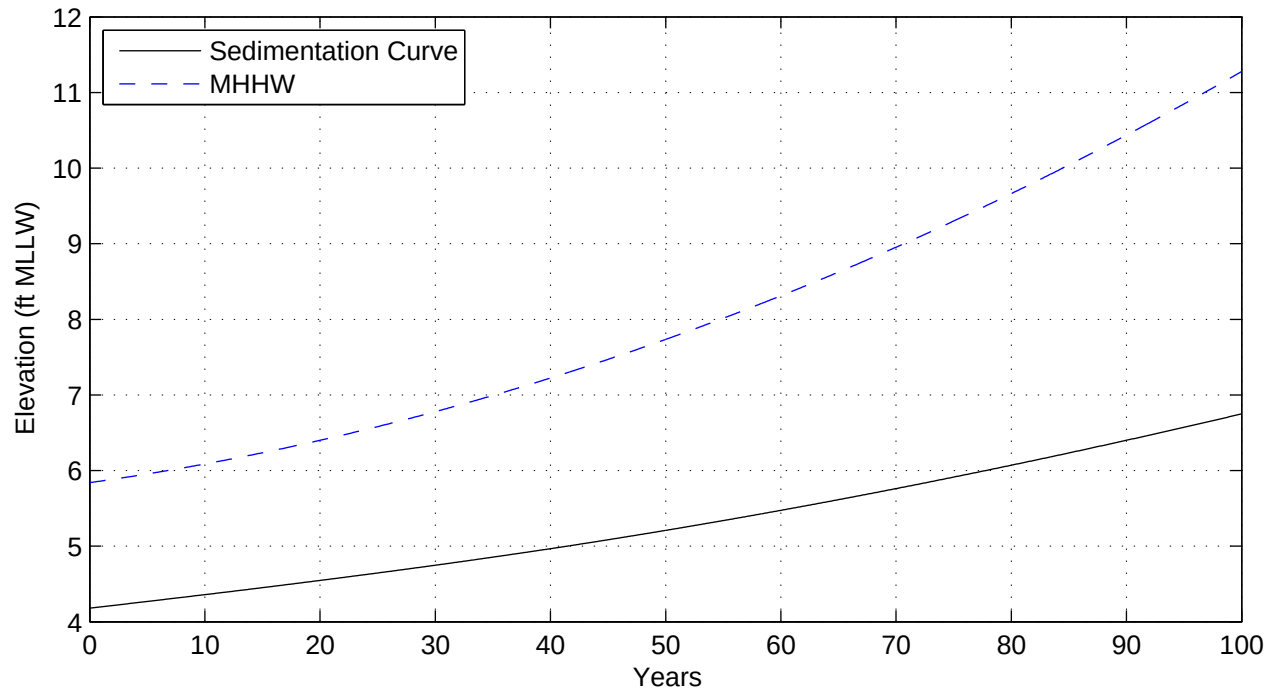
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 1.0 ft).

Figure 6
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Marsh98 Sedimentation Curves for Run 6

PWA Ref# 1989





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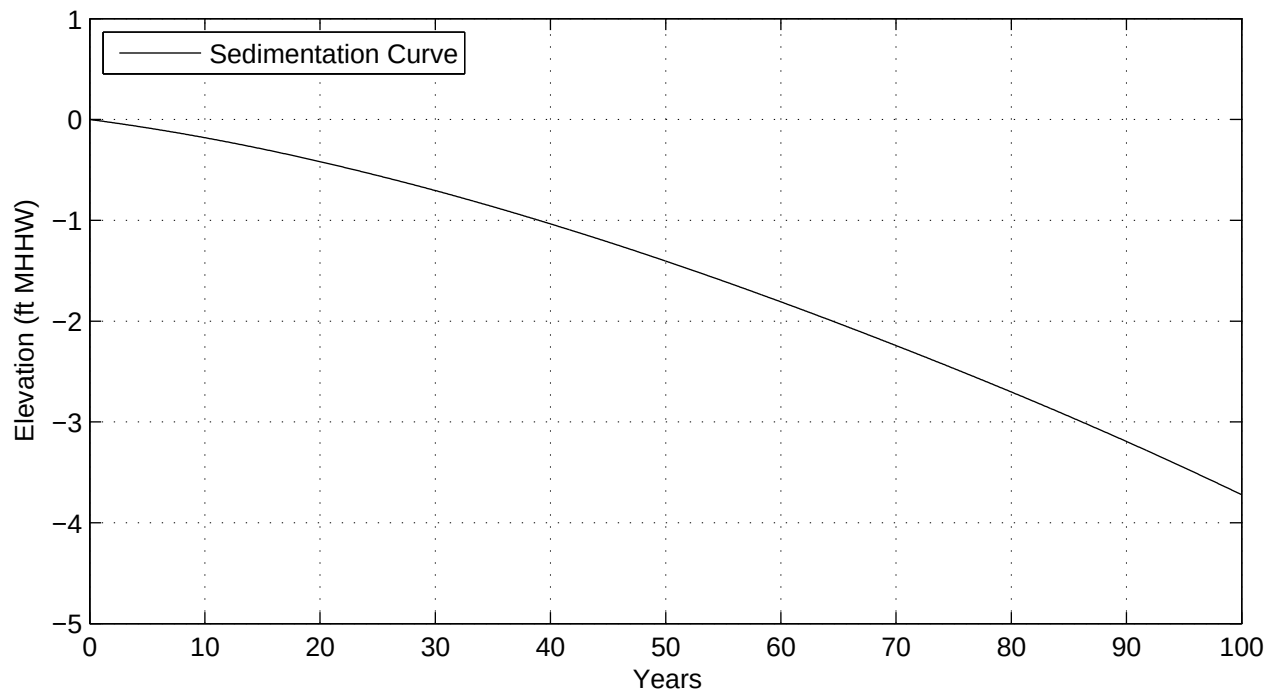
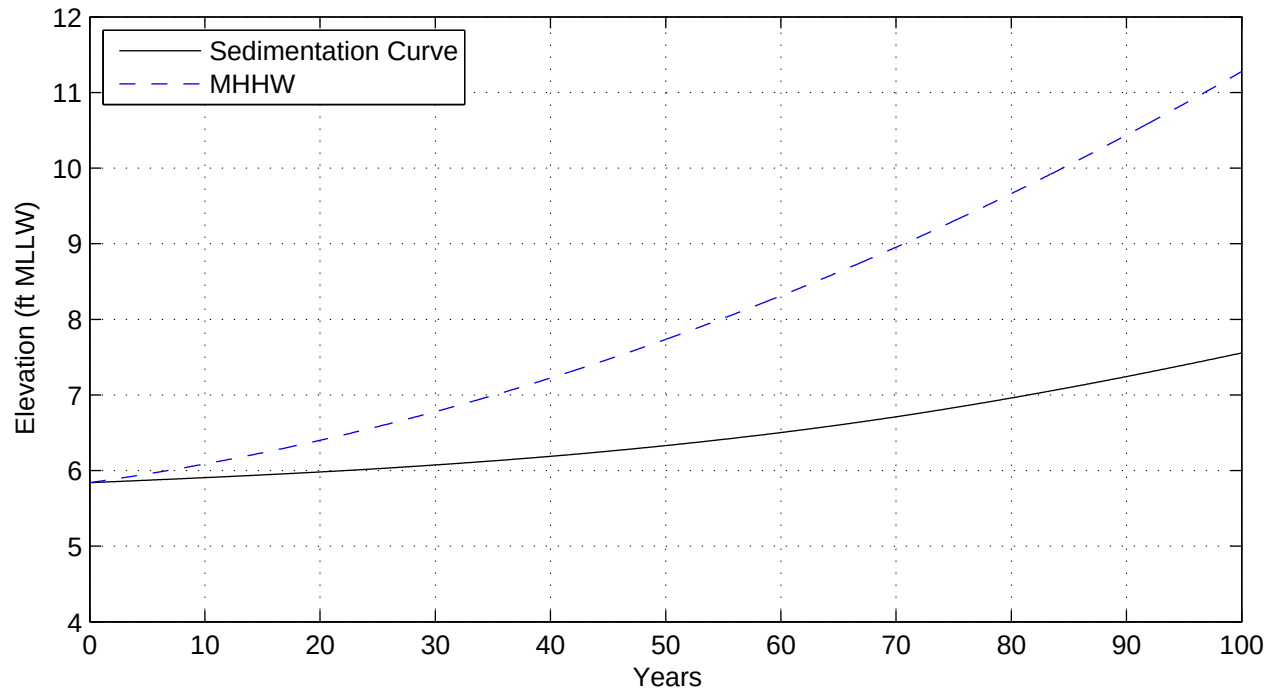
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Figure 7
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 7

PWA Ref# 1989





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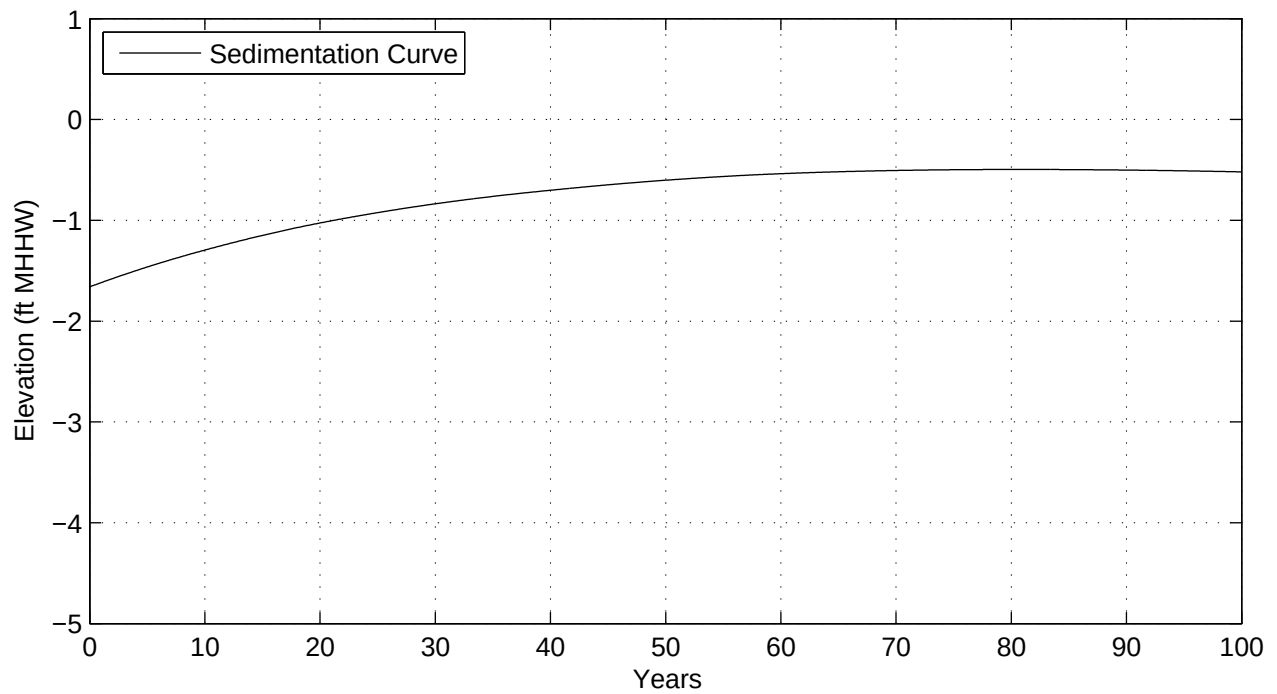
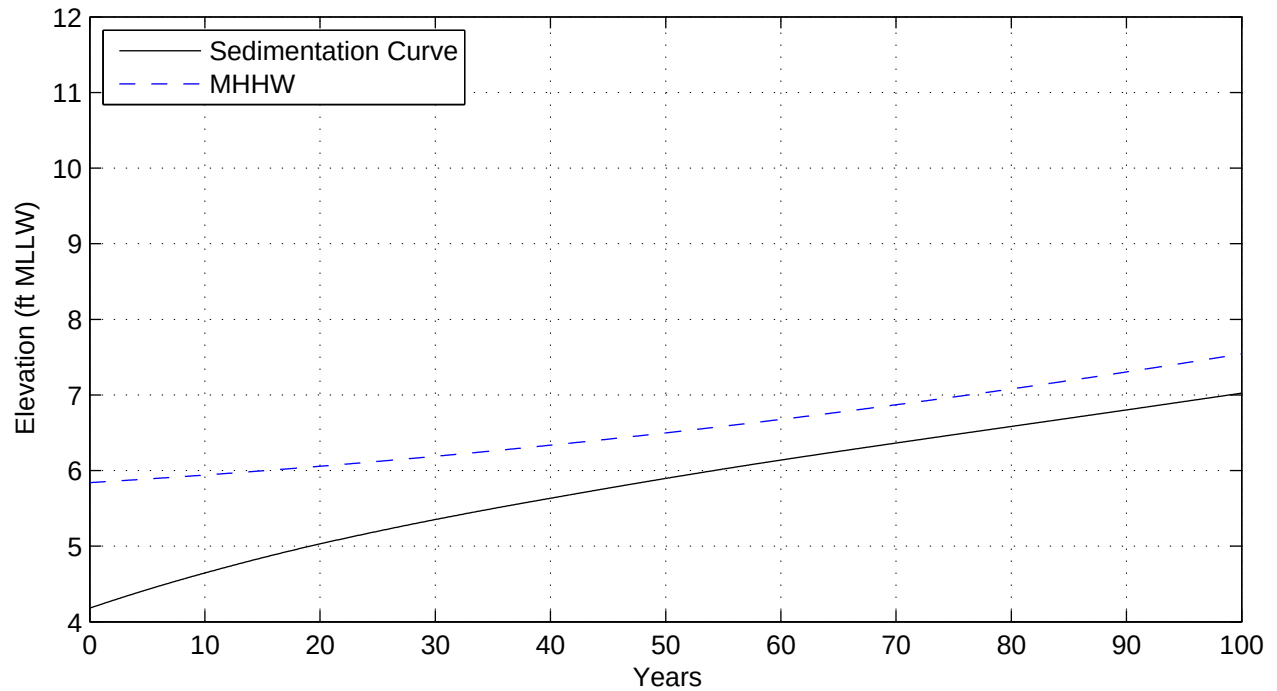
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 1.0 ft).

Figure 8
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 8

PWA Ref# 1989





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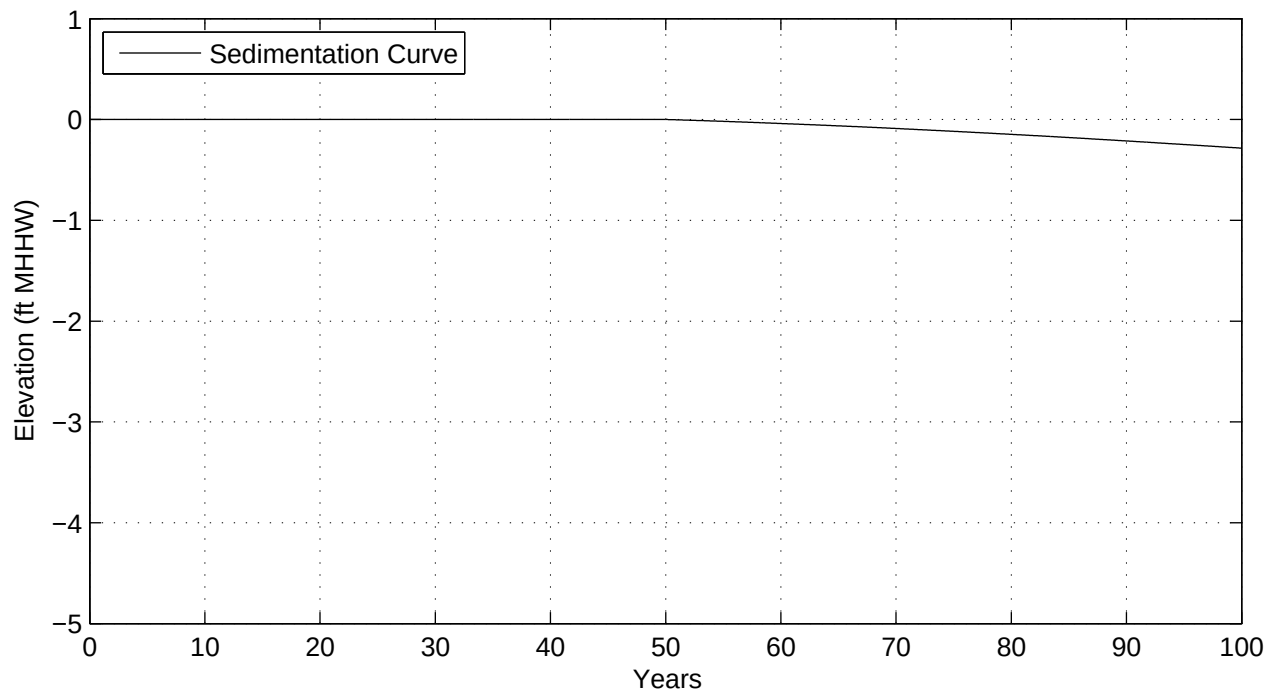
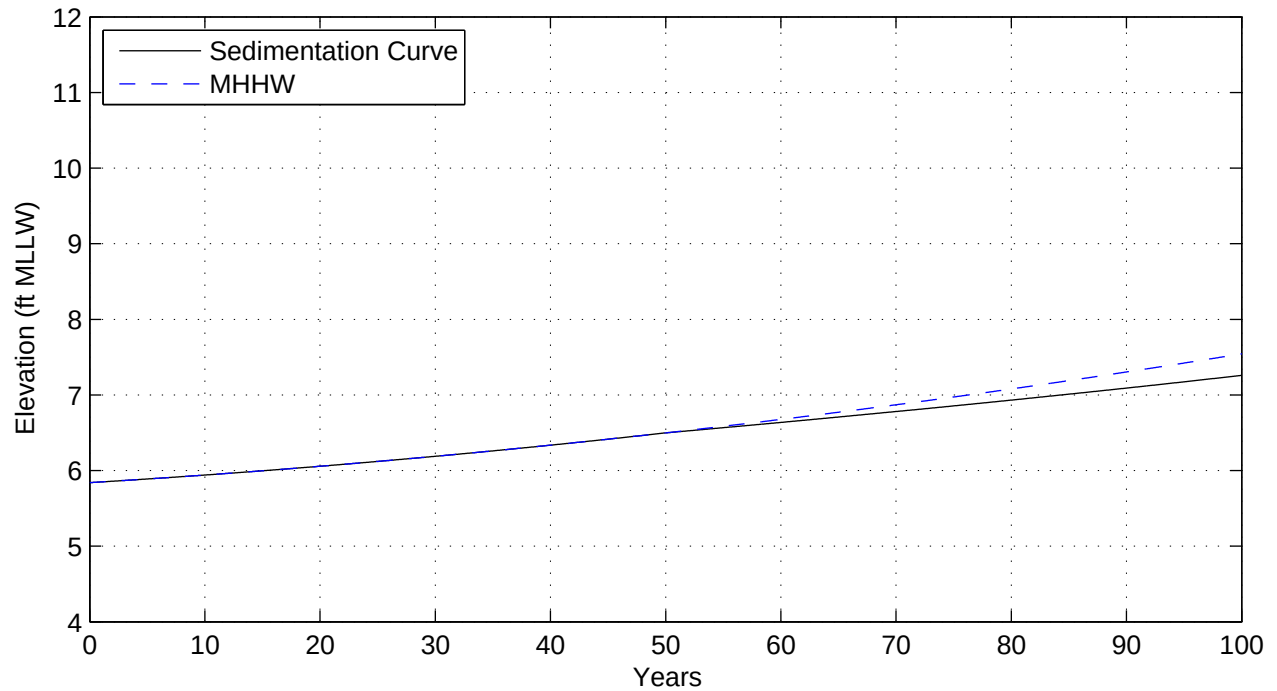
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Figure 9
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 9

PWA Ref# 1989





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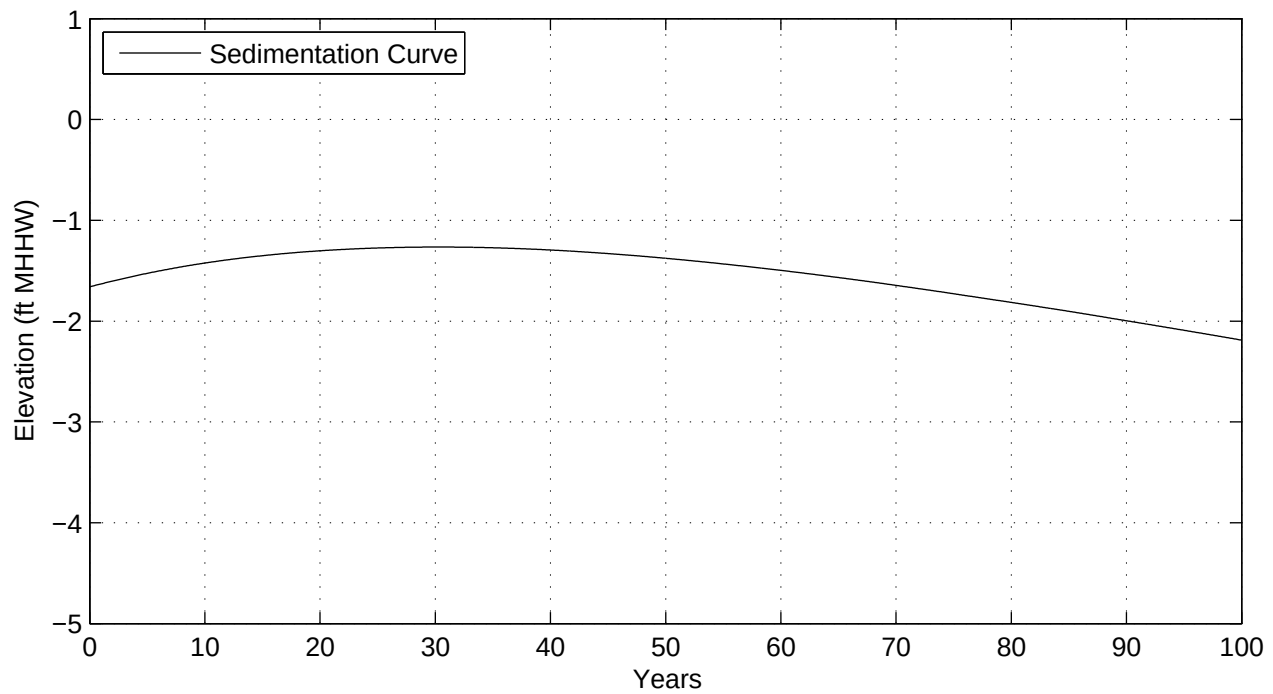
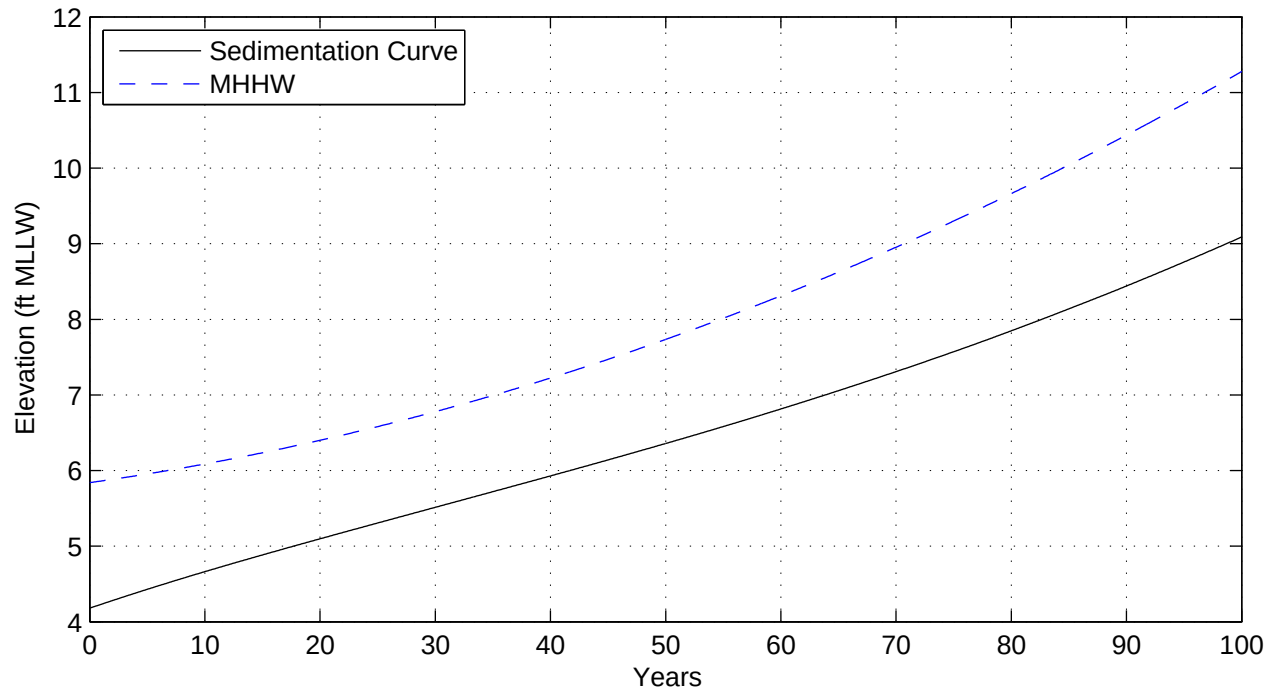
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 1.0 ft).

Figure 10
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 10

PWA Ref# 1989





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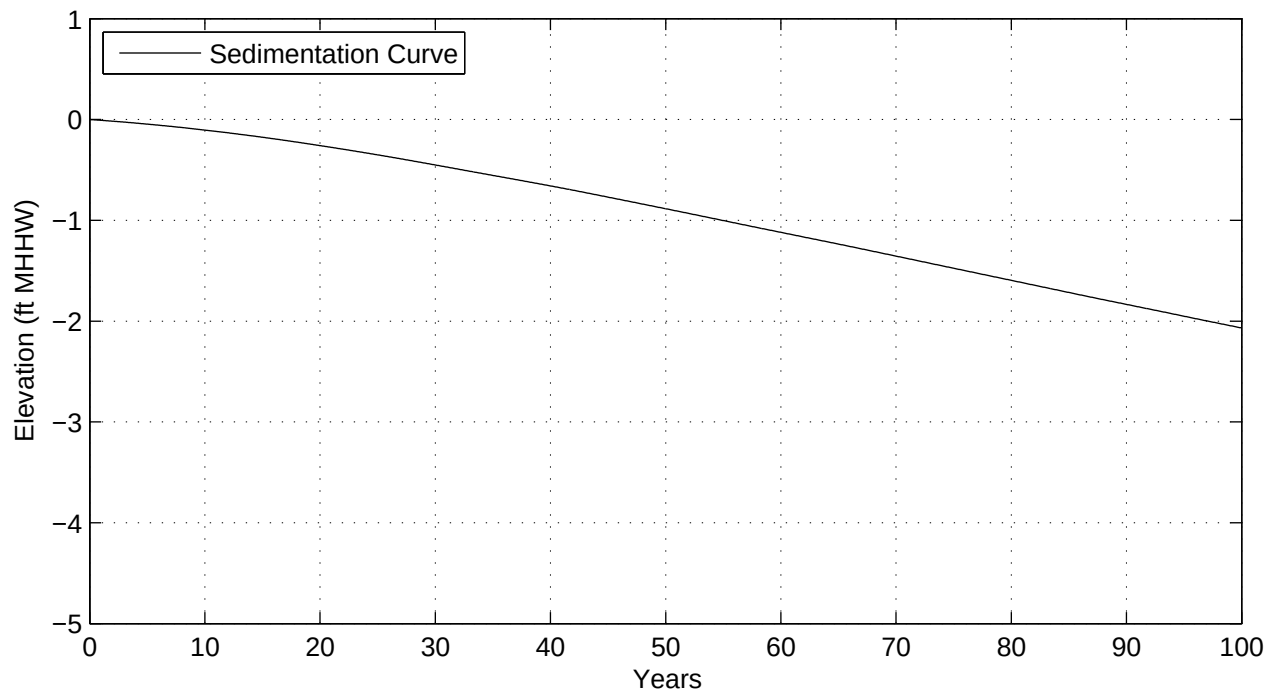
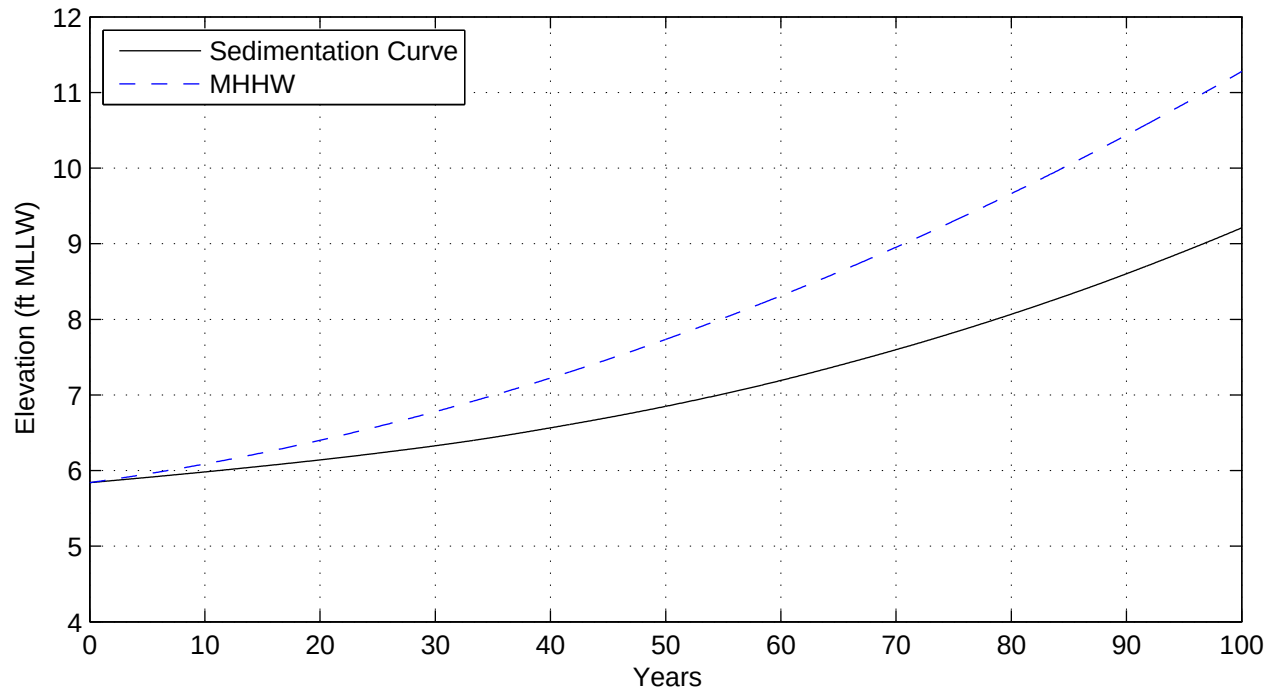
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 Co=100 mg/L. Organic rate=1.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 11
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 11

PWA Ref# 1989





Source:

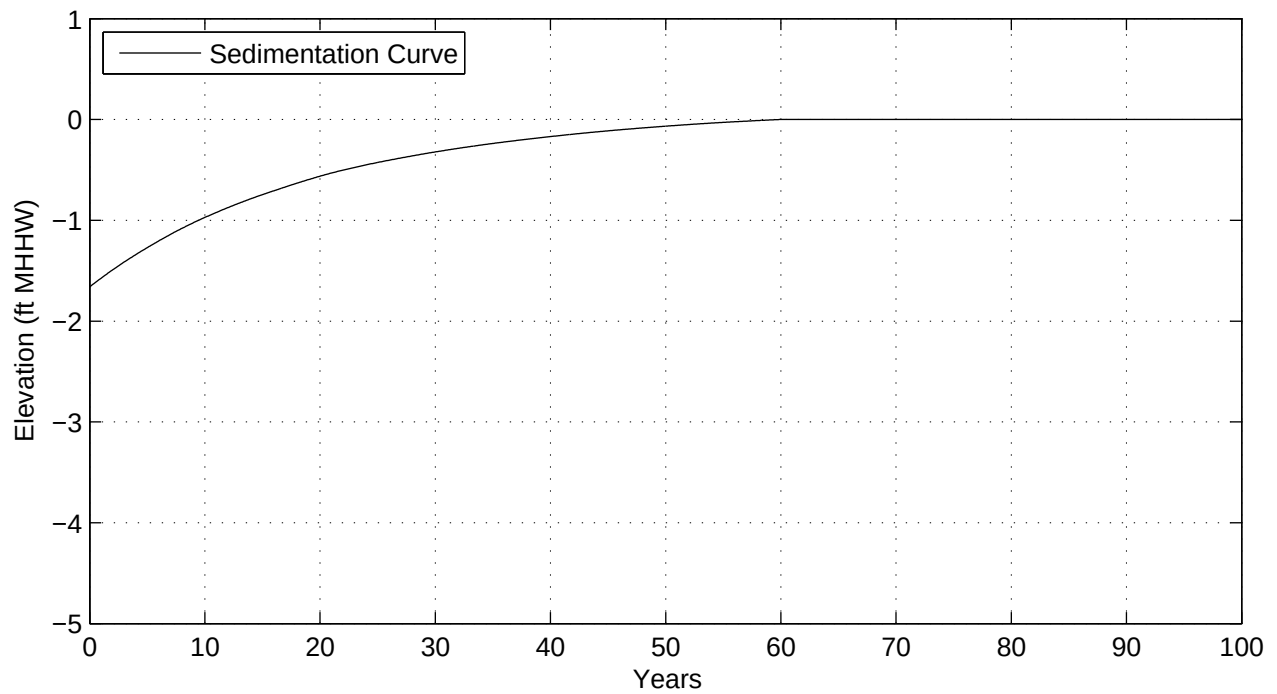
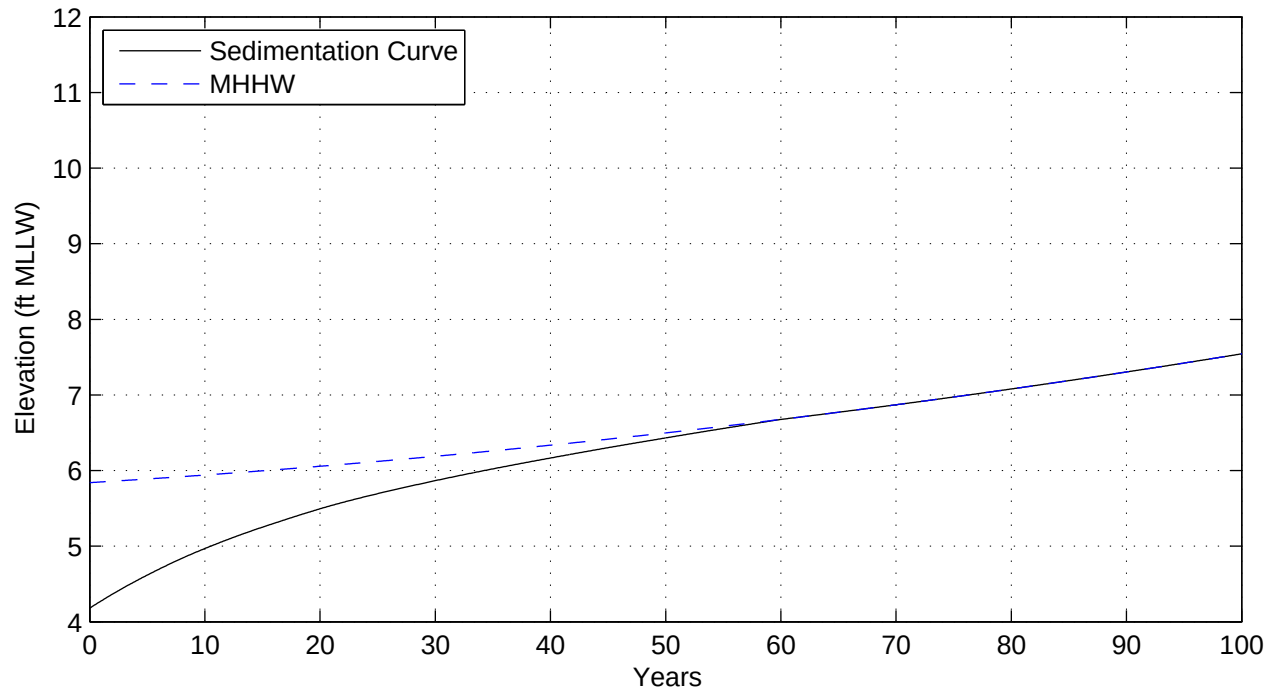
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 Co=100 mg/L. Organic rate=1.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 12
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 12

PWA Ref# 1989





Source:

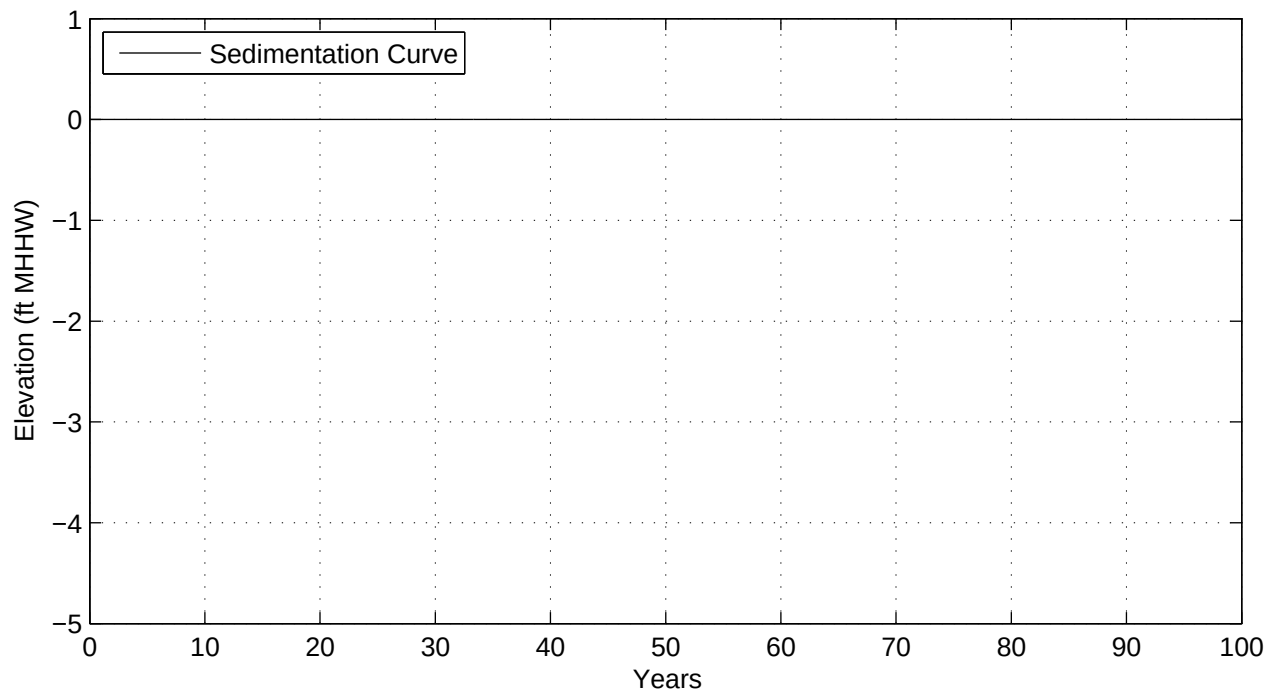
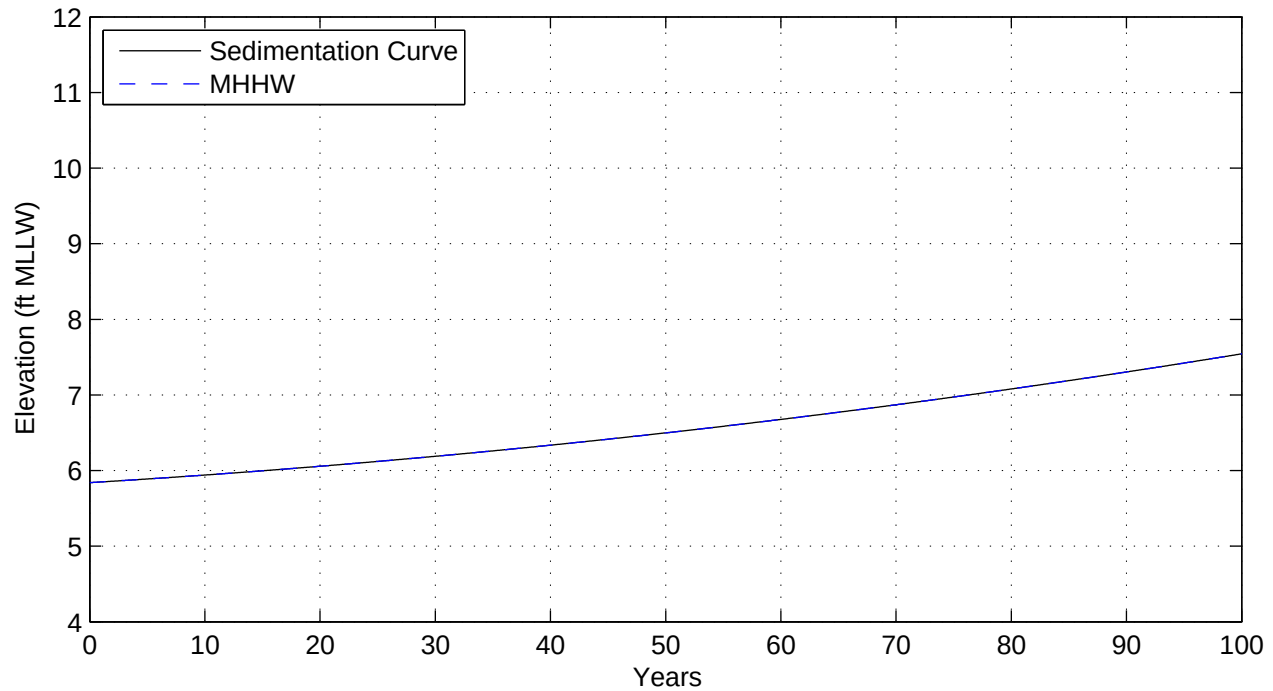
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 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 13
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 13

PWA Ref# 1989





Source:

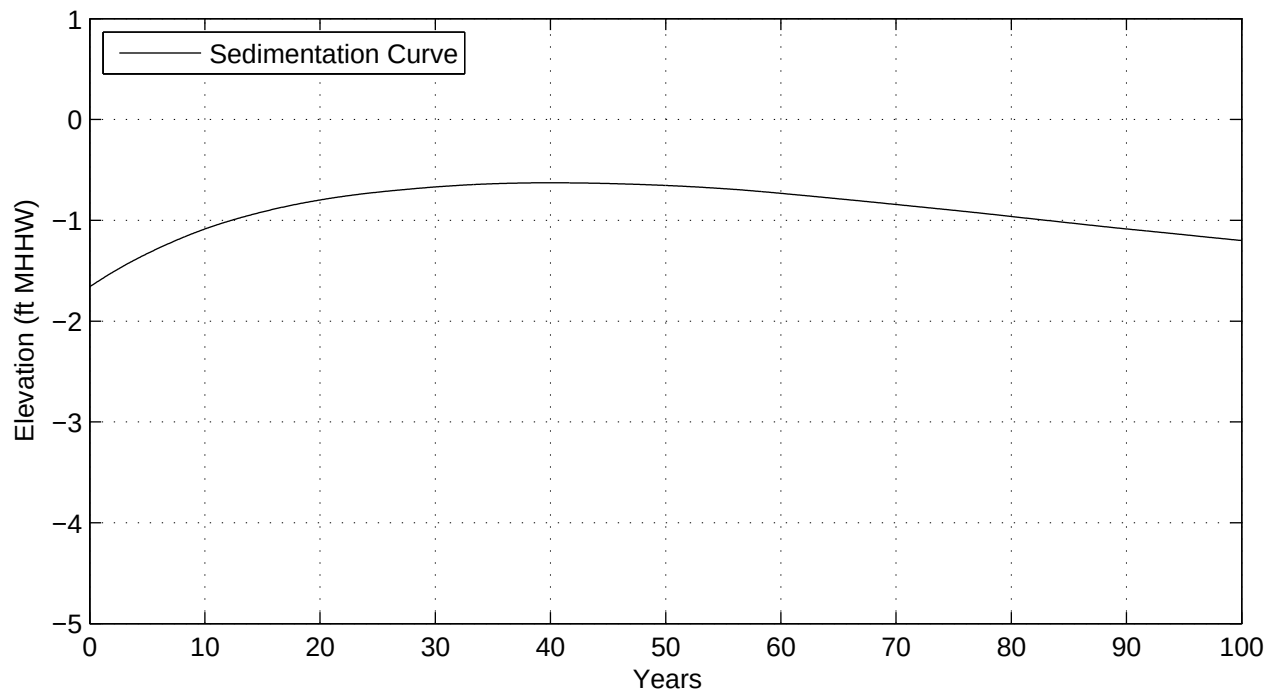
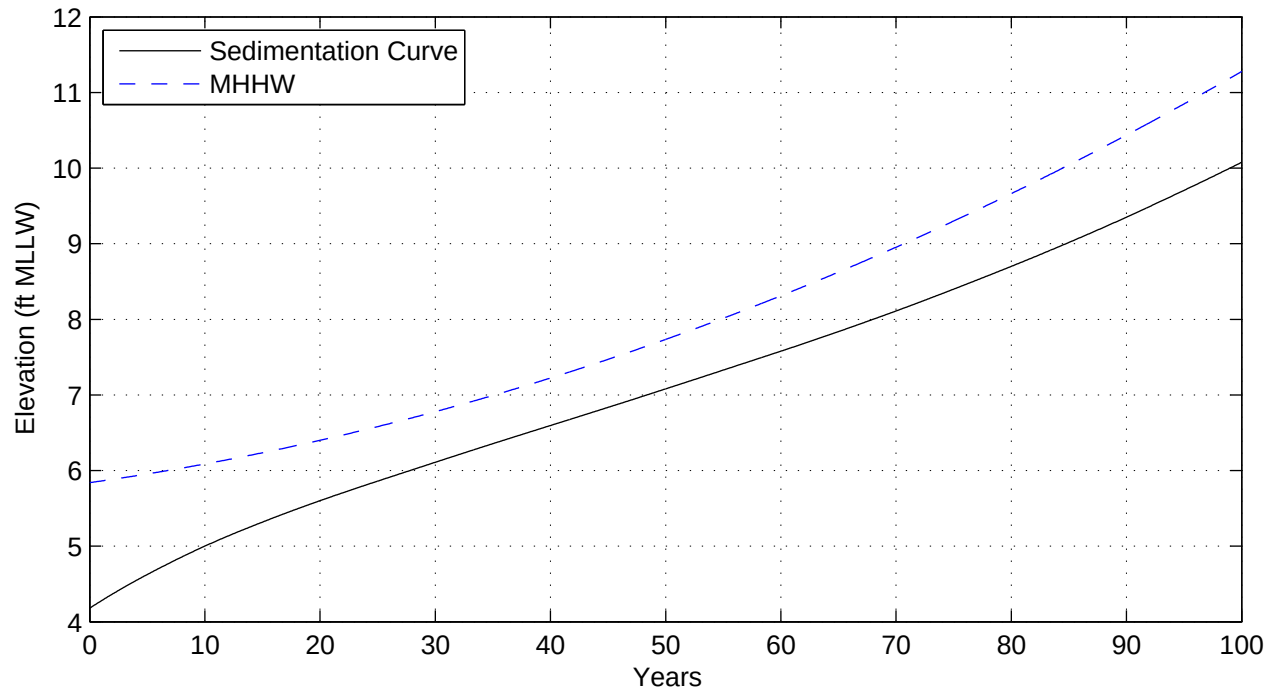
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Co=150 mg/L. Organic rate=1.0 mm/yr. Starting elevation at
Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

