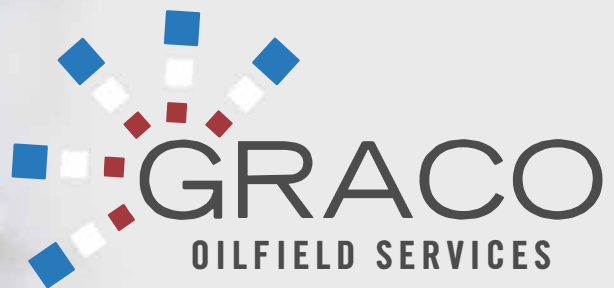




FISHING RECOMMENDATIONS

API CASING		TUBING - DRILL PIPE			DRILL COLLARS			WASHPIPE			150 SERIES OVERSHOT	
SIZE (in.)	WEIGHT (lbs./ft.)	BIT SIZE (in.)	CONNECTION TOOL	JT. OD (in.)	CONNECTION	RECOMMENDED OD	MAX OD (in.)	OD CONN	WEIGHT (lbs./ft.)	ID (in.)	OD (in.)	MAX CATCH (in.)
4 1/2	9.50-11.60	3 7/8	2 3/8 CS	2.70	2 3/8 PAC	2 3/4	2 7/8	3 1/2 FJWP	9.91	2.922	3 3/4	2 7/8
4 1/2	12.60-13.50	3 3/4	2 1/16 CS	2.375	1 1/4 REG	2 1/4	2 1/2	3 1/2 FJWP	9.91	2.922	3 5/8	2 7/8
4 1/2	15.10-16.60	3 5/8	2 1/16 CS	2.375	1 1/4 REG	2 1/4	2 1/2	3 1/4 BSS	8.00	2.750	3 1/8	2 3/8
4 3/4	16	3 7/8	2 3/8 CS	2.70	2 3/8 PAC	2 3/4	2 7/8	3 1/2 FJWP	9.91	2.922	3 3/4	2 7/8
5	11.50-15.00	4 1/4	2 3/8 PH-6	2.937	2 7/8 PAC	3 1/16	3 1/8	4 FJWP	11.60	3.428	4 1/8	3 1/8
					2 3/8 REG	3 1/16	3 1/8					
5	18	4 1/8	2 3/8 PH-6	2.937	2 7/8 PAC	3 1/16	3 1/8	3 3/4 FJWP	9.32	3.250	4	3 1/8
					2 3/8 REG	3 1/16	3 1/8					
5	21.40-24.10	3 7/8	2 3/8 CS	2.70	2 3/8 PAC	2 3/4	2 7/8	3 1/2 FJWP	9.91	2.922	3 3/4	3 1/8
5 1/2	13.00-14.00	4 7/8	2 7/8 PH-6	3 1/2	2 3/8 IF	3 3/8	3 1/2	4 1/2 FJWP	16.6	3.826	4 11/16	3 21/32
			2 3/8 IF	3 3/8								
5 1/2	15.0-17.0	4 3/4	2 7/8 PH-6	3 1/2	2 3/8 IF	3 3/8	3 1/2	4 1/2 FJWP	16.6	3.826	4 11/16	3 21/32
			2 3/8 IF	3 3/8								
5 1/2	20.0	4 5/8	2 3/8 PH-6	2.937	2 7/8 PAC	3 1/16	3 1/8	4 3/8 FJWP	12.0	3.825	4 3/8 TD	3 21/32
5 1/2	23.0	4 1/2	2 3/8 PH-6	2.937	2 7/8 PAC	3 1/16	3 1/8	4 3/8 FJWP	12.0	3.825	4 3/8	3 1/2
6	15.0-17.0	5 1/4	2 3/8 IF	3 3/8	2 3/8 IF	3 3/8	3 1/2	4 1/2 FJWP	16.6	3.826	4 11/16	3 21/32
6	18.0-23.0	5	2 3/8 H-90	3 1/4	2 3/8 H-90	3 1/4	3 1/2	4 3/8 FJWP	12.0	3.825	4 3/8	3 1/2
6 5/8	17.0-20.0	5 7/8	2 7/8 IF	4 1/8	2 3/8 IF	4 1/8	4 1/4	5 FJWP	15.0	4.408	5 1/8	4 1/4
			2 7/8 H-90	3 7/8	2 3/8 H-90	3 7/8	4 1/4					
6 5/8	24-28	5 5/8	2 7/8 H-90	3 7/8	2 3/8 H-90	3 7/8	4 1/8	5 FJWP	15.0	4.408	5	4 1/8
			2 3/8 IF	3 3/8								
6 5/8	32	5 1/2	2 3/8 IF	3 3/8	2 3/8 H-90	3 3/4	4 1/8	5 FJWP	15.0	4.408	5	4 1/8
7	17.0-20.0	6 1/4	3 1/2 IF	4 3/4	3 1/2 IF	4 3/4	-	5 3/4 FJWP	18.0#	5.125	5 3/4	4 3/4
7	23-26	6 1/8	3 1/2 IF	4 3/4	3 1/2 IF	4 3/4	-	5 3/4 FJWP	18.0#	5.125	5 3/4	4 3/4
7	29	6	3 1/2 IF	4 3/4	3 1/2 IF	4 3/4	-	5 3/4 FJWP	18.0#	5.125	5 3/4	4 3/4
7	32-35	5 7/8	2 7/8 IF	4 1/8	3 1/2 IF	4 1/8	4 3/8	5 5/8 FJWP	17.7#	5	5 5/8	4 3/4
7	38	5 3/4	2 7/8 IF	4 1/8	3 1/2 IF	4 1/8	4 3/8	5 1/2 FJWP	17.0#	4.892	5 5/8	4 3/4
7 5/8	24-29	6 3/4	3 1/2 IF	4 3/4	3 1/2 IF	4 3/4	-	6 3/8 FJWP	24.0#	5.625	6 3/8	5 1/4
7 5/8	33	6 5/8	3 1/2 IF	4 3/4	3 1/2 IF	4 3/4	-	6 FJWP	20.0#	5.352	6 1/8	5
7 5/8	39	6 1/2	3 1/2 IF	4 3/4	3 1/2 IF	4 3/4	-	6 FJWP	20.0#	5.352	6 1/8	5
7 5/8	42-45	6 1/4	3 1/2 IF	4 3/4	3 1/2 IF	4 3/4	-	5 3/4 FJWP	18.0#	5.125	5 3/4	4 3/4
7 5/8	24-28	6 1/8	3 1/2 IF	4 3/4	3 1/2 IF	4 3/4	-	5 3/4 FJWP	18.0#	5.125	5 3/4	4 3/4
7 3/4	45-46	6 1/2	3 1/2 IF	4 3/4	3 1/2 IF	4 3/4	-	6 FJWP	20.0#	5.352	6 1/8	5
8 5/8	24-28	7 7/8	4 FH	5	4 H-90	5 1/2	5 3/4	7 FJWP	26.0#	6.276	6 7/8	5 3/4
					4 1/2 REG							
8 5/8	32-36	7 5/8	4 FH	5	4 H-90	5 1/4	5 3/4	7 FJWP	26.0#	6.276	6 7/8	5 3/4
8 5/8	40-44	7 1/2	4 FH	5	4 H-90	5	5 3/4	6 5/8 FJWP	24.0#	5.921	6 7/8	5 3/4
					4 OH							
8 5/8	49	7 3/8	3 1/2 IF	4 3/4	4 H-90	4 7/8	5 3/8	6 3/8 FJWP	24.0#	5.625	6 1/2	5 3/8
					4 OH							
8 3/4	49	7 1/2	4 FH	5	4 H-90	5	5 3/4	6 5/8 FJWP	24.0#	5.921	6 7/8	5 3/4
9 5/8	29-36	8 3/4	4 1/2 XH	6 1/8	4 1/2 H-90	6 1/4	6 7/8	8 1/8 FJWP	39.5#	7.185	7 7/8	6 3/4
					4 1/2 XH						8 1/8	7
9 5/8	40	8 5/8	4 1/2 XH	6 1/8	4 1/2 H-90	6 1/4	6 1/2	7 5/8 FJWP	29.7#	6.875	7 3/4	6 5/8
					4 1/2 XH							
9 5/8	43-47	8 1/2	4 1/2 XH	6 1/8	4 1/2 H-90	6 1/4	6 1/2	7 5/8 FJWP	29.7#	6.875	7 5/8	6 1/2
9 5/8	53-58	8 1/4	4 1/2 XH	6 1/8	4 1/2 XH	6 1/4	6 1/2	7 5/8 FJWP	29.7#	6.875	7 5/8	6 1/2



