INDEX

The use of 'n' following the page number indicates the information will be found in a note.

above-water inspections 3 abrasion damage 105, 114, 115. See also defects and deterioration abutments. See bridges action choices guidelines 22 guidelines by type (figure 2-2) 24 recommendations (table 2-6) 23 administration agreements 49 insurance 50-52 personnel qualifications 15, 18–19 alkali-carbonate reactions (ACR) 103. See also defects and deterioration anchors 87-91. See also floating structures; marinas inspection checklist (table A-12) 89 architectural plans 30-31 assessment ratings 11 baseline inspections 30–31 action guidelines (figure 2-2) 24 action recommendations 29 described 5,6 documentation 30-31 levels of effort 26-27, 31 methods 30-31 objectives 30 purpose and frequency 9 purpose and frequency (table 2-1) 8 scope of work 9

biological deterioration 105, 110, 111-114, 116. See also defects and deterioration bracing. See open-piled structures breakwaters 83-86 inspection checklist (table A-10) 85 bridges 53-58 inspection checklist (table A-1) 55 bulkheads. See retaining structures buoys. See moorings buttress walls. See gravity structures carbonation 103-104. See also defects and deterioration cathodic protection systems 34, 91, 93-98 inspection checklist (table A-13) 94 cavitation 105. See also defects and deterioration cellular degradation 114. See also defects and deterioration certification requirements. See personnel requirements channel bottom inspections 38 chemical damage 114. See also defects and deterioration coating protection systems 34, 110. See also defects and deterioration composite structural components defects and deterioration 116-117 inspection intervals (table 2-2) 10 inspection levels (table 3-1) 28 inspection methods 37 materials 116

135

composite structural componentscontinued sampling, size and methods (table 3-2) 33 concrete structures defects and deterioration 35-36. 99-106 inspection intervals (table 2-2) 10 inspection levels (table 3-1) 28 inspection methods 35-36 sampling, size and methods (table 3-2) 32 condition assessment ratings 20 conduits 72-74 inspection checklist (table A-6) 74 construction damage 114. See also defects and deterioration construction drawings 30–31 construction (new) inspections 27-30 action recommendations 29, 31 described 5,6 documentation 29 methods 29 objectives 27 personnel qualifications 18–19 purpose and frequency 7,9 purpose and frequency (table 2-1) 8 scope of work 9 construction (repair) inspections action recommendations 42 costs 3 described 6 documentation 42 methods 42 objectives 41-42 personnel qualifications 18–19 purpose and frequency 13–14 purpose and frequency (table 2-1) 8 scope of work 14 contamination 106. See also defects and deterioration contracts. See administration, agreements corrosion 100-102, 107-109. See also defects and deterioration corrosion damage 117. See also defects and deterioration

costs reducing 3, 4 repair (construction) 3 cracking 100, 109. See also defects and deterioration crib structures. See gravity structures damage abrasion 105, 114, 115 chemical 114 construction 114 corrosion 117 erosion 105 impact 105, 109, 114 insect 113-114 mechanical 105–106, 114–115 overload 105, 109 overstress 117 dams. See hydraulic structures decay, fungal 112–113. See also defects and deterioration decks, open-piled structures. See openpiled structures defects and deterioration cathodic protection systems 95-96 composite structural components 116 - 117concrete structures 35-36, 99-106 environment conducive to 2-3 inspection intervals (table 2-2) 10 masonry structures 115–116 scour 117-118 special inspections 12-13 steel structures 34, 106-111 underminining 117-118 wooden structures 36-37, 111-115 design drawings 30–31 design repair inspections action guidelines (figure 2-2) 24 action options (table 2-6) 23 action recommendations 40 described 6 documentation 39-40 methods 39-40 objectives 38-39 purpose and frequency 11–12 purpose and frequency (table 2-1) 8 scope of work 12