Figure 14
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 14

PWA Ref# 1989





Source:

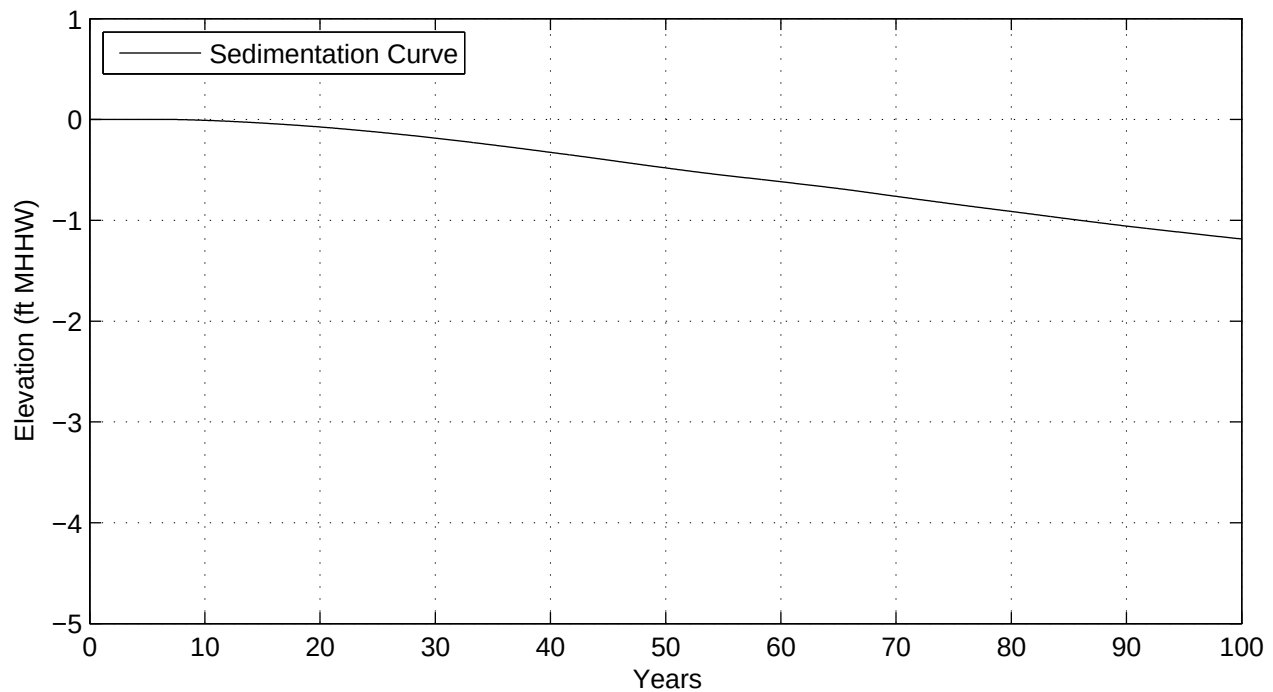
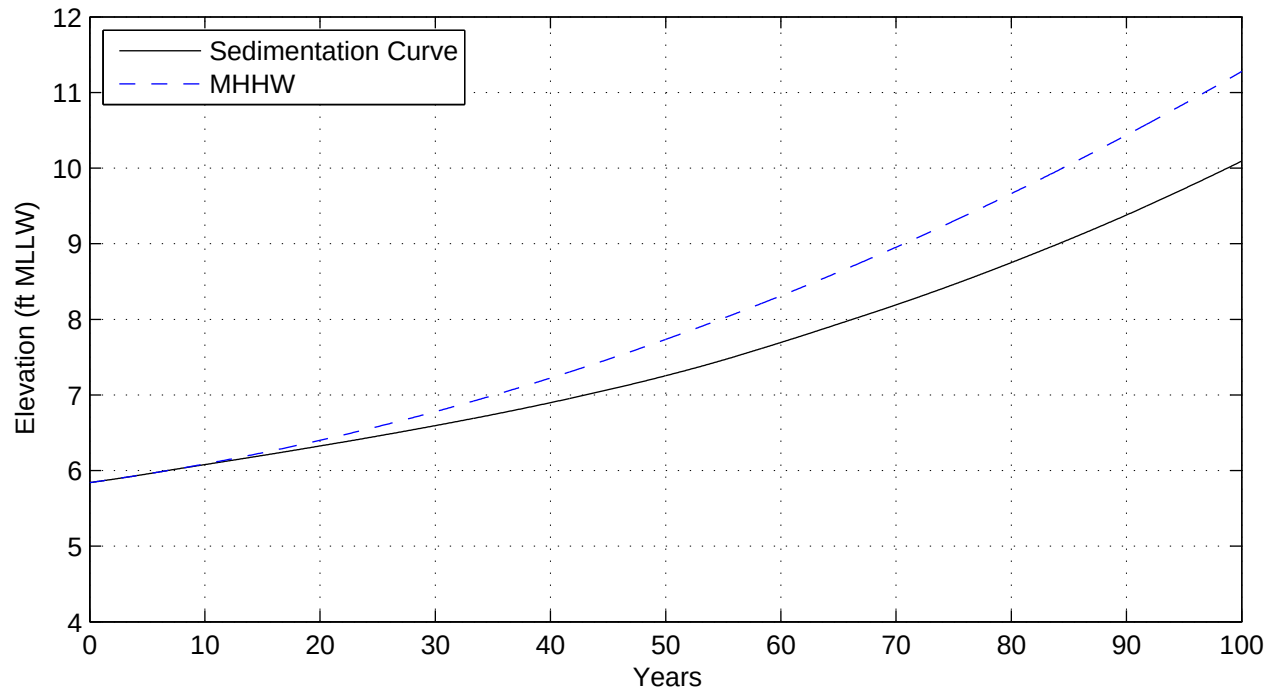
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $Co=150$ mg/L. Organic rate=1.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 15
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 15

PWA Ref# 1989





Source:

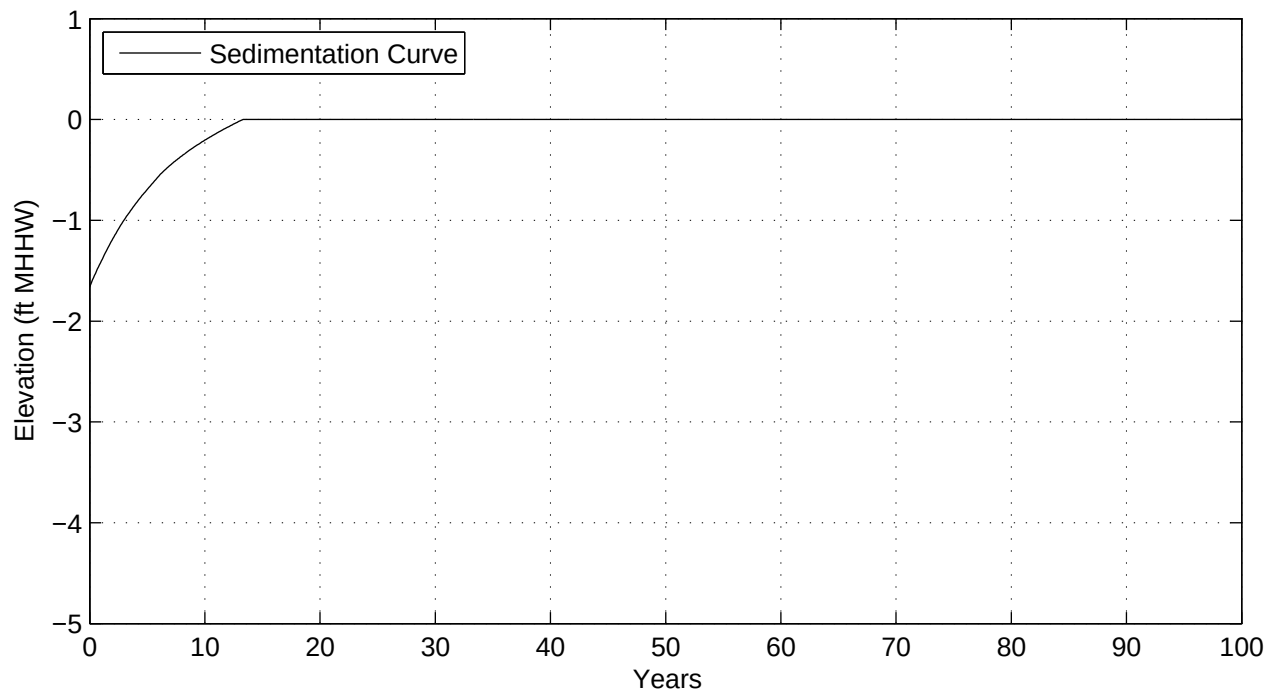
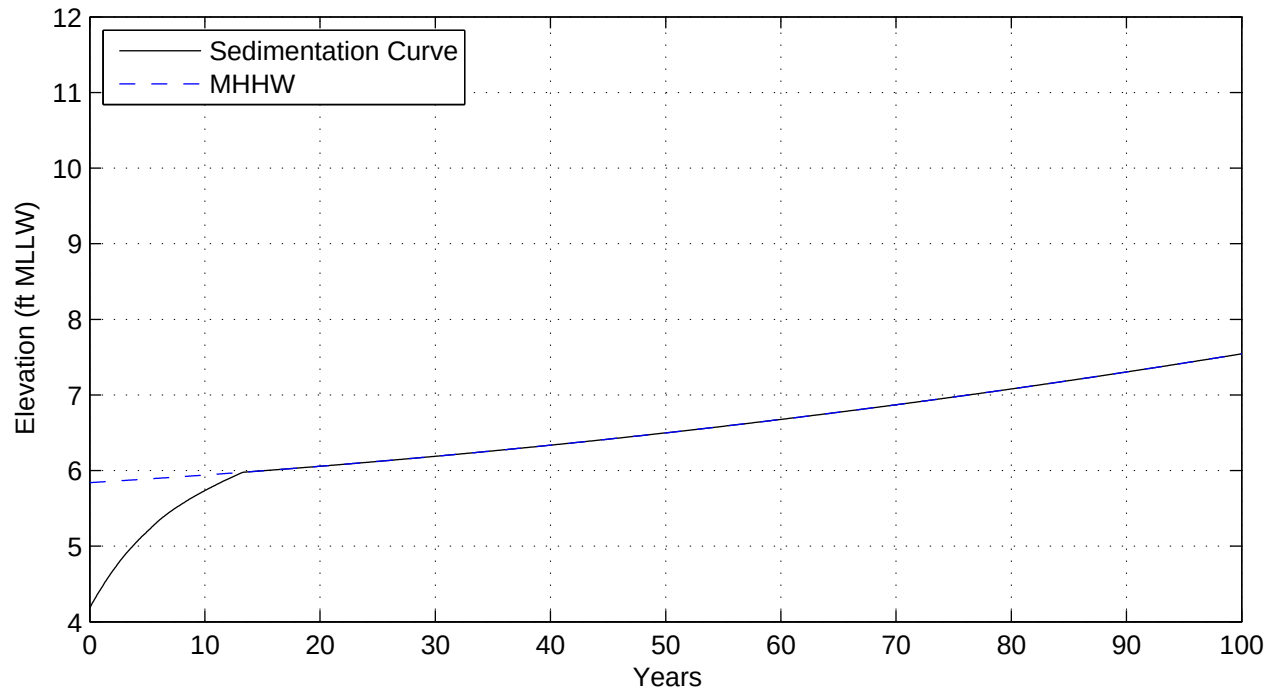
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 Co=150 mg/L. Organic rate=1.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 16
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 16

PWA Ref# 1989





Source:

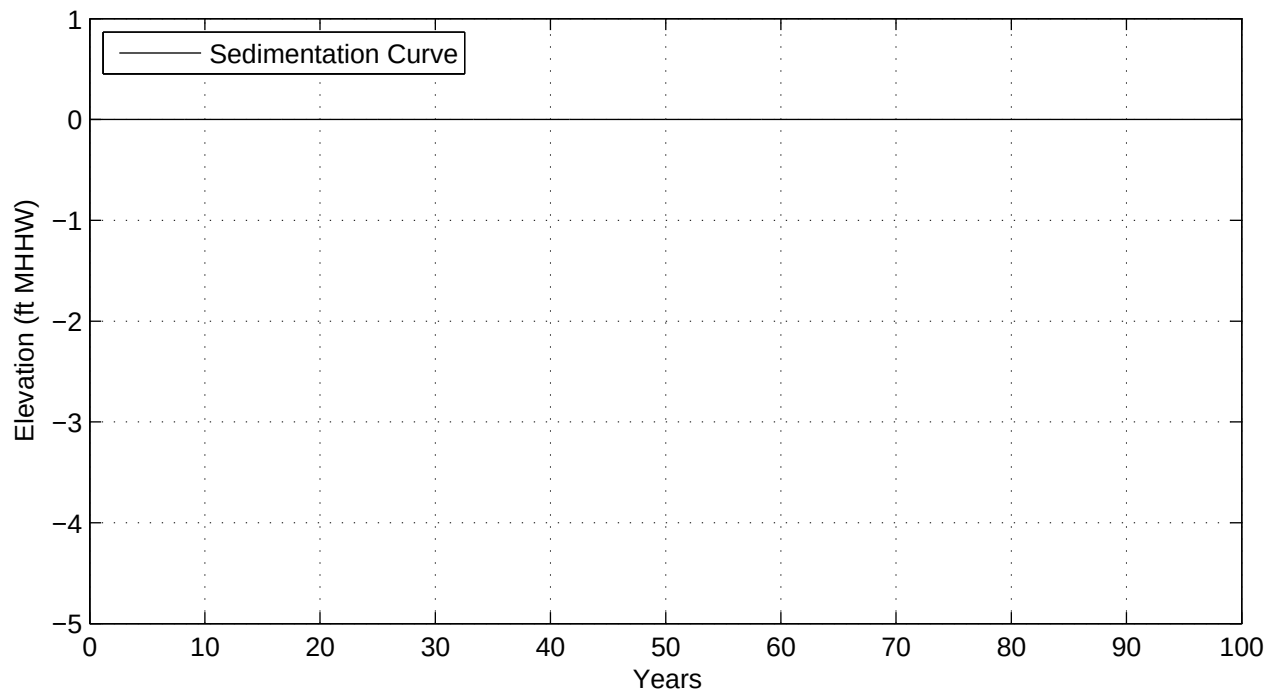
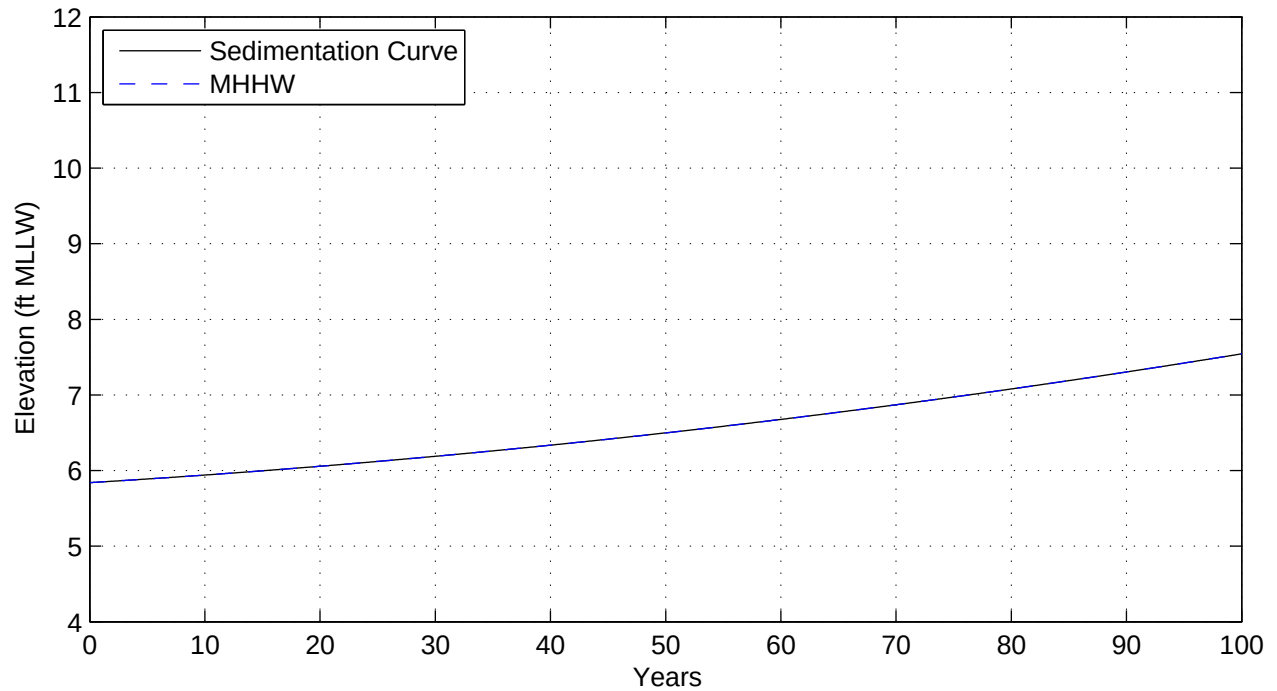
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=300$ mg/L. Organic rate=1.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 17
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 17

PWA Ref# 1989





Source:

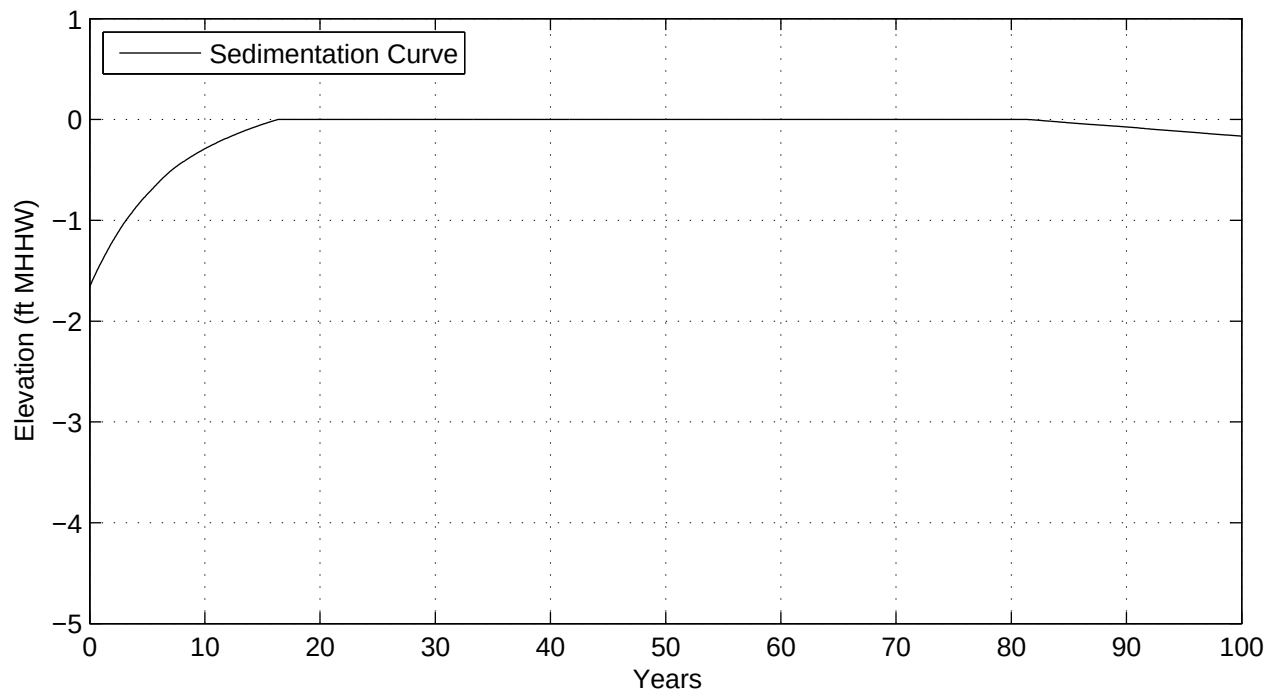
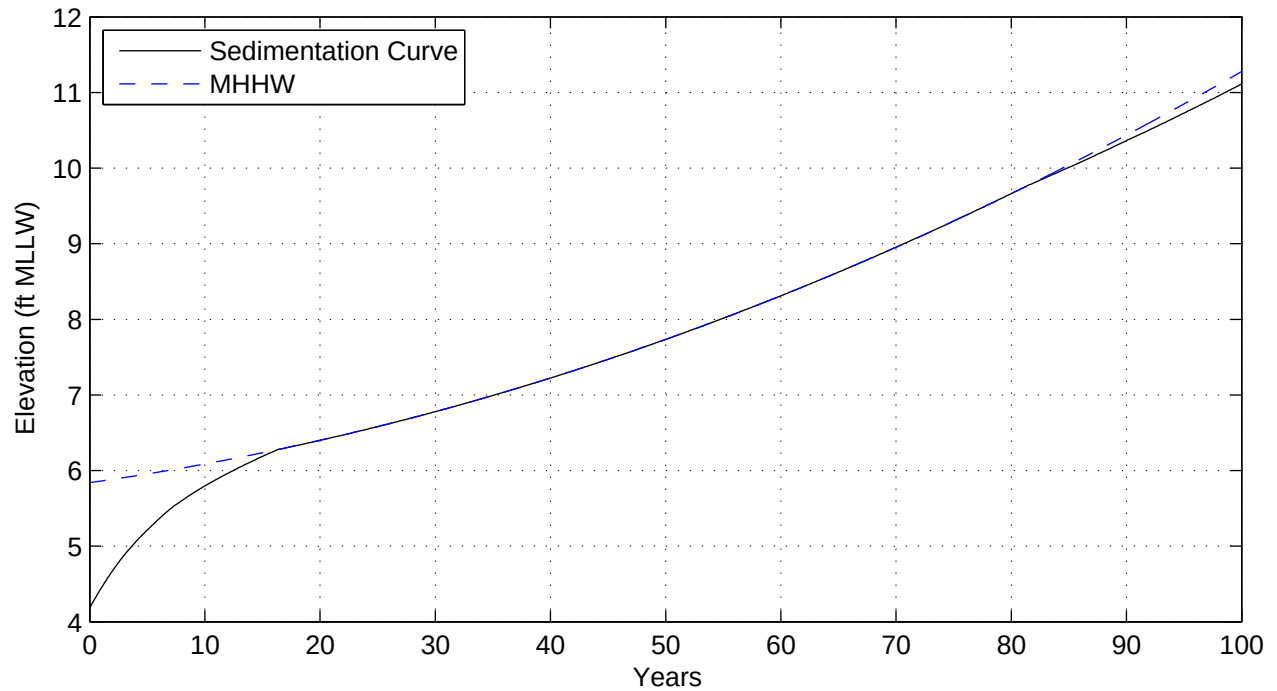
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=300$ mg/L. Organic rate=1.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 18
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 18

PWA Ref# 1989





Source:

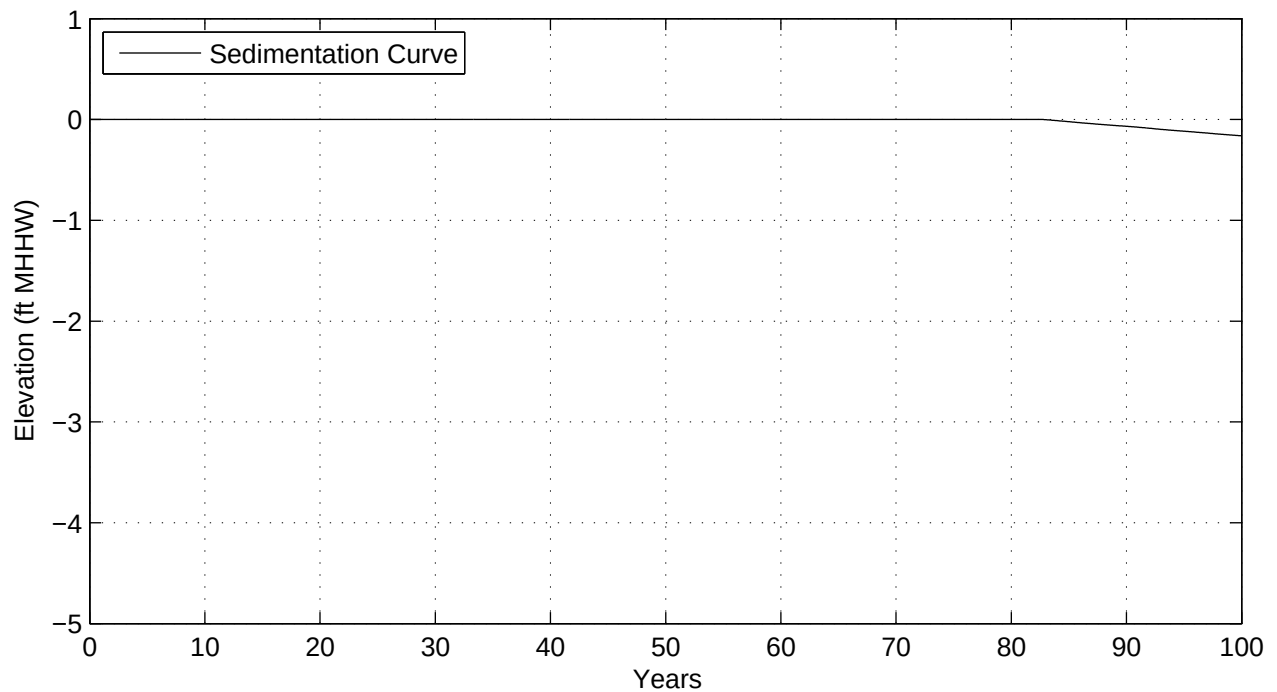
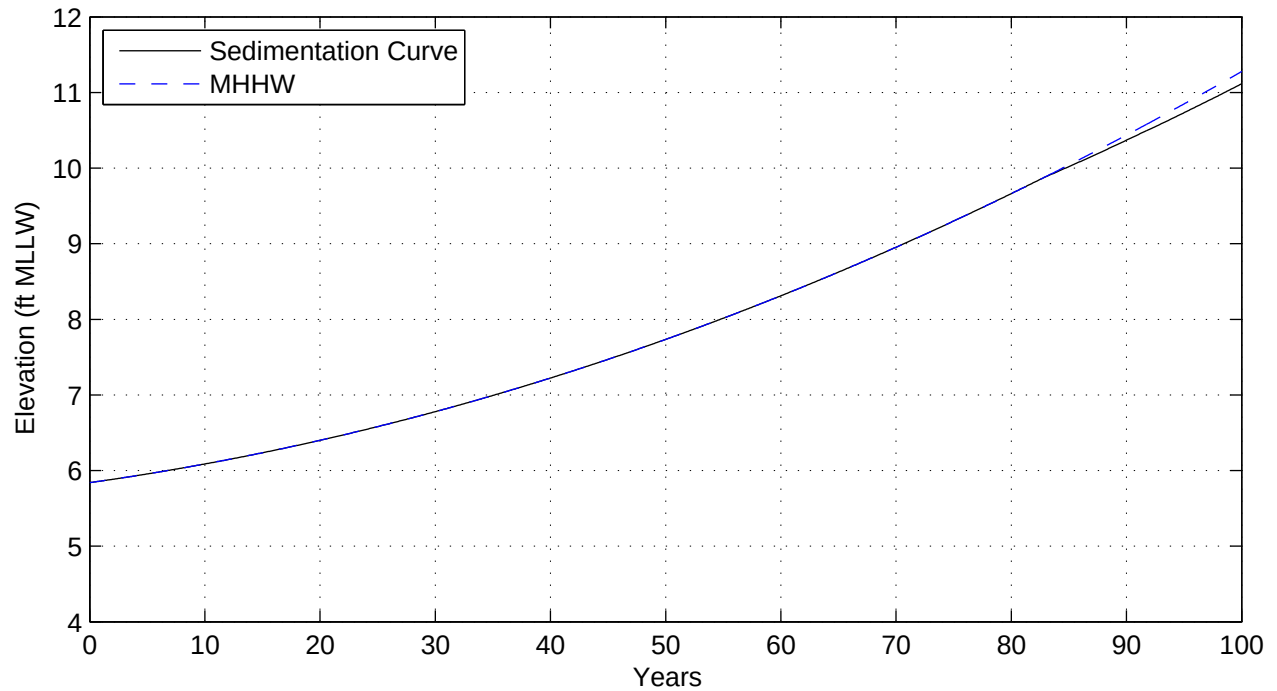
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
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 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 19
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 19

PWA Ref# 1989





Source:

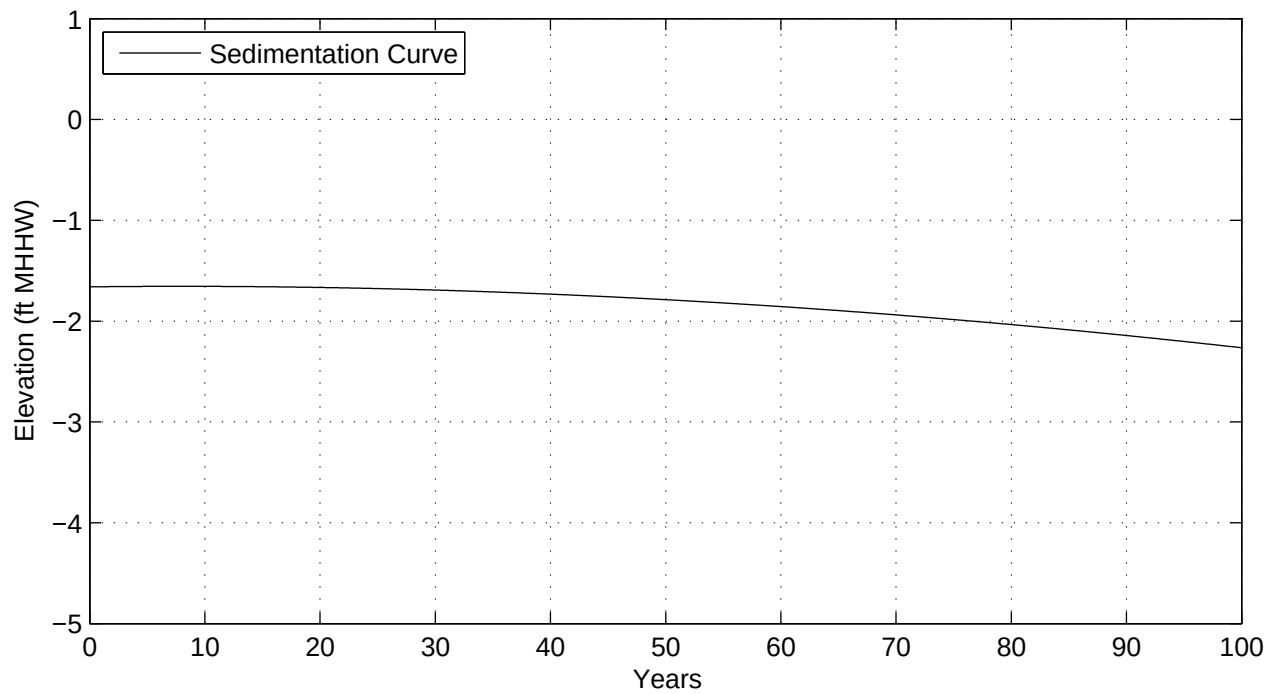
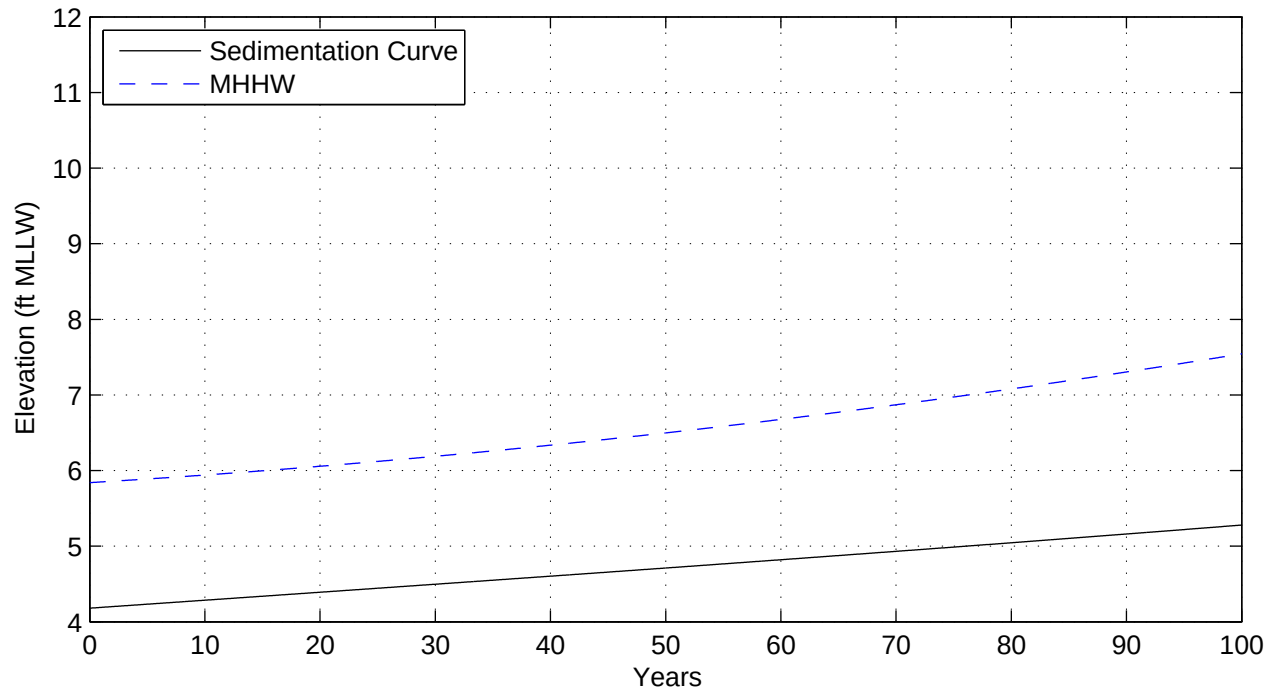
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=300$ mg/L. Organic rate=1.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 20
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 20

PWA Ref# 1989





Source:

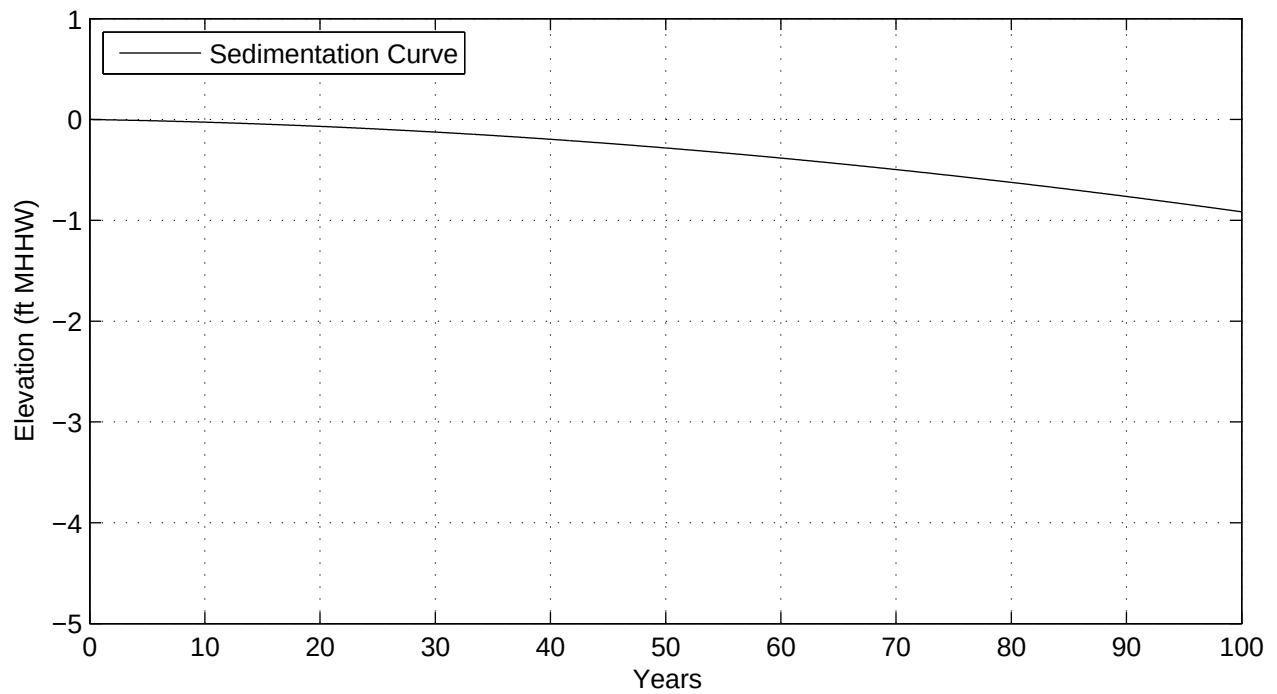
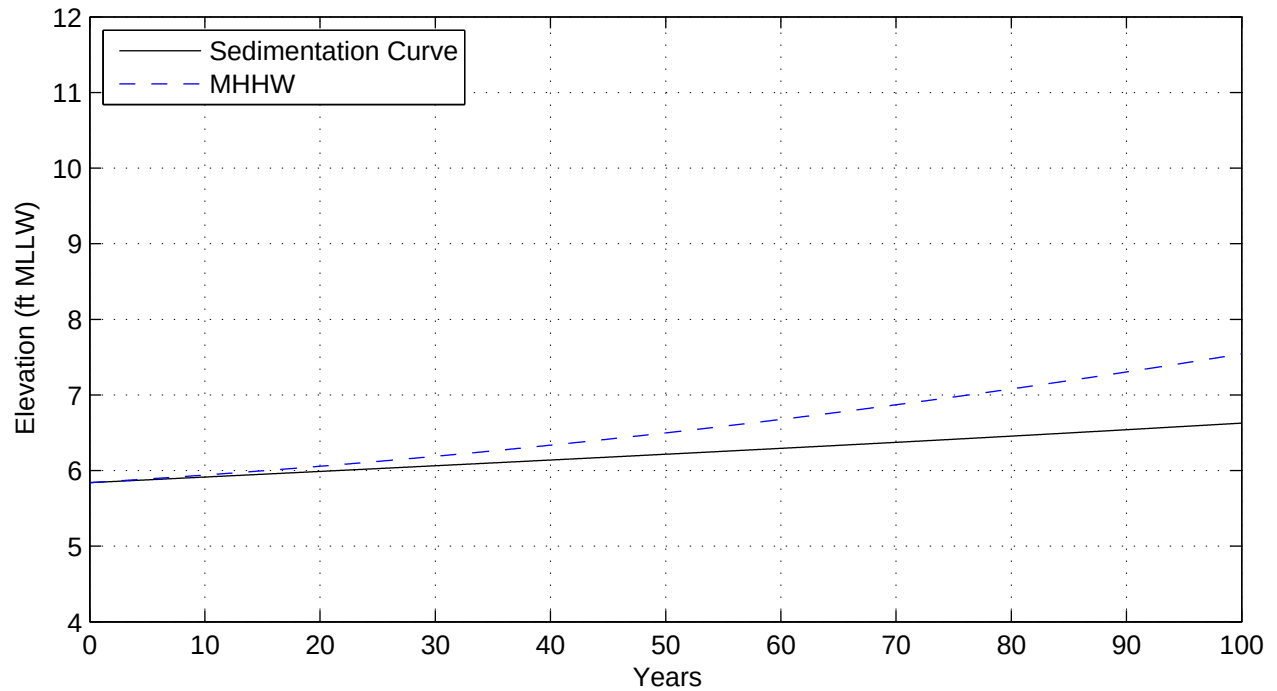
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=25$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 21
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 21

PWA Ref# 1989





Source:

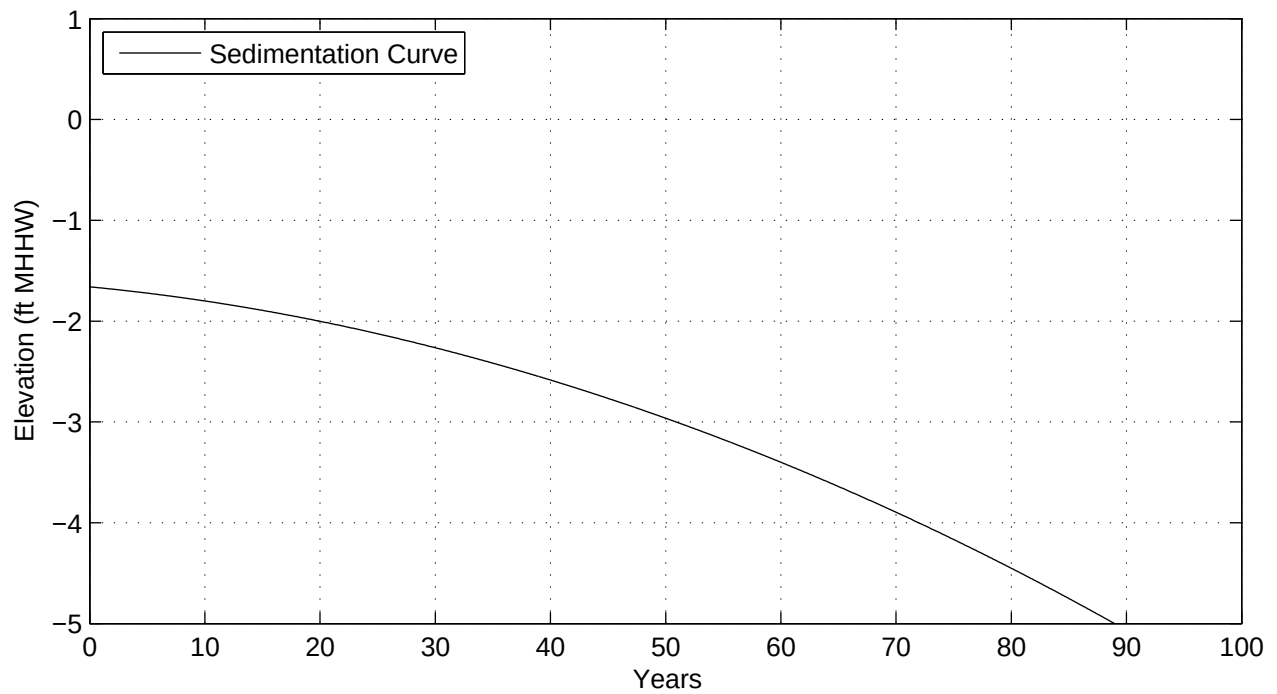
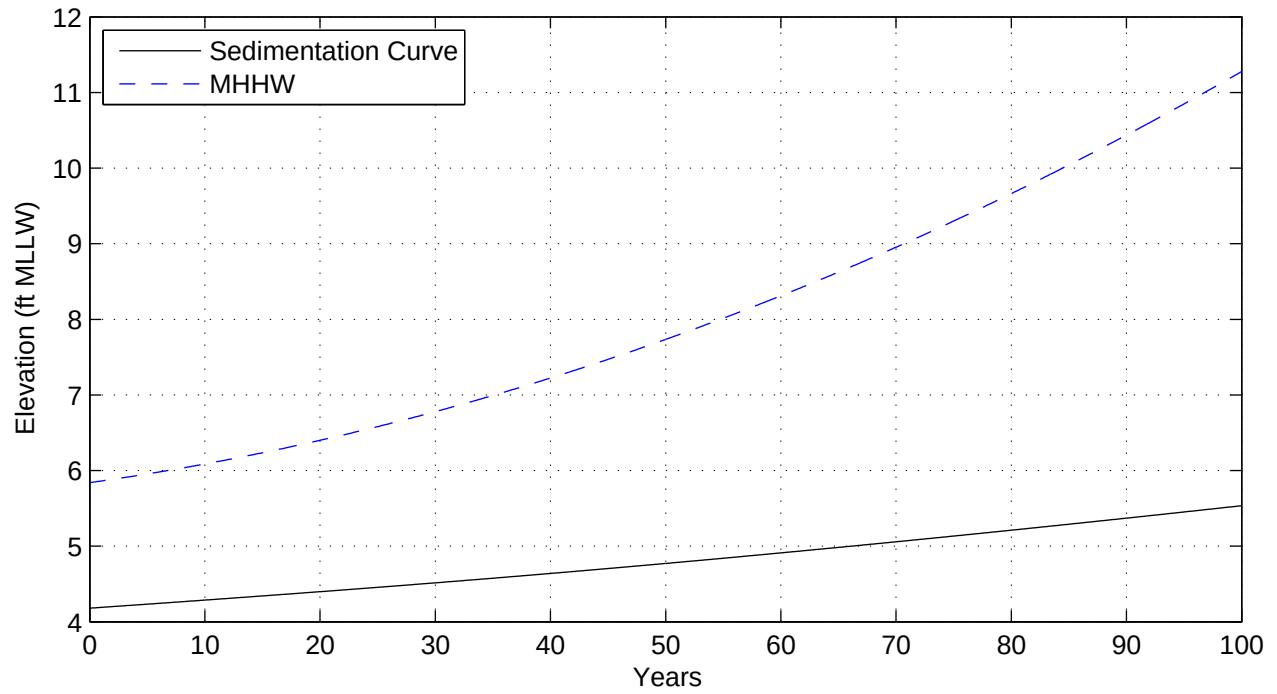
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=25$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 22
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 22