GRACO FISHING CAPABILITIES

OPEN HOLE FISHING

DRILL COLLARS

- 4-3/4" TO 9-1/2" OD
- with full complement of handling tools

CROSSOVERS / BIT SUBS

- all common connections including high torque

FISHING MAGNETS

- 5-1/2" to 20" with flush, cut-lip, and mill tooth guides

MILLS

- 6" to 17-1/2" concave, flat bottom, cone buster, bladed, string, and watermelon

JUNK BASKETS

- 5" to 10-1/2"

SPECIALIZED FISHING

- Wireline Cut/strip
- Jet Sub Venturi tool
- Continuous Cutting Overshots
- Custom Tool Capabilities
- 24/7 In House machine shop support
- Dedicated carbide shop
- Casing Jacks – 250 ton, 3-1/2" thru 13-3/8"
- String Magnets - various sizes and connections

CASED HOLE FISHING

DRILL COLLARS

- 2-3/8" TO 6-1/4" OD
- with full complement of handling tools

CROSSOVERS / BIT SUBS

- all common connections including high torque

FISHING MAGNETS

- 2-1/16" to 12-1/2" with flush, cut-lip, and mill tooth guides

MILLS

- 1-1/2" to 24" concave, flat bottom, cone buster, bladed, string, and watermelon

JUNK BASKETS

- 3-3/4" to 9-3/4"

CATCH EQUIPMENT

- Complete size range for all casing sizes
- Internal, external catch

JARRING EQUIPMENT

- Logan Rubicon