deterioration. See defects and deterioration disasters. See post-event inspections docks (dry) 74-78 documentation 45, 47-48 baseline inspections 30-31 construction (new) inspections 29 for construction payments 13-14 contractor claims 13-14 inspection report (routine) 45-47 post-event inspections 14, 44 repair (construction) inspections 42 repair (design) 6 repair design inspections 39–40 routine inspections 6, 32-34, 45-48 special inspections 41 dry docks 74-78 inspection checklist (table A-7) 74

encasements 35, 36 engineering evaluations action options (table 2-6) 23 routine inspections 11 environment types 10n erosion damage 105. *See also* defects and deterioration evaluations, engineering action options (table 2-6) 23 routine inspections 11

fender systems. See bridges floating structures 80-83. See also marinas inspection checklist (table A-9) 82 freeze-thaw deterioration 104. See also defects and deterioration fungal decay 112–113. See also defects and deterioration galvanic anode systems. See cathodic protection systems gates and locks 78–80 inspection checklist (table A-8) 74 glossary 123–134 gravity structures 60-65. See also tower bases inspection checklist (table A-3) 63 gridirons. See dry docks

health safety requirements 92 honeycombs 104. See also defects and deterioration hydraulic structures 69-72 inspection checklist (table A-5) 71 impact damage 105, 109, 114. See also defects and deterioration impressed current systems. See cathodic protection systems insect damage 113-114. See also defects and deterioration inspections above-water 3 action guidelines 22–24 action guidelines by type (figure 2-2) 24 action options (table 2-6) 23 activities flowchart (figure 2-1) 7 baseline 5, 6, 9, 30-31 baseline-action guidelines (figure 2-2) 24 channel bottom 38 construction (new) 5, 6, 7-9, 27-30 excavation in 3 frequency 7–15 frequency (table 2-1) 8 importance of 2-3 levels of effort 26-27 levels of effort summary (table 3-1) 28 limits of 3-4, 25-26 mudline 38 objectives and types matched (table 2-3) 16-17 organization 4 personnel qualifications 15, 18–19 post-event 7, 14-15, 19, 20, 42-44 post-event-action guidelines (figure 2-2) 24 post-event assessment principles (table 2-4) 21-22 purpose 1 purpose (table 2-1) 8 ratings and prioritization 19-22 repair (construction) 6, 13–14, 41–42 repair (design) 6, 11-12, 38-40 repair (design)-action guidelines (figure 2-2) 24

inspections-continued repair (design)-action options (table 2-6) 23 routine 5, 6, 9-11, 19, 31-38 routine-action guidelines (figure 2-2) 24 routine interval maximums (table 2-2) 10 sampling, size and methods (table 3-2) 32-33 slope protection 37 sonar 37, 38 sonar techniques 37, 38 special 6, 12-13, 17n, 40-41 special-action guidelines (figure 2-2) 24 special-action options (table 2-6) 23 structural boundaries 25-26 techniques 13 types and action guidelines (figure 2-2) 24 types and objectives matched (table 2-3) 16-17 types of 5-7 types of (table 2-1) 8 insurance 50-52 intakes. See hydraulic structures

Limnoria 111–112. *See also* defects and deterioration locks and gates 78–80 inspection checklist (table A-8) 74

maintenance 2, 6 management. *See* administration marinas 65–68 inspection checklist (table A-4) 66–67 masonry structures 115–116 defects and deterioration 115–116 inspection methods 37 material incompatibility 117. *See also* defects and deterioration mechanical damage 105–106, 114–115. *See also* defects and deterioration moorings 87–91 inspection checklist (table A-12) 89 mortar degradation 115-116. See also defects and deterioration mudline inspections 38 open-piled structures 58–60. See also tower bases inspection checklist (table A-2) 59 outfalls. See hydraulic structures; marinas overload damage 105, 109. See also defects and deterioration overstress damage 117. See also defects and deterioration penstocks. See hydraulic structures personnel qualifications 15, 18-19 Pholads (clams) 112, 116. See also defects and deterioration piers. See bridges pile bents. See bridges pile caps. See open-piled structures piles. See open-piled structures pipelines 72-74 inspection checklist (table A-6) 74 plans, architectural 30-31 pontoons. See floating structures pop-outs 104-105. See also defects and deterioration post-event inspections action guidelines (figure 2-2) 24 action recommendations 44 condition ratings 20 condition ratings (table 2-4) 21-22 described 6,7 documentation 44 methods 43 objectives 42-43 purpose and frequency 14 purpose and frequency (table 2-1) 8 rating (assessment) system 19 ratings and prioritization 44 scope of work 14-15 powerhouses. See hydraulic structures propeller wash 105. See also defects and deterioration protection systems (cathodic) 93-98 public protection and safety 2, 3