PWA Ref# 1989





Source:

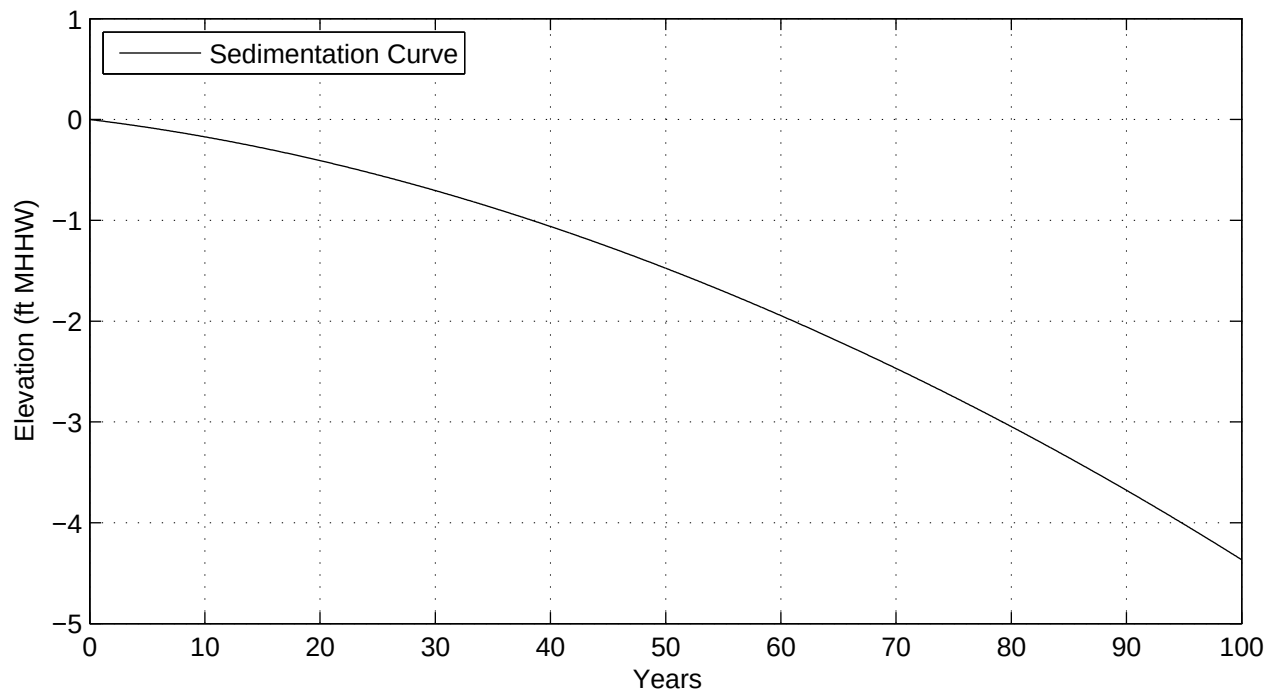
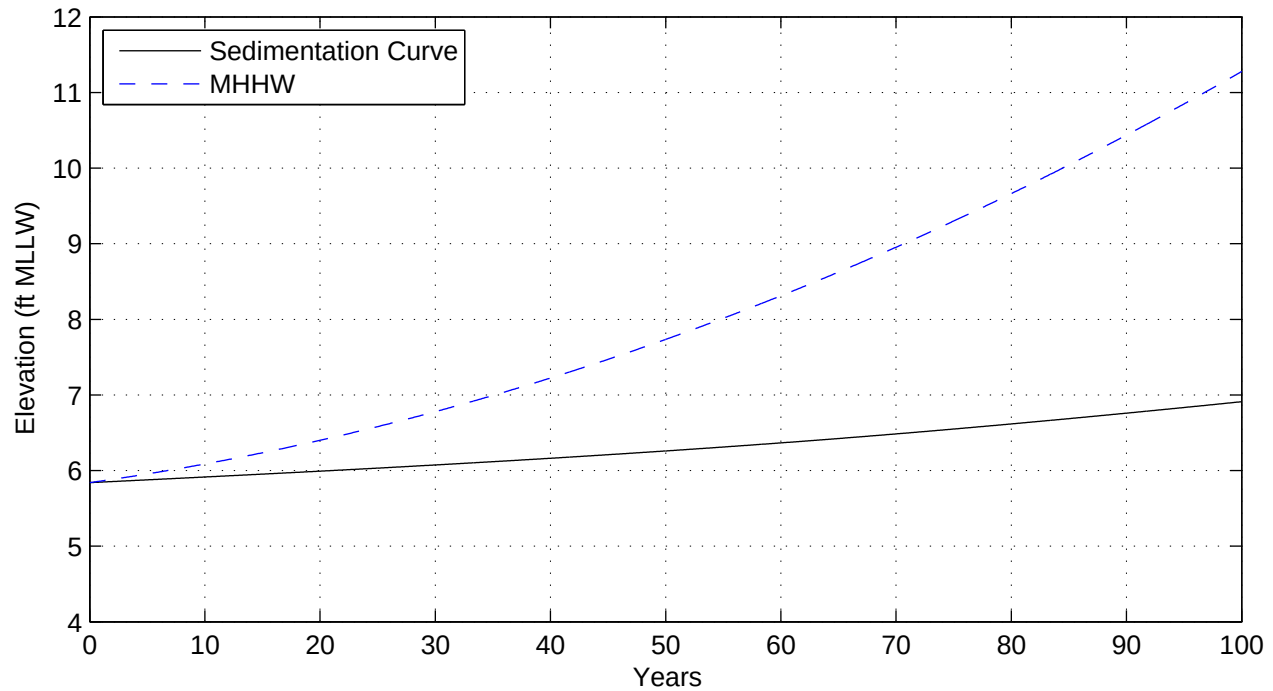
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=25$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 23
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 23

PWA Ref# 1989





Source:

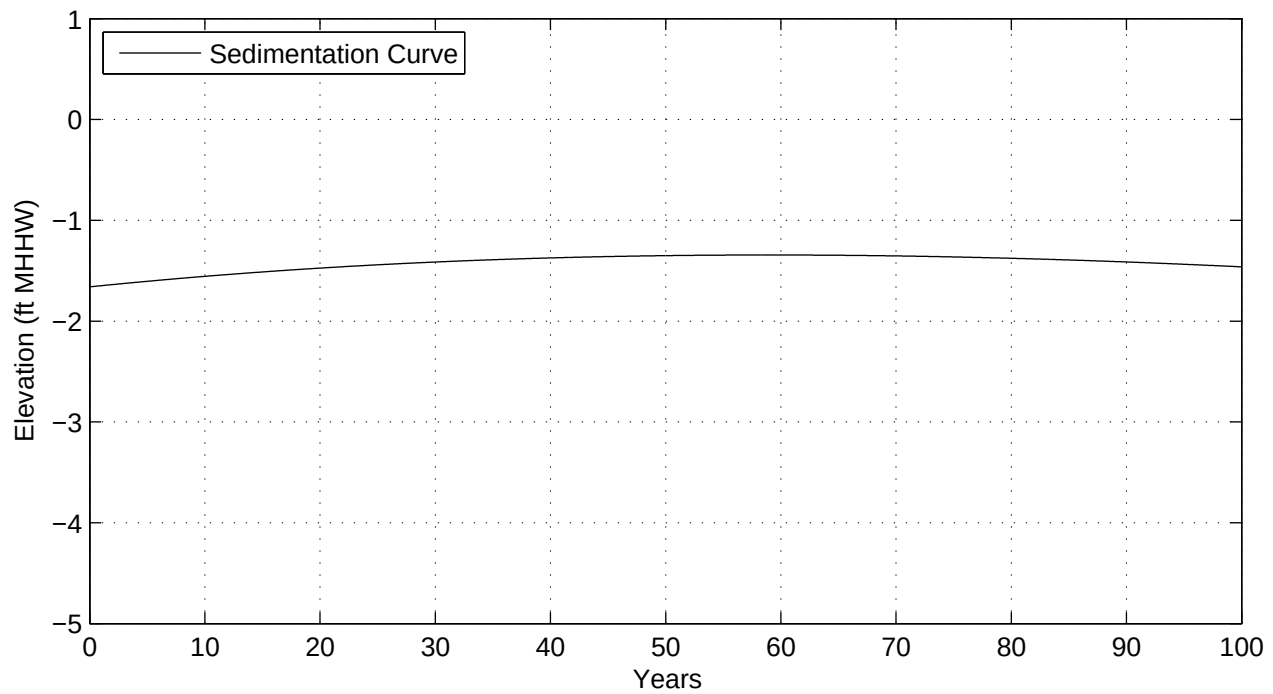
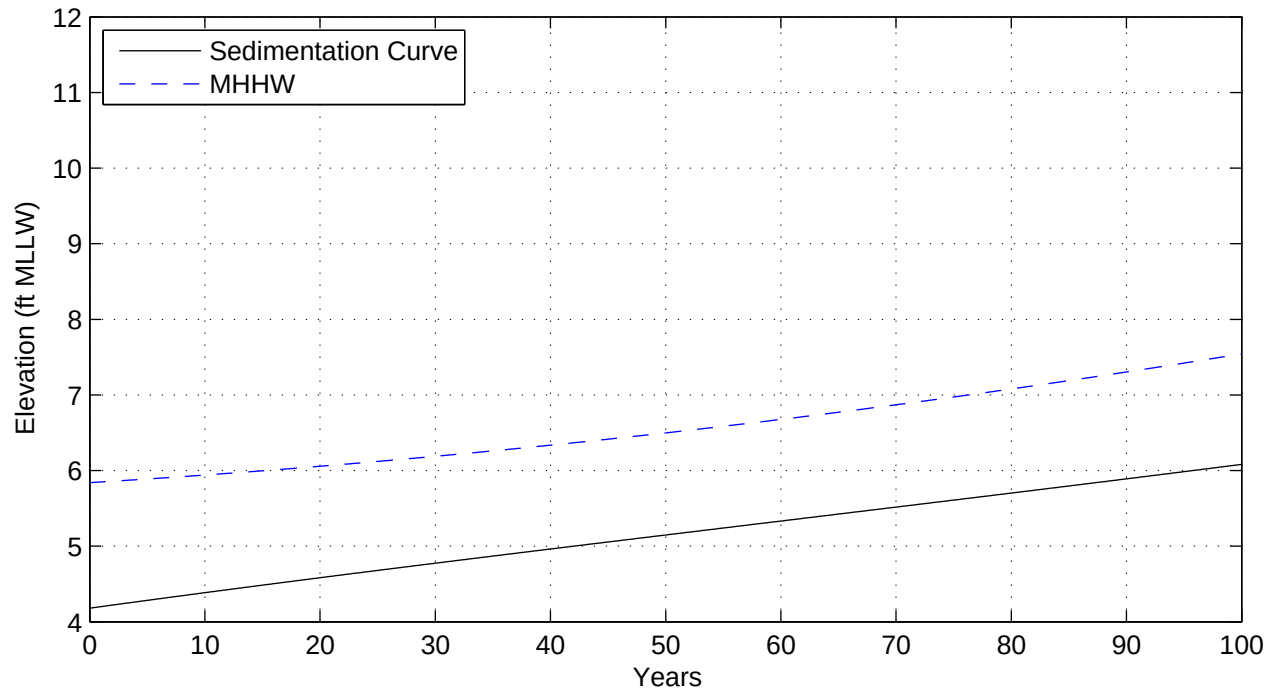
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=25$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 24
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 24

PWA Ref# 1989





Source:

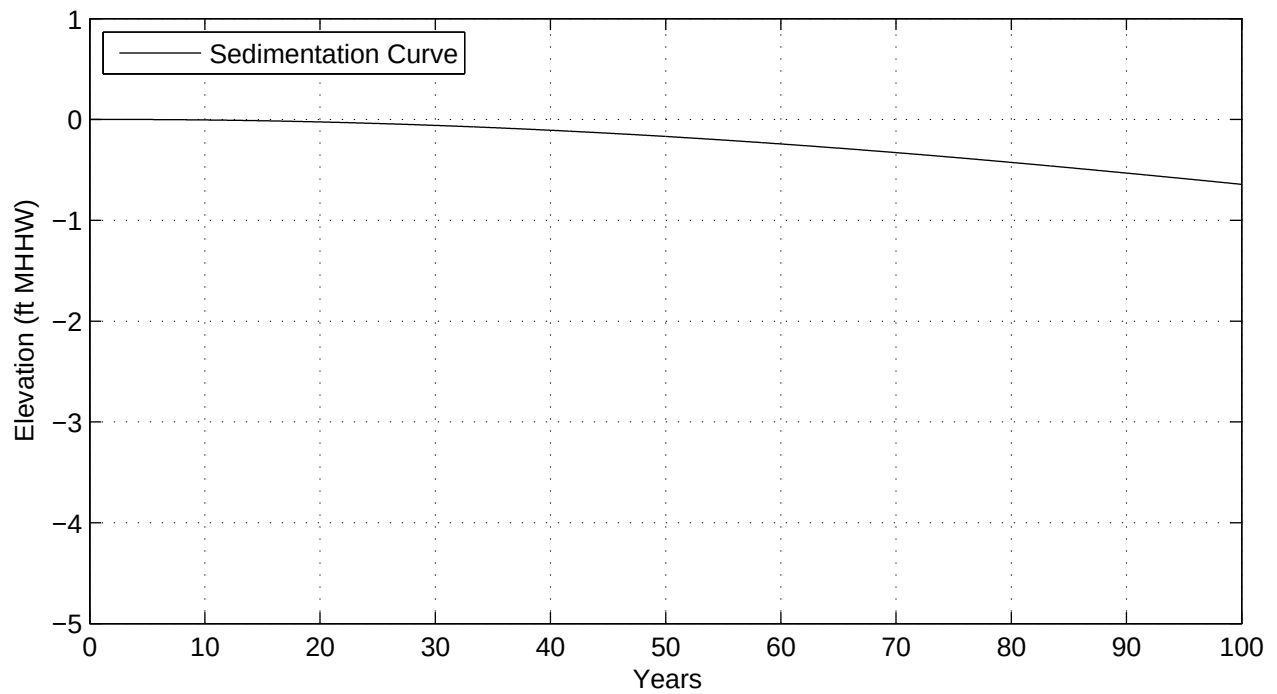
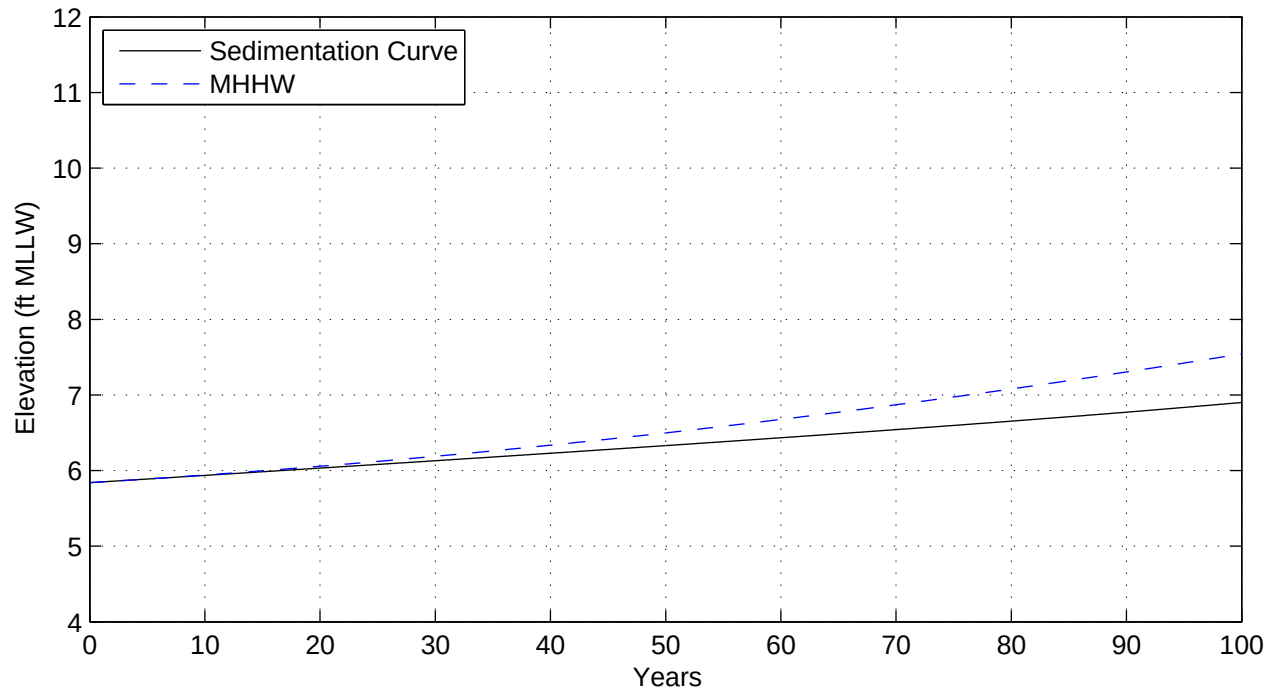
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=50$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 25
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 25

PWA Ref# 1989





Source:

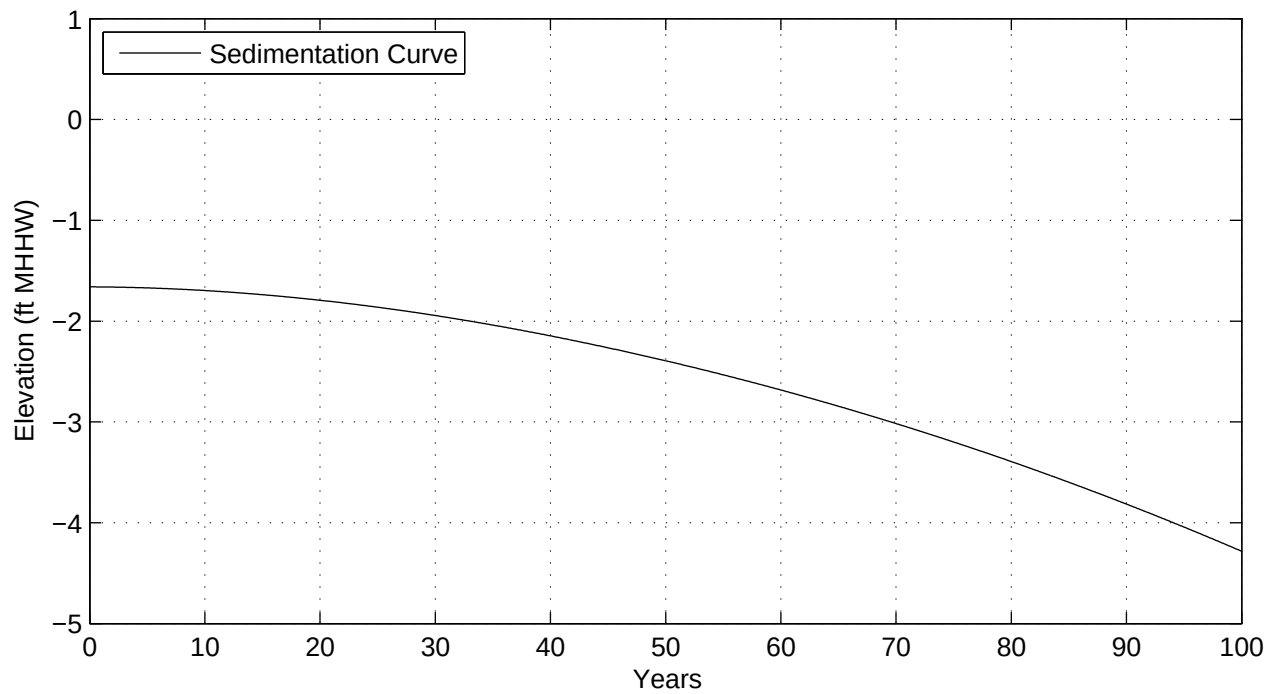
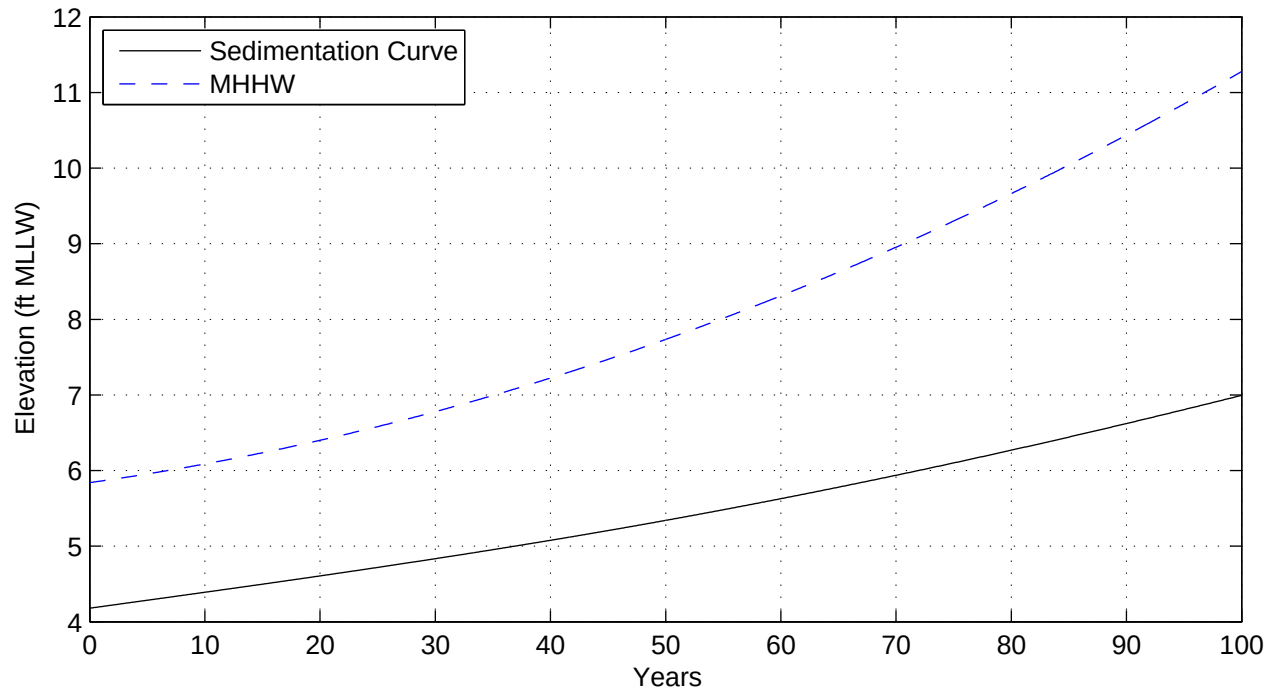
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=50$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 26
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 26

PWA Ref# 1989





Source:

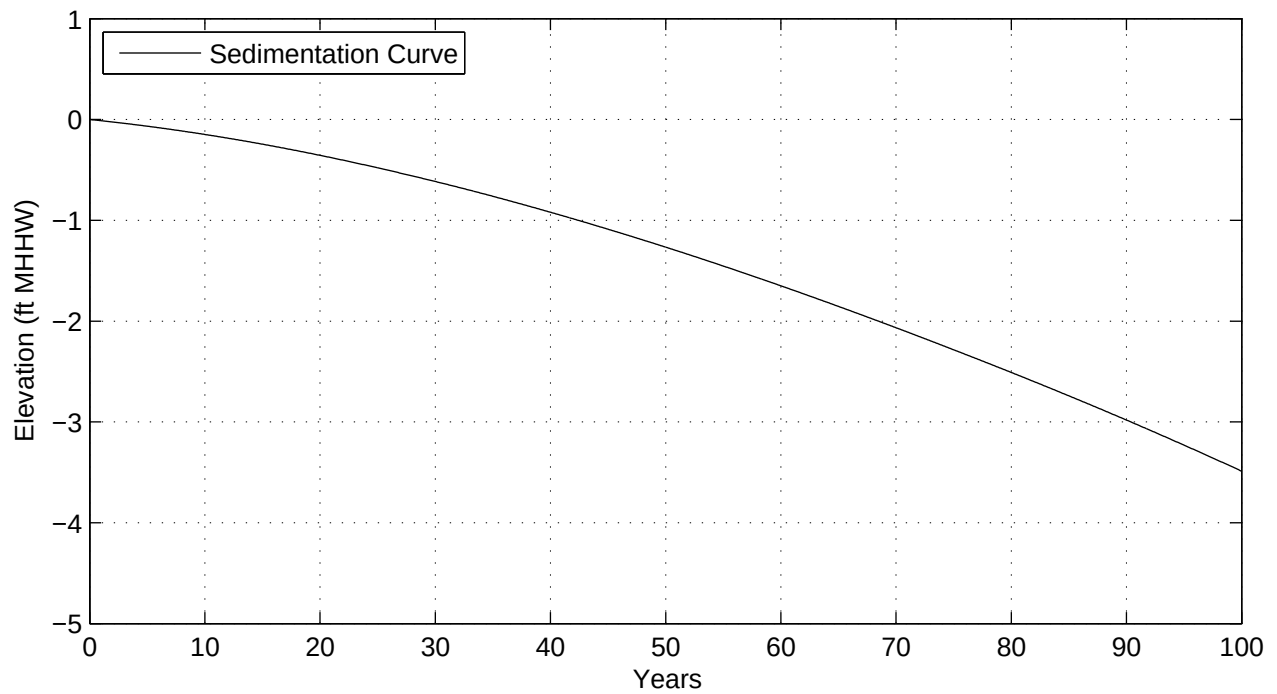
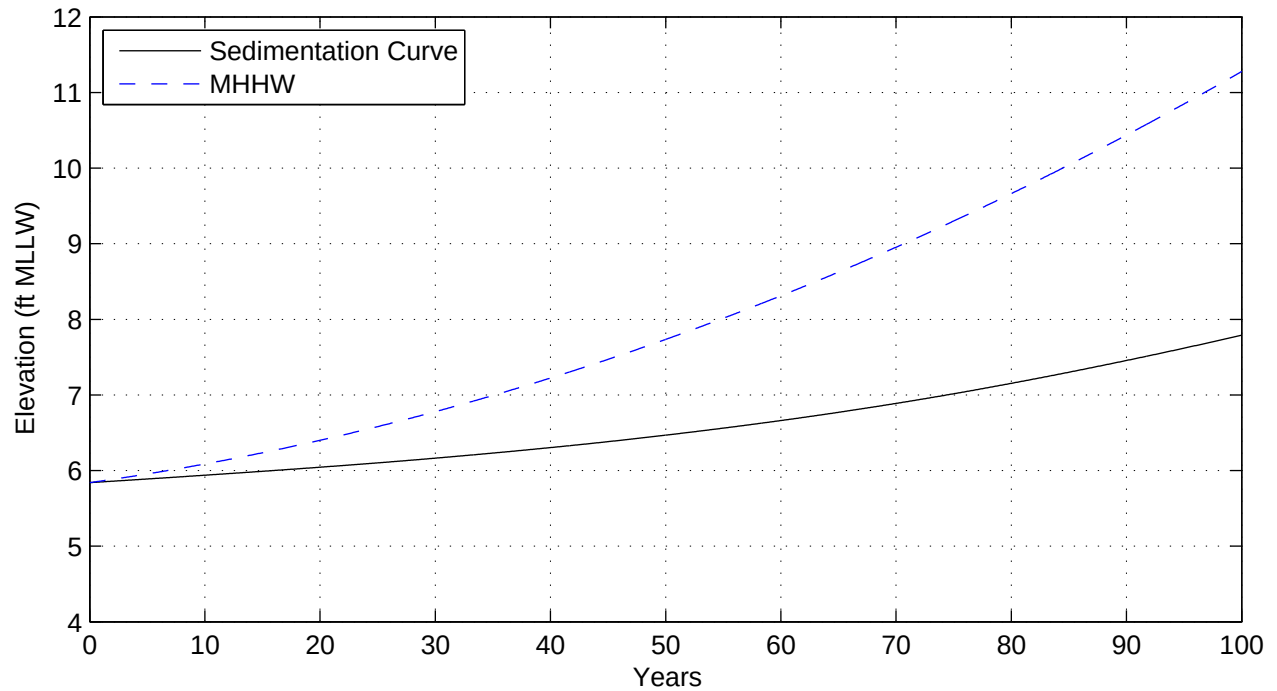
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=50$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 27
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 27

PWA Ref# 1989





Source:

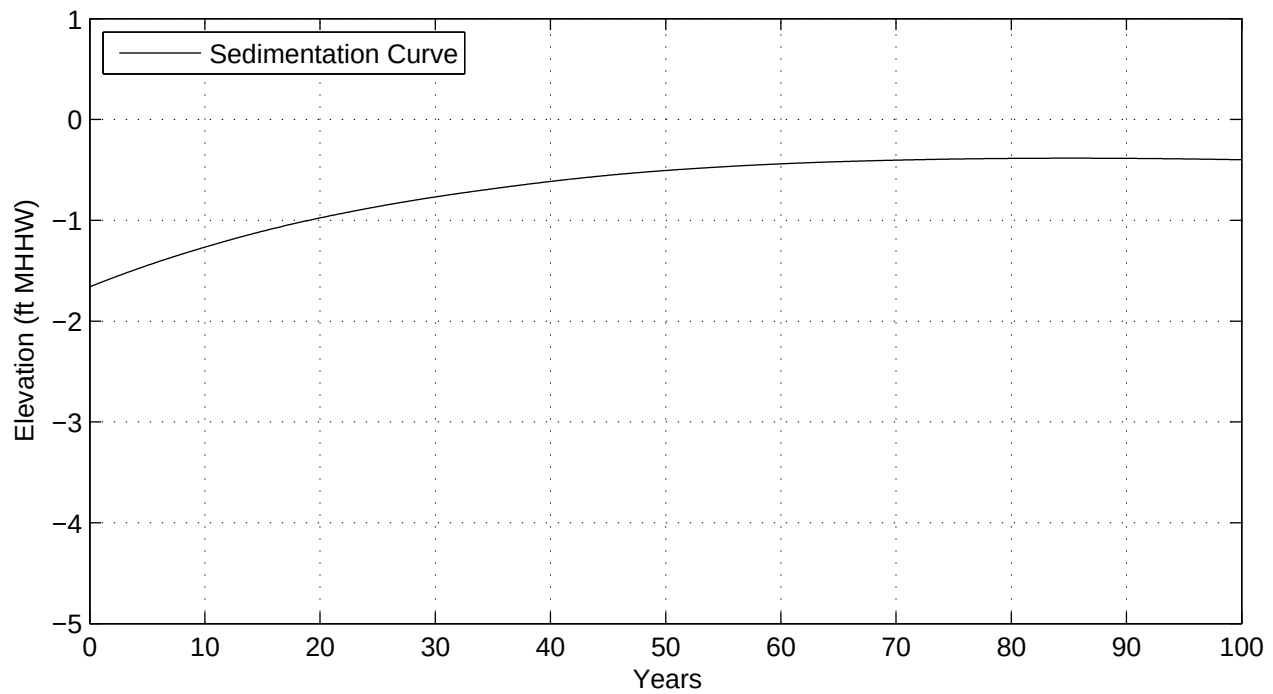
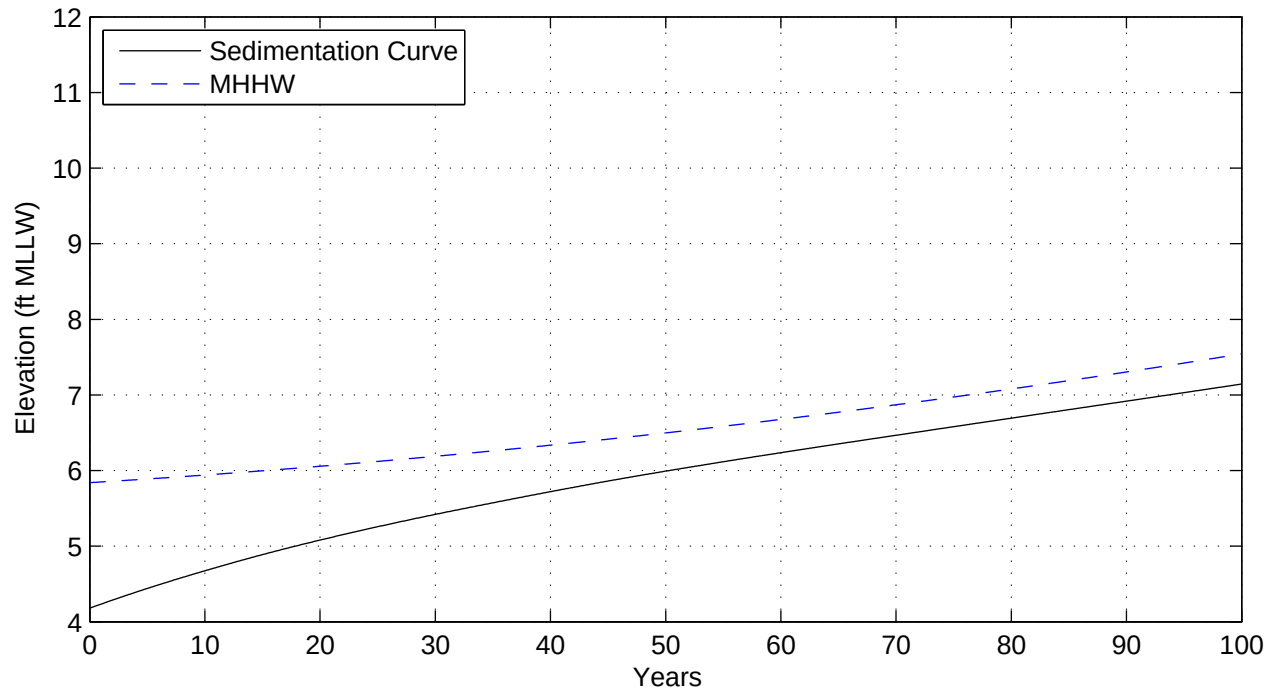
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=50$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 28
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 28

PWA Ref# 1989





Source:

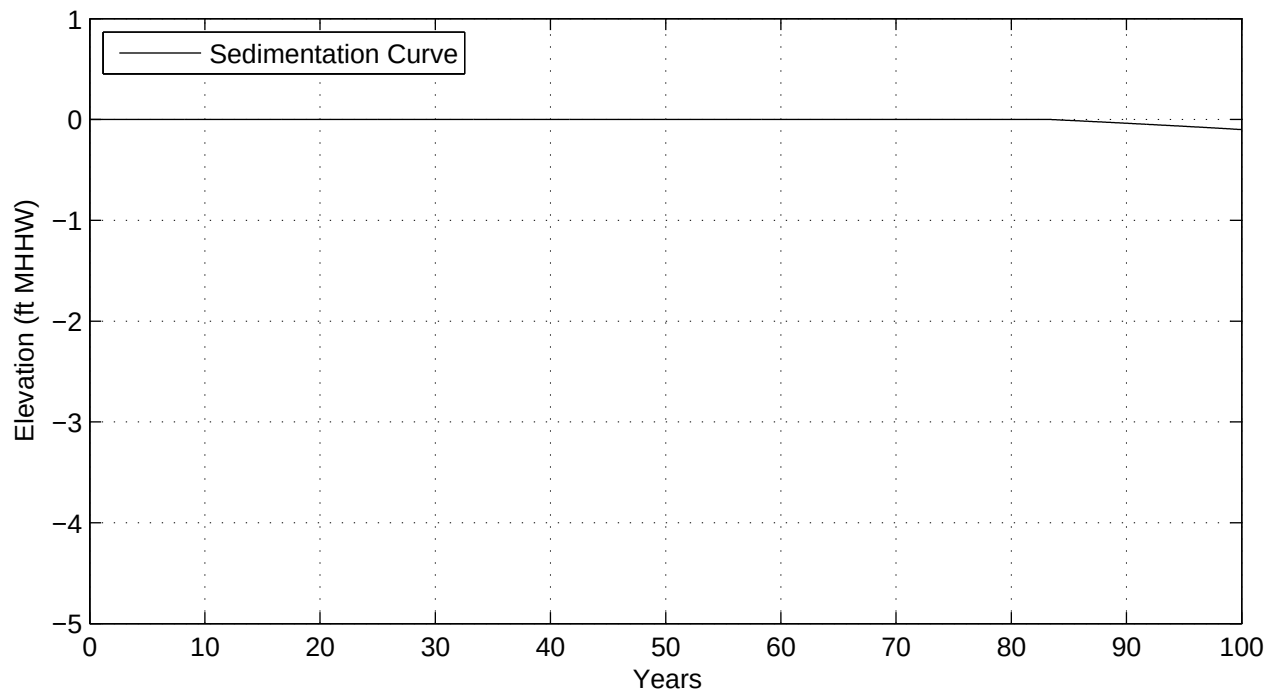
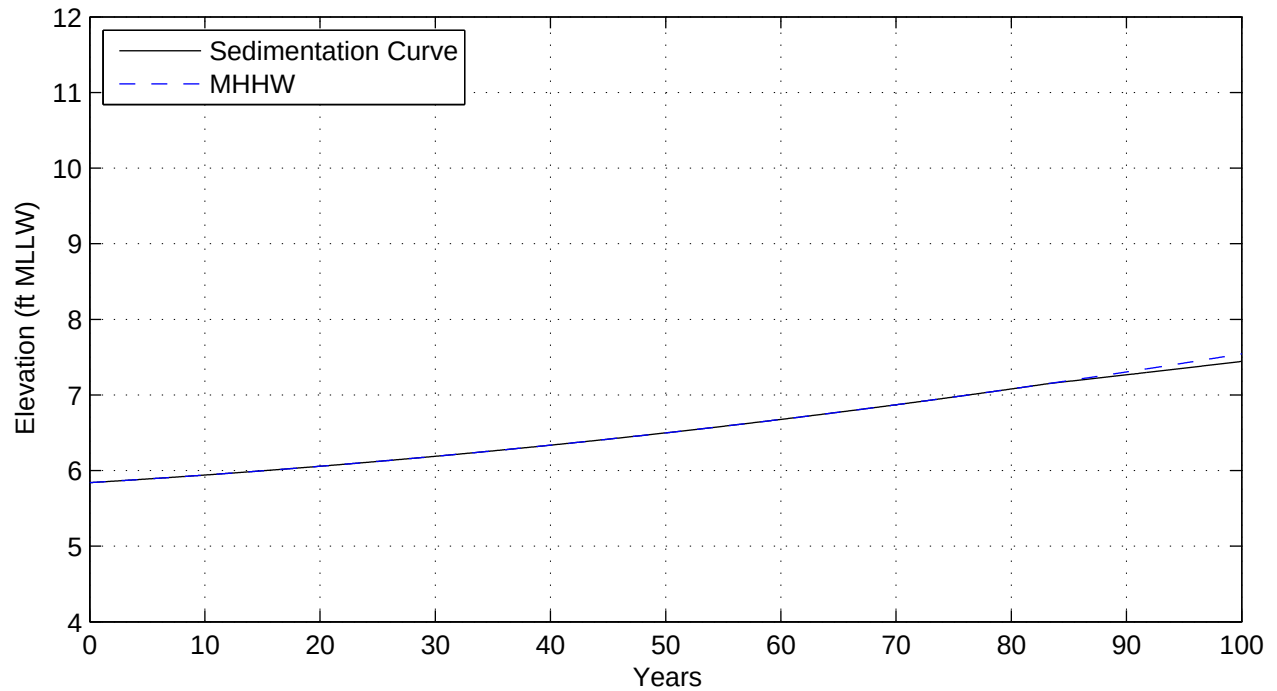
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
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 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 29
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 29

PWA Ref# 1989





Source:

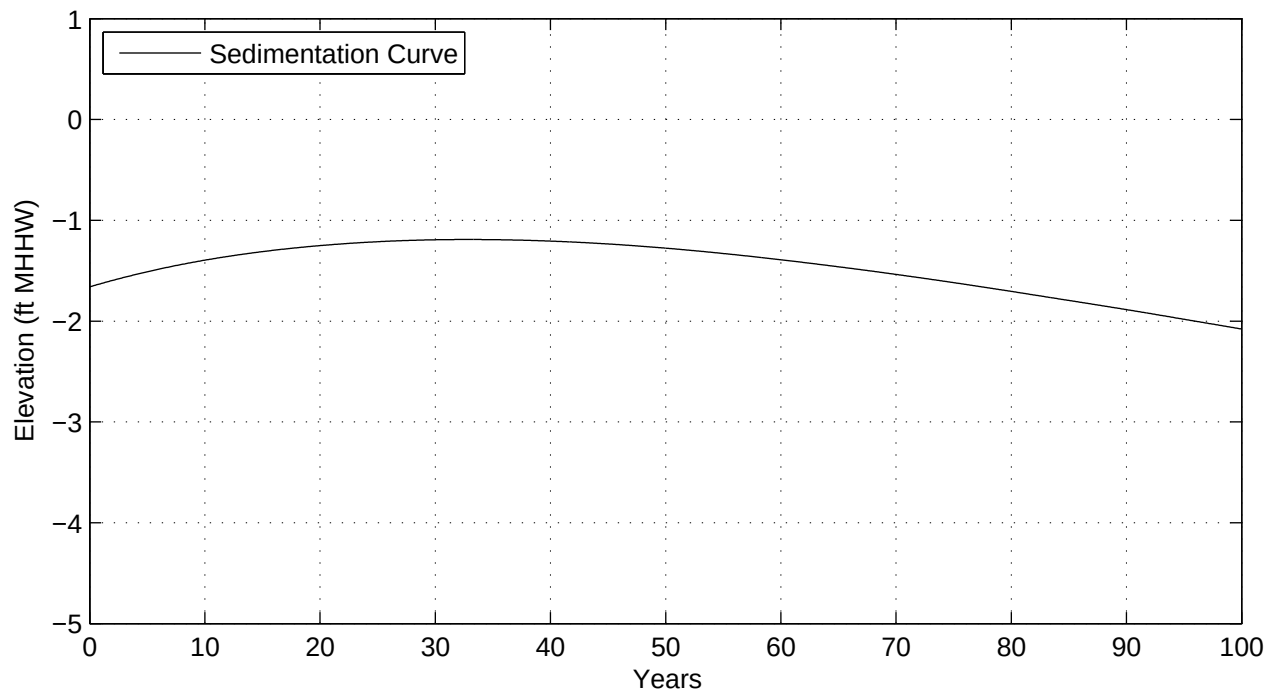
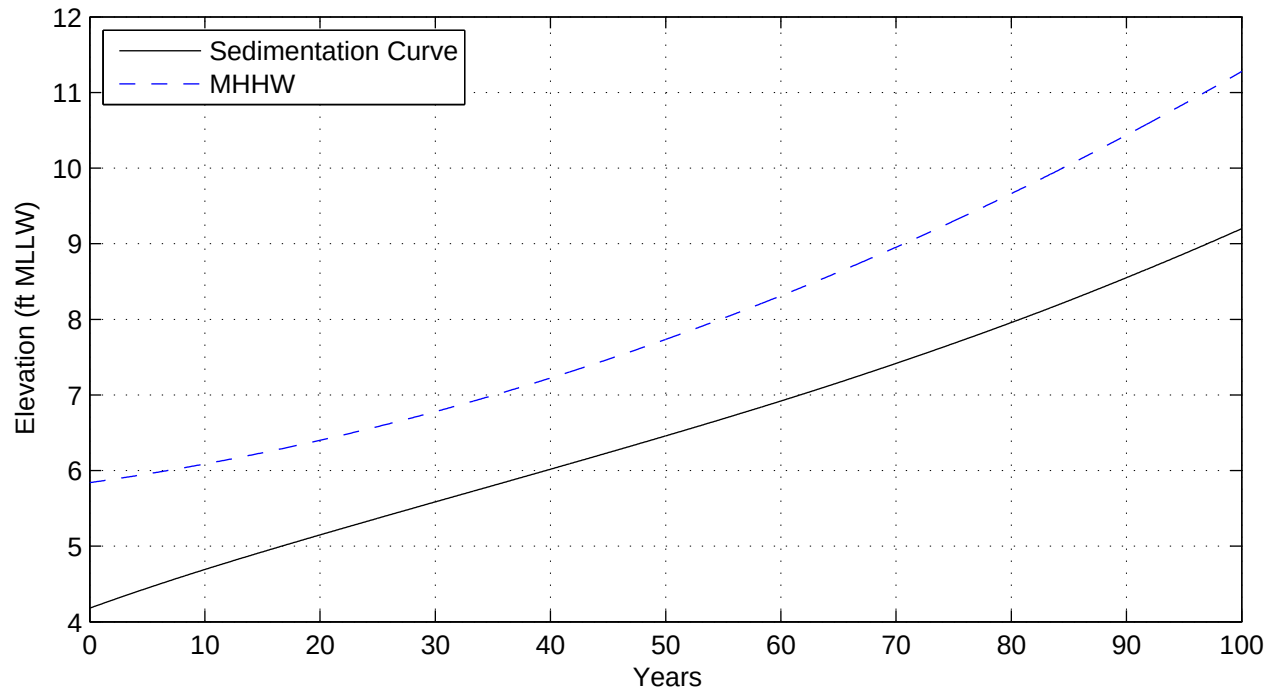
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 Co=100 mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 30
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 30

PWA Ref# 1989





Source:

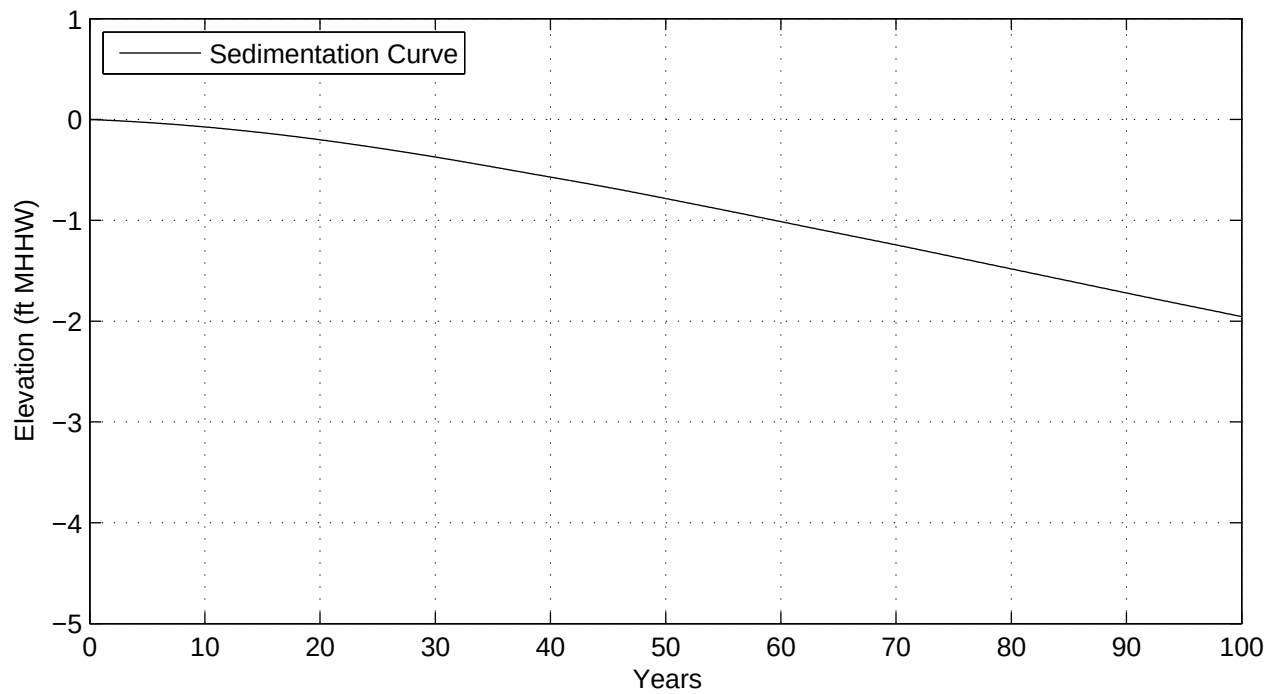
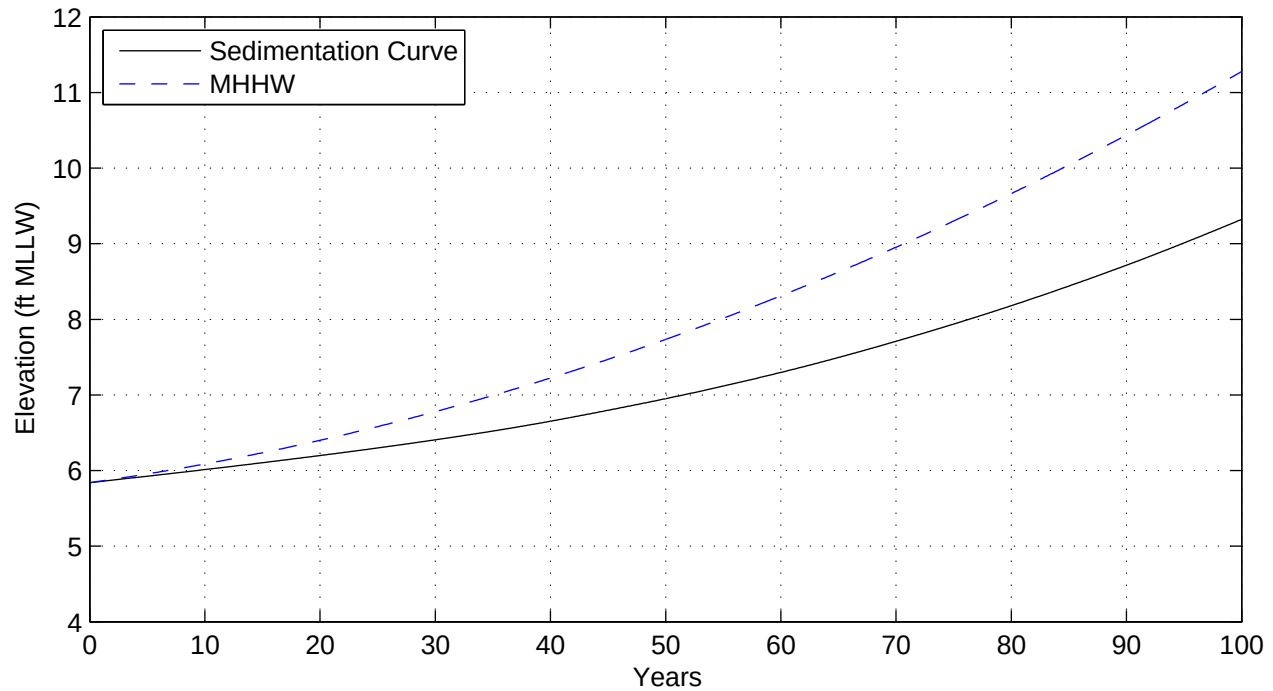
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=100$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 31
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 31

PWA Ref# 1989





Source:

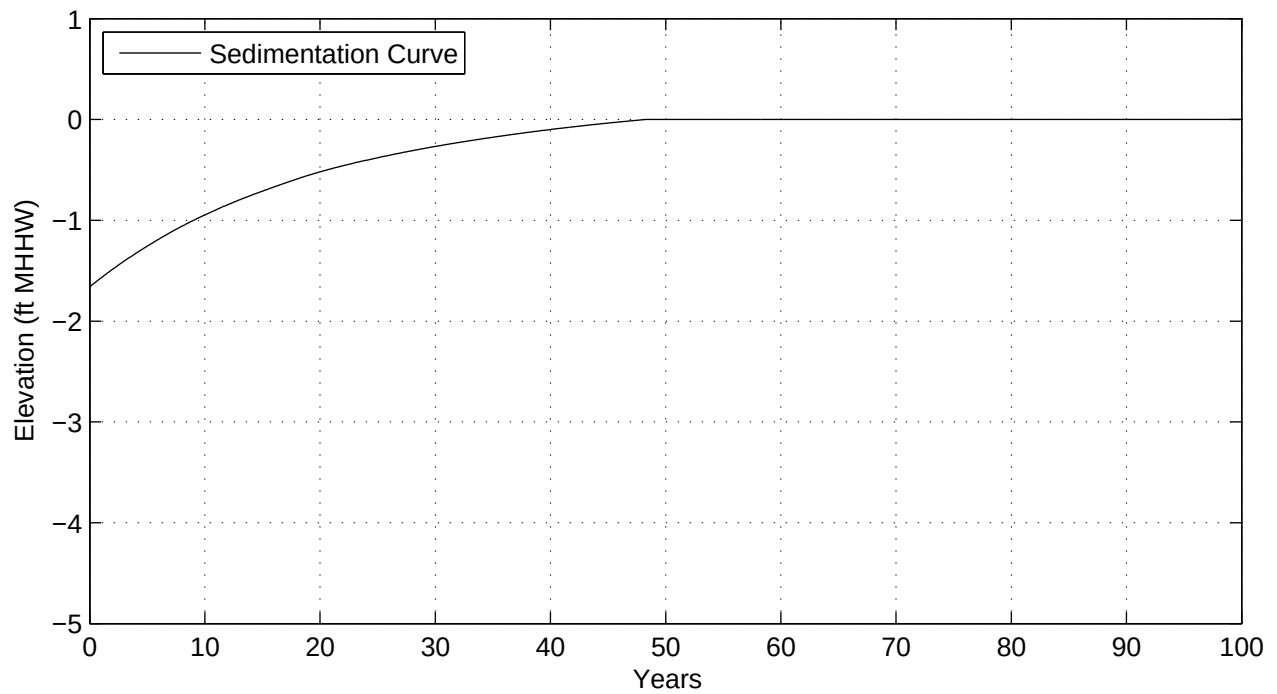
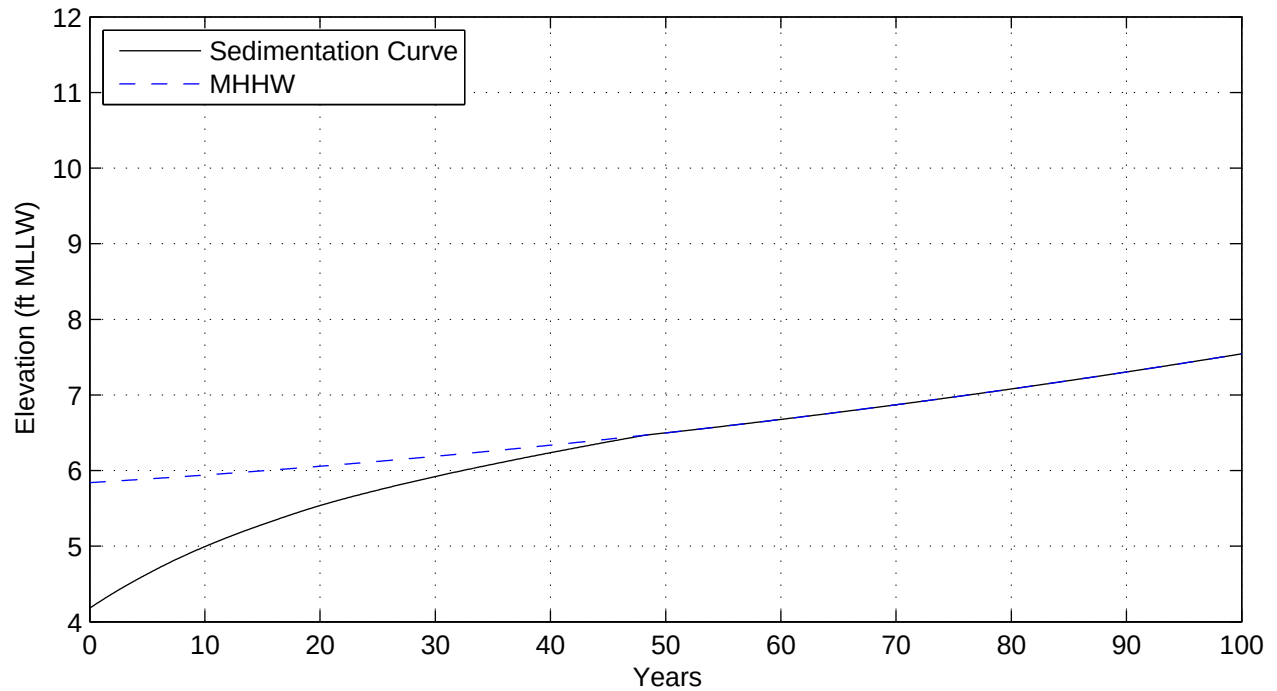
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=100$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 32
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 32

PWA Ref# 1989





Source:

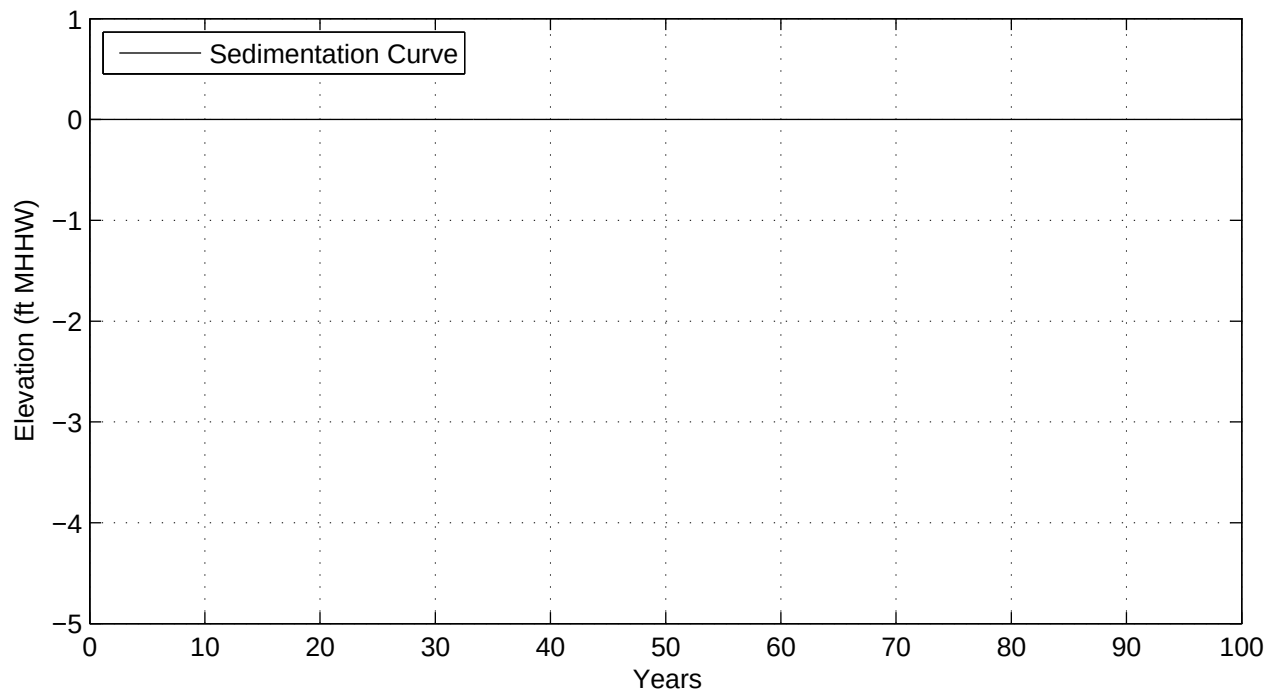
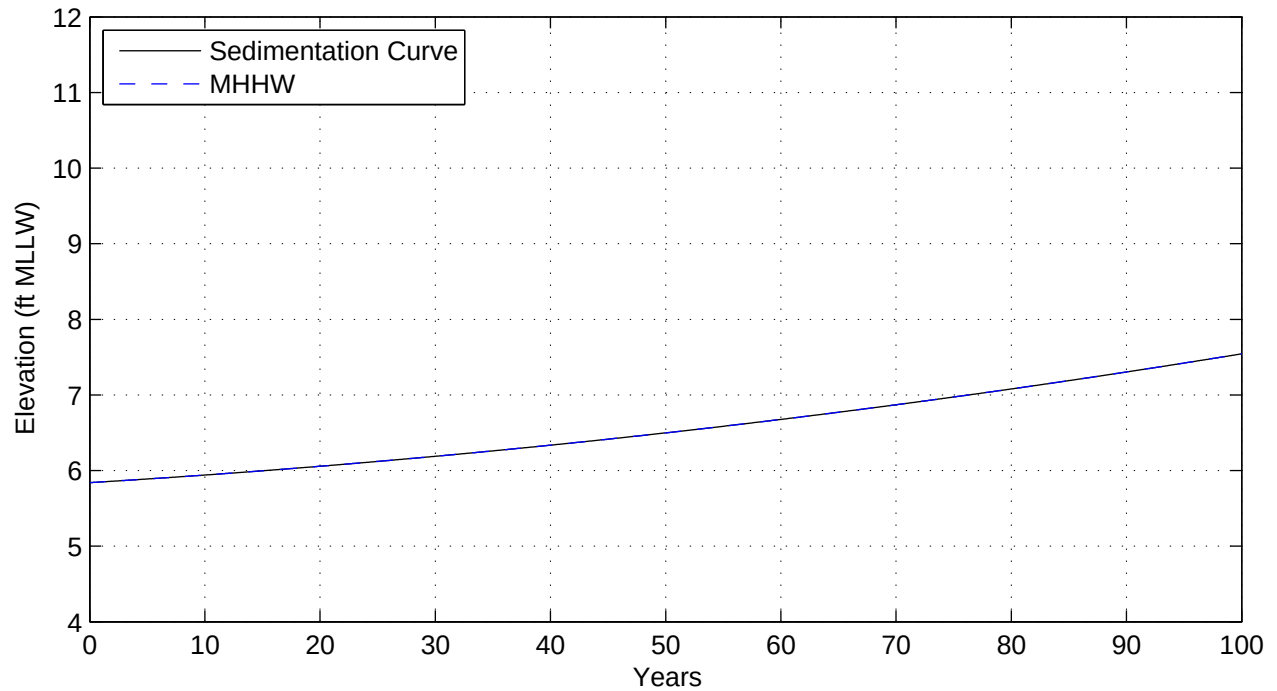
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $Co=150$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 33
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 33

PWA Ref# 1989





Source:

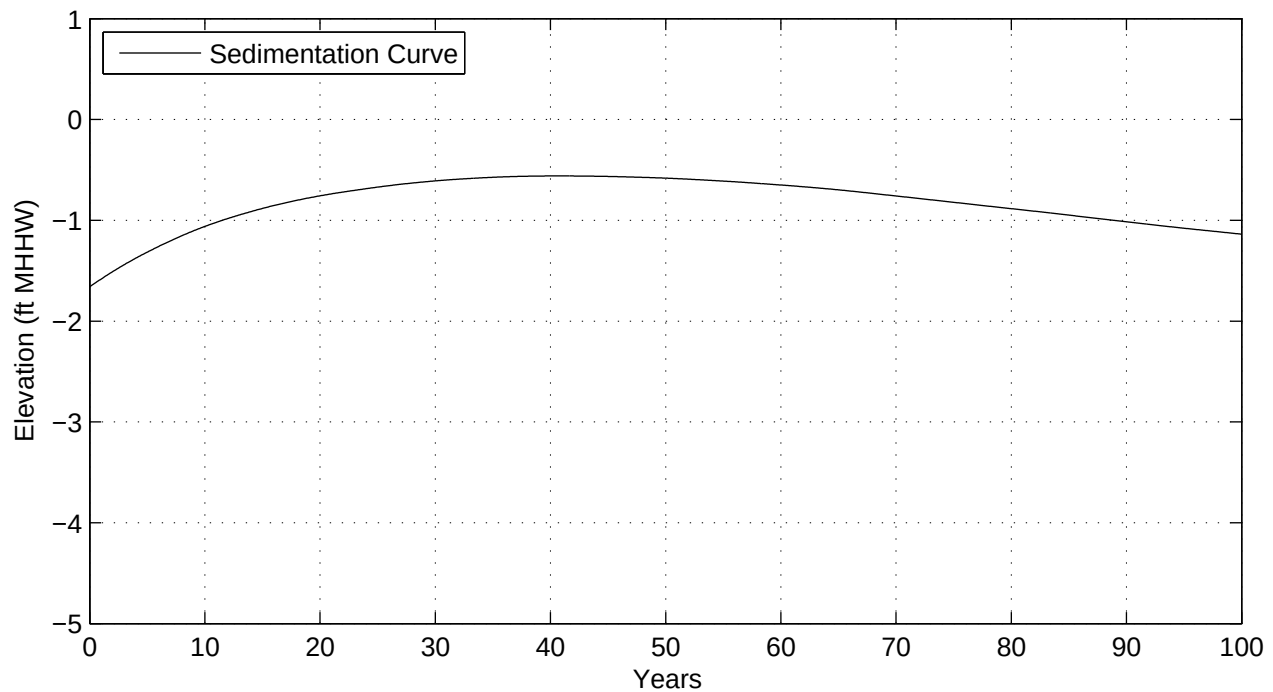
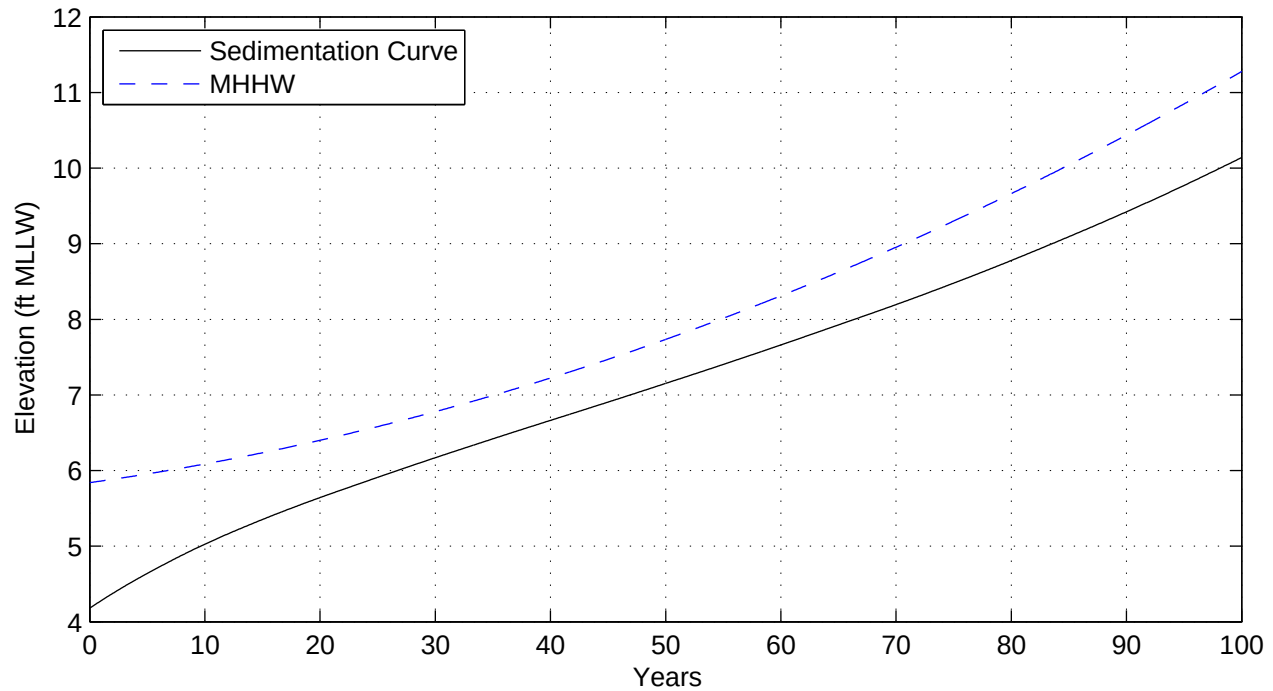
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $Co=150$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 34
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 34

PWA Ref# 1989





Source:

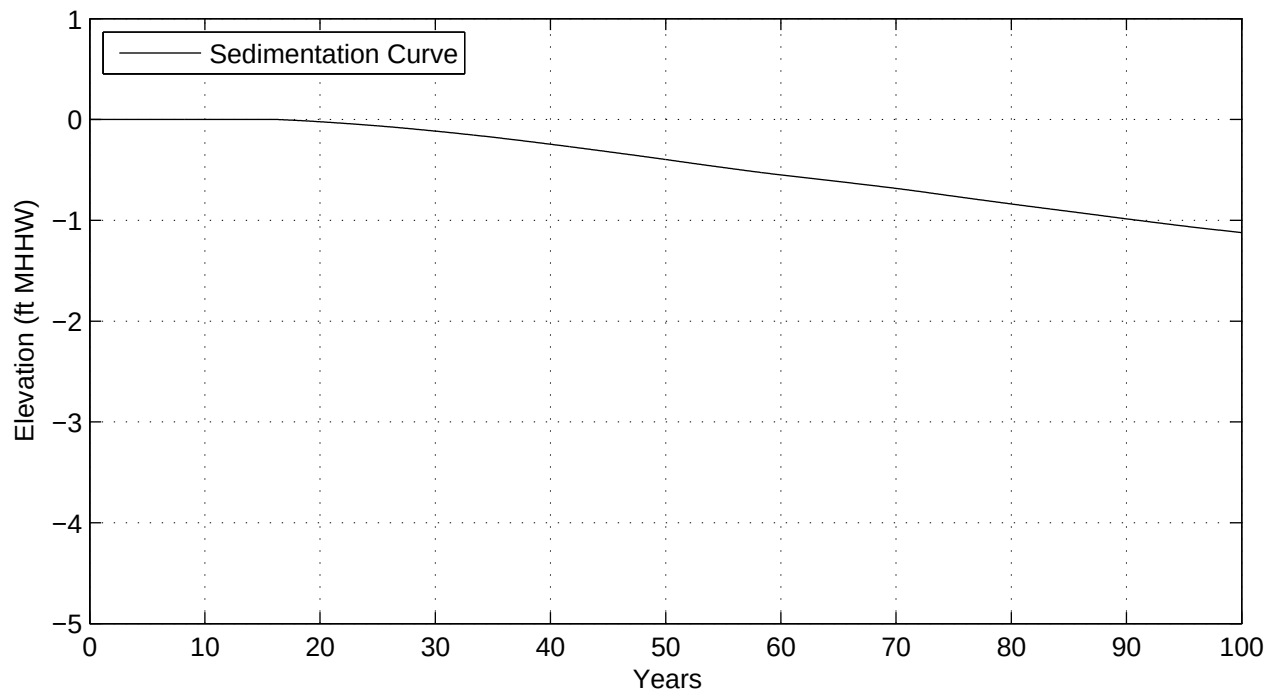
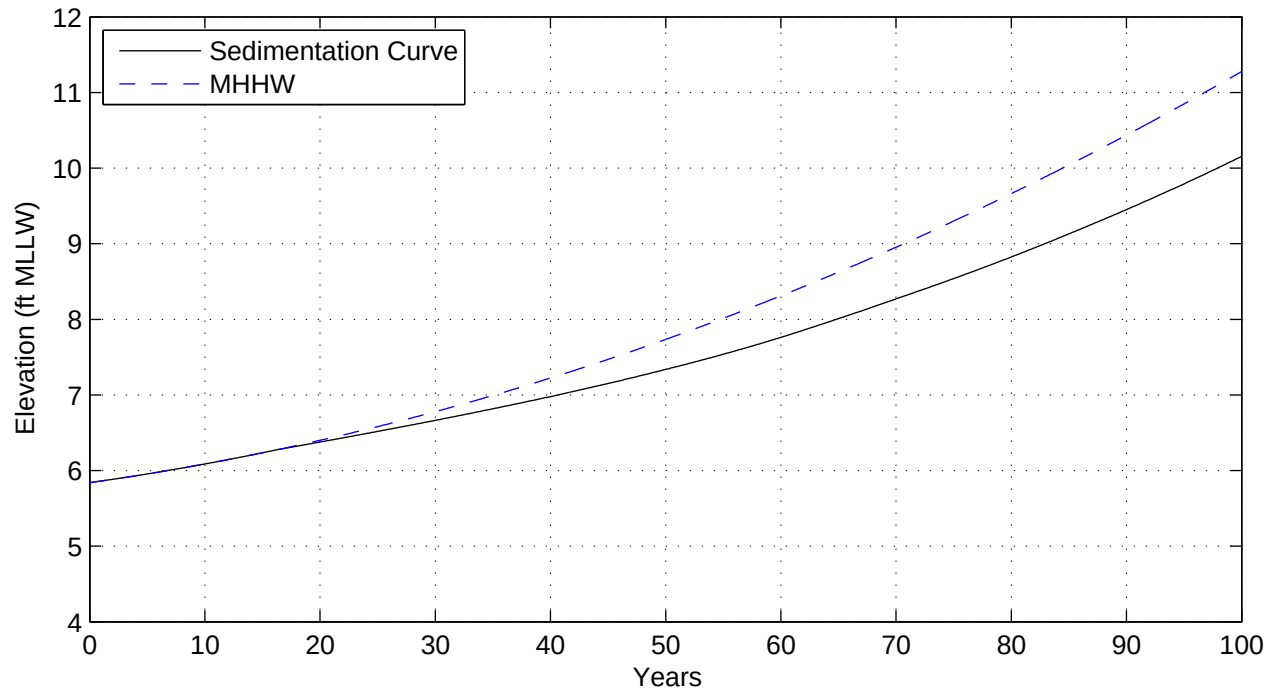
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=150$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 35
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 35

PWA Ref# 1989





Source:

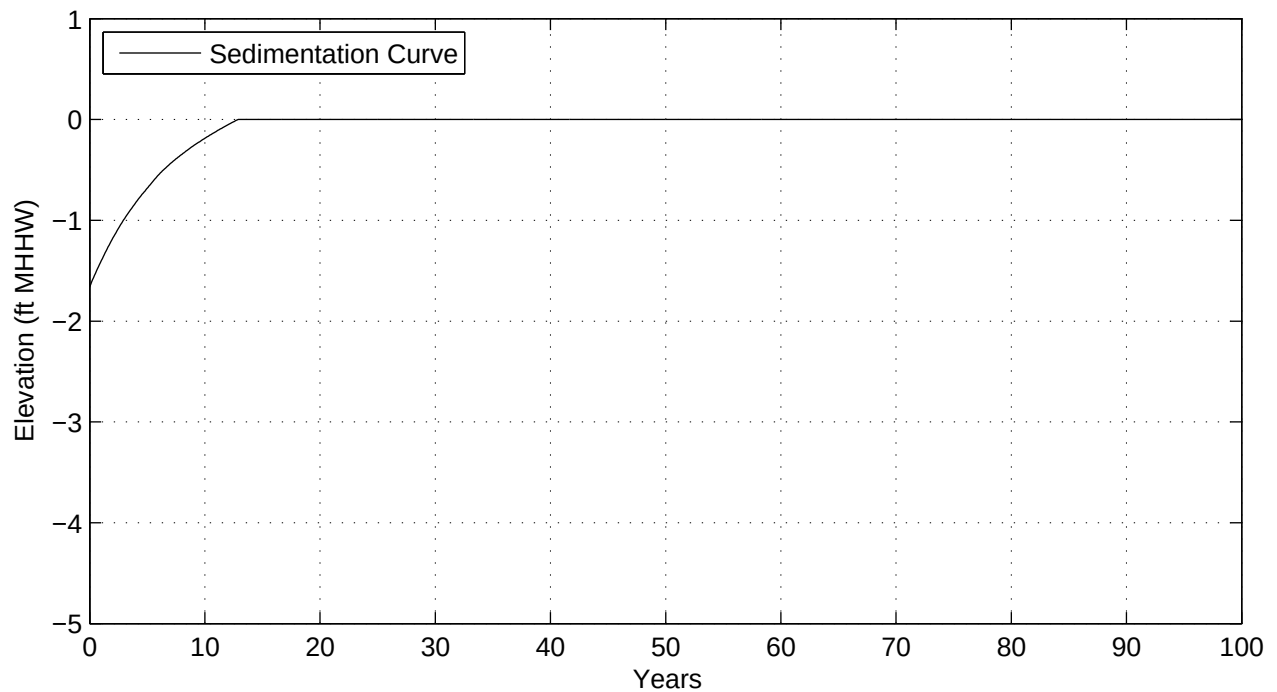
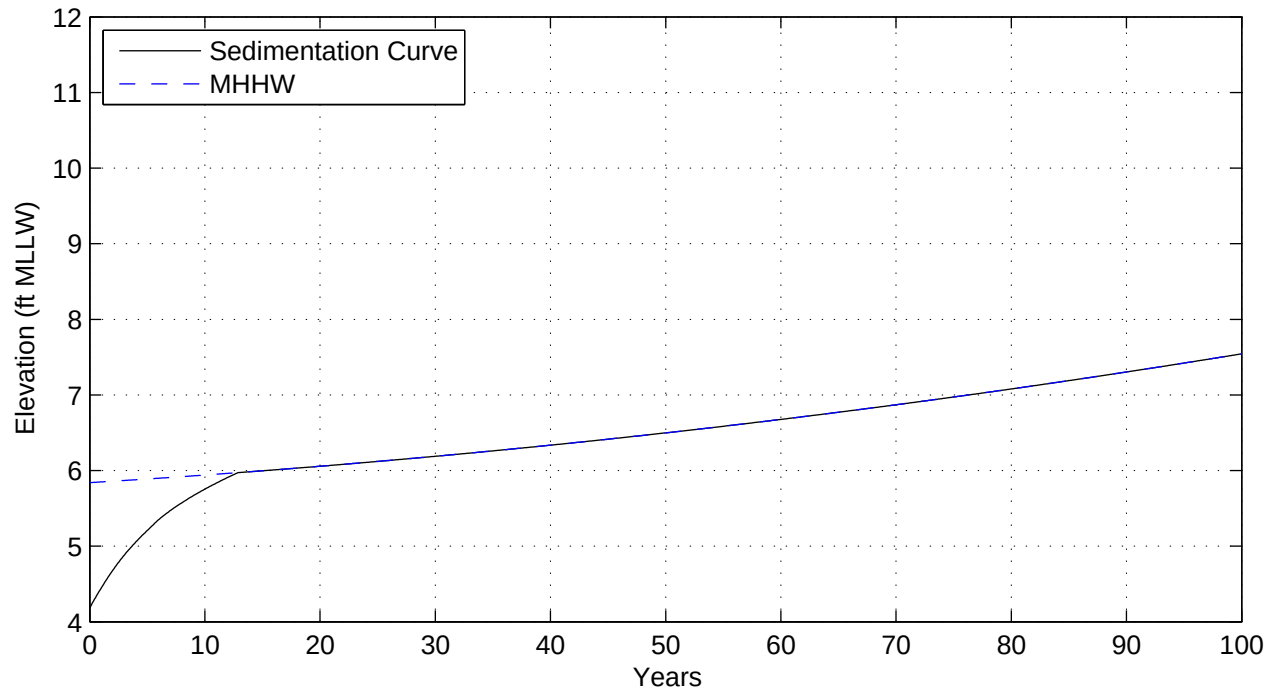
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
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 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 36
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 36

PWA Ref# 1989





Source:

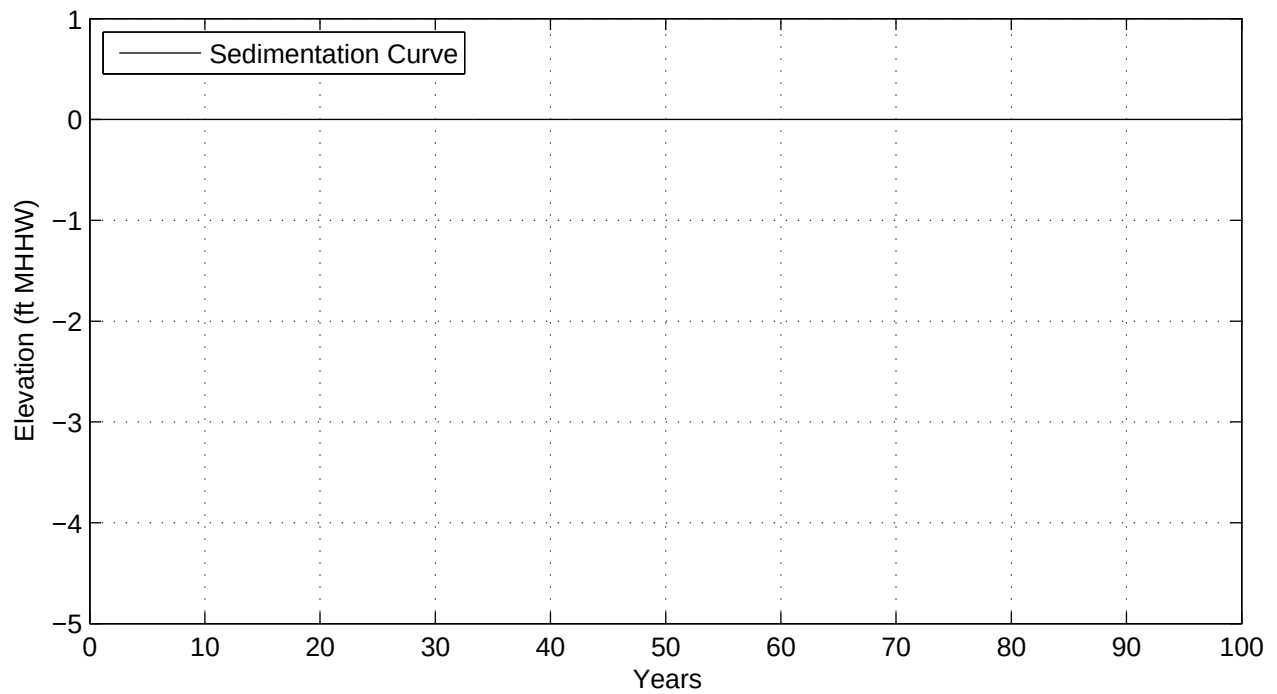
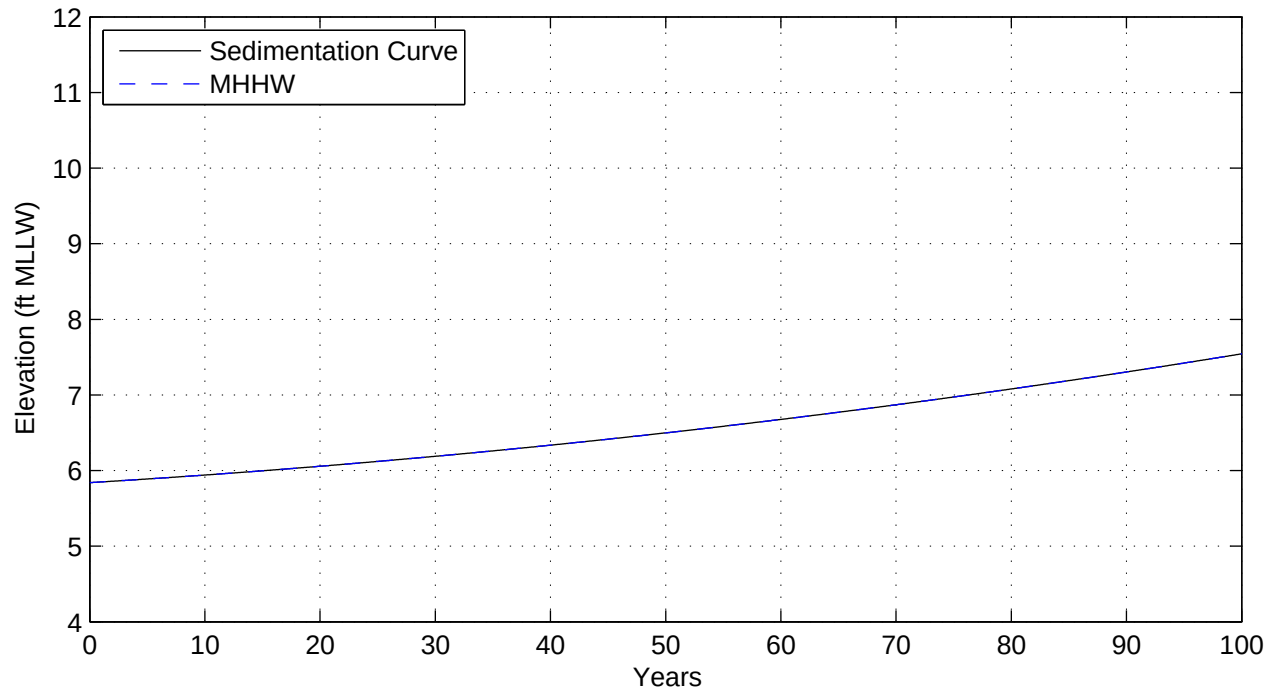
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
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 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 37
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 37

PWA Ref# 1989





Source:

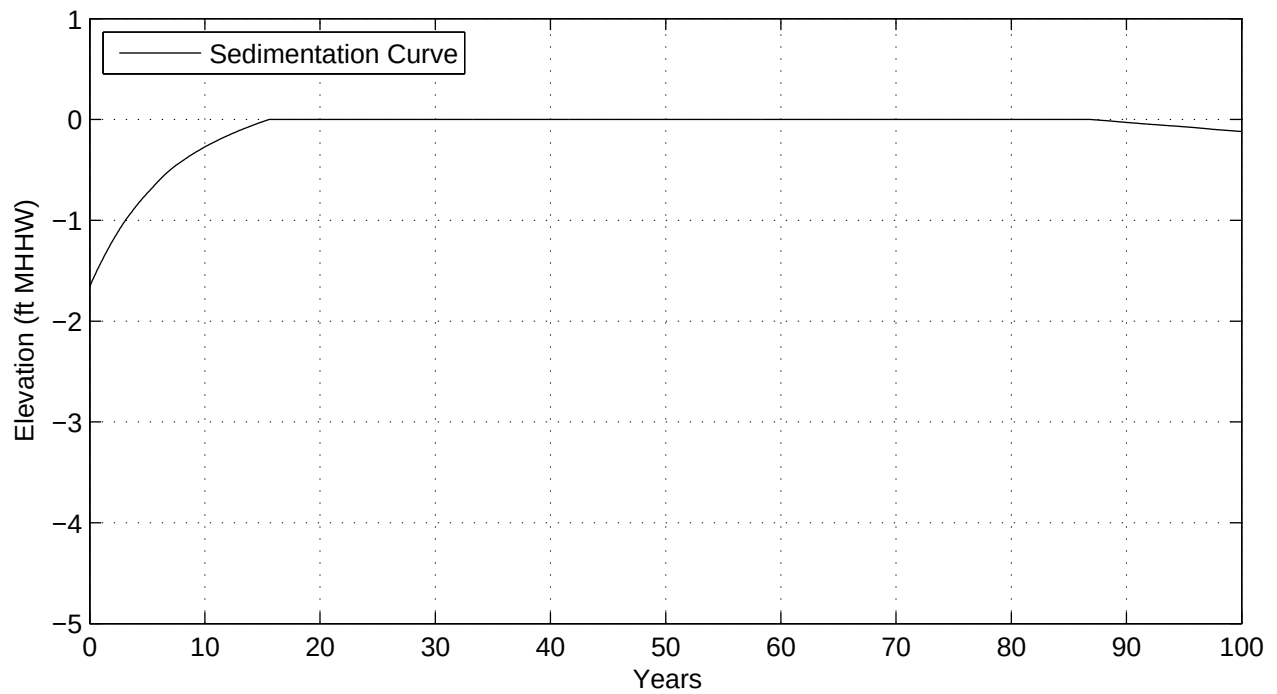
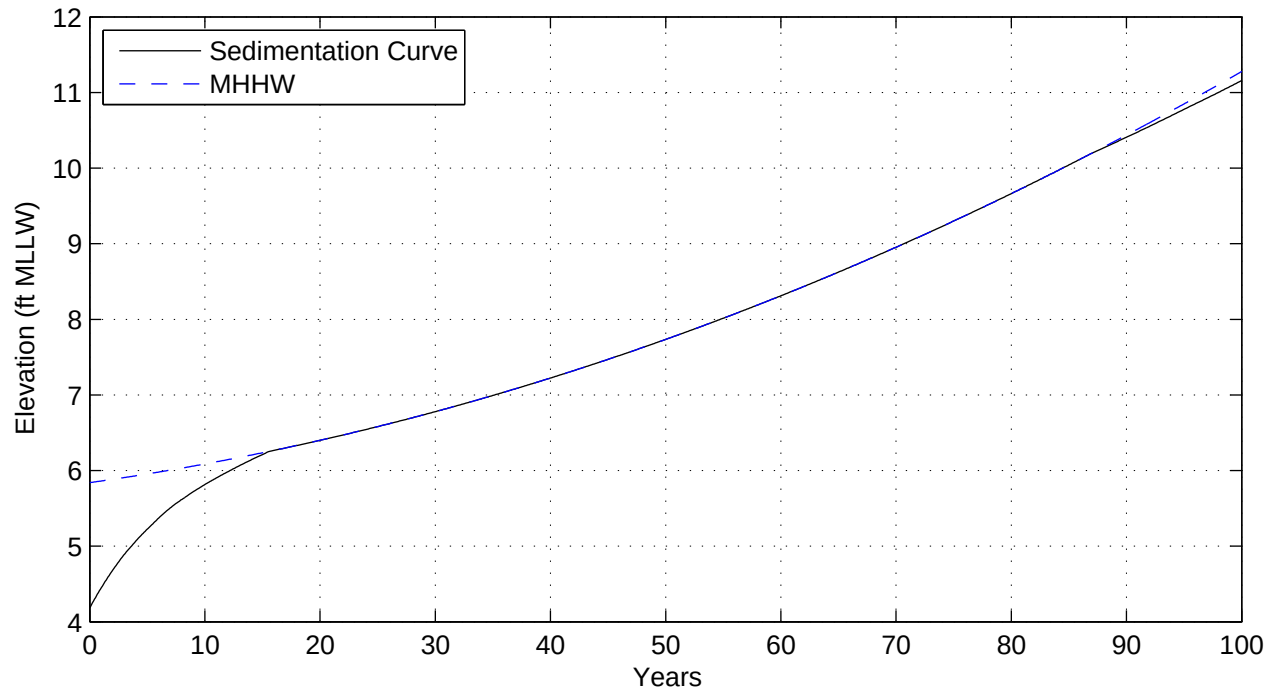
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=300$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 38
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 38

PWA Ref# 1989





Source:

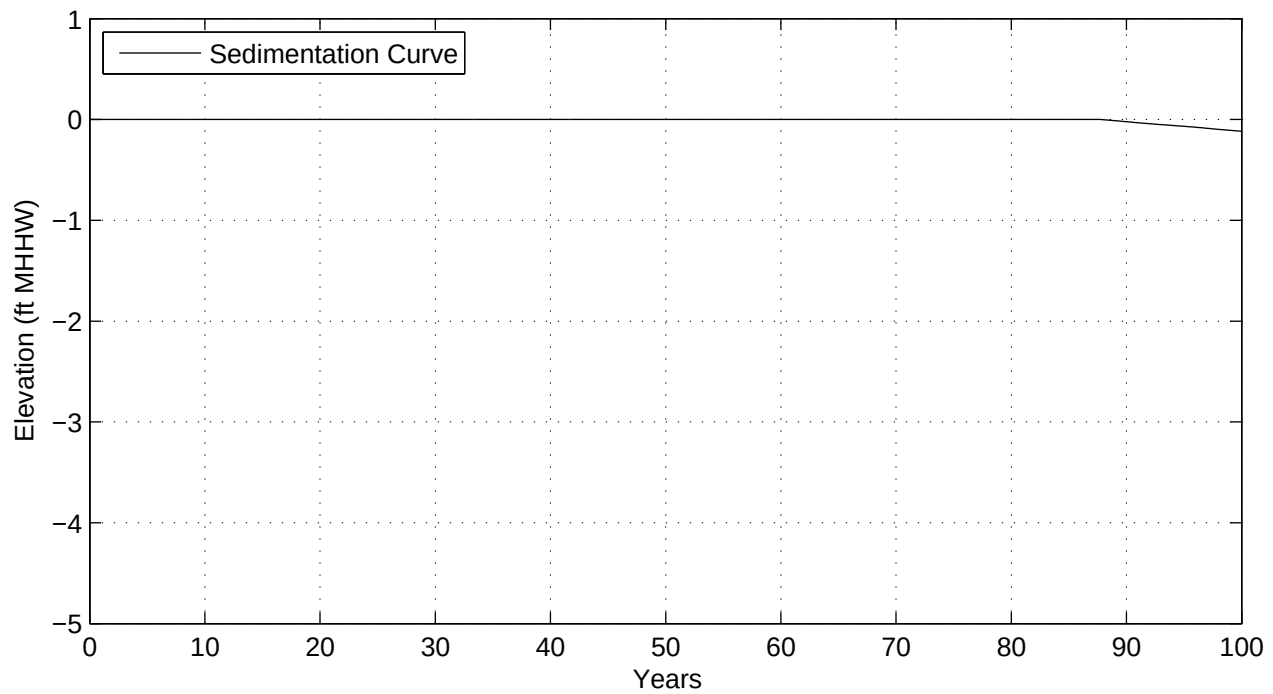
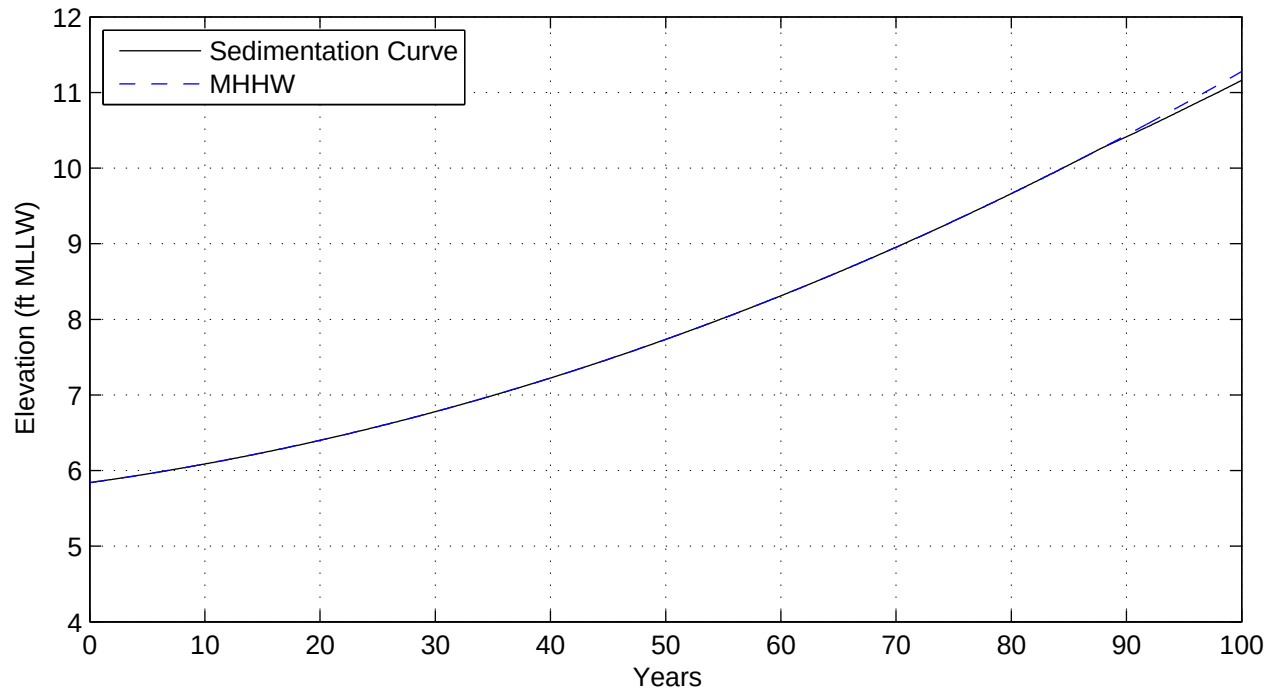
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=300$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 39
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 39

PWA Ref# 1989





Source:

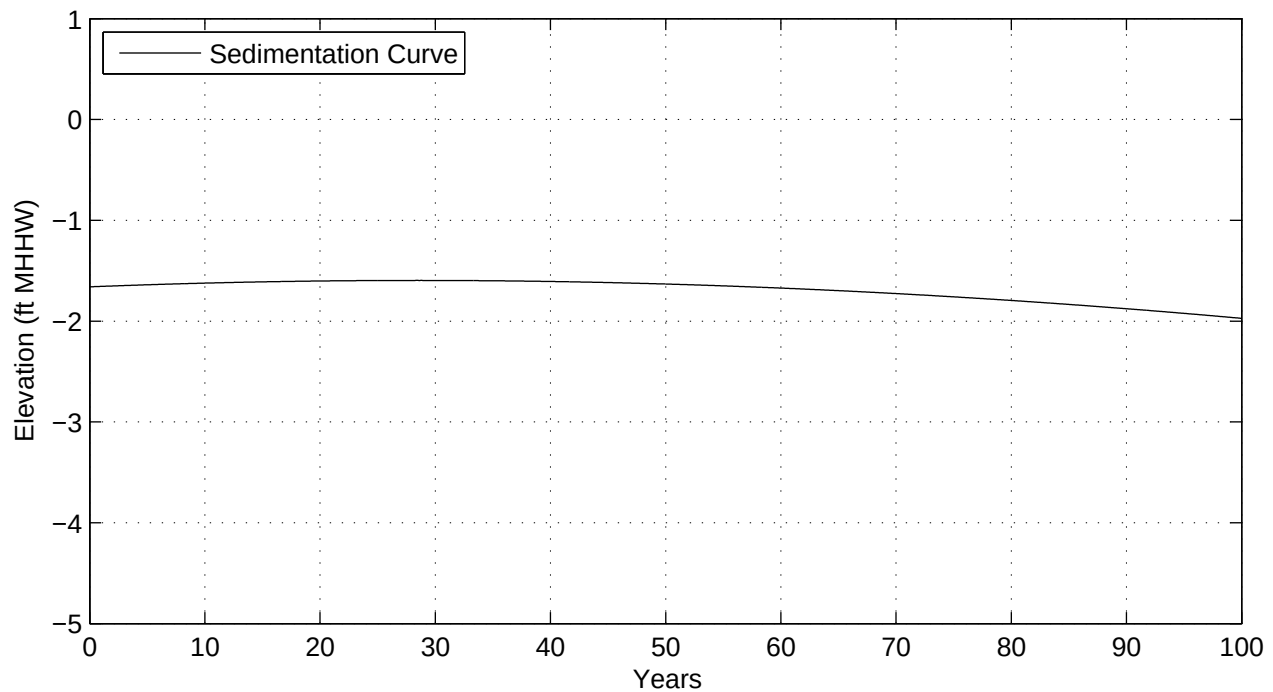
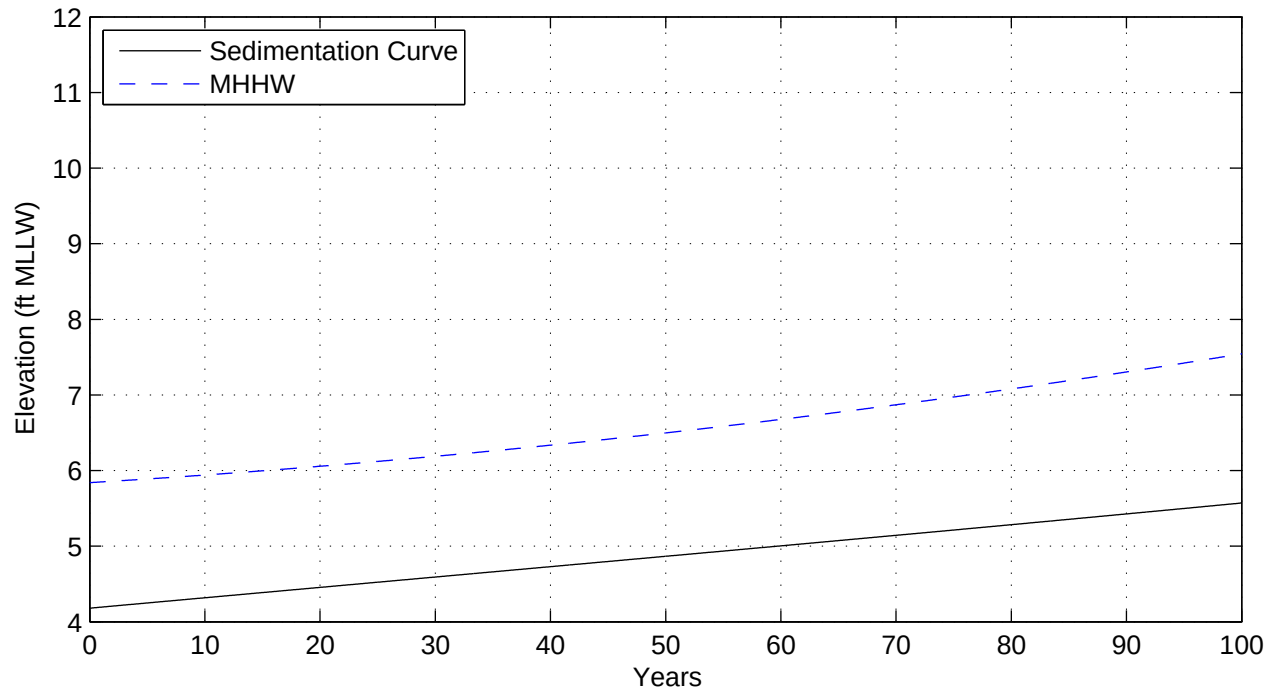
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=300$ mg/L. Organic rate=2.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 40
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 40

PWA Ref# 1989





Source:

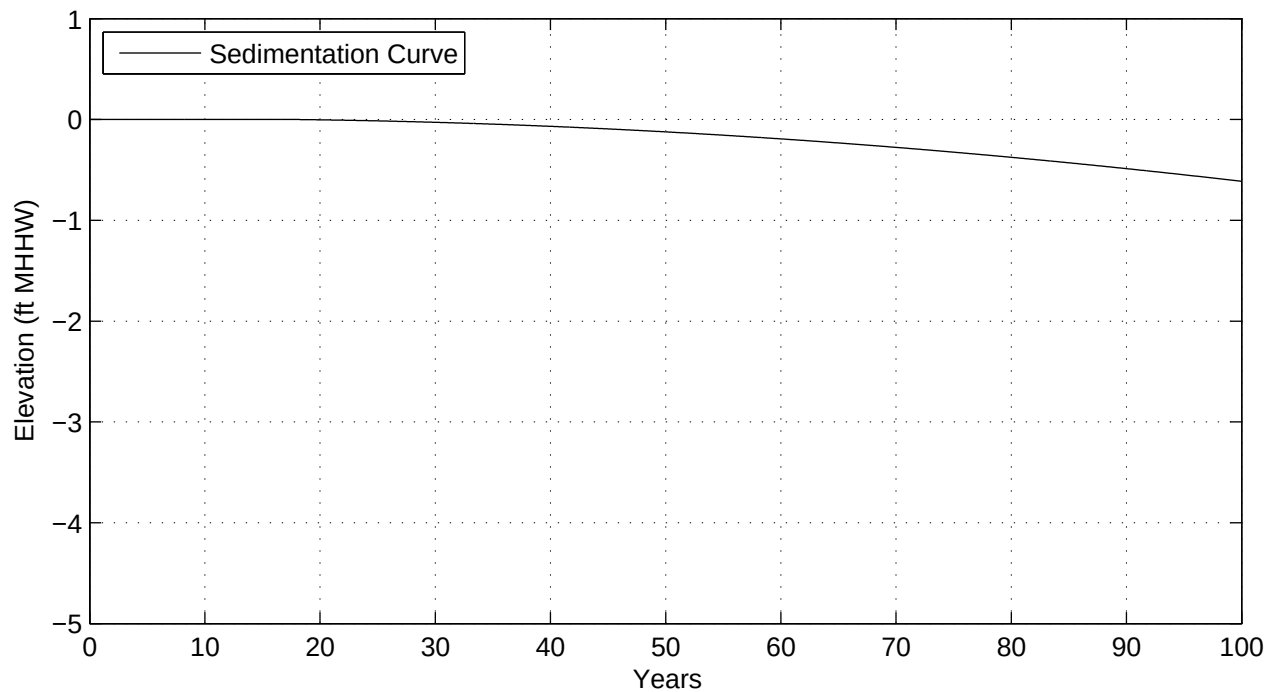
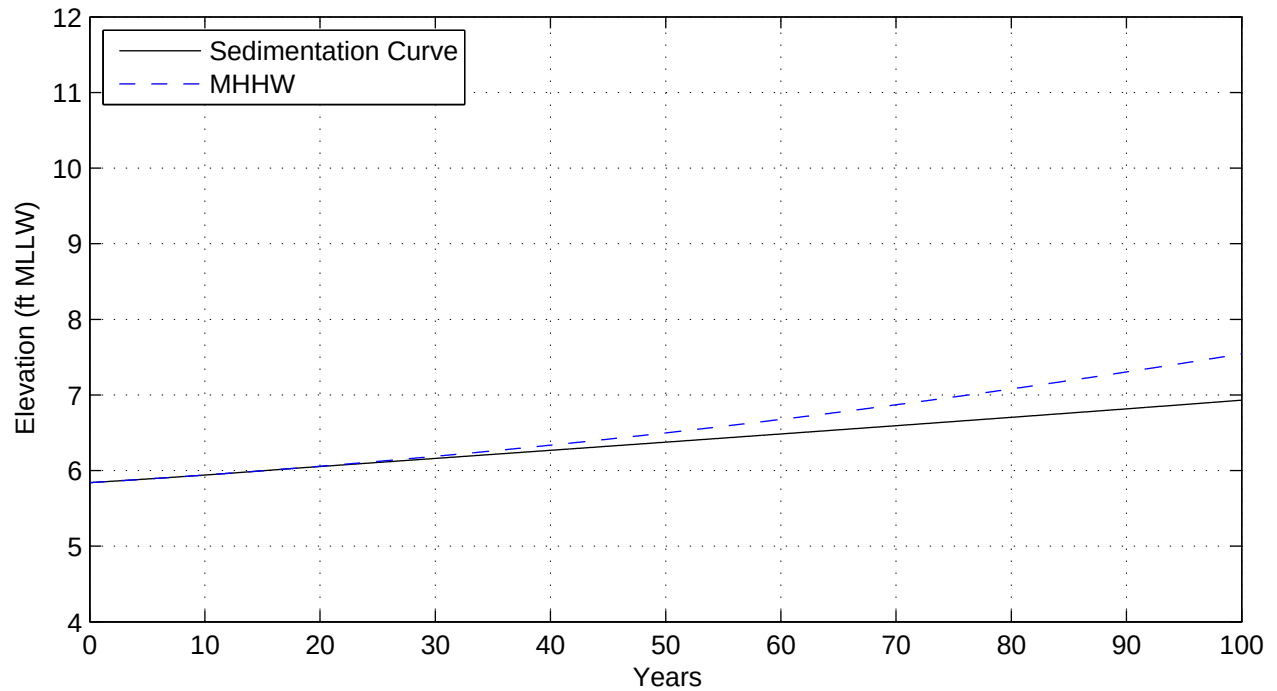
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=25$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 41
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 41

PWA Ref# 1989





Source:

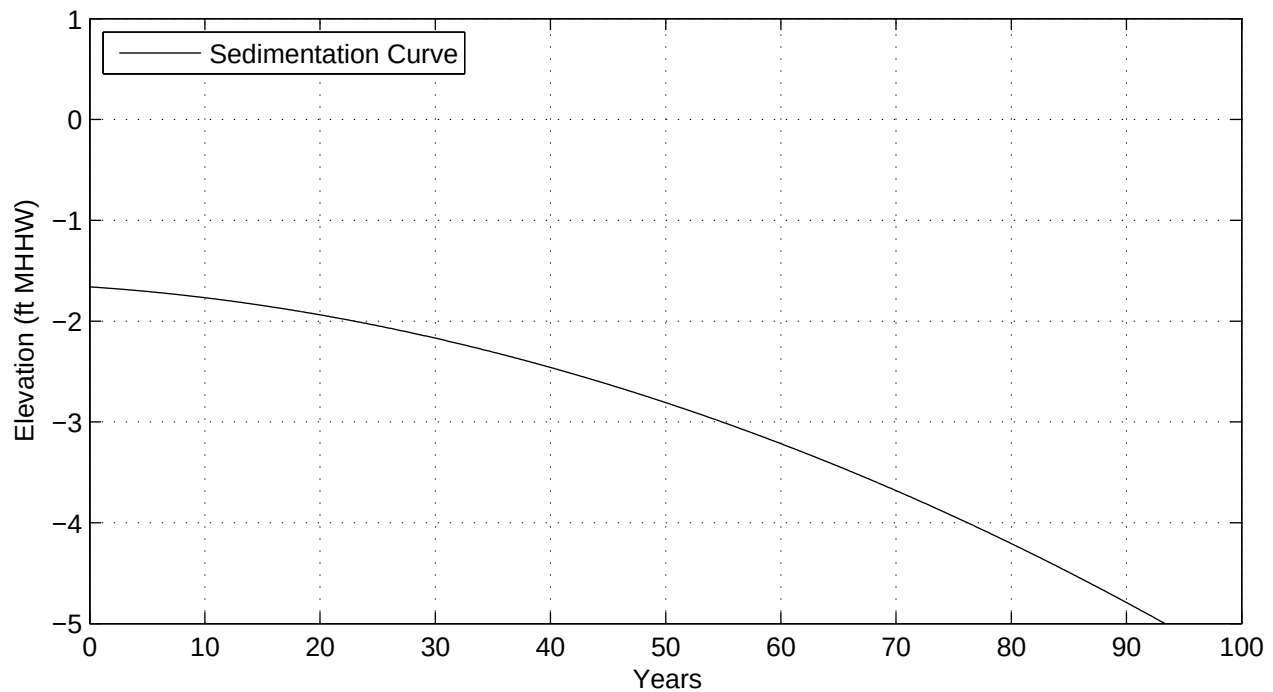
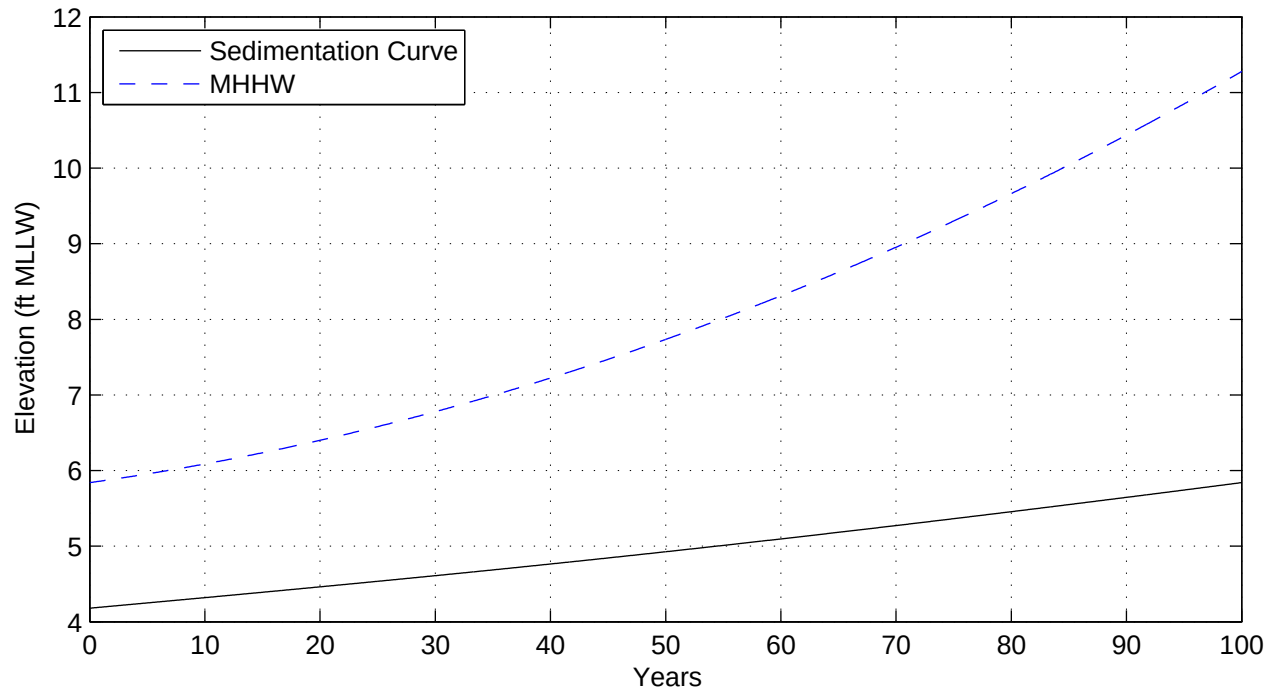
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=25$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 42
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 42

PWA Ref# 1989





Source:

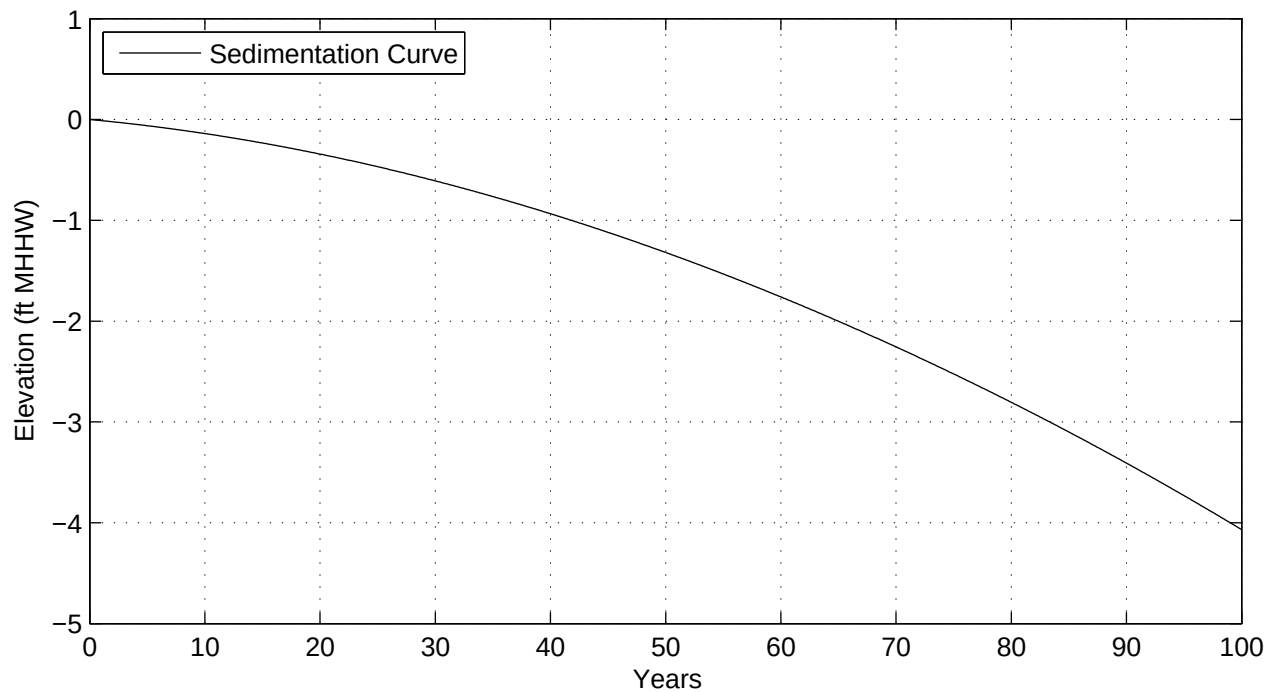
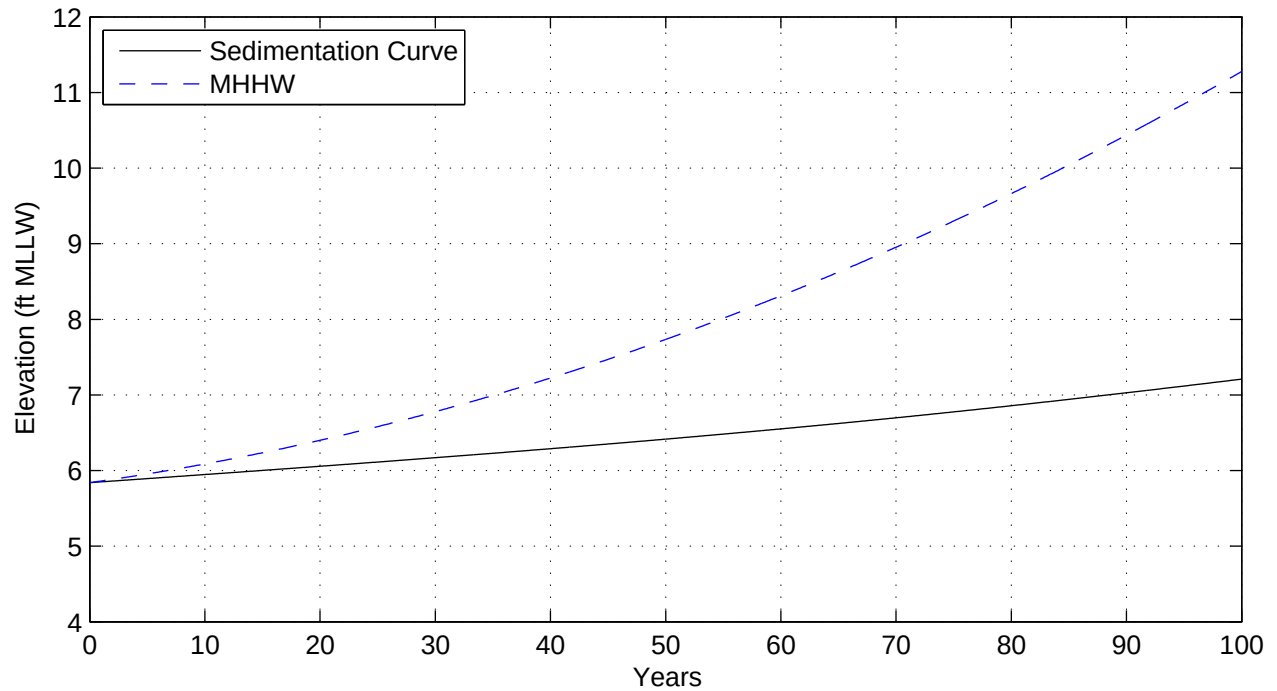
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=25$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 43
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 43

PWA Ref# 1989





Source:

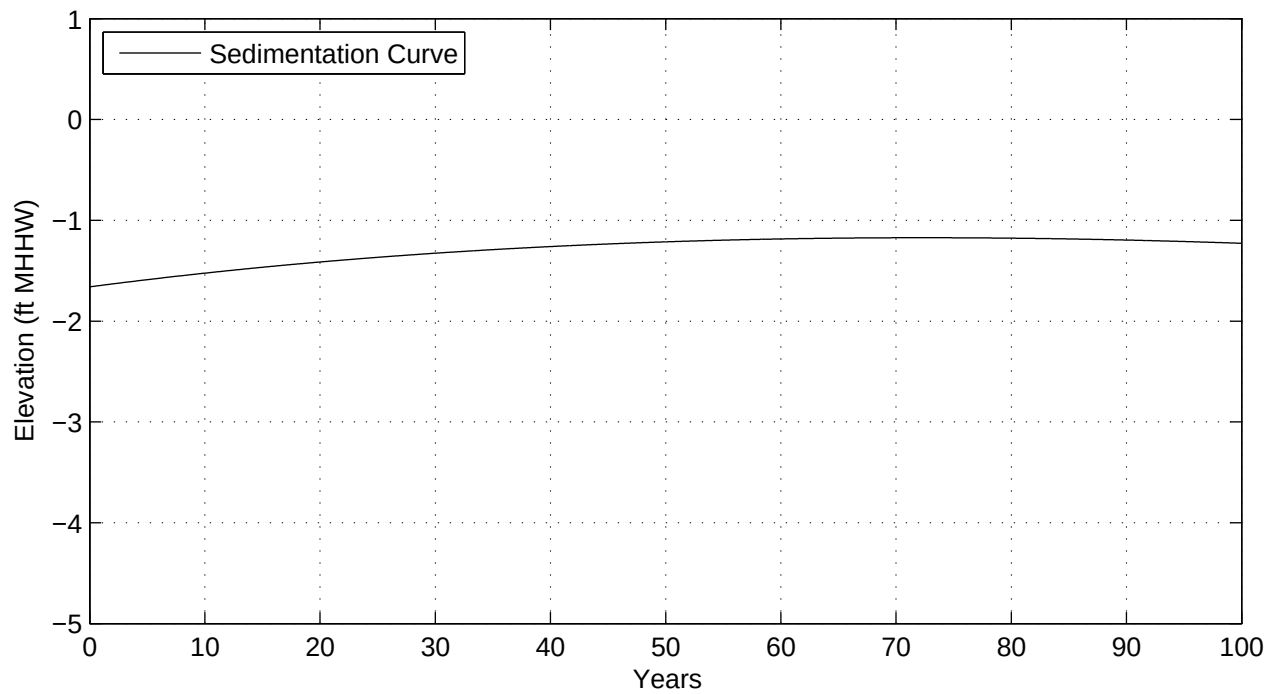
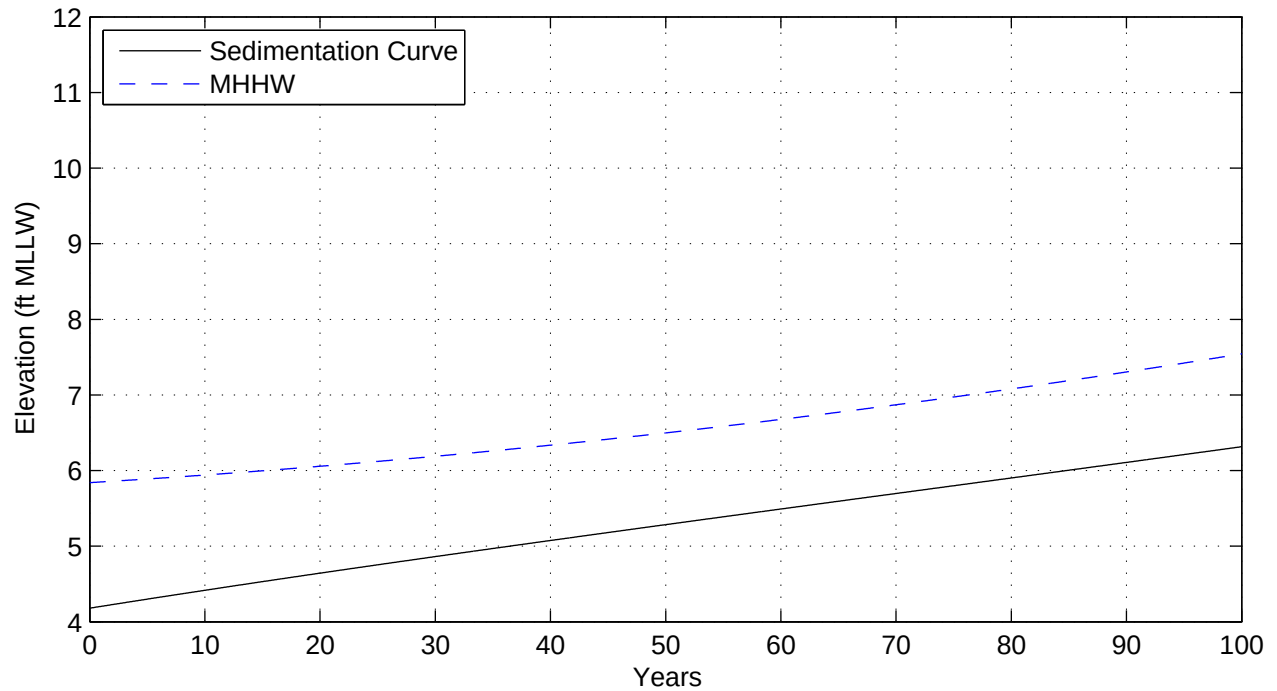
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 C_o =25 mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 44
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 44

PWA Ref# 1989





Source:

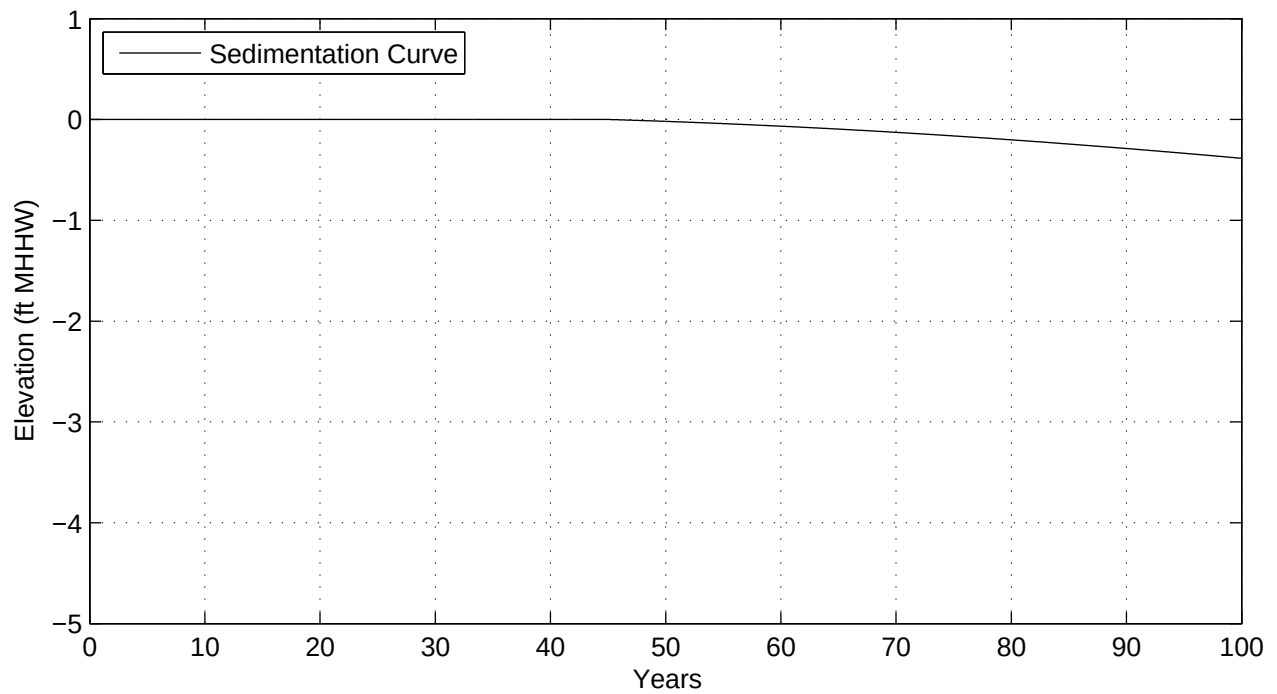
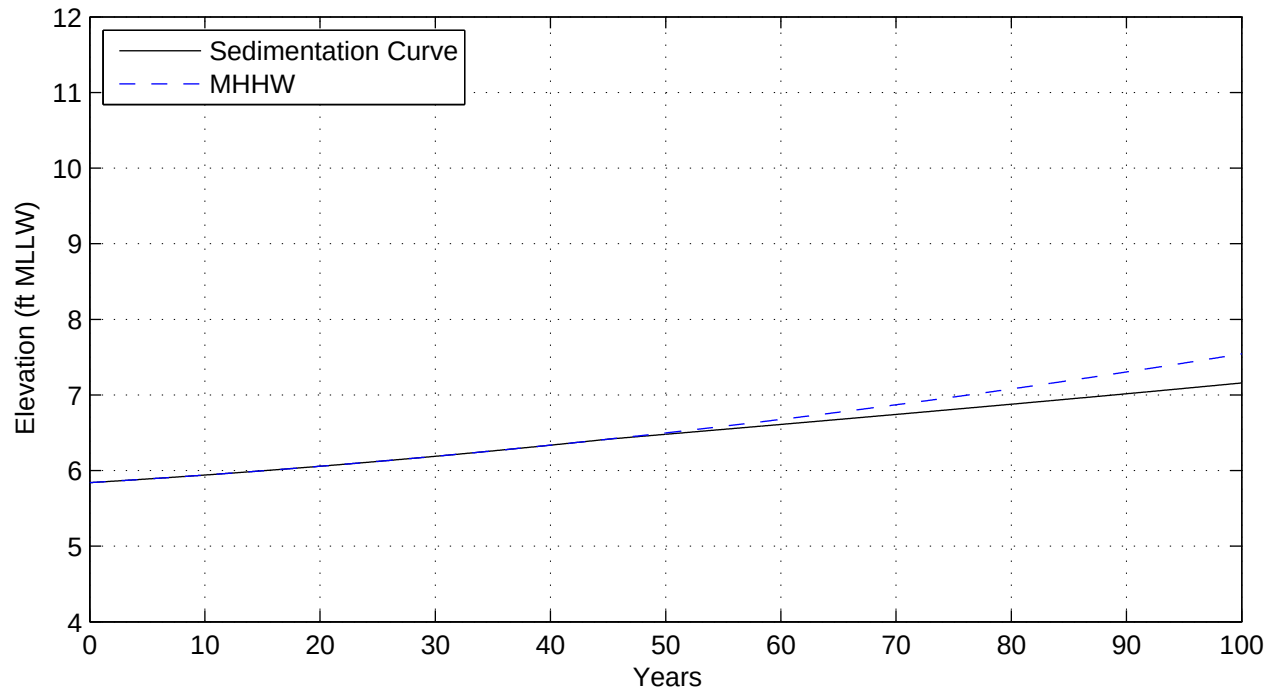
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=50$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 45
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 45

PWA Ref# 1989





Source:

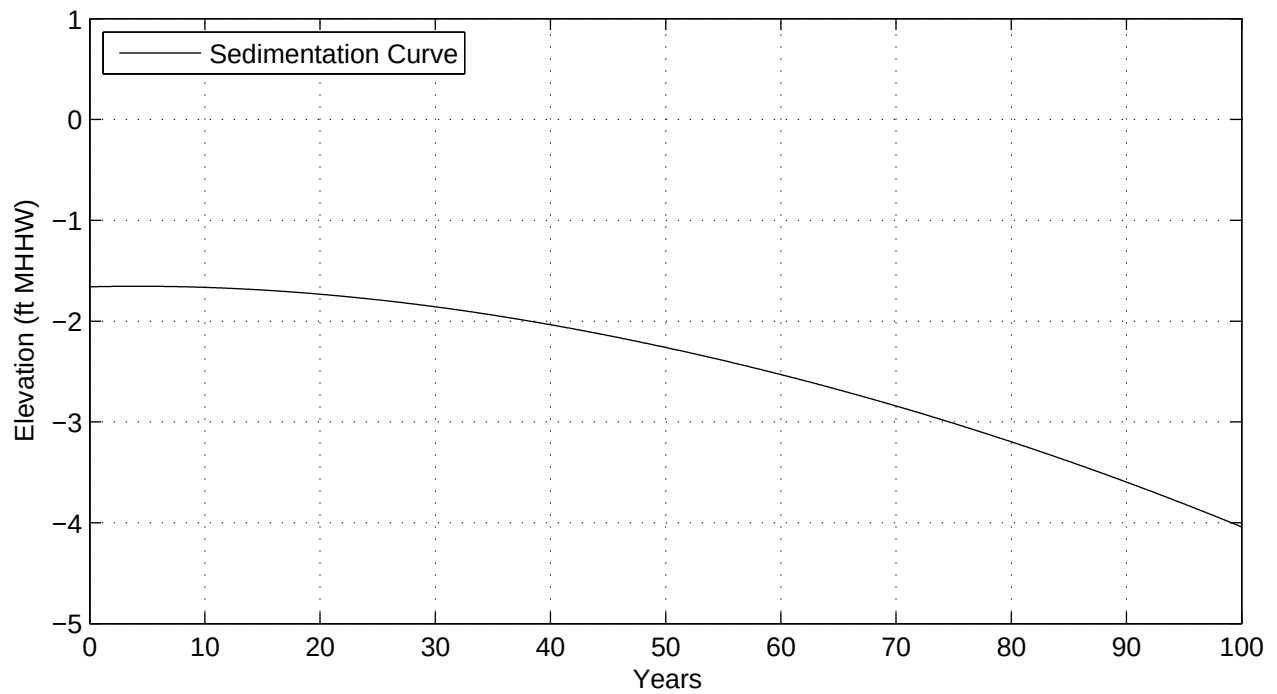
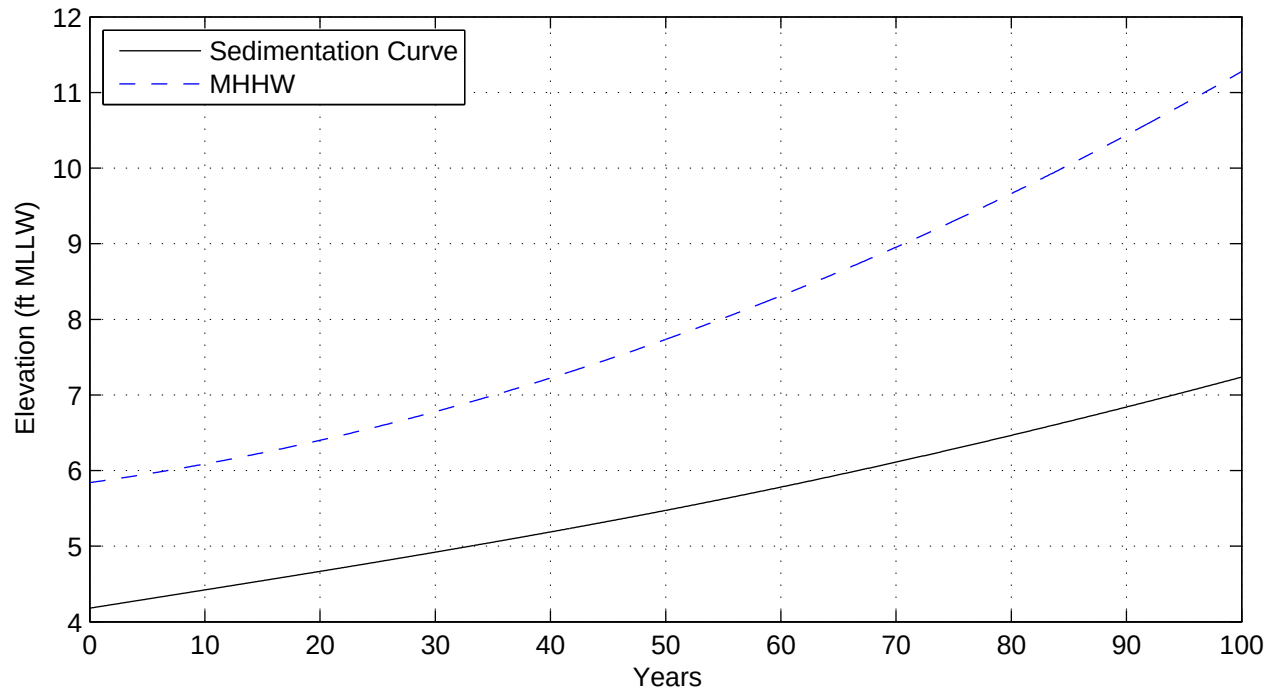
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=50$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 46
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 46

PWA Ref# 1989





Source:

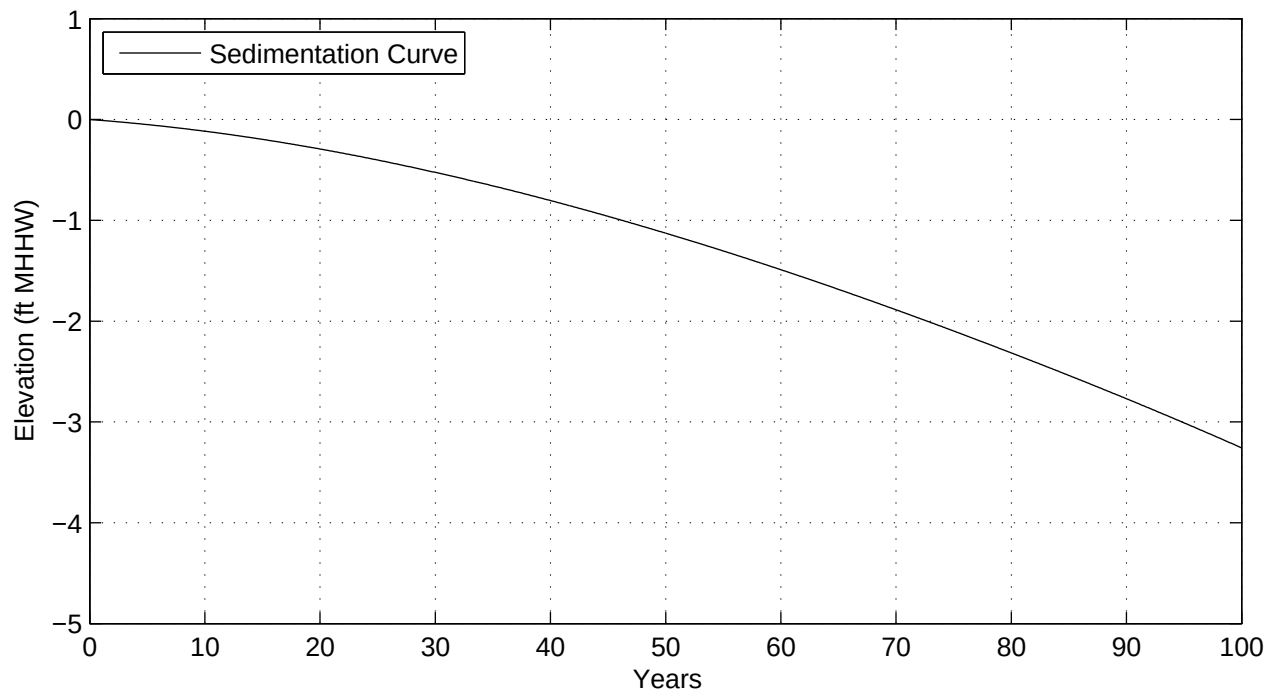
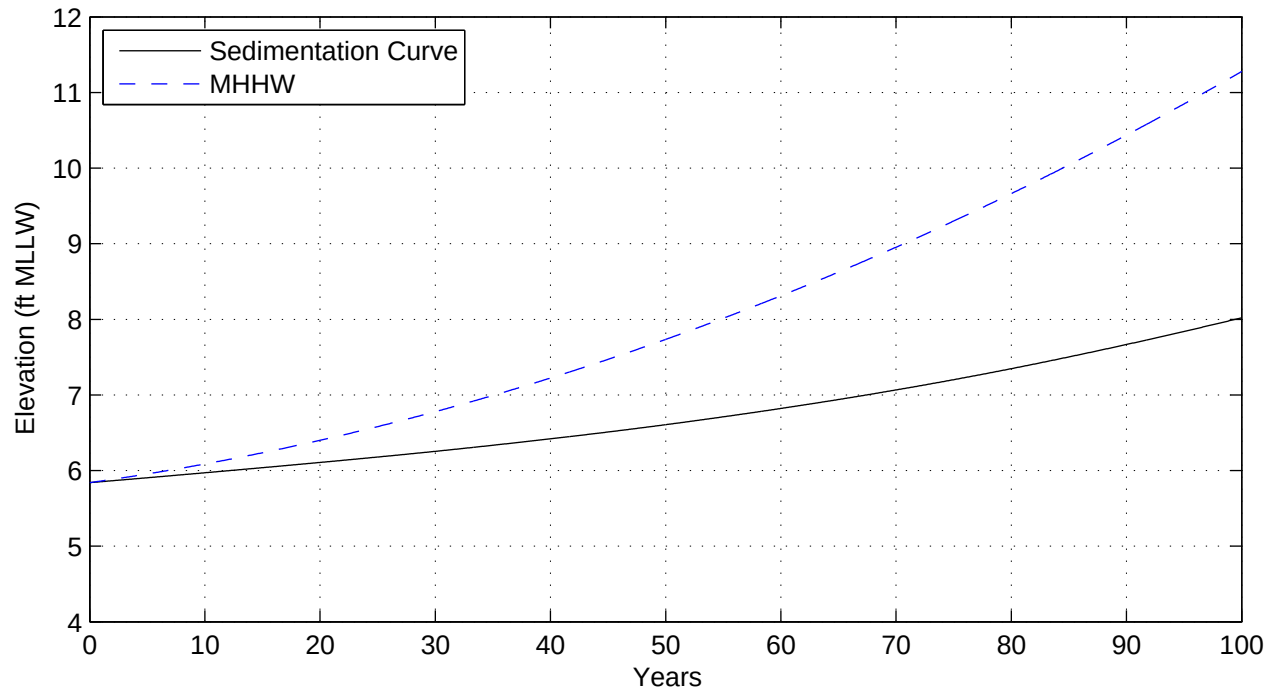
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 Co=50 mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 47
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 47