quality control 3, 6

railways. See dry docks rating systems 20 repair (construction) inspections action recommendations 42 costs 3 described 6 documentation 42 methods 42 objectives 41-42 personnel qualifications 18-19 purpose and frequency 13–14 purpose and frequency (table 2-1) 8 scope of work 14 repair (design) inspections action guidelines (figure 2-2) 24 action options (table 2-6) 23 action recommendations 40 described 6 documentation 39-40 methods 39-40 objectives 38–39 purpose and frequency 11–12 purpose and frequency (table 2-1) 8 scope of work 12 reports. See documentation retaining structures 60–65 inspection checklist (table A-3) 63 revetments. See retaining structures routine inspections action guidelines (figure 2-2) 24 action recommendations 38 channel bottom 38 composite components 37 concrete components 35-36 described 5-6 documentation 32-34, 45-48 evaluation and rating 38 interval maximums (table 2-2) 10 levels of effort 26-27, 32 masonry components 37 methods 32-34 mudline 38 objectives 31-32 purpose and frequency 9-11 purpose and frequency (table 2-1) 8 rating (assessment) system 19

routine inspections—*continued* sampling, size and methods (table 3-2) 32-33 scope of work 11 slope protection 37 steel components 34-35 visual/tactile (level I) 11 wood components 36-37 safety, public 2, 3, 92 scale 104. See also defects and deterioration Schmidt Hammer testing 31 scope of work baseline inspections 9 construction (new) inspections 9 post-event inspections 14–15 repair (construction) inspections 14 repair design inspections 12 routine inspections 11 special inspections 13, 17n scour bottom 57-58 channel bottom inspections 38 defects and deterioration 117-118 inspection intervals (table 2-2) 10 seawalls. See gravity structures sheet pile cell structures. *See* gravity structures slope protection inspection 37 sonar inspection 37, 38 spalling 115. See also defects and deterioration special inspections action guidelines (figure 2-2) 24 action options (table 2-6) 23 action recommendations 41 defects and deterioration 12-13 described 6 documentation 41 methods 41 objectives 40-41 purpose and frequency 12 purpose and frequency (table 2-1) 8 scope of work 13, 17n splitting 115. See also defects and deterioration spud piles. See floating structures

UNDERWATER INVESTIGATIONS

steel structures defects and deterioration 34, 106–111 inspection intervals (table 2-2) 10 inspection levels (table 3-1) 28 inspection methods 34–35 sampling, size and methods (table 3-2) 32 storage facilities 91–92

tanks 91–93 tension lines. *See* floating structures testing 13, 31 tower bases 86–87 inspection checklist (table A-11) 87 training requirements 2, 19 tunnels. *See* hydraulic structures

ultraviolet deterioration 117. See also defects and deterioration undermining 117–118 utilities. See marinas

rioration

vertical lifts. See dry docks volumetric expansion 102-103. See also defects and deterioration waterfront structures. See individual structures, e.g. docks wave attenuators. See marinas Windsor Probe testing 31 wooden structures defects and deterioration 36-37, 111-115 inspection intervals (table 2-2) 10 inspection levels (table 3-1) 28 inspection methods 36-37 sampling, size and methods (table 3-2) 33 wrap protection systems 34-37, 110-111. See also defects and dete-