PWA Ref# 1989





Source:

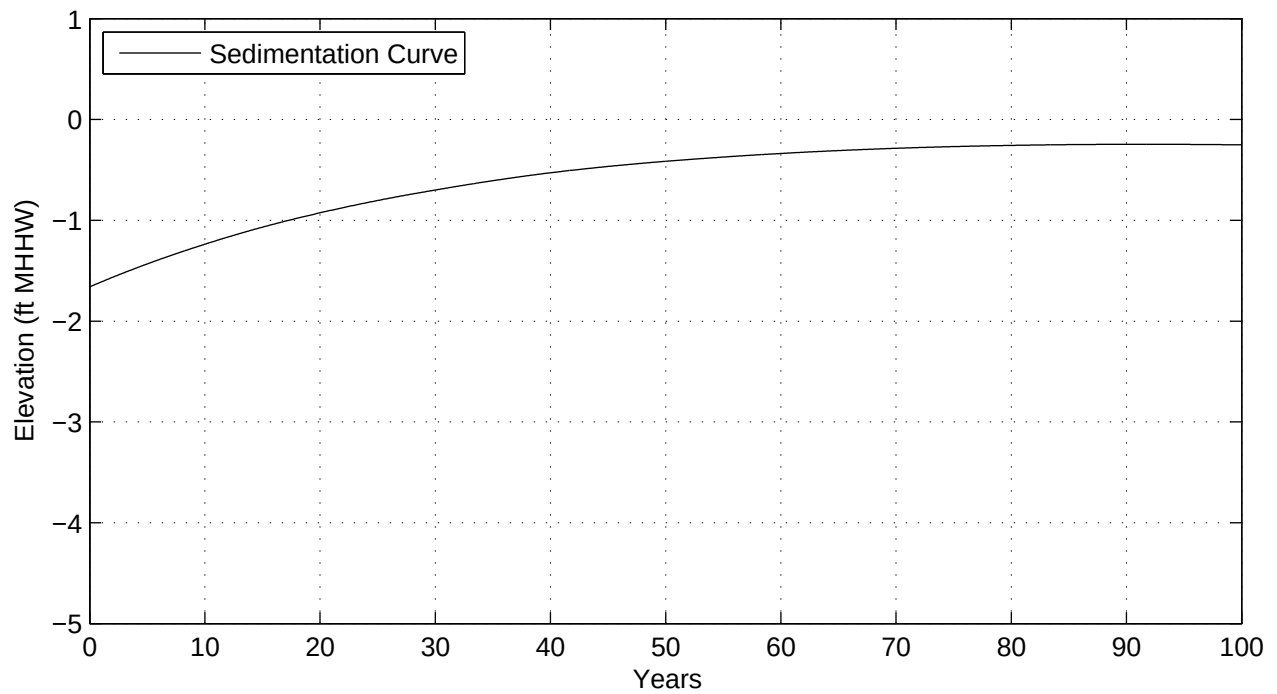
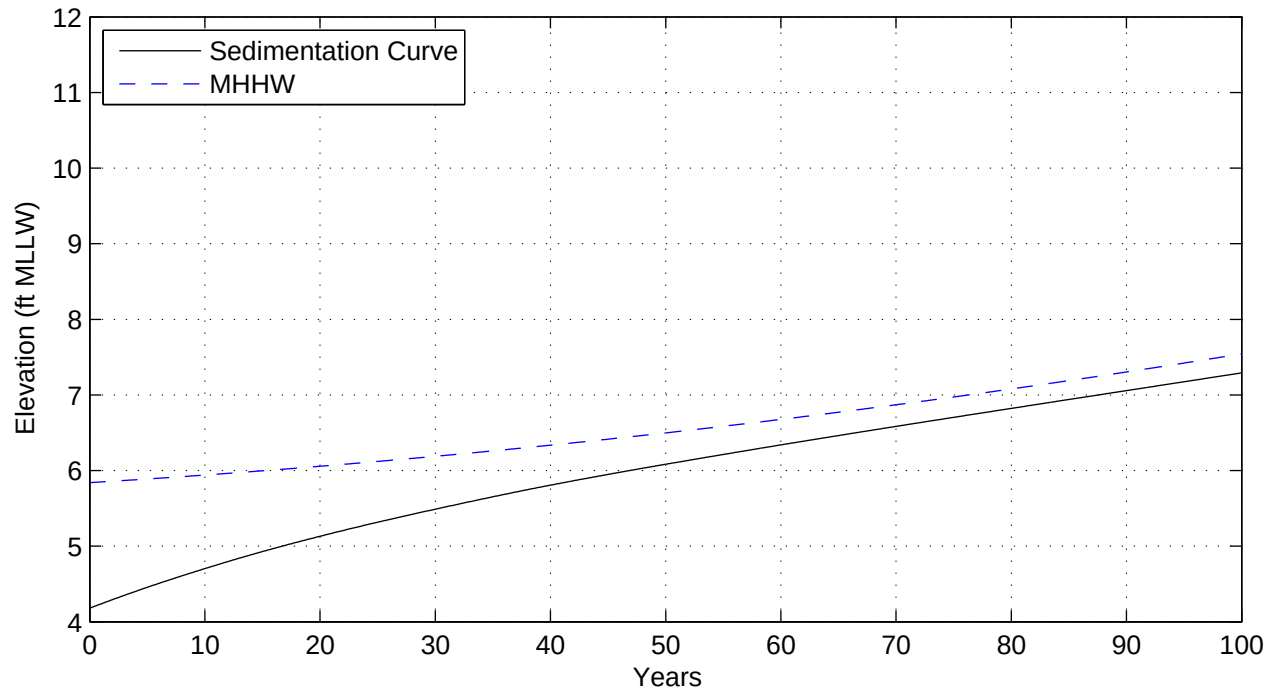
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=50$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 48
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 48

PWA Ref# 1989





Source:

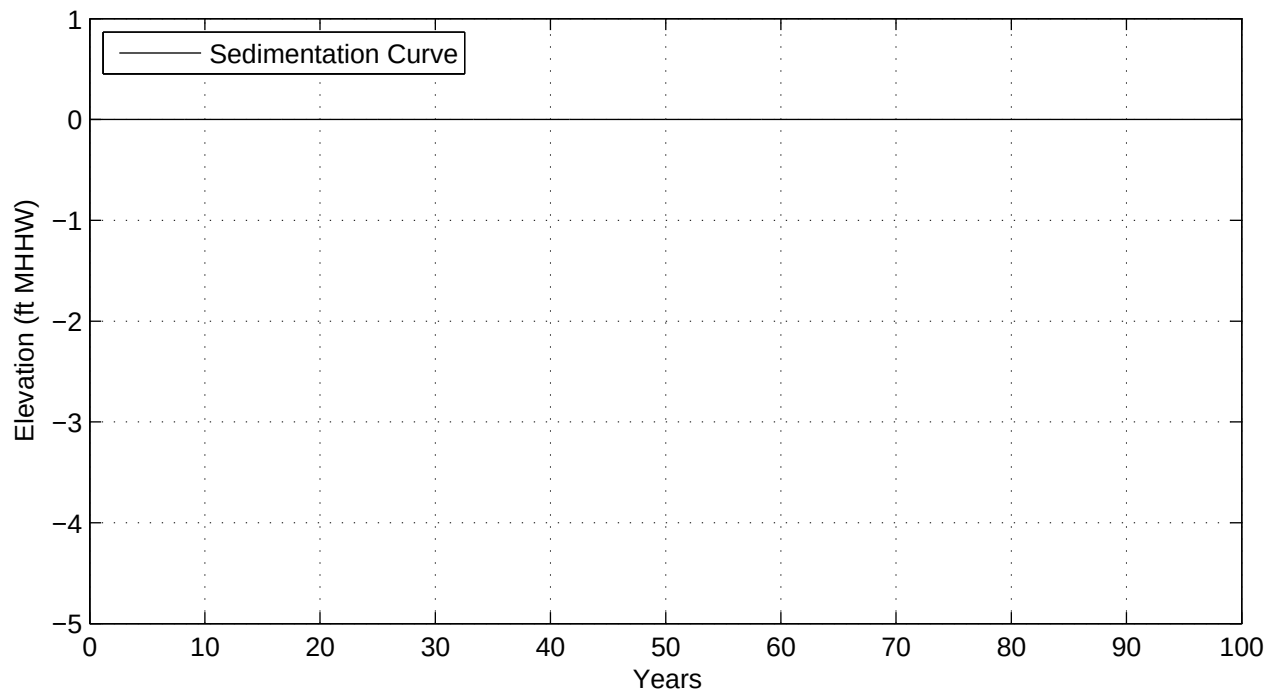
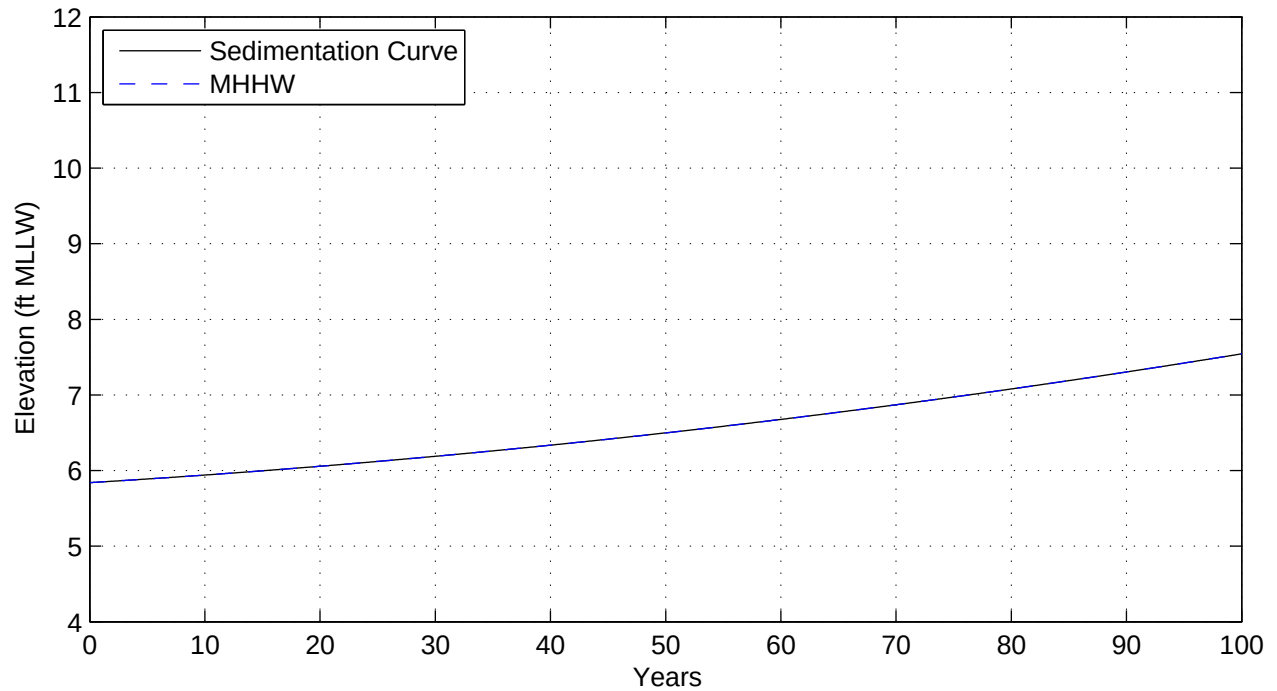
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
Co=100 mg/L. Organic rate=3.0 mm/yr. Starting elevation at
Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

Figure 49
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 49

PWA Ref# 1989





Source:

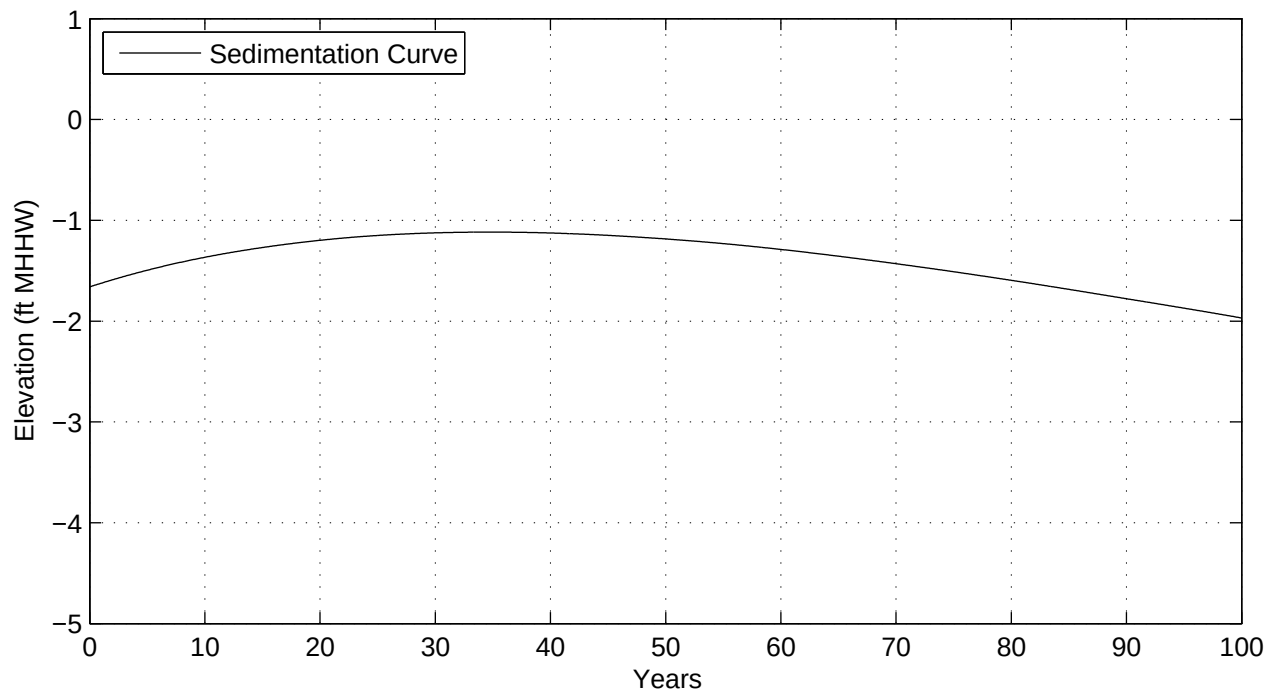
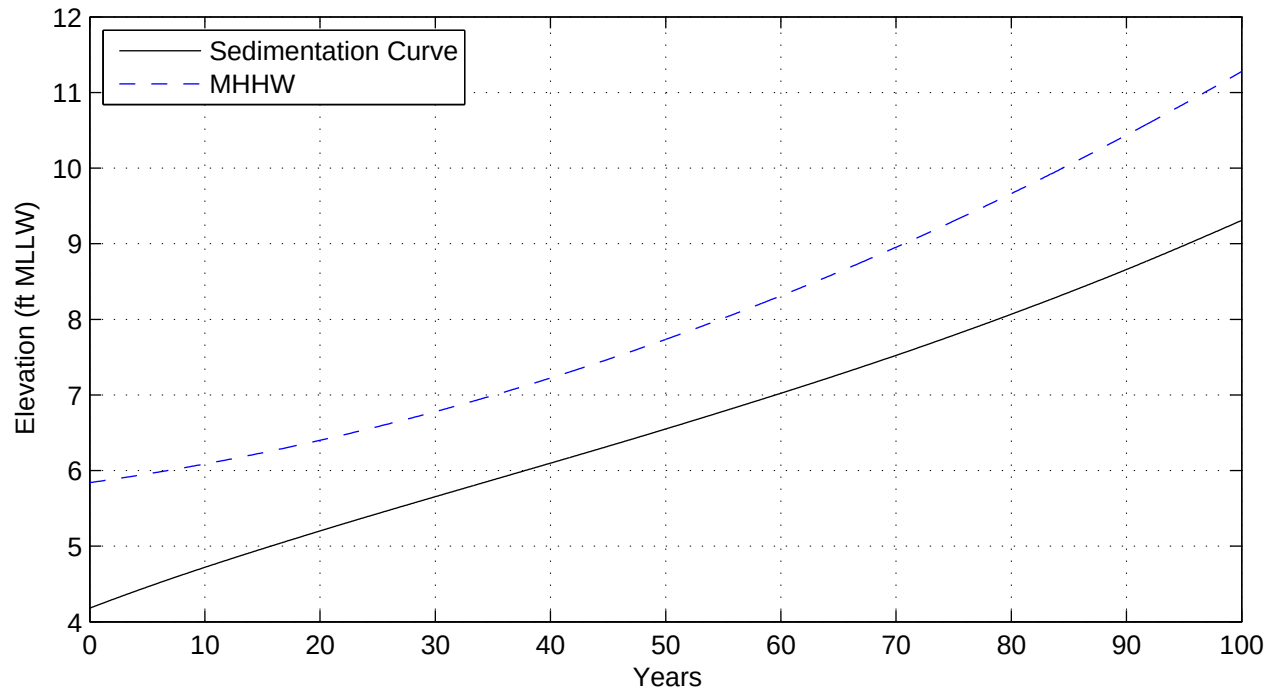
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 Co=100 mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 50
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 50

PWA Ref# 1989





Source:

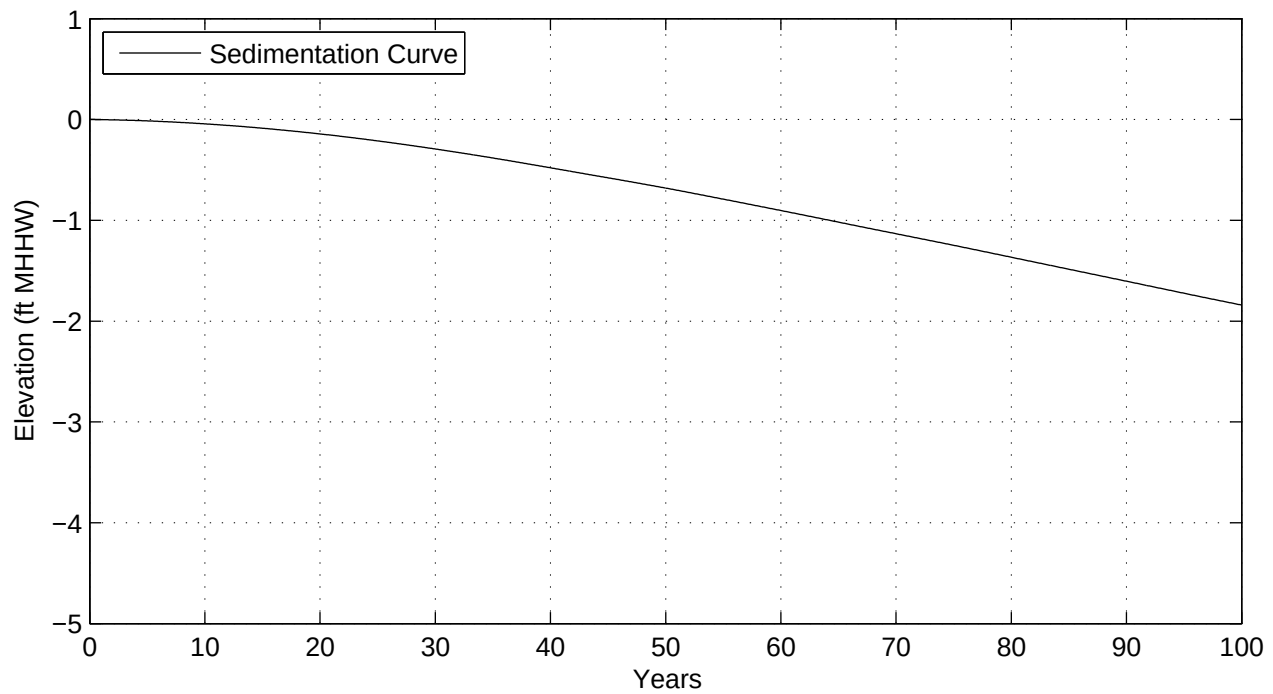
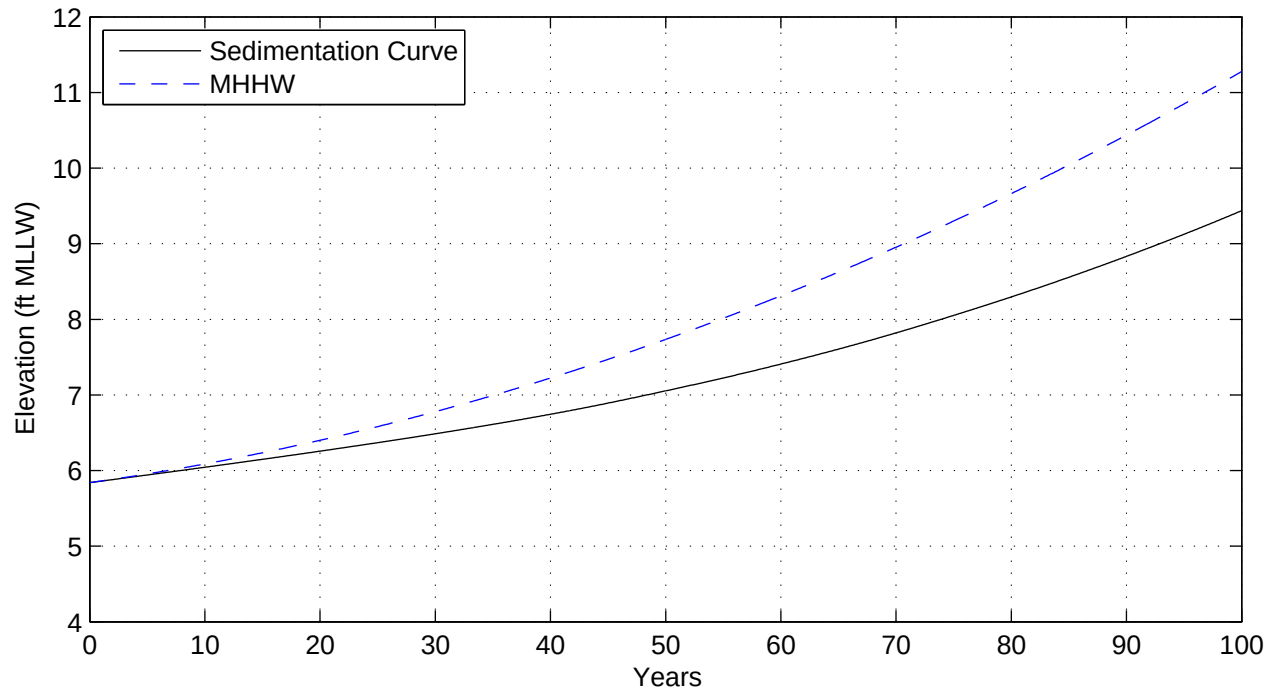
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 C_o =100 mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 51
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 51

PWA Ref# 1989





Source:

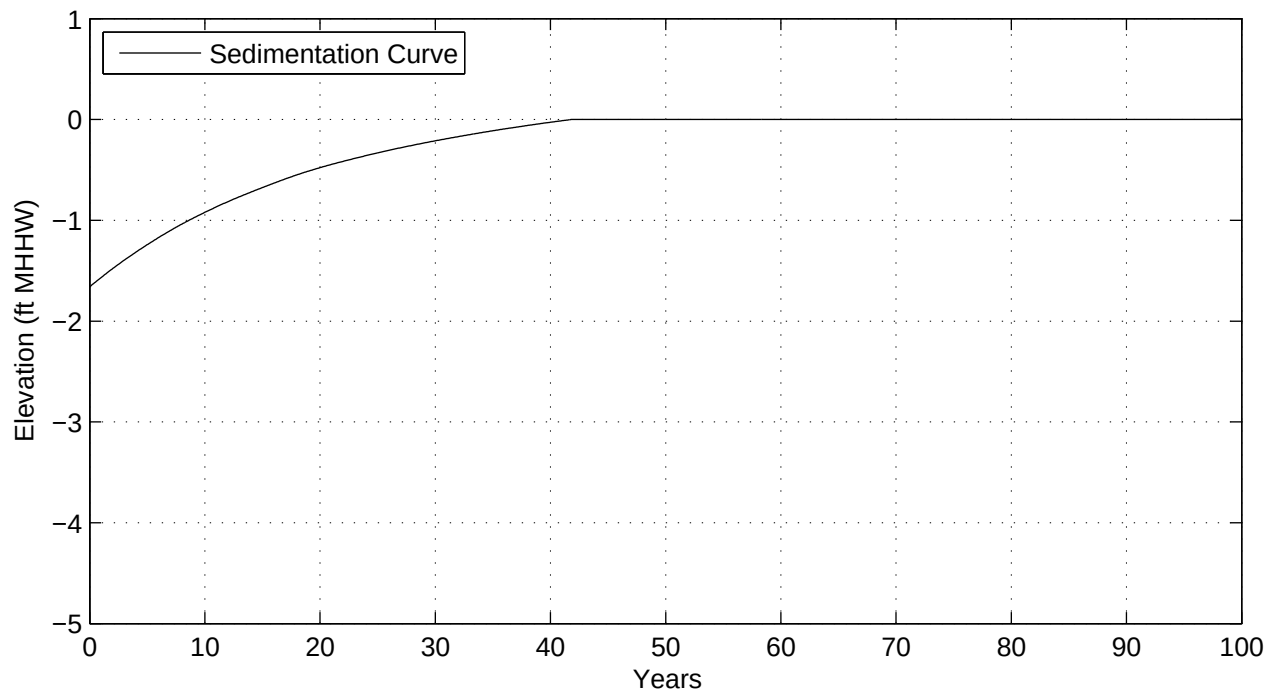
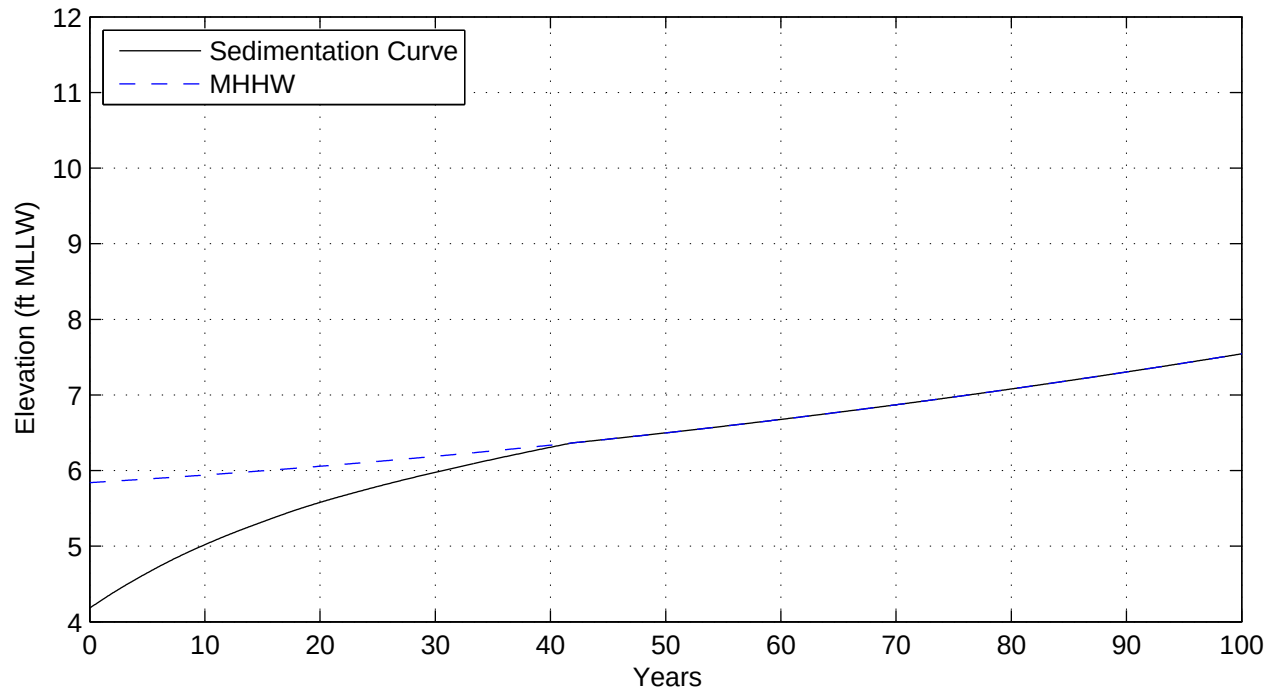
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $Co=100$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 52
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 52

PWA Ref# 1989





Source:

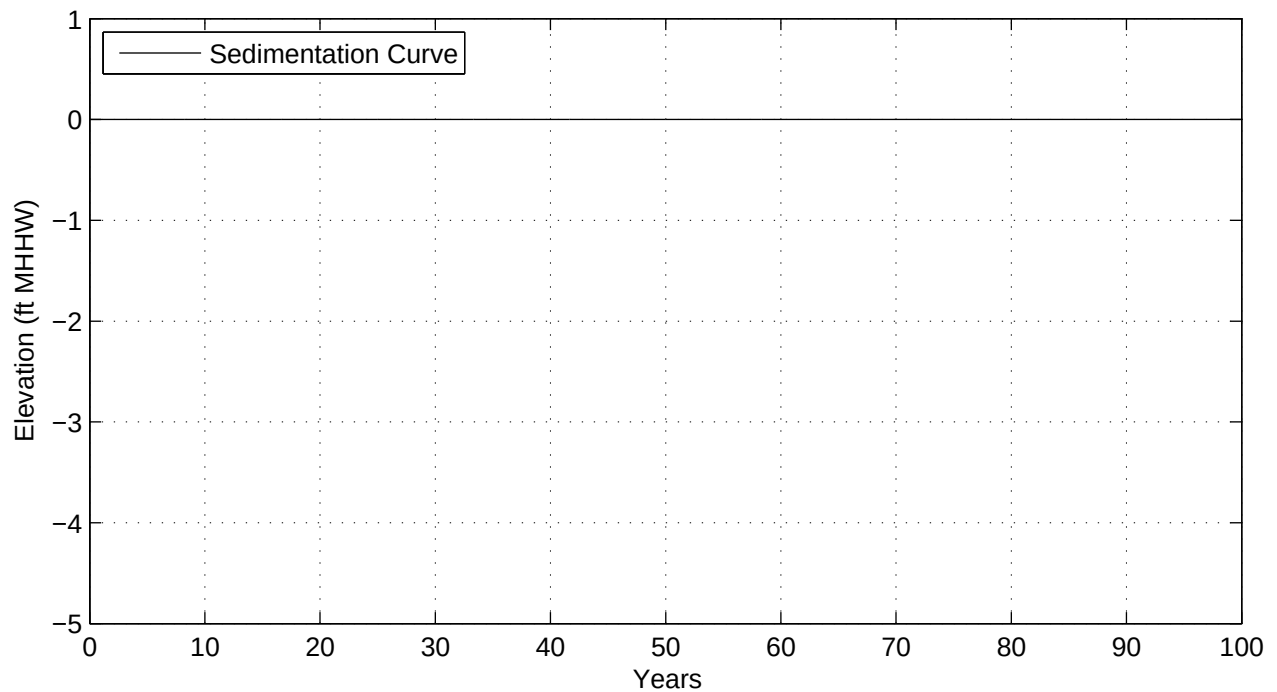
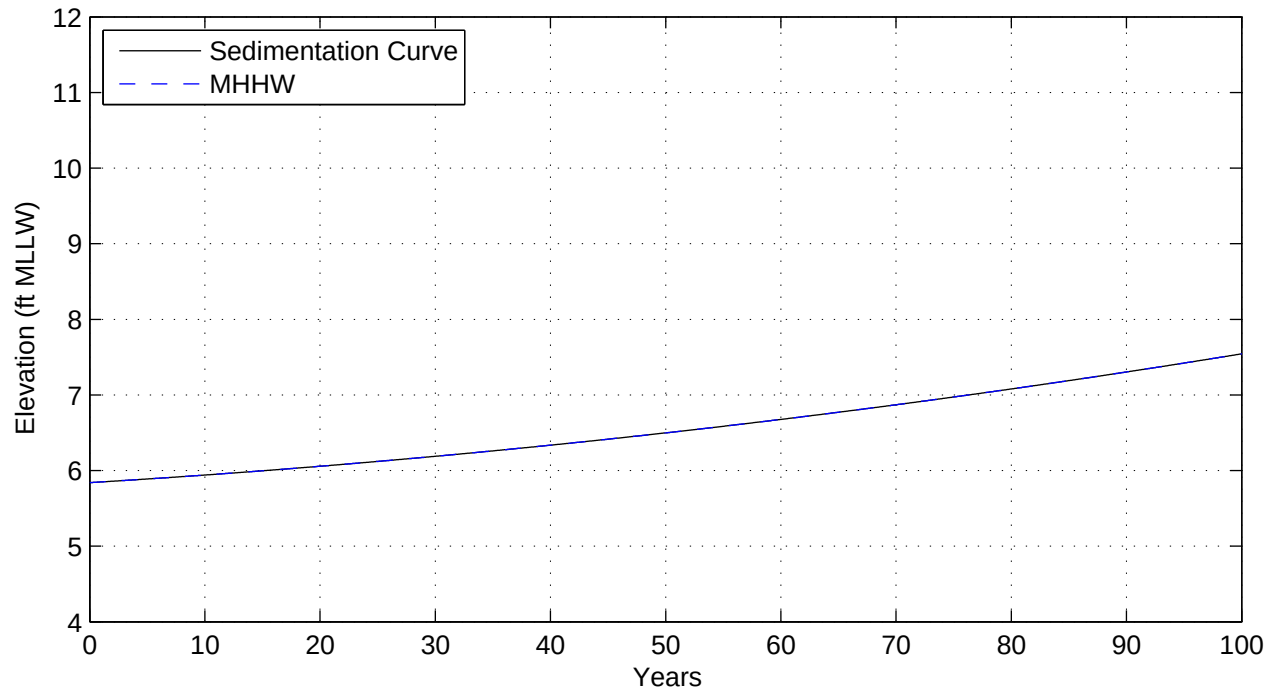
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
Co=150 mg/L. Organic rate=3.0 mm/yr. Starting elevation at
Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

Figure 53
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 53

PWA Ref# 1989





Source:

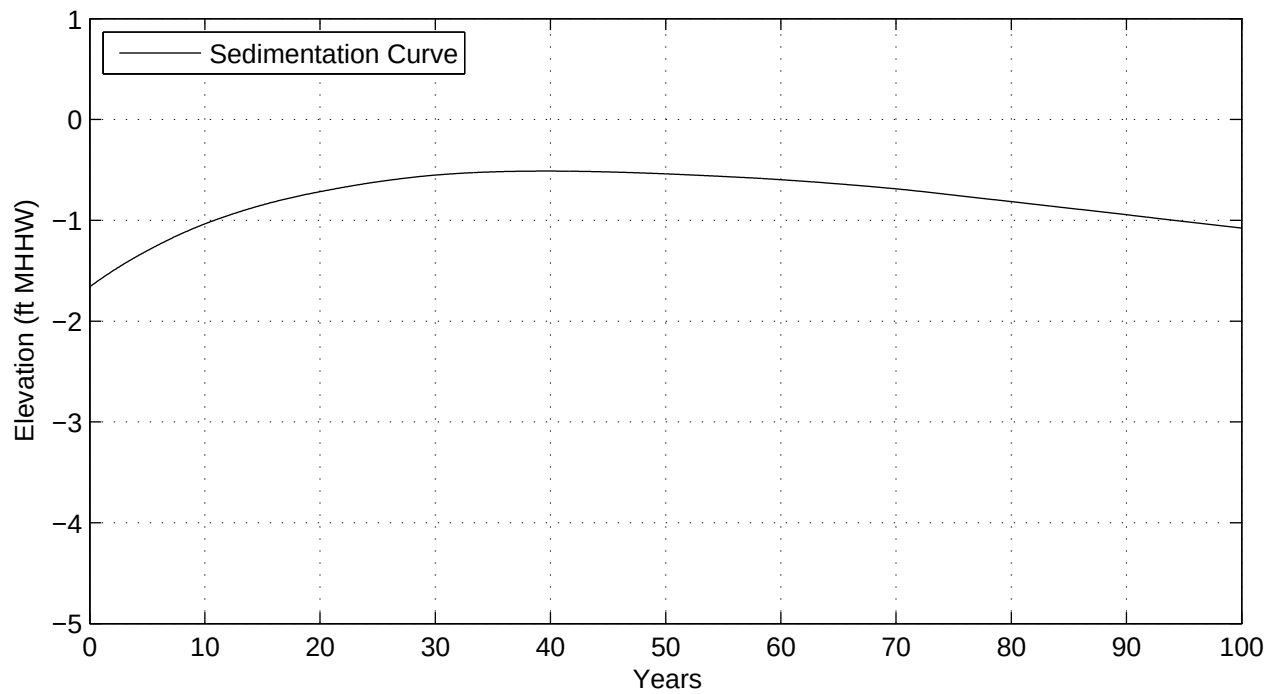
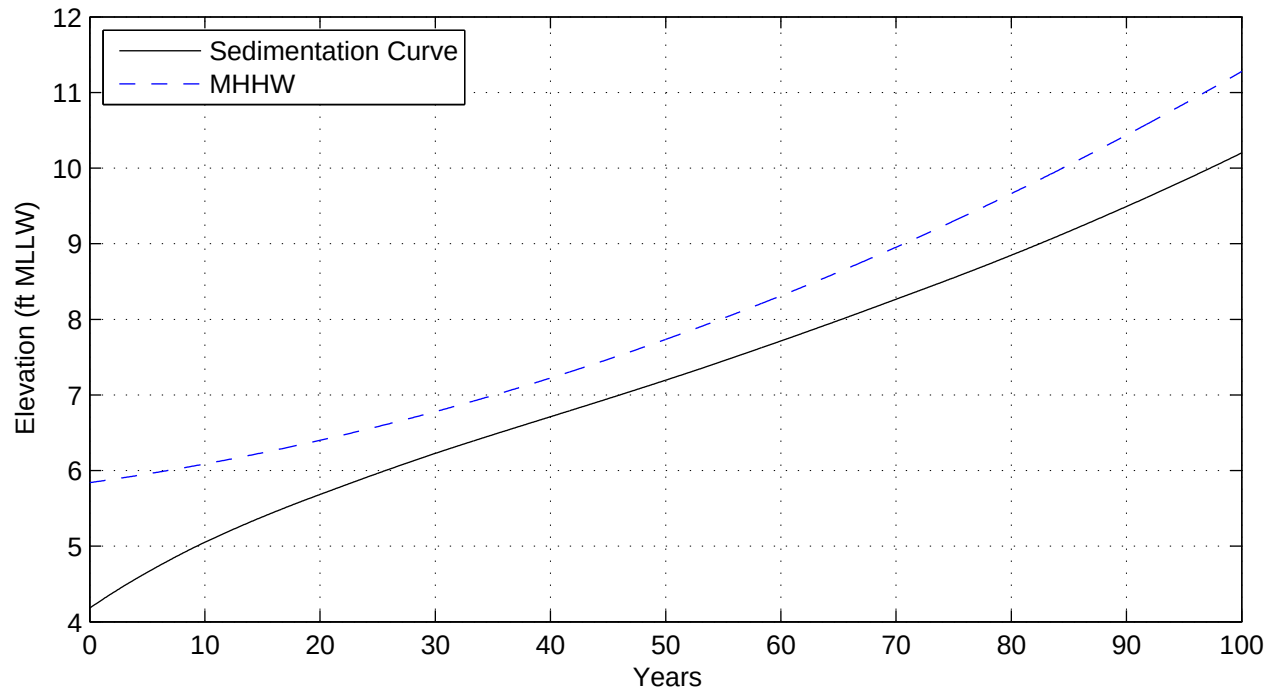
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
Co=150 mg/L. Organic rate=3.0 mm/yr. Starting elevation at
Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

Figure 54
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 54

PWA Ref# 1989





Source:

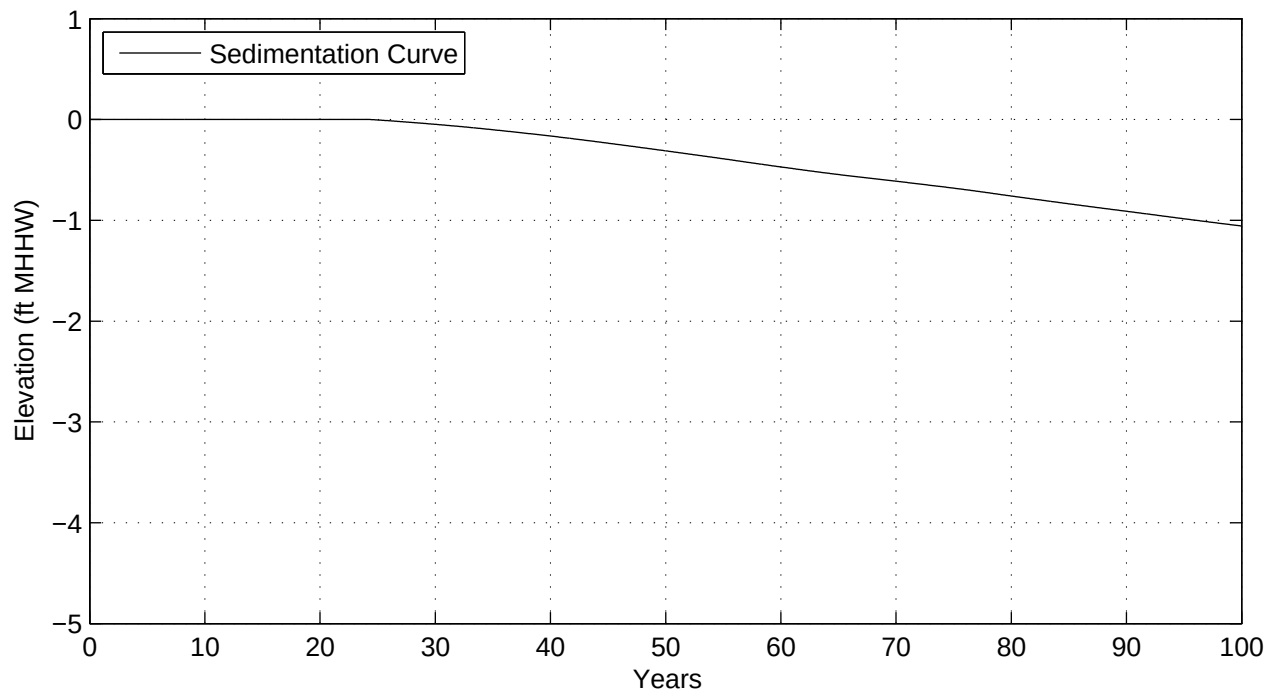
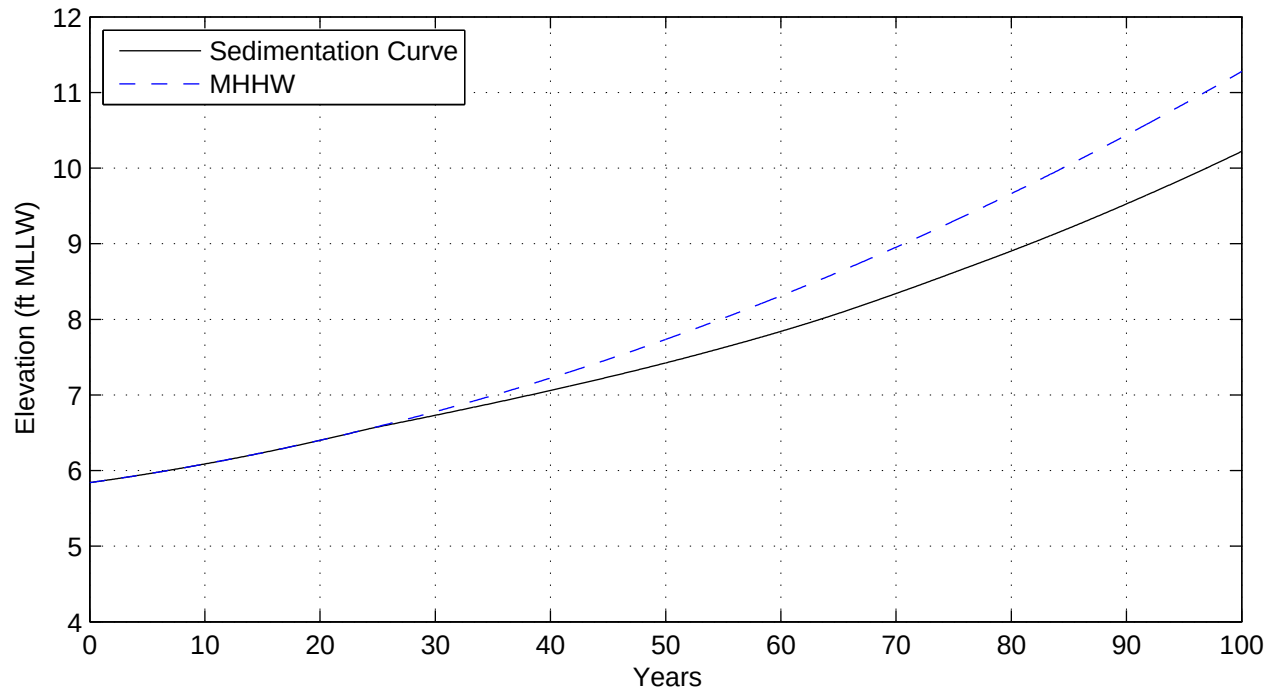
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $Co=150$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 55
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 55

PWA Ref# 1989





Source:

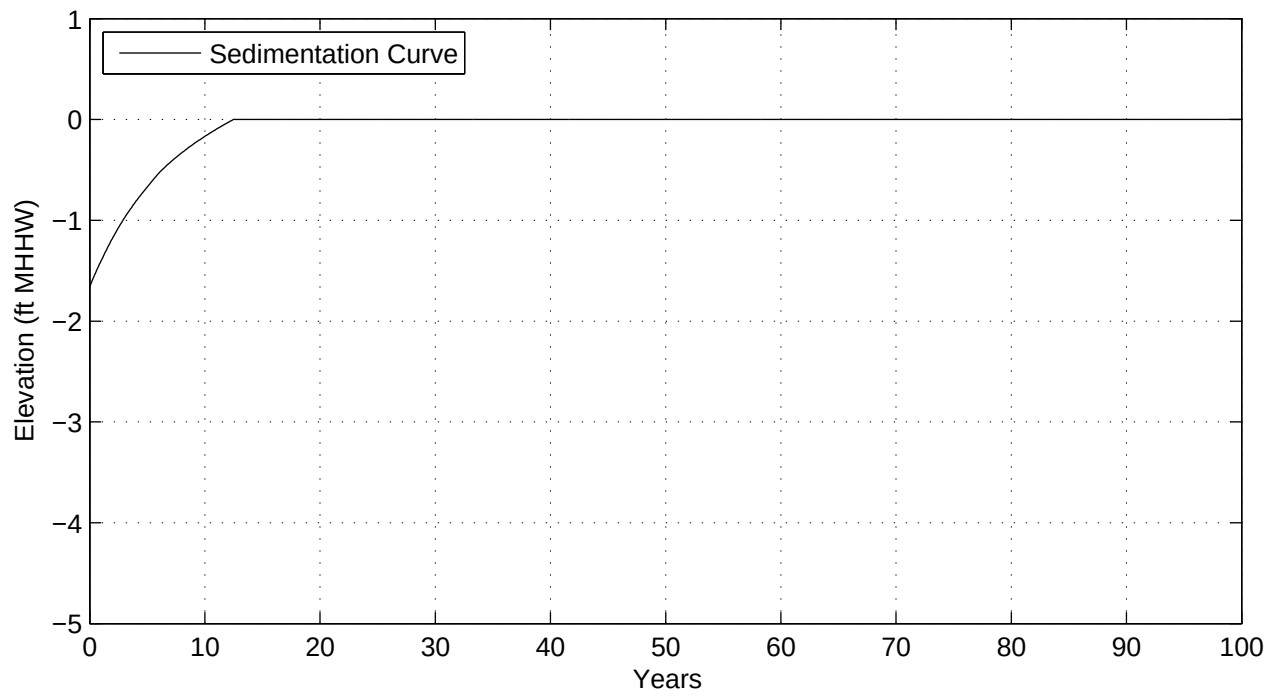
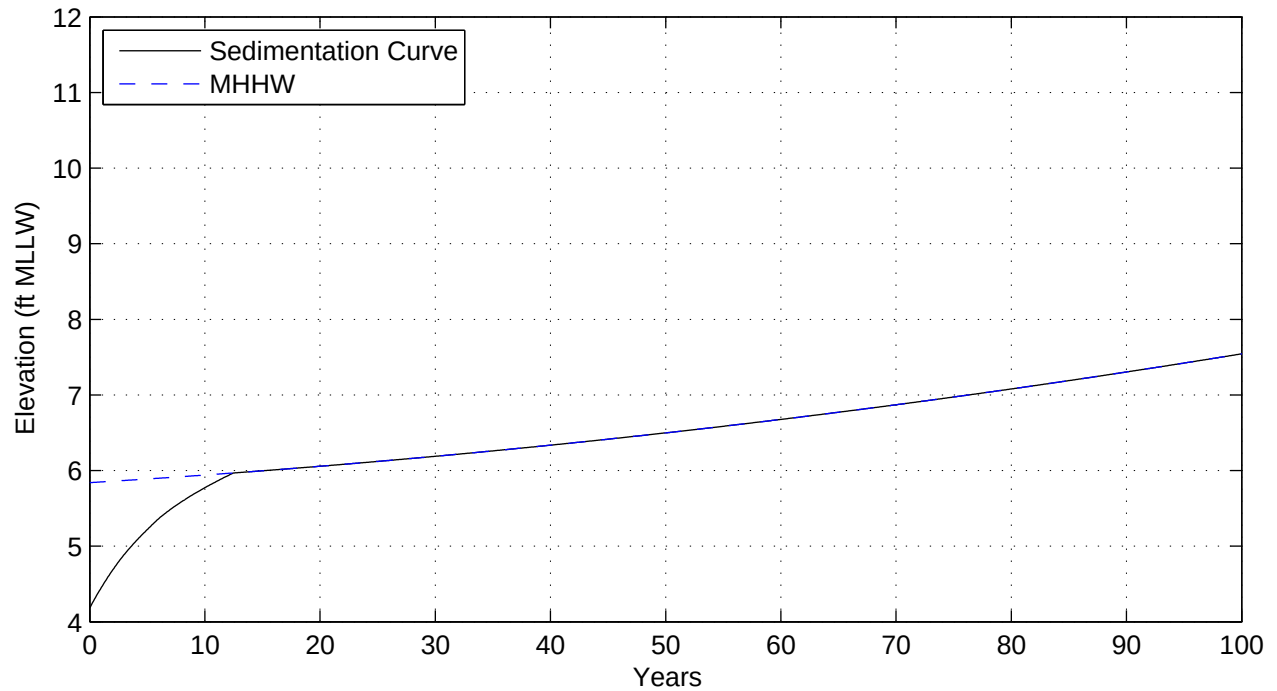
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $Co=150$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 56
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 56

PWA Ref# 1989





Source:

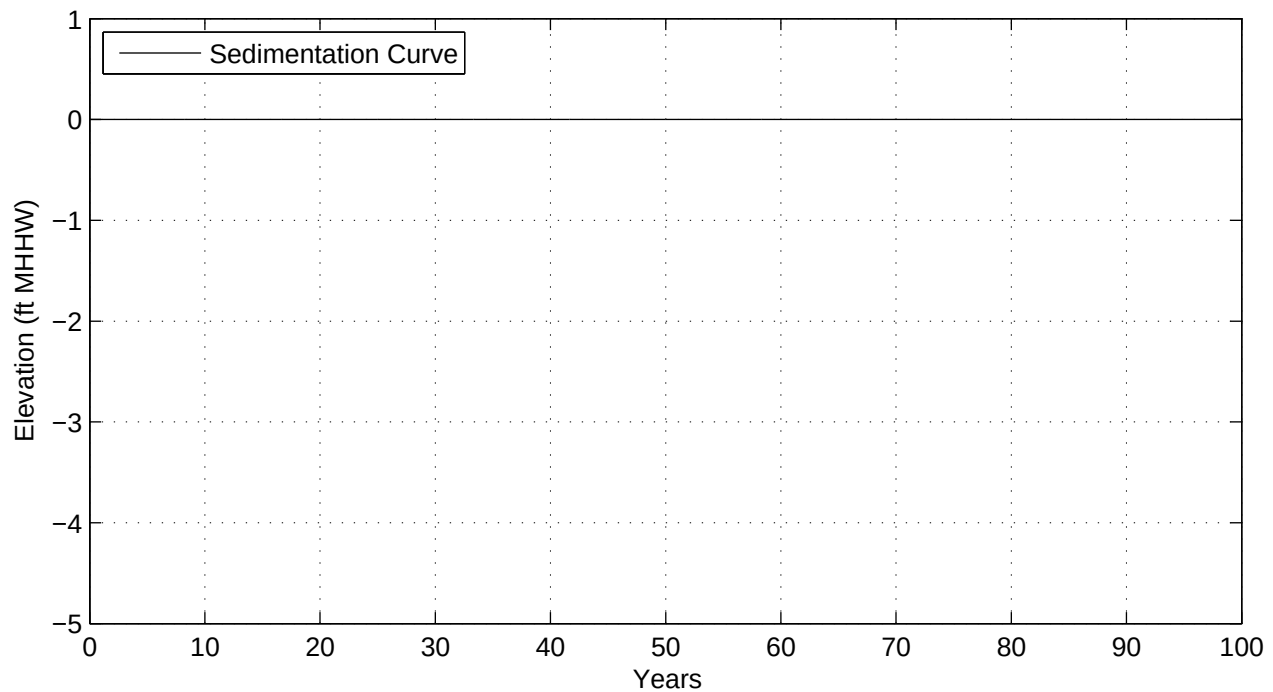
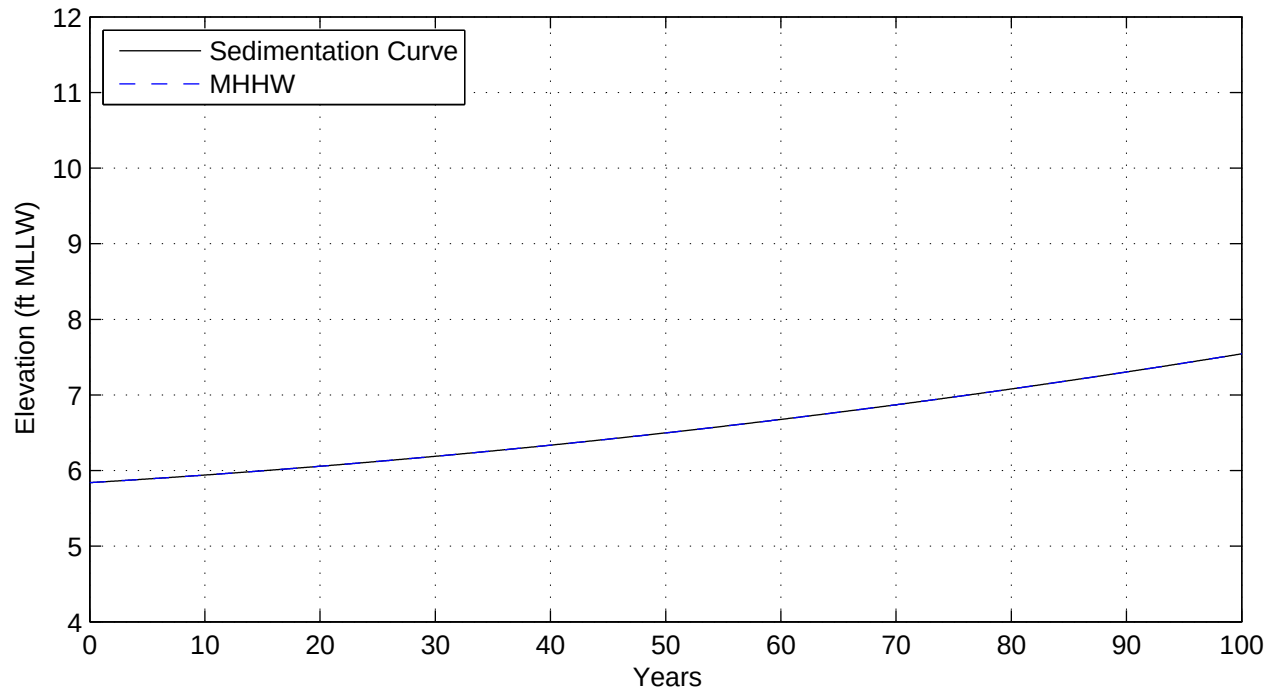
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=300$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 57
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 57

PWA Ref# 1989





Source:

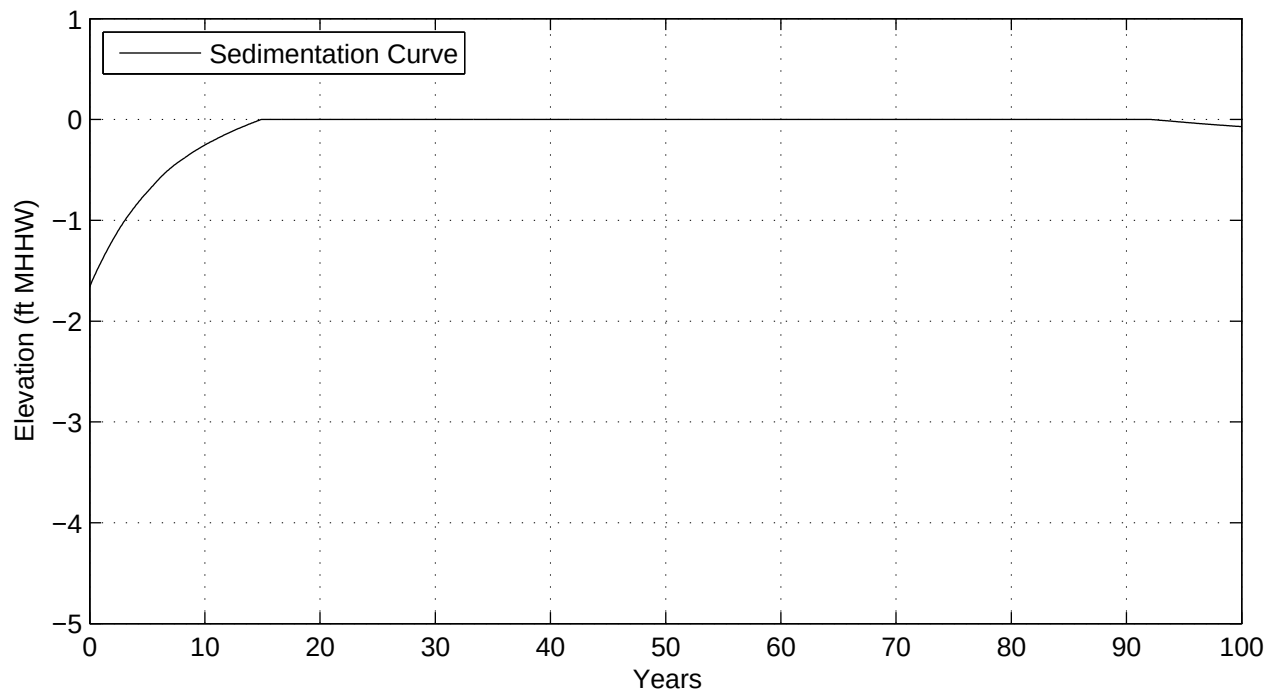
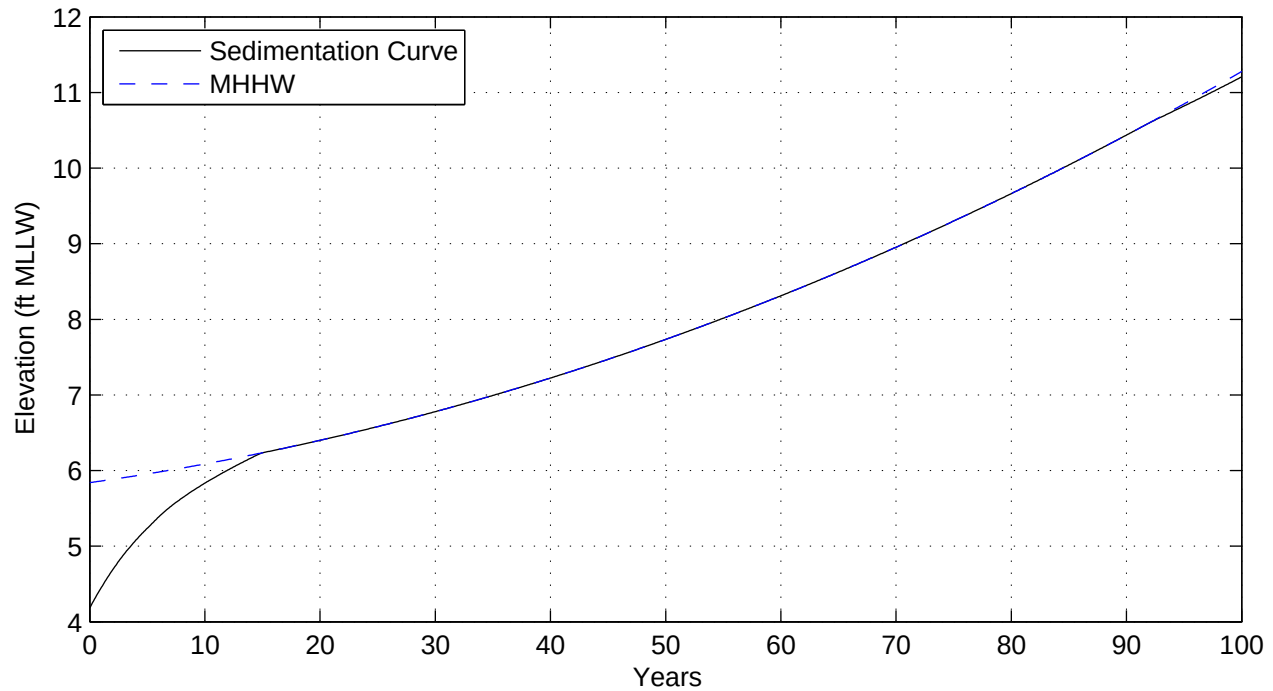
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=300$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 58
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 58

PWA Ref# 1989





Source:

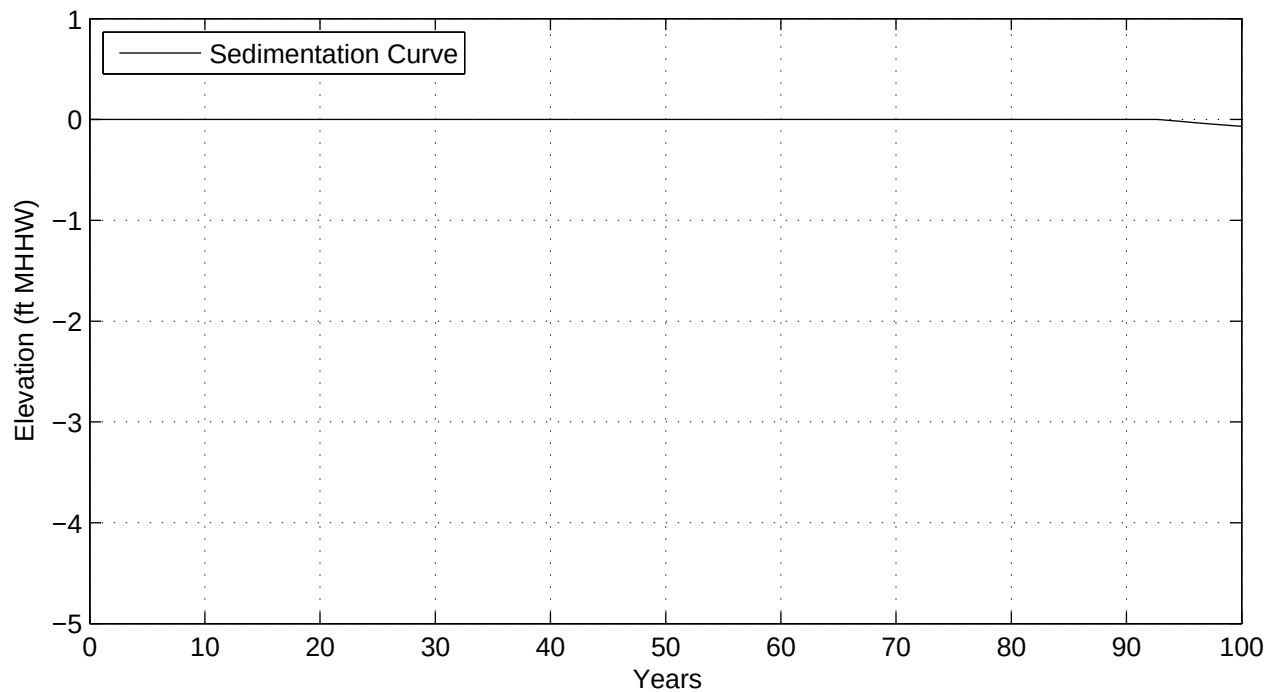
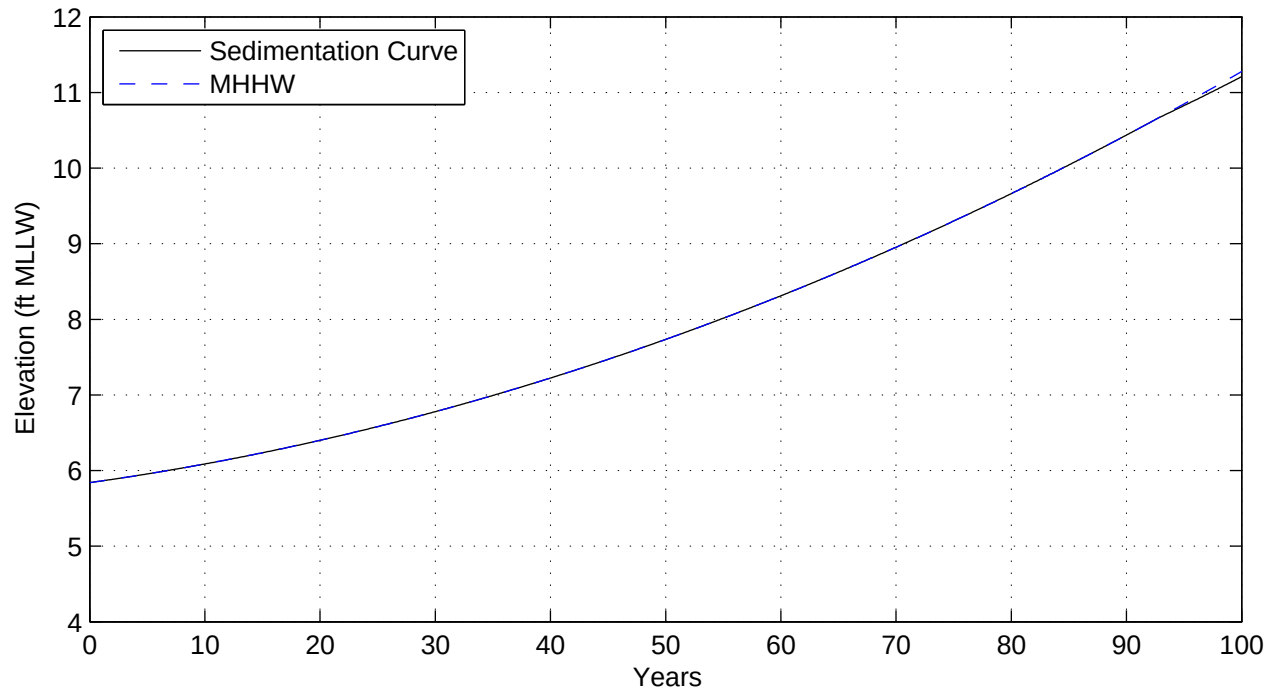
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=300$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 4.18 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 59
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 59

PWA Ref# 1989





Source:

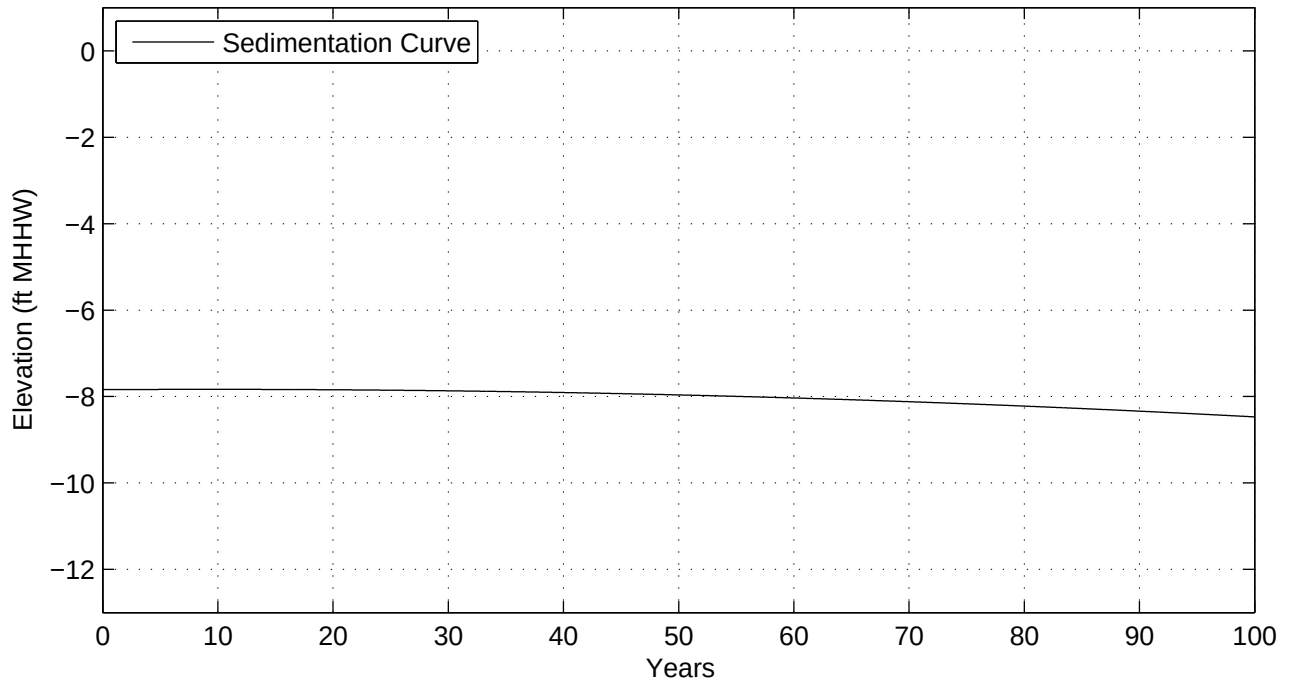
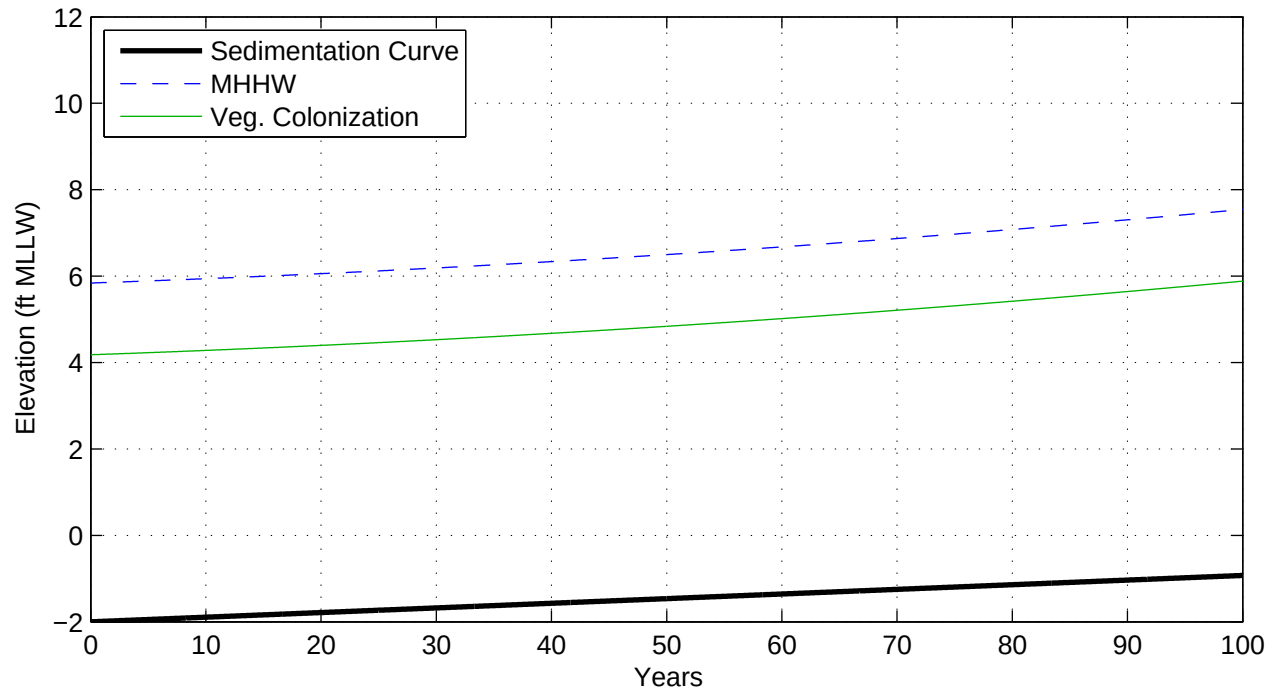
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=300$ mg/L. Organic rate=3.0 mm/yr. Starting elevation at
 Year 0 is 5.84 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 60
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 60

PWA Ref# 1989





Source:

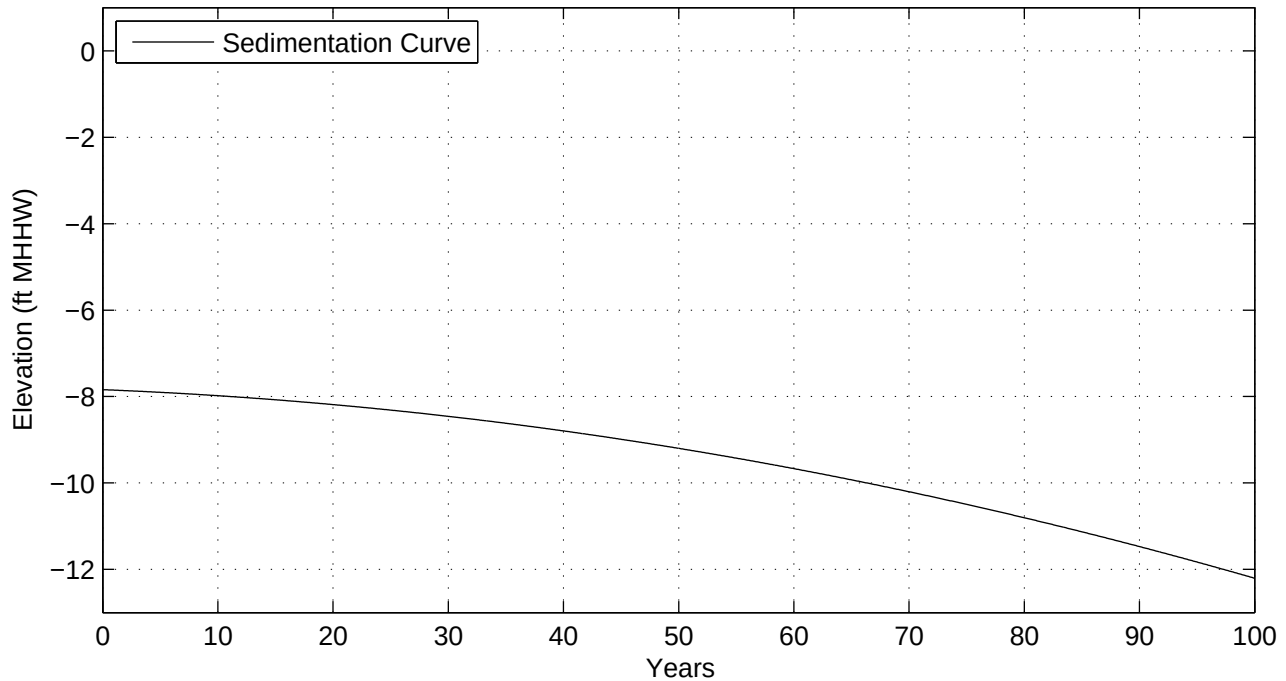
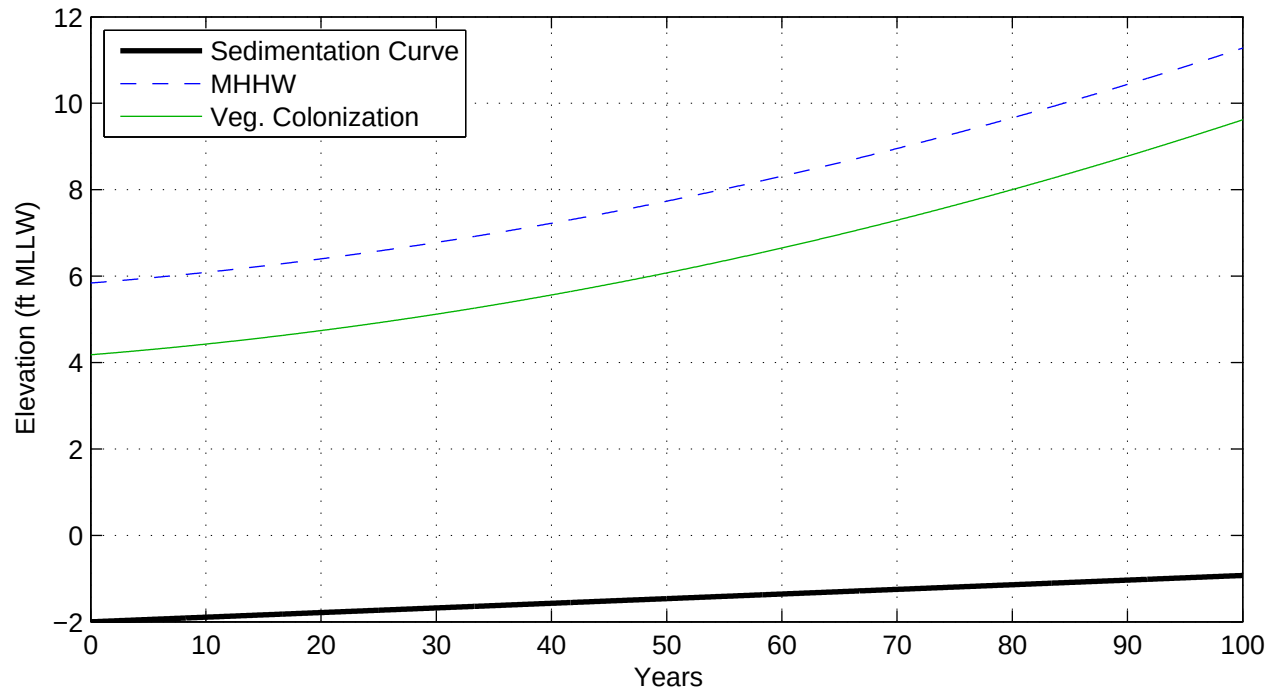
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=25$ mg/L. Organic rate=0.0 mm/yr. Starting elevation at
 Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 61
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 61

PWA Ref# 1989





Source:

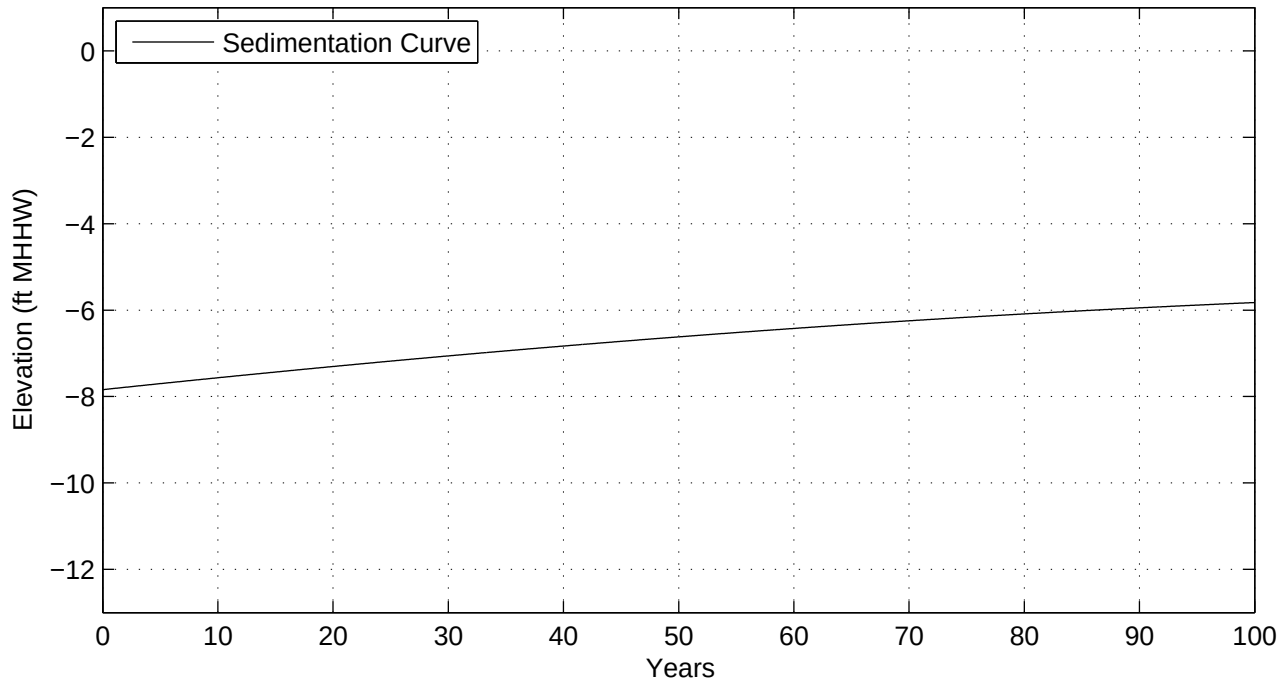
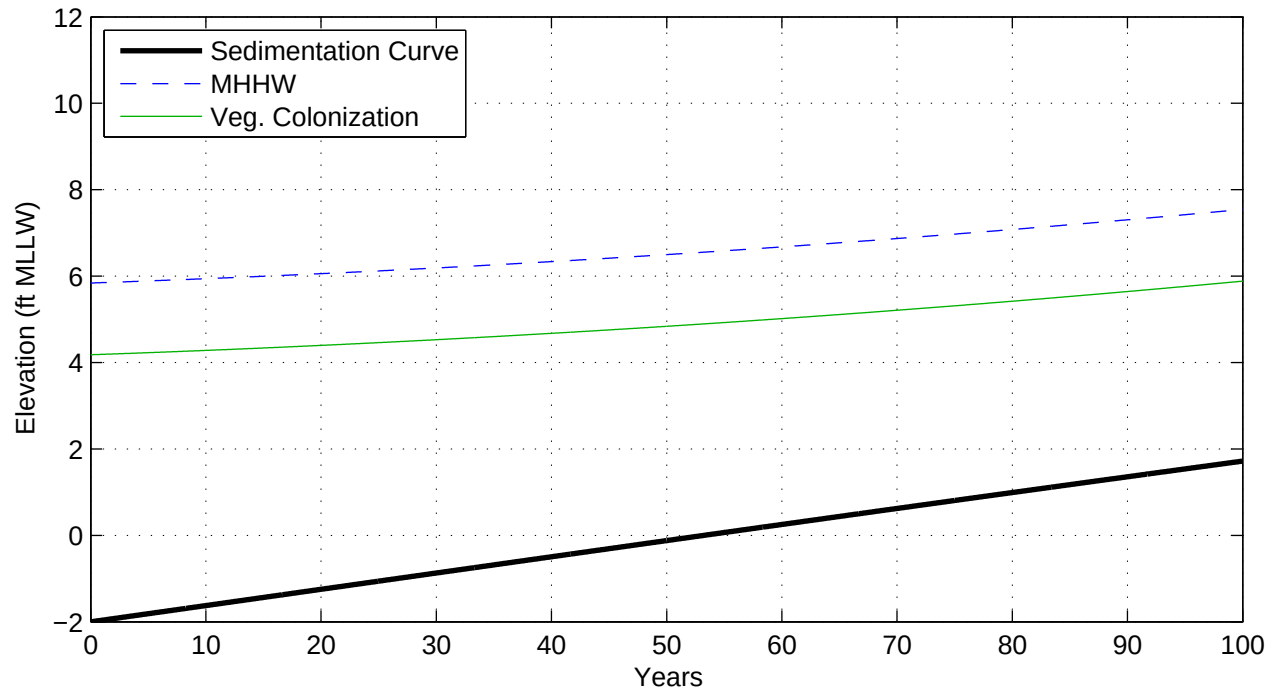
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III; Co=25 mg/L. Organic rate=0.0 mm/yr. Starting elevation at Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and vegetation colonization elevation is 4.18 ft MLLW (MTL + 1.0 ft).

Figure 62
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 62

PWA Ref# 1989





Source:

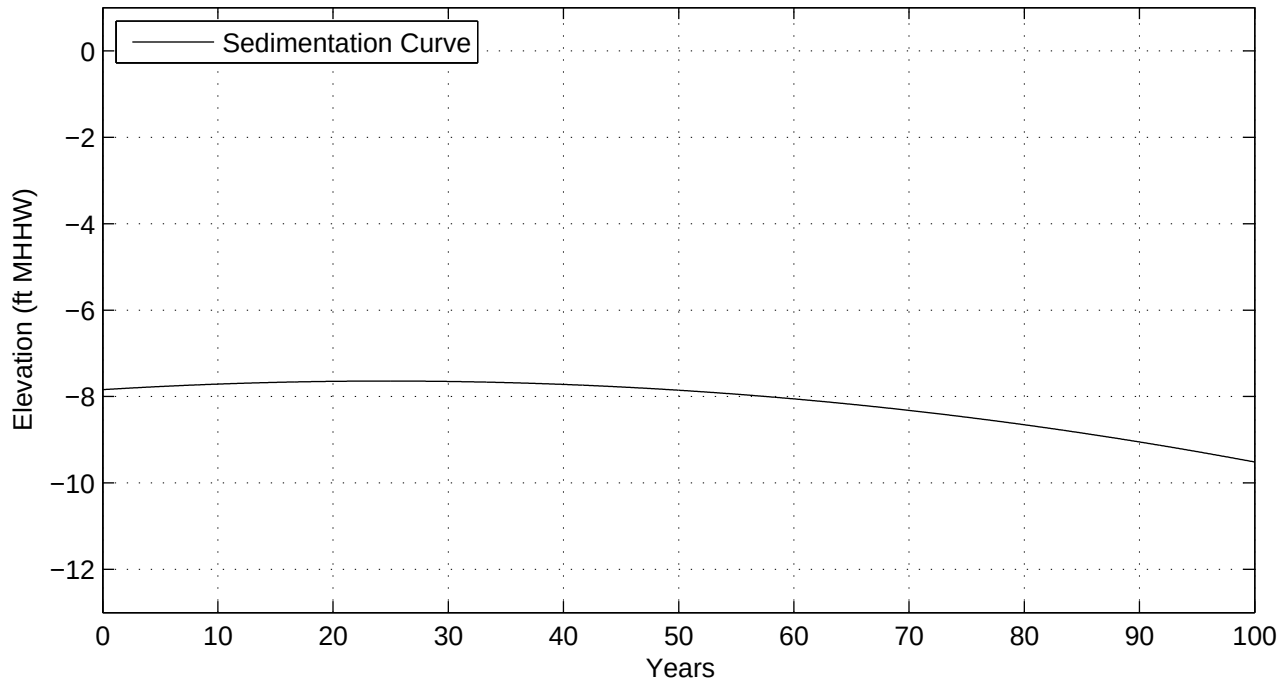
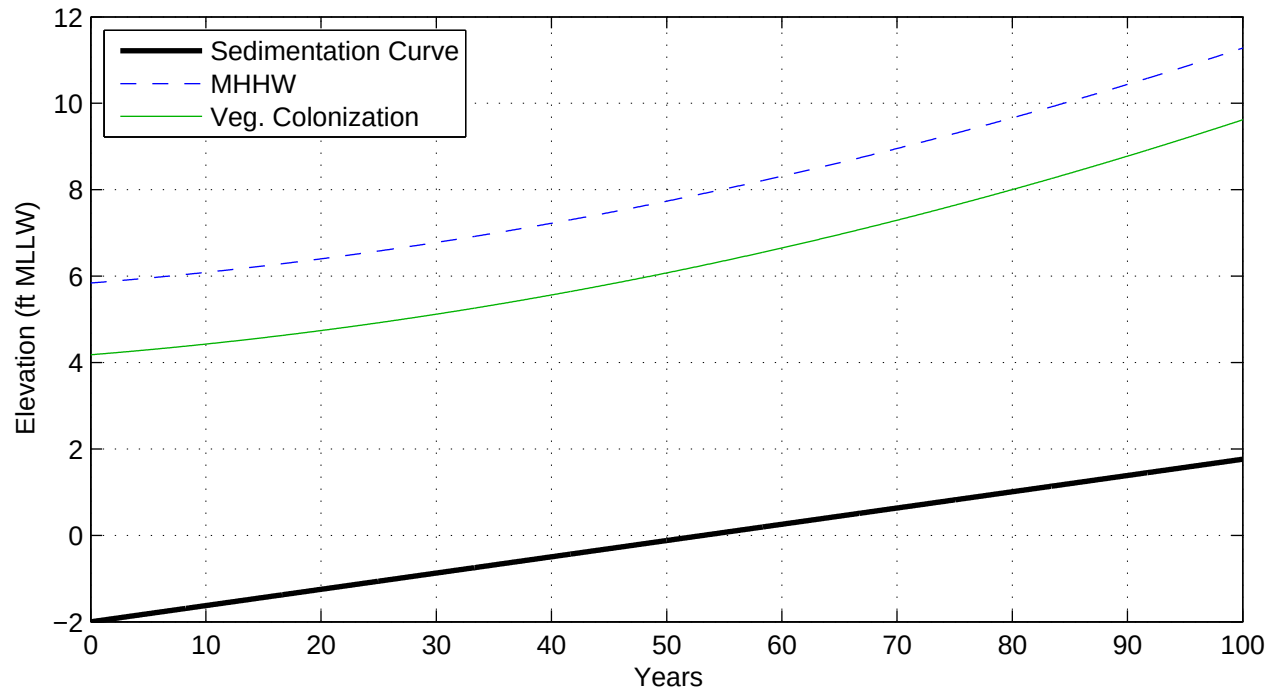
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
Co=50 mg/L. Organic rate=0.0 mm/yr. Starting elevation at
Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

Figure 63
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 63

PWA Ref# 1989





Source:

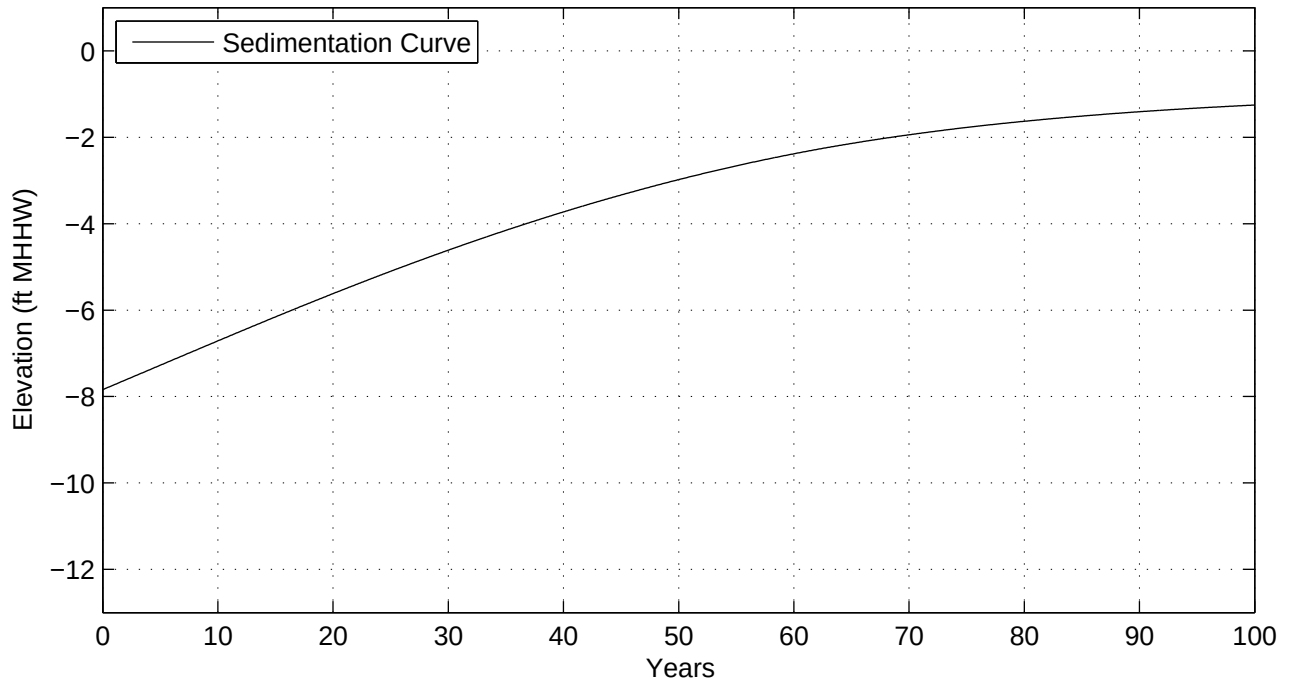
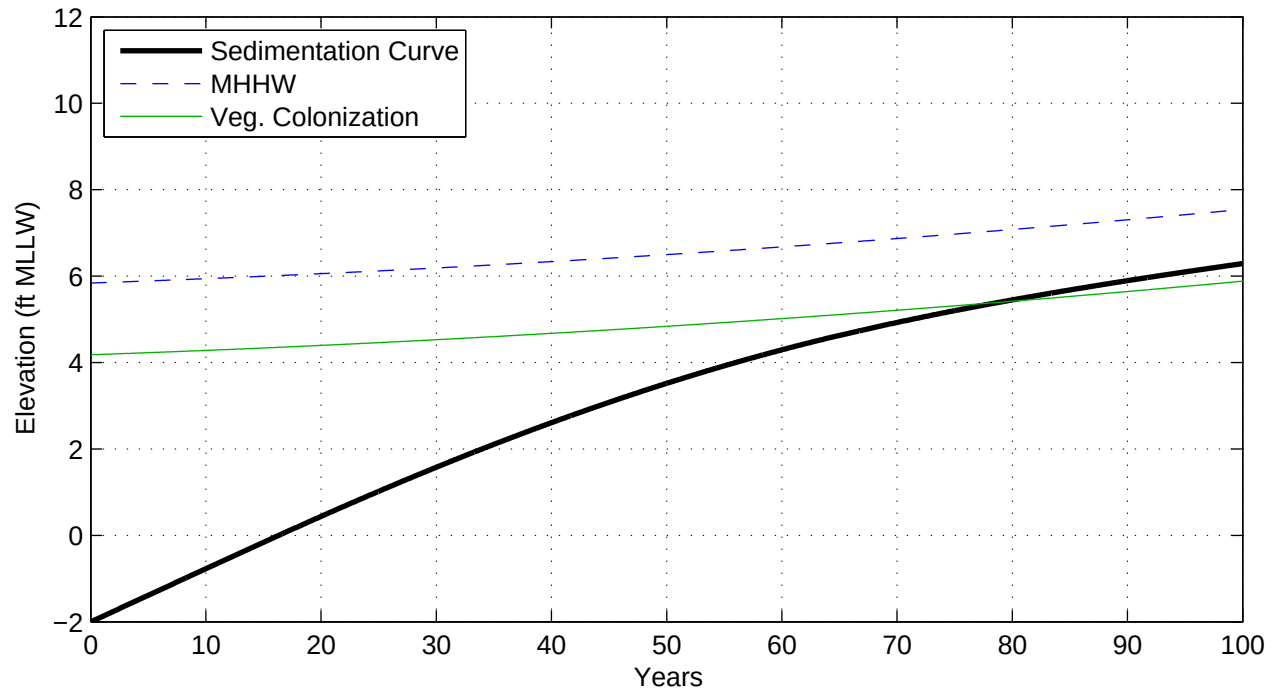
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
Co=50 mg/L. Organic rate=0.0 mm/yr. Starting elevation at
Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

Figure 64
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 64

PWA Ref# 1989





Source:

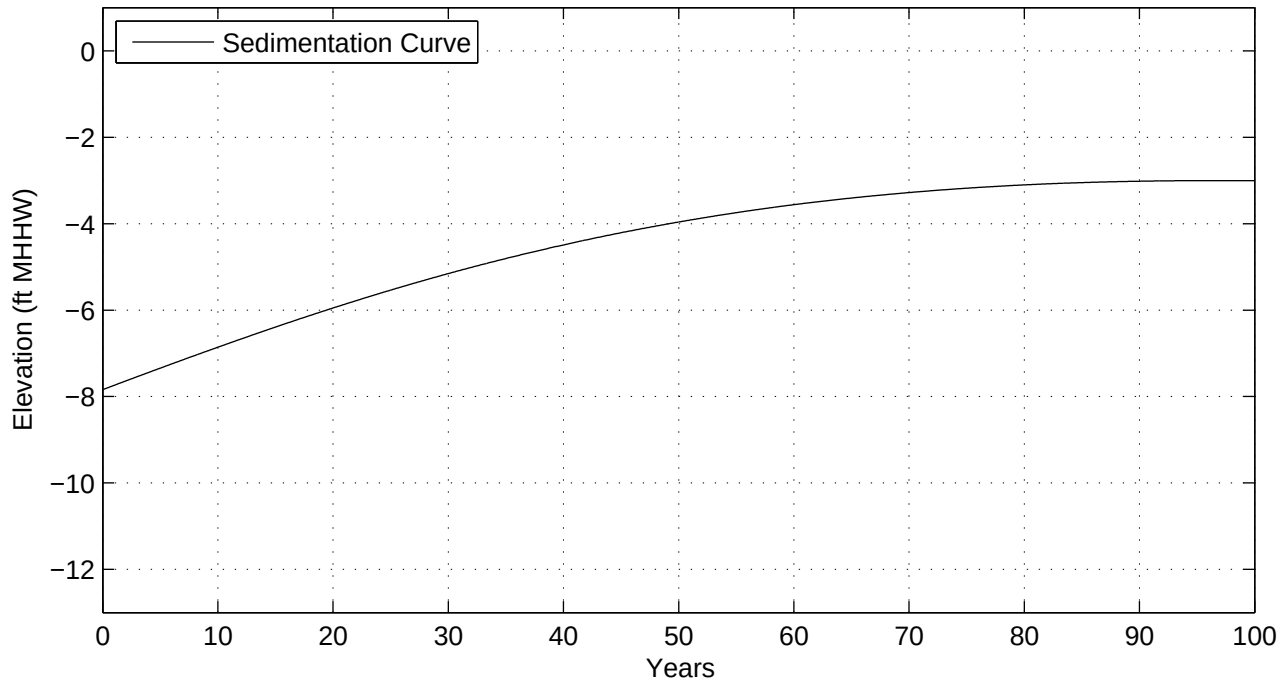
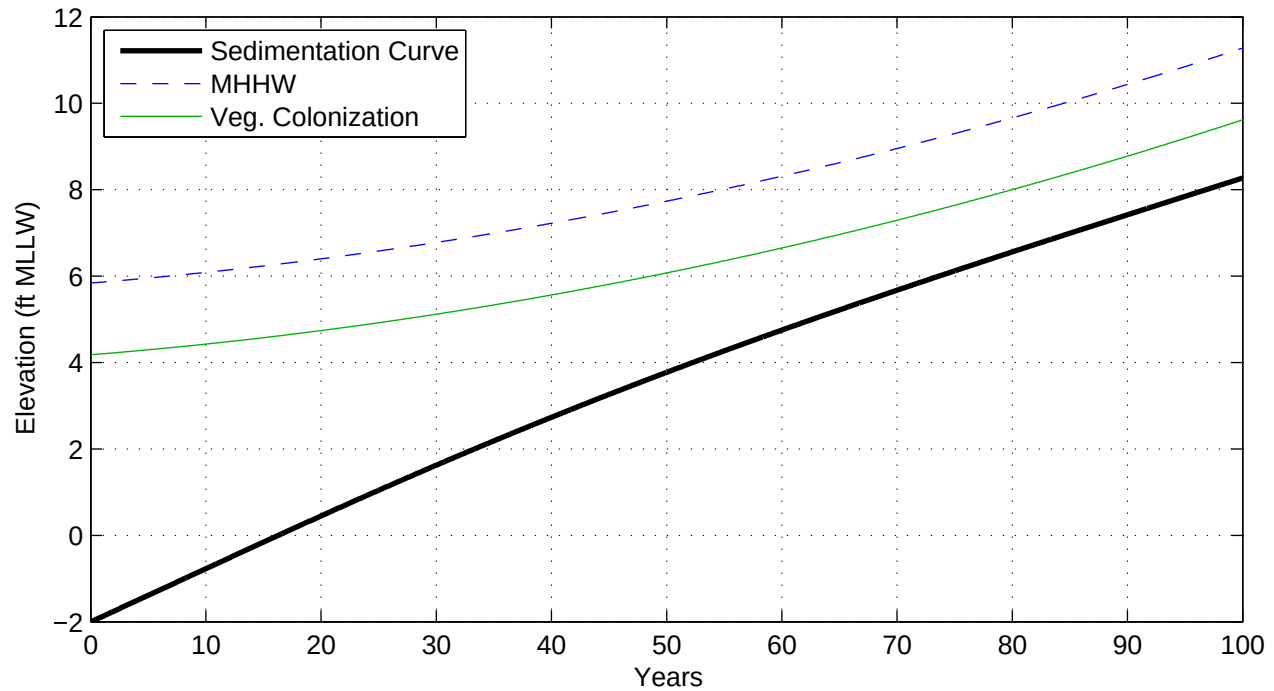
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
Co=100 mg/L. Organic rate=0.0 mm/yr. Starting elevation at
Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

Figure 65
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 65

PWA Ref# 1989





Source:

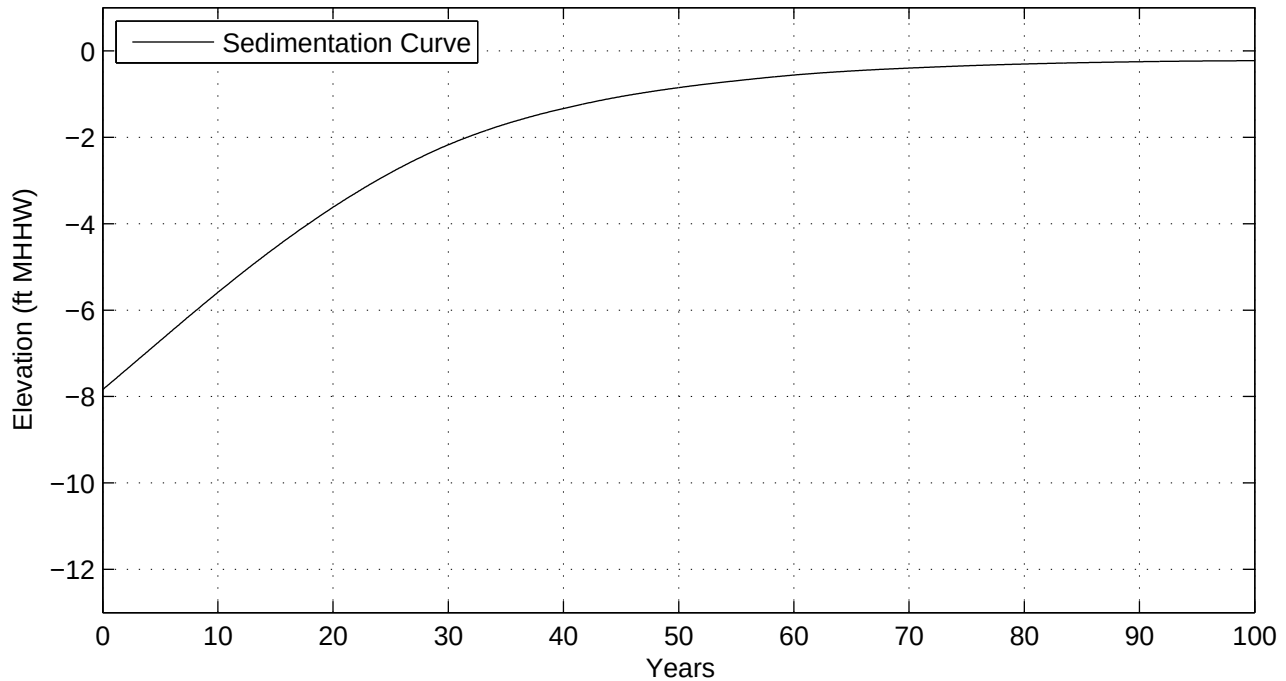
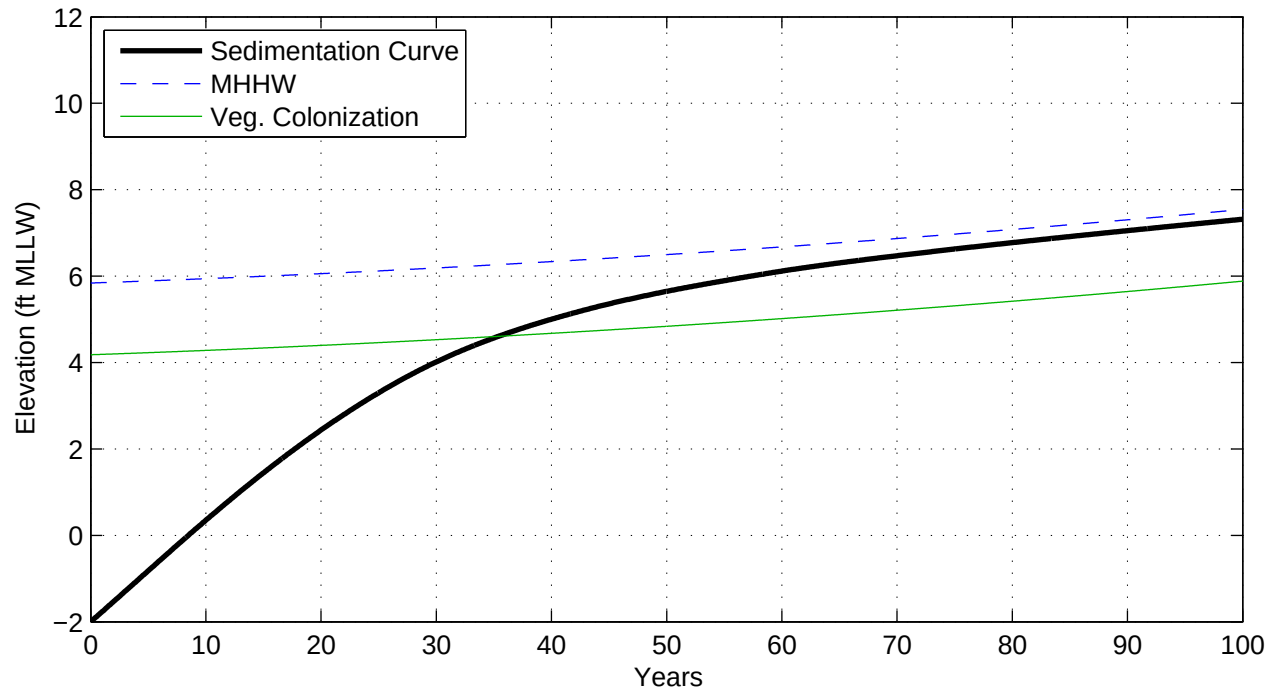
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
Co=100 mg/L. Organic rate=0.0 mm/yr. Starting elevation at
Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

Figure 66
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 66

PWA Ref# 1989





Source:

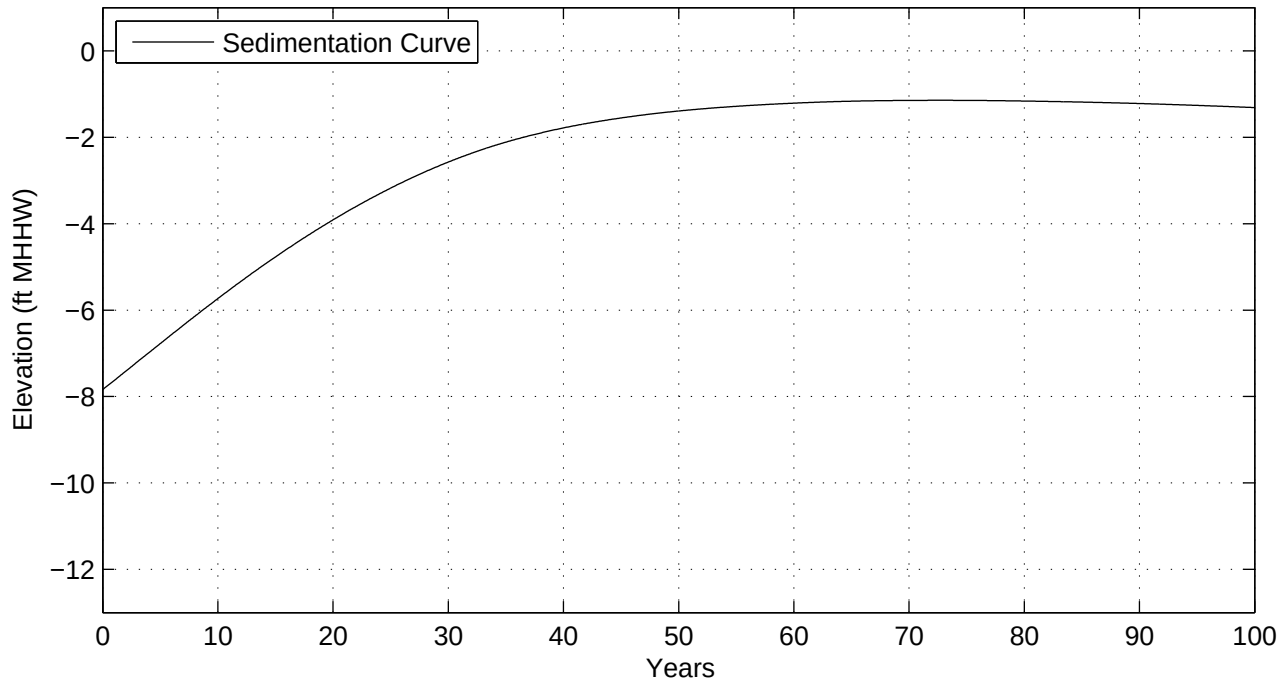
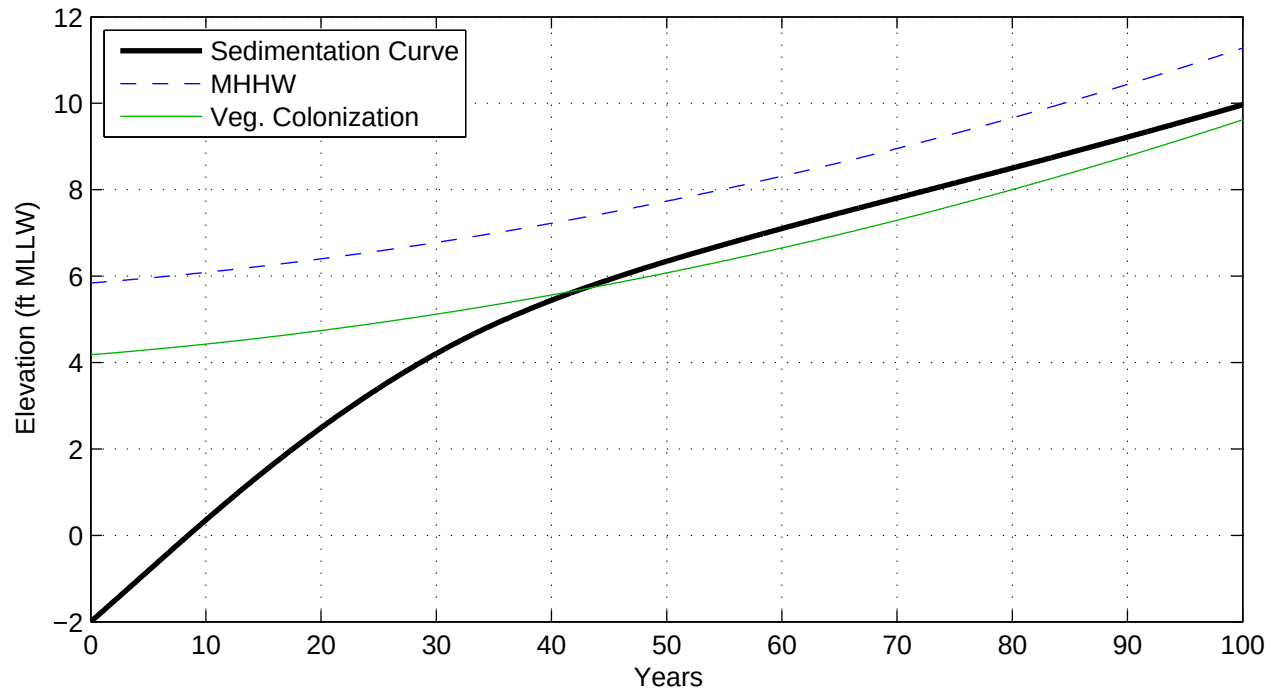
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=150$ mg/L. Organic rate=0.0 mm/yr. Starting elevation at
 Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 67
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 67

PWA Ref# 1989





Source:

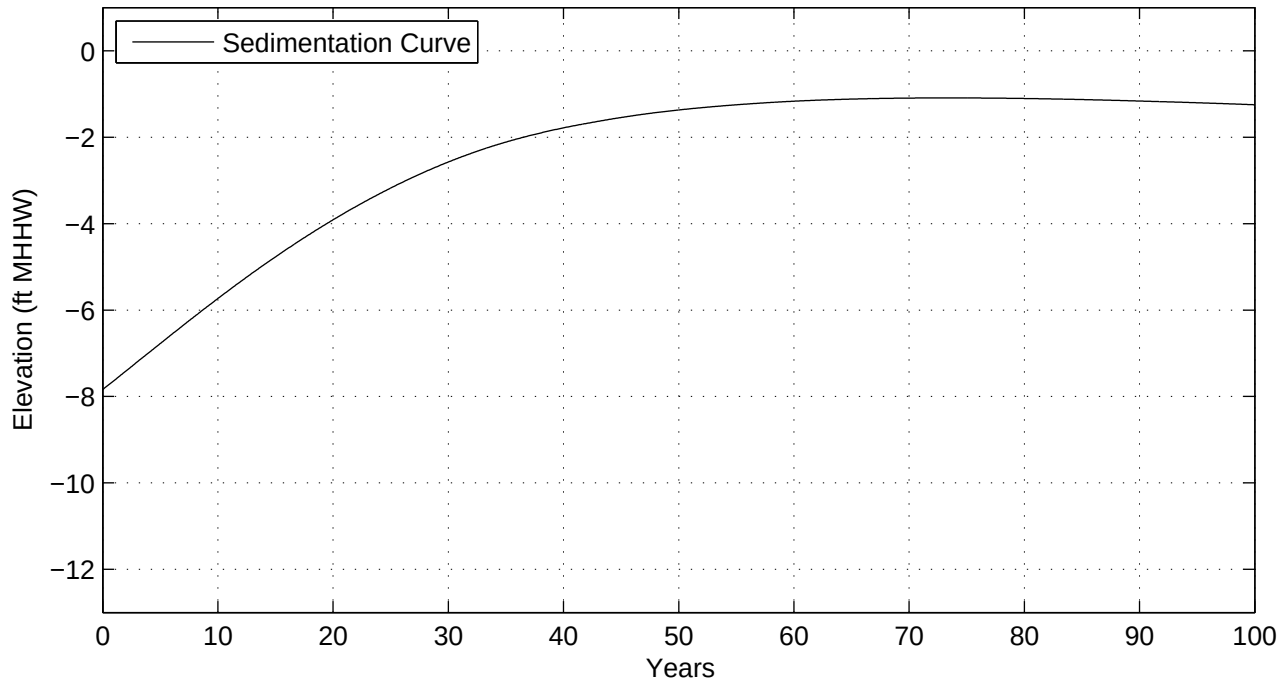
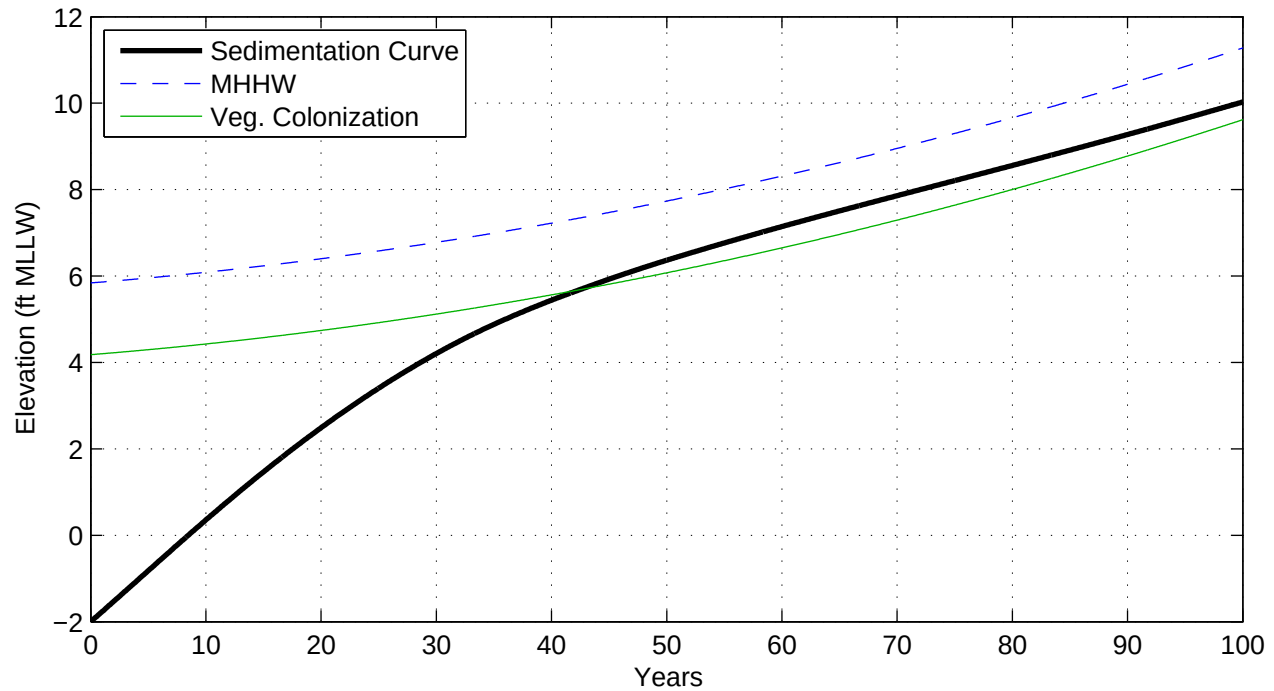
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
Co=150 mg/L. Organic rate=0.0 mm/yr. Starting elevation at
Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

Figure 68
PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 68

PWA Ref# 1989





Source:

Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
Co=150 mg/L. Organic rate=1.0 mm/yr. Starting elevation at
Year 0 is -2.0 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

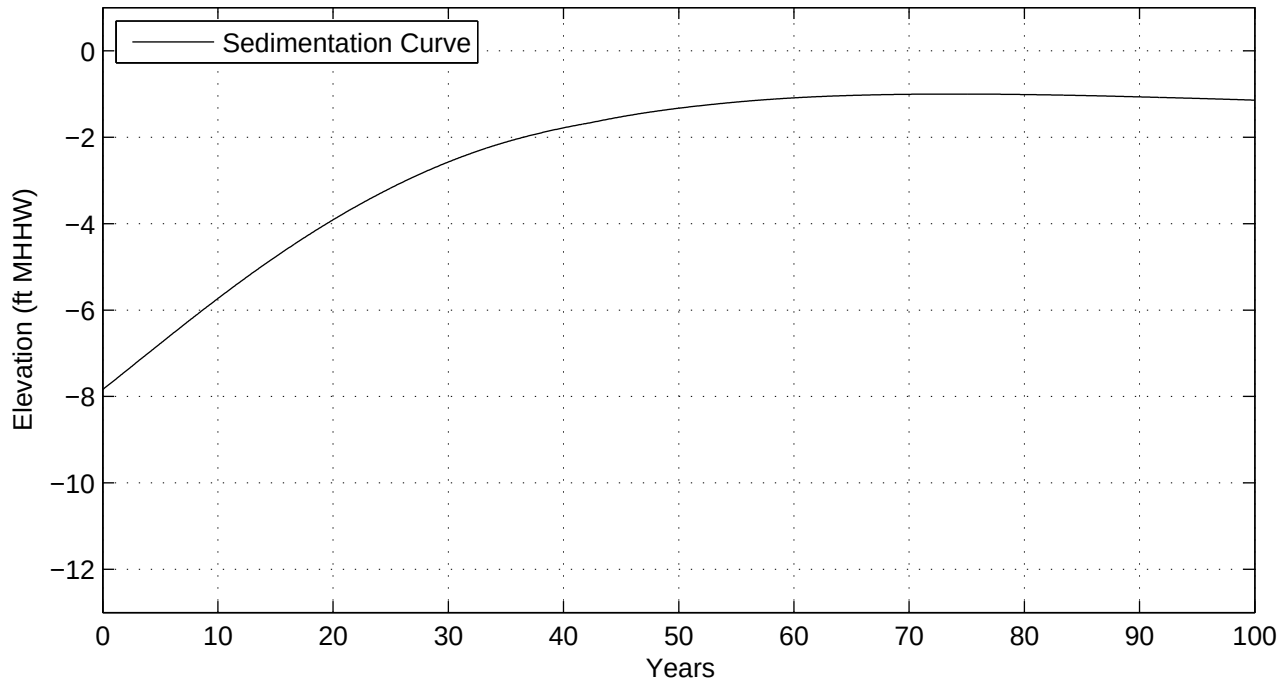
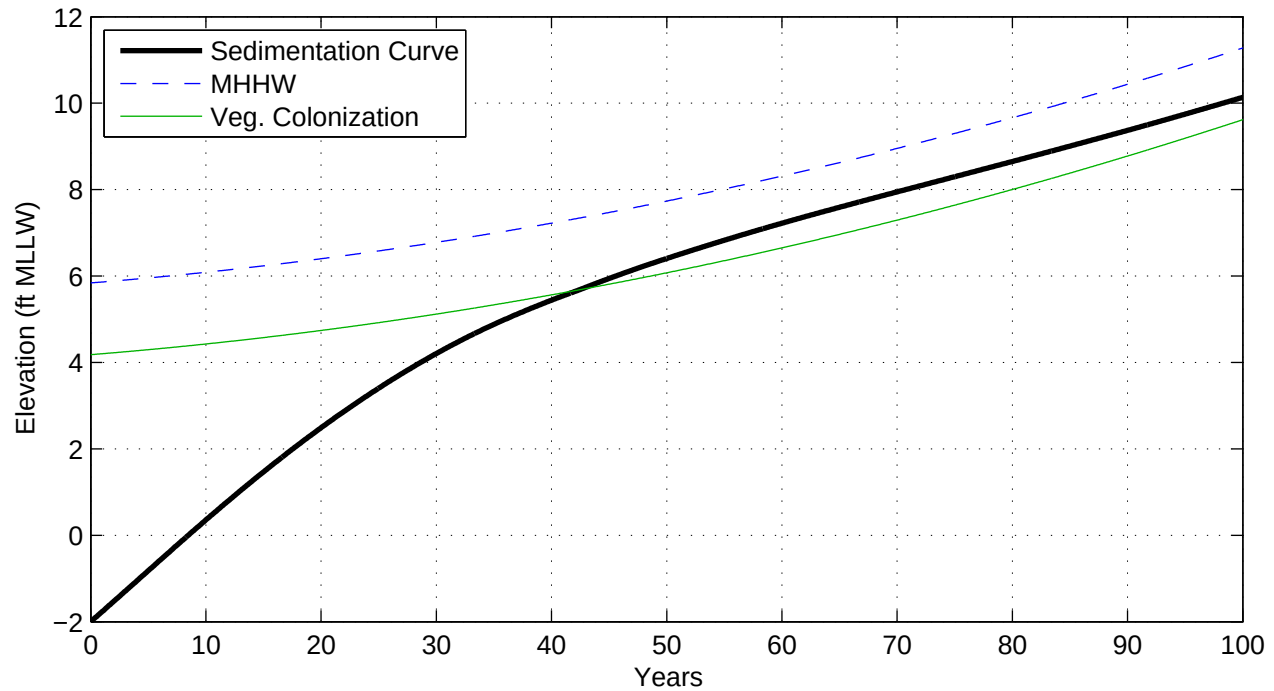
Figure 68a

PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 68a

PWA Ref# 1989





Source:

Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
Co=150 mg/L. Organic rate=3.0 mm/yr. Starting elevation at
Year 0 is -2.0 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
vegetation colonization elevation is 4.18 ft MLLW (MTL +
1.0 ft).

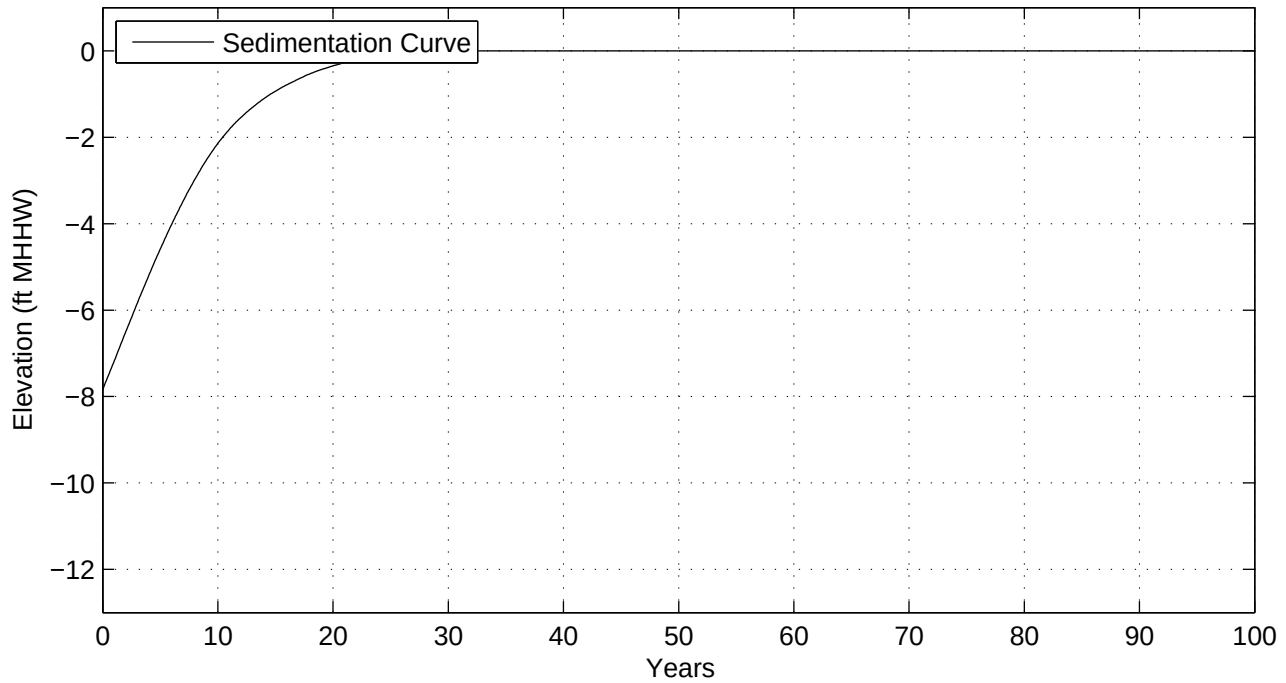
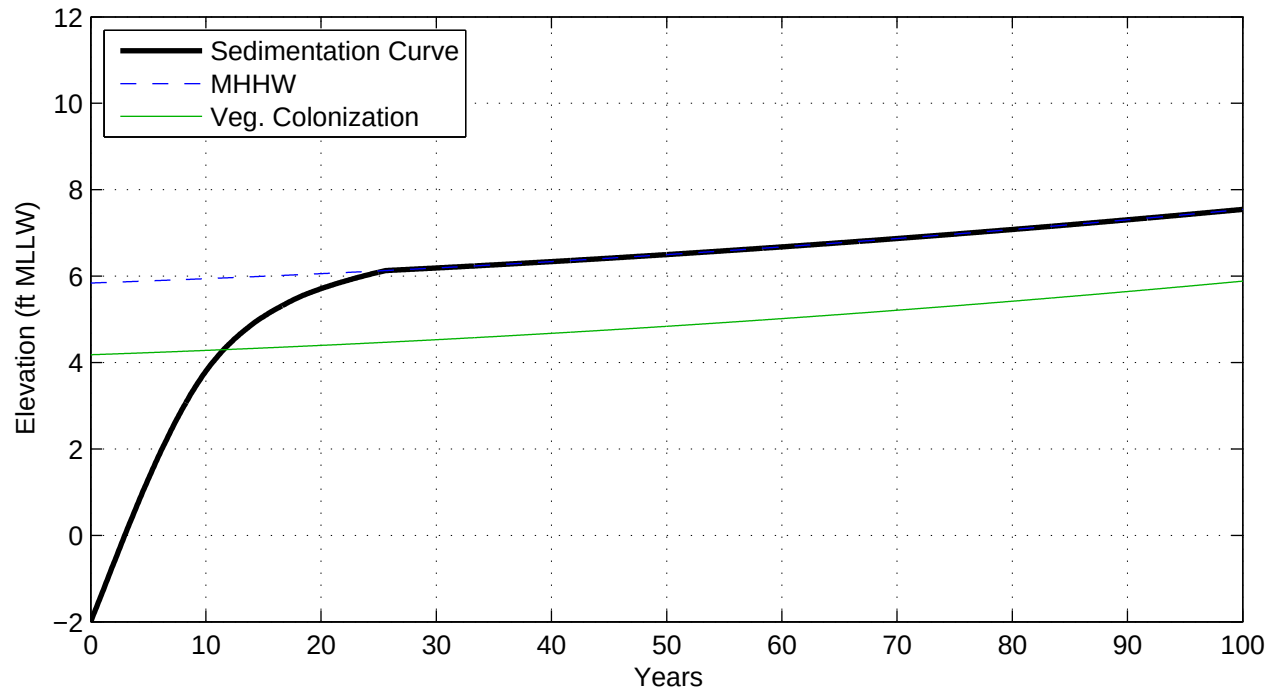
Figure 68b

PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 68b

PWA Ref# 1989





Source:

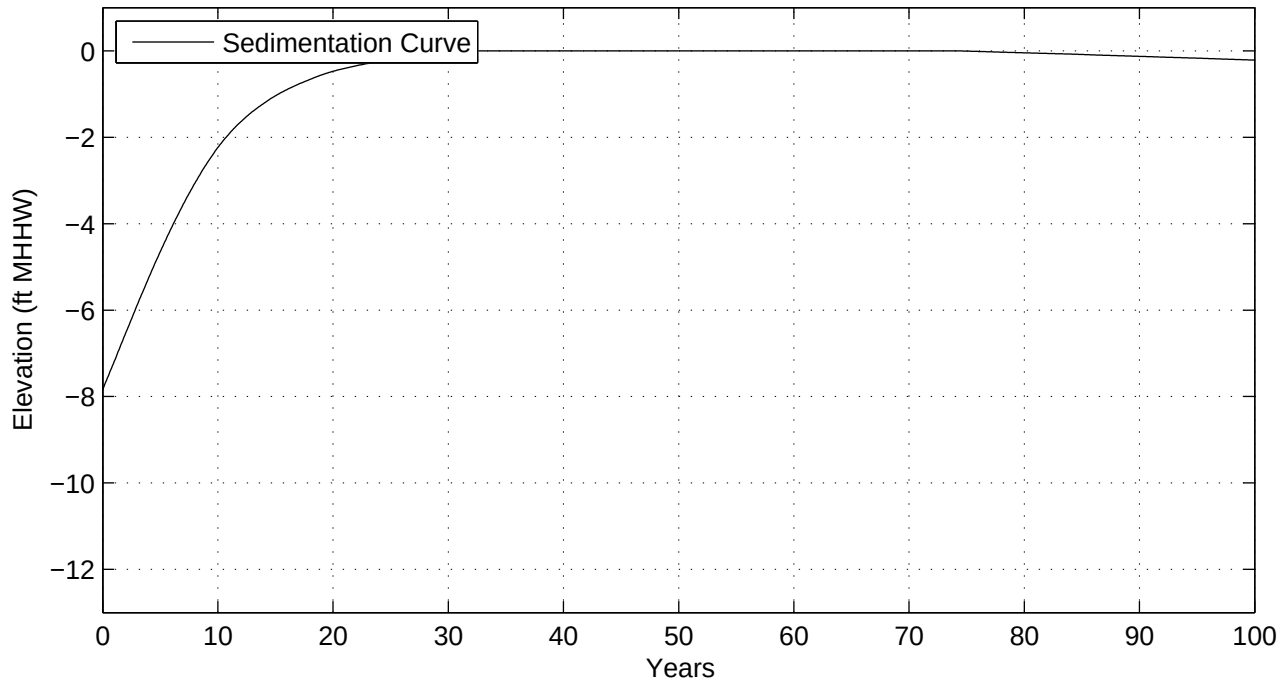
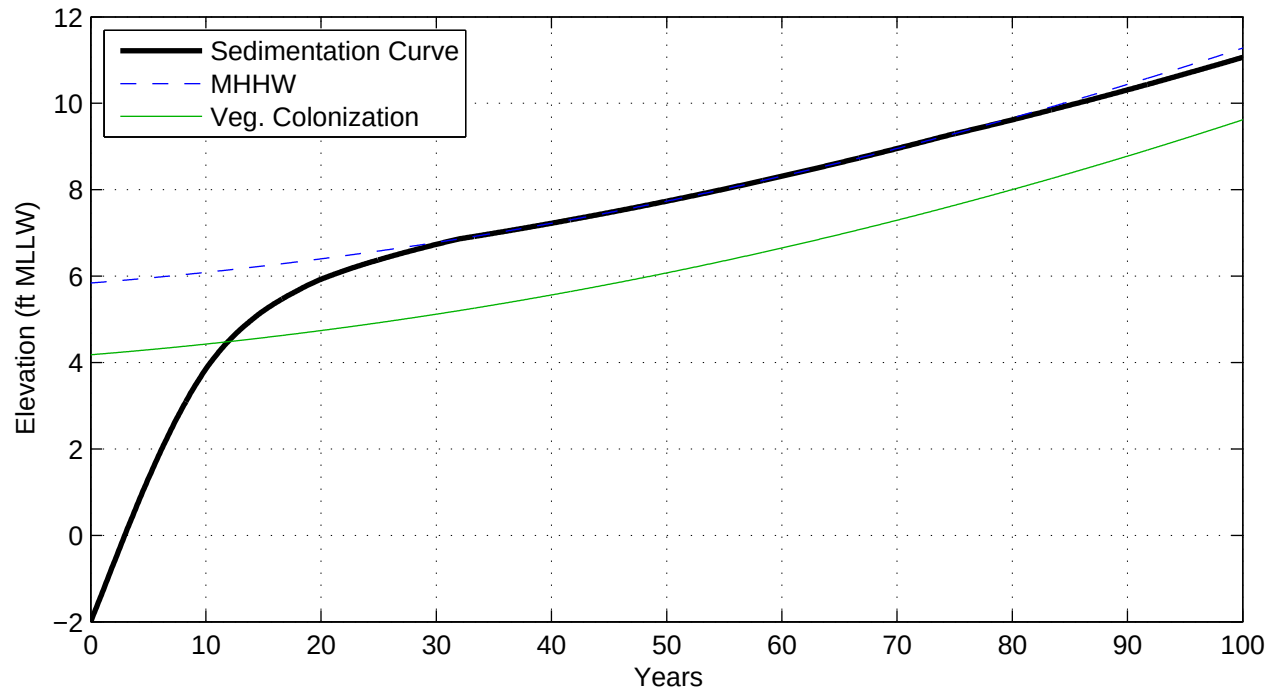
Marsh98 Sedimentation Analysis for SLR Scenario=NRC-I;
 $C_o=300$ mg/L. Organic rate=0.0 mm/yr. Starting elevation at
 Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 69
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 69

PWA Ref# 1989





Source:

Marsh98 Sedimentation Analysis for SLR Scenario=NRC-III;
 $C_o=300$ mg/L. Organic rate=0.0 mm/yr. Starting elevation at
 Year 0 is -2 ft MLLW. MHHW=5.84 ft MLLW (Year 0) and
 vegetation colonization elevation is 4.18 ft MLLW (MTL +
 1.0 ft).

Figure 70
 PRBO Habitat Study

Marsh98 Sedimentation Curves for Run 70

PWA Ref# 1